REVOLUTIONARY GOVERNMENT OF ZANZIBAR

MINISTRY OF INFRASTRUCTURE, COMMUNICATION AND TRANSPORTATION (MOICT)

Boosting Inclusive Growth for Zanzibar (BIG-Z): Integrated Development Project

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Environmental and Social Impact Assessment
For Stone Town Mobility Management Program (STMMP) and Michenzani Area Integrated Redevelopment Project
(Michenzani Green Corridor Plan) in Mjini District, Unguja Zanzibar

UPDATED ENVIRONMENTAL IMPACT STATEMENT (EIS)

December, 2025

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The Ministry of Infrastructure, Communication and Transportation (MOICT) of the Revolutionary Government of Zanzibar wishes to extend its appreciation to the team of experts from the consultant DAR AL HANDASAH who was commissioned by the government to conduct a comprehensive consultancy for the Integrated Mobility and Urban Upgrade Program for Zanzibar Metropolitan Centre. This project is funded by the World Bank through the "Boosting Inclusive Growth for Zanzibar: Integrated Development Project" (BIG-Z). The RGZ is very pleased by the perseverance, commitment and professionalism shown during updating of this report. Equally thanked are representatives of all the stakeholders who were part and parcel for the updating of this report namely President's Office Finance and Planning (POFP), Ministry of Information, Tourism, Culture and Sports, Ministry of Labour, Economic Empowerment, the Elderly plus Youth, Women and Children, Regional Administration, Local Government and Special Units, Regional Commissioner (Mjini Magharibi), District Commissioner, Mjini District, Sheha/ Shehia Committees, Zanzibar Environment Management Authority (ZEMA), The Department of Environment (DoE), Department of Roads, Zanzibar Water Authority (ZAWA), Zanzibar Electrical Company (ZECO), Commissioner for Lands, Chief Government Valuer Department of Lands and Registration Department of Survey and Urban Planning, Department of Urban and Rural planning (DoURP), Stone Town Conservation and Development Authority, Zanzibar Municipal Council, Department of Forestry and Zanzibar Association of the Disabled (UWZ). As part of the success of this project the MOICT wishes to extend its gratitude for the continued support expected for the entire period of the implementation of this report.

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LIST OF ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
CBO	Community Based Organisation
CSO	Civil Society Organisations
DoURP	Department of Urban and Rural Planning
DoE	Department of Environment
DMA	Department of Museum and Antiquities
EIA	Environmental Impact Assessment
EMA	Environmental Management Act of 2004
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
FGD	Focus Group Discussion
GDP	Gross Domestic Product
HIV	Human Immune-Deficiency Virus
LGA	Local Government Authority
MOICT	Ministry of Infrastructure, Communication and Transportations
NGOs	Non-Governmental Organizations
OSHA	Occupational Health and Safety Authority
PAPS	Project Affected Persons
RAP	Resettlement Action Plan
RMMS	Road Maintenance and Management System
STCDA	Stone Town Conservation and Development Authority
STD	Sexual Transmission Diseases
TOR	Terms of Reference
ZATI	Zanzibar Association of Tourism Investor
ZAWA	Zanzibar Water Authority
ZBC	Zanzibar Broadcasting Corporation
ZCT	Zanzibar Commission of Tourism
ZECO	Zanzibar Electrical Company
ZEMA	Zanzibar Environment Management authority
ZUSP	Zanzibar Urban Service Project

EXECUTIVE SUMMARY

Background

Zanzibar, off Tanzania's coast in the Indian Ocean, is a leading African tourist destination. Many visitors explore Stone Town, a UNESCO World Heritage City. Unfortunately, public infrastructure within the World Heritage City of the Stone Town is in poor condition. Substantial areas of the Zanzibar Urban Municipal Council (ZUMC) are very dense, unplanned and informally developed, with poor access to services. Around 173 hectares in the Ng'ambo areas (outside of the Stone Town) within the Council suffer from severe and persistent flooding. Flooding also results in damage to road infrastructure, interruptions to water and electricity supply, and increases the risk of the spread of waterborne diseases, including cholera.

For the past few years' motorization level has increased making transport infrastructure not to meet well not only future demand but also current demand. Poor enforcement of traffic laws, deregulated environment of public transport supply and poor road and non-motorized infrastructure, is increasingly deteriorating the quality of mobility and exacerbating congestion. The main transport investments have been focused on road expansion to maximize vehicular capacity and speeds, but with fewer efforts targeting most of the population, who are mainly users of non-motorized transport and public transport systems.

The Revolutionary Government of Zanzibar has expressed strong interest in improving the above condition. Responding to the current situation, Boosting Inclusive Growth for Zanzibar: Integrated Development Project (BIG-Z) was prepared. BIG-Z extends the achievement obtained under Zanzibar Urban Services Project (ZUSP original and Additional financing) which was implemented from 2016 to 2020.

Updating of ESIA report and the additional project scope

This ESIA report was prepared and approved by NEMC as well as cleared by the World Bank in 2020 when the BIG Z project was under preparation. The ESIA was prepared covering Michenzani as the scope of the project. It was later decided that Stone Town be added to the scope. Stone Town Mobility and Public Space Improvement (STMPSI) is a strategic program of mutually reinforcing mobility and public space improvement investments for Stone Town. The investment will improve livability and economic potential and reverse the gradual deterioration and increasing congestion in and around the heritage site, including the Darajani Market area. The final selection of investment and interventions are based on the recommendations from the Stone Town Mobility Management Program (STMMP) (STMMP) and the Stone Town Conservation and Heritage Management Plan (STCHMP) which were developed under the financing of the ZUSP and was expected to be approved by UNESCO by August 2021. The Consultant DAR AL HANDASAH on behalf of the client communicated with ZEMA who provided guidance on procedures and the legal framework for updating the ESIA report. A letter from ZEMA which provides guidance on updating the ESIA report is attached as **Annex I**. The ToR for updating the ESIA report is attached as **Annex II**.

Since the Stone Town Mobility Management Program (STMMP) was added to the mobility scope it was necessary to update the ESIA to capture the additional area. Areas of the ESIA

report which have been updated are the background information to introduce the Stone Town as among the project areas, its design, baseline information, regulatory and institutional framework related to heritage sites, impacts, mitigation, management and monitoring plan. The project had prepared a Heritage Impact Assessment (HIA) which has been referred during the updating of this ESIA report.

Project Objective and Components

The development objective of the BIG-Z project is to improve living conditions and promote local economic development in targeted areas of Zanzibar. The project components include: i) Component 1: Area Based Integrated Development (US$126 million) which finances various investments and activities in response to different development challenges in three types of areas: urban core, fast-growing urban areas, and emerging towns/villages; ii) Component 2: Strengthening Institutions for Urban management and Encouraging Innovation (US$14 million) which focuses on institutional development and capacity building, including municipal finance, urban management, and enhancing the enabling and regulatory environment for development; iii) Component 3: Project Management, Operation, Monitoring and Evaluation (US$10 million); and iv) Component 4: Contingent Emergency Response Component (US$0 million)for situations of urgent need of assistance.

Stone Town Mobility Management Program (STMMP) and Michenzani Area Integrated Redevelopment Project for the regeneration of the main streets in Ng'ambo

The Stone Town Mobility Management Program (STMMP) and Michenzani Area Integrated Redevelopment Project, previously known as the Michenzani Green Corridor Plan, is part of Component 1 of BIG-Z. Initially these two projects were separated but were later joined due to the technical background including the closeness of the two areas and their uniqueness. The main objective of the project is to catalyze a modal shift in mobility, transforming the current vehicle-dominated, congested area at the urban center of Zanzibar into a safe, pedestrian-friendly, livable urban space, which will benefit both local residents and tourists (especially women and children who heavily rely on walking) through infrastructure and service upgrading, as well as public space improvements for pedestrians and small businesses. The activity will entail redeveloping Karume Road, Mlandege Road, New Mkunazini Road, Creek Road and selected mobility management interventions in surrounding streets such as Malawi Road and Nyerere Road. This will be done in participatory ways that engage the communities, while reorganizing area-level vehicular flow (including public transport) and parking into more sustainable approaches for the City of Zanzibar and the preservation of its cultural and historical heritage.

The development of the Stone Town Mobility Management Program (STMMP) and Michenzani (Ng'ambo) Green Corridor Plan will support low-impact urban upgrading using existing right of way for public spaces, develop new vibrant area of the City to share economic benefits of the Stone Town (UNESCO World Heritage Site), improve public services (transport, markets etc.), enhance business facilities of the City Centre to promote cultural heritage, better capitalize at the transformative power of urbanization the island (currently 46.3% Urban population) as well as provide improved services to the underserved areas. In addition to Michenzani the Stone Town area was added to the project scope in 2022.

Stone Town Mobility and Public Space Improvement (STMPSI)

Stone Town Mobility and Public Space Improvement (STMPSI), a strategic program of mutually reinforcing mobility and public space improvement investments for Stone Town. The investment will improve livability and economic potential and reverse the gradual deterioration and increasing congestion in and around the heritage site, including the Darajani Market area. The final selection of investment and interventions are based on the recommendations from the Stone Town Mobility Management Program (STMMP) (STMMP) and the Stone Town Conservation and Heritage Management Plan (STCHMP) which were developed under the financing of the ZUSP and was expected to be approved by UNESCO by August 2021.

The original ESIA report was prepared by DOHWA Engineering Co., LTD. Preparation of original ESIA was conducted parallel with the design of Michenzani Area Integrated Redevelopment Project for the regeneration of the main streets in Ng'ambo. The original ESIA report was prepared and approved by ZEMA in 2020 and later on cleared by the World Bank in the same year. After the addition of Stone Town area as a project scope the RGOZ hired DAR ALHANDASA SHEIR AND PARTNER to update the ESIA report. The consultancy service to update the ESIA report was implemented together with the design review of Michenzani Area Integrated Redevelopment Project for the regeneration of the main streets in Ng'ambo which was prepared by DOHWA in 2020. The design review of Michenzani area also included combining with the Stone Town area which required a fresh design.

Policy, Legislative and Regulatory Framework

Among others, the policies relevant for the Michenzani and Stone Town areas which were reviewed include the Zanzibar Vision 2020, Zanzibar Strategy for Growth and Reduction of Poverty (ZSGRP-III), Zanzibar Environmental Policy (2013) , Land Policy, Zanzibar Forest Policy (1999), Zanzibar Water Policy (2000), Zanzibar Energy Policy (2009), Zanzibar Transport Policy (2004), Zanzibar Transport Master Plan (2007), Zanzibar Agricultural Sector Policy, Food Security and Nutrition Policy (2008), Zanzibar Health Policy (2011), Tourism Policy (2005), National Spatial Development Strategy.

The relevant legislative and regulations reviewed includes the Regional Administration Act (2014), Local Government Authority Act (2014), Environmental Management Act (2015), Road Transport Act No.7 (2003), Zanzibar Land Tenure Act, 1992, land allocation, compensation of affected properties, the Valuers Registration Act, 2015, Legislation on Right of Way, Labour Relations Act, 2004, the Ancient Monuments Preservation Act, 2002. Due to the addition of Stone Town area which is categorized as a heritage site by the UNESCO other policies and laws were also reviewed during updating of this ESIA report such as the Heritage Act.

Being the World Bank financed project, the World Bank Safeguard Policies have been reviewed. The World Bank's policies reviewed include Environmental Assessment (OP/BP 4.01), Physical Cultural Resources (OP/BP4.11), Involuntary Resettlement (OP/BP 4.12), Forests (OP/BP 4.36) and Natural Habitats (OP/BP 4.04). Furthermore, World Bank EHS guidelines and the International environmental related Agreement/Conventions, which Tanzania has ratified have also been reviewed.

Public Consultations and Stakeholder Analysis

The Consultant conducted consultation with the Client in which stakeholder analysis was undertaken to determine the relevant stakeholders, their location, the project's impact, the stakeholder's degree of influence and/or dependence on the project; so that issues that are critical to them are identified. After the addition of the Stone Town area more stakeholders were consulted to cover the additional scope.

The Consultation for the original ESIA was conducted with the support from KUKUA (Local NGO) who were assigned to conduct the task on behalf of DOHWA. During the updating of ESIA, the consultant DAR AL HANDASAH conducted extensive public participation and stakeholder engagement to gather input and address concerns related to the Stone Town project area. The list of participants for the stakeholder consultation during the updating of this ESIA report is not attached due to size but is available as a separate document.
Among others the issues raised by the stakeholders during public consultation are as follows:

1. The environmental concerns raised include air pollution from dust to be generated during construction; solid waste production and littering the environment; noise and vibration during construction and transportation of construction materials; concerns on increasing of traffic congestion during the implementation of the project; changes of beautification of the project area through improvement of infrastructures and landscape, disturbance to public due to shifting of public facilities.

2. The socio-economic concerns raised include: resettlement and relocation of business in project area particularly vendors at Darajani area; changes due improvement of earmarked relocation site, expected time for commencement of works and payment of compensation to the Project Affected Person (PAPs); lack of community involvement and particularly provision of work opportunities to the local communities, an extra assistance given to the PAPs: modalities of implementing compensation if the properties owners are absent during the valuation and implementation of compensation; magnitude of resettlement; timeframe for compensation/relocation to be clearly known to avoid disrupting normal businesses and relocation of businesses;

3. The safety concerns raised are lack of pedestrian pavement and cycling infrastructure; disturbances due to parking re-arrangement and daladala bust station; blockage of entrance and access to working places or business centers; and motor traffic and freight access re-arrangement.

4. The policy related concerns raised include the compensation eligibility for the project affected people who do not have legal and formal documents, and the period and actual commencement of the project construction works.

The Consultant responded to the stakeholders' concerns by reassurance that all the issues raised will be addressed as part of the mitigation measures proposed in the ESIA and RAP reports and to be implemented and monitored during the project period.

Description of the Environment in Michenzani and Stone Town area

Physical Environment covers the location and Topography, Geology and Morphology, Soils, Air Quality, Climate, Climate Change, Noise Emissions, Surface Fresh Water Quantity and Quality, Surface Water in Unguja, Water Quality in the Zone of Influence, Groundwater Quantity and Quality, Land – Use, Landscape

Biophysical Environment covered the vegetation, biodiversity (Terrestrial biodiversity and Marine Biodiversity) and wildlife. Socio-economic and Cultural Conditions include the demography, land Use, transport condition in the project site, tourism, cultural heritage, agriculture, fisheries, Health and HIV/AIDS, gender and vulnerable groups education, water Supply, sanitary sewerage, storm water drainage, solid waste management, energy, communications, and local labour force: and employment opportunities

Environmental and Social Impact Assessment

The ESIA study identified several environmental and social impacts for the entire life cycle of the project. The potential environmental and social impacts considered in the ESIA process include impacts to the air quality, water resources, land resources, socio-economic/cultural, cultural heritage and transport conditions during mobilization, construction and operation of the project. The updating of this ESIA report also came with the same impacts except those related to heritage management.

The ESIA also presents mitigation measures to be employed to help prevent or minimize the environmental and social impacts of the project during the mobilization, construction and operation phases. Measures recommended during the mobilization and construction phase include control of noise pollutions from heavy construction equipment, trucks and public transport through proper inspection and maintenance, limiting noisy activity on day time, use of noise suppressors and operation control of public transport; control of air pollution from construction works and movement of vehicles through proper inspection and maintenance to reduce exhaust emissions; control of water pollution through proper storage and handling of oil wastes and treatment of wastewaters at site; control of solid wastes through sanitary storage and frequent collection for appropriate disposal. Safety risks to pedestrians will be mitigated through providing designated walkways, use of appropriate signs to direct pedestrians and installation of physical barriers. Regarding spread of Sexual Transmitted Diseases and GBV will be mitigated by implementing HIV/AIDS awareness and prevention program and integrating measures for prevention and handling Gender Based Violence (GBV) and Sexual Harassment in the contractor's environmental and social management plan (C-ESMP).

At operational phase measures recommended include regular monitoring of air quality where noise will be measured periodically. In addition, pollution from generated wastewater and solid waste will be mitigated by connecting to existing sewerage systems and by disposal of solid waste in the landfill at Kibele. Emphasis has also been on the control of emission levels (from exhaust), which will be mitigated by regular maintenance of public transport vehicles and plating of vegetation. Reduction of parking space will be mitigated through the promotion of off-street parking facilities and ensure smooth transition towards new parking facilities.

In all phases occupational health and safety will be carefully considered and controlled through continuous inspection to prevent disease and accidents, and workers will undergo an environmental and safety briefing on safety, sanitation measures, and emergency rescue

procedures before construction begins. Adequate sanitary facilities and garbage bins will be provided.

Environmental and Social Management Plan

An Environmental and Social Management Plan (ESMP) has been developed to implement the proposed environmental mitigation measures during mobilization, construction and operation of the project. The plan focuses on measures to be applied in the field and management actions to minimize potentially adverse impacts and enhance positive impacts.

Environmental Monitoring Plan

An Environmental Monitoring Plan has been developed to monitor the efficiency of the environmental mitigation measures and socio-economic initiatives specified in the ESMP. It supports ESMP by maintaining a record of environmental performance and enabling adjustments to be made to mitigate environmental and socio-economic impacts during the lifetime of the project. The Monitoring Plan consists of the set monitoring parameter, and institutional measures to be taken during construction and operation of the project to eliminate, offset, or reduces adverse environmental and social impacts.

Conclusion and Recommendations

The ESIA study results show that, despite some limited negative environmental implications of the project, the Corridor improvement will have high socio-economic benefits to the people along the project area and adjoining regions as well. The associated negative impacts will be minimized through good engineering design and envisaged construction practices. Specific mitigation measures have been suggested in this report to offset the inherent adverse impacts. In implementing these mitigation measures there would be an improvement in the environmental soundness of the project.

It is, therefore, concluded that implementation of the improvement of Stone Town Mobility Management Program (STMMP) and Michenzani Area Integrated Redevelopment Project will entail no detrimental impacts on the environment, social and physical cultural resources if the recommended mitigation measures are adequately and timely put in place. The identified adverse impacts shall be managed through the proposed mitigation measures and implementation regime laid down in this ESIA. The Ministry of Finance and Planning through PIU is committed in implementing all the recommendations given in the ESIA and further carrying out the environmental monitoring.

CHAPTER 1: INTRODUCTION

1.1 Project background

Stone Town is one of the world heritage properties and has been developed to build its culture, character, and historic strengths by the government supported by the world agencies and organizations. Apart from the Stone Town, Ng'ambo area, which is a main commercial activity area in the Zanzibar Island, has not been well prepared and developed even if many urban plans

have been set up by many different urban planners/ architects or Consultants through many decades. The increased traffic and population in Ng'ambo area have caused not only problems of noise, traffic accidents, air pollution, water pollution but also affect improvement of potential tourism and commercial development in this area. The Government of Zanzibar (GoZ) is implementing the Boosting Inclusive Growth for Zanzibar: Integrated Development Project (BIG Z) to improve access to urban services and conserve the Stone Town and Michenzani areas.

According to the recommendations of the ZMC Development Strategy and Structure Plan and subsequently Local Area Plan, the Ng'ambo sub-component will support low-impact urban upgrading using existing right of way for public spaces, develop new vibrant area of the City to share economic benefits of the Stone Town UNESCO World Heritage Site, improve public services (transport, markets, etc.), enhance business facilities of the City Centre to promote cultural heritage, better capitalize at the transformative power of urbanization the island (currently 46.3% Urban population) as well as provide improved services to the underserved areas. The project area will be developed as a best practice of inclusive public space, ecological principles, cultural heritage, and revitalization of a strategic mixed-use corridor.

1.2 Updating of ESIA report and the additional project scope

This ESIA report was prepared and approved by NEMC as well as cleared by the World Bank in 2020 when the BIG Z project was under preparation. The ESIA was prepared covering Michenzani as the scope of the project. It was later decided that Stone Town be added to the scope. Stone Town Mobility and Public Space Improvement (STMPSI), a strategic program of mutually reinforcing mobility and public space improvement investments for Stone Town. The investment will improve livability and economic potential and reverse the gradual deterioration and increasing congestion in and around the heritage site, including the Darajani Market area. The final selection of investment and interventions are based on the recommendations from the Stone Town Mobility Management Program (STMMP) and the Stone Town Conservation and Heritage Management Plan (STCHMP) which were developed under the financing of the ZUSP and was expected to be approved by UNESCO by August 2021. The Consultant DAR AL HANDASAH on behalf of the client communicated with ZEMA who provided guidance on procedures and the legal framework for updating the ESIA report. Letter from ZEMA which provides guidance on updating of the ESIA report is attached as **Annex 1.** The ToR for updating the ESIA report is attached as **Annex II**.

Due to that it was necessary to update the ESIA to add Stone Town area as part of the project scope. Areas of the ESIA report which have been updated are the background information to introduce the Stone Town as among the project areas, its design, baseline information, regulatory and institutional framework related to heritage sites, impacts, mitigation, management and monitoring plan. The project had prepared a Heritage Impact Assessment (HIA) which has been referred to during the updating of this ESIA report.

1.3 The interconnectedness between Stone Town and Michenzania project areas

The Michenzani (Ng'ambo) Green Corridor Plan and Stone Town Mobility Management Program (STMMP) and the Stone Town Conservation and Heritage Management Plan

(STCHMP) are major urban interventions for the improvement of mobility and public space in the areas of Stone Town and Michenzani (Ng'ambo), in Zanzibar. This is in-line with ZanPlan 2015 and Zanzibar Vision 2020, which emphasis that Ng'ambo area must be developed into a center of Swahili heritage with the necessary tourism infrastructure and support institutions which is connected to the Stone Town area.

The project site is designed to be developed as a 21st century City Centre of Zanzibar with commercial, leisure, tourism, green pedestrian streets, cultural and historical cognizance and sewerage mixed-use development functions. Thus, the Karume Boulevard will comprise mixed functions of commerce and recreation, Mlandege Avenue, a commercial axis to become a green avenue with ample parking, bicycle paths and broad side walks. The existing commercial areas and markets of Darajani, Mlandege and Mapinduzi Square are to be linked through shopping streets and pedestrian malls. Tourism and cultural heritage linkages (continuity) between Ng'ambo and Stone Town are considered.

1.4 Project Objective

The development objective of the BIG Z project is to improve living conditions and promote local economic development in Zanzibar. Michenzani green corridor project is one of BIG-Z investments which will be implemented in Unguja; its specific objective is to realize the subcomponents of Ng'ambo in ways of low-impact urban upgrading using the existing right of ways for public space, developing a new vibrant area of the city to share economic benefits of the Stone Town, improving public services (transport, etc.) to enhance business facilities of the City center, to promote cultural heritage as well as providing improved services to the underserved areas

1.5 Scoping

Scoping study ensures that relevant key environmental and social economic issues are identified before the environmental and social assessment is conducted to ensure that ESIA study is focused and covers all important issues. The objectives of the scoping study for the proposed Stone Town Mobility Management Program (STMMP) and Michenzani green corridor project were therefore to document key issues that may be important during the ESIA study and to identify and involve key stakeholders in the ESIA process. This process provided an opportunity to the stakeholders to express their views and concerns to be included in the ESIA study eventually in design.

In addition, scoping enabled ESIA team to ascertain key issues that are likely to be important during impact assessment, to identify and involve all stakeholders in the ESIA process by expressing their views and concerns. During updating of the ESIA report additional stakeholders for Stone Town Mobility Management Program (STMMP) were also consulted and their views gathered. The consulted stakeholders for both Michenzani green corridor and Stone Town Mobility Management Program (STMMP) and the issues they raised are presented in chapter 3. These issues were included in the ToR to guide the ESIA study.

Specifically, the scoping enabled the ESIA team to:

- Identify project alternatives;
- Identify of ESIA study boundaries;

- Identify data/information requirements;
- Develop effective methods of approaching the ESIA study; Define terms of reference for the ESIA study.

1.6 Objective of Environmental and Social Impact Assessment

In order to make sure that the implementation of the proposed project is not implemented at the expense of environment, the consultant was required to conduct environmental and Social Impact Assessment. In this regard, the overall objective of Environmental and Social Impact Assessment (ESIA) is to identify the significant environmental and social impacts, propose the mitigation measures required to minimize the adverse impacts to manageable levels for the proposed project and to enhance the positive impacts; and inform the designer on the required interventions for implementation on the proposed project.

The Environmental and Social Impact Assessment for the proposed project has been undertaken in accordance with the Zanzibar Environmental Management Act, No. 3 of 2015, these undertakings are supposed to be subjected to Environmental and Social Impact Assessment and shall be guided by the Environmental Assessment Regulations, 2019, Environmental and Social Management Framework (ESMF, 2020), Stakeholder Engagement Plan (SEP, 2020) and Resettlement Policy Framework (RPF, 2020). The updating of the ESIA report was also conducted in accordance with the same legislation stipulated in this paragraph.

1.7 Study Methodologies

An interactive approach was undertaken between the project design team and the environmental and social assessment team. The methodology used is commensurate with the Environment Assessment Regulations, of 2017. The study was undertaken based on checklists complimented by past experience of the experts and through discussion with the Project Management Team (PIU), local government authority and communities in the project area.

The environmental assessment involved desk review, field work and stakeholders' consultation required. The study required consulting a number of stakeholders including responsible Ministries/departments, local government authorities, Stone Town Conservation Development Authority (STCDA), Zanzibar Water Authority (ZAWA), Zanzibar Electricity Corporation (ZECO), businesspeople and communities in the project area

1.7.1 Formation of a Study Team

For the Consultant to properly address the environmental issues, a team of experts was involved in undertaking the ESIA Study. The experts included Environmental Expert, Sociologist and Valuer. During the updating of the ESIA the mobility Expert was also added to the team to provide insight on mobility issues and how they impact the environment and their mitigation measures.

1.7.2 Socio-economic Survey

A comprehensive socio-economic survey was carried out by deploying different methods to meet the requirements as specified in the ToR. The Team reviewed all relevant documents, specifically those mentioned in the ToR to understand and implement the assignment as required. Secondary data focusing on the socio-economic situation of the potentially affected population were reviewed at all levels.

1.7.3 Public and Officials Consultations

Public and Officials consultations were conducted through meetings with major stakeholders of the proposed project. During the fieldwork, consultative meetings were held with government officials in Mjini Districts in Mjini Magharibi Region, Zanzibar Municipal Council as well as local communities in the Shehi as within the project area, and other stakeholders interested/affected by the implementation of the project. The issues raised from these public participation exercises have been incorporated into the report (Chapter 3) and have been used in determining mitigation measures for the project.

1.7.4 Observation

To obtain the existing condition along the proposed route including vegetation, settlement patterns, land use activities and accessibility to social services physical observations were done to identify physical features and socio-economic conditions along the proposed projects.

1.7.5 Documents Review

Various relevant documents were reviewed to obtain an overview about the project and to extract useful information required to complement Environmental and Social Impact Assessment Study. These included Revolutionary Government of Zanzibar policies, project's districts socio economic profiles and other documents relevant to the study. The team reviewed national policies, legislation and institutional arrangements for environmental management in the country wise while World Bank safeguards standards and relevant international procedures to ascertain the optimal management of impacts were also reviewed.

1.7.6 Collection of Baseline Information

The collection of baseline information was conducted after defining the scope of the ESIA. These data allow the study team to determine whether more detailed information on environmental conditions along the proposed route and its surroundings are needed and where such information can be obtained and how.

Both primary and secondary data were collected. Primary data were collected by direct measurement, observations and using semi-structured interviews with respective and targeted parties. Secondary data were obtained from various relevant sources of information such as Ministries' reports, Municipal and Districts' profiles, education and health reports and many other published/non-published official and non-official documents.

1.7.7 Impact Identification and Evaluation

The improvement of the proposed project has had a wide range of impacts on several environmental and social receptors. ESIA identifies these impacts for the purpose of mitigating the adverse ones or enhancing the benefits. Impact identification is a process designed to ensure that all potentially significant impacts are identified and considered in the EIA process. Several 'tools' are available to assist in impact identification, in this ESIA; matrix has been used.

The matrix consists of a horizontal list of development activities against a vertical list of environmental factors. Thus, it identifies impacts by methodically checking each development activity against each environmental consideration to ascertain whether an impact is likely to occur.

The overlying project's proposed structural elements and activities onto the existing social and environmental natural conditions has identified the potential environmental impacts of the proposed development. The environmental impact correlation matrix method has been adopted to predict impacts of major concern.

Taking a step further, the impacts ranking in all phases (mobilization, construction and demobilization/decommissioning) was done signified the magnitude of each and combined phases. As a result, the more the score illustrated the severity the impact the proposed project

1.8 Limitations of the Study

- Most of the baseline information for the ESIA study relied on secondary information.
- Untimely processing of historical weather data from Meteorological Agency

1.9 Assumptions of the Study

- The study assumes that the respondents provided information that are reliable on the implementation of the project;
- The study also assumes that the Project Contractor will fully adhere to ESMP

1.10 Report Structure

This report is divided into Eleven (11) chapters as follows

- **Chapter One:** contains the introduction on the background information of the proposed project, its development objectives, rationale and the proposed project implementation arrangements.

- **Chapter Two:** illustrates policy, legal and administrative framework, which are the relevant Tanzanian environmental policies and legislation applicable to construction projects.

- **Chapter Three:** express the consultation exercise at the project area detailing the list of stakeholders consulted, stakeholder analysis and the issues raised during consultation.

- **Chapter Four:** contains the project description, in which there is a description of the location and relevant components of the project and their activities.

- **Chapter Five:** has a description of the environment relevant to environmental characteristics, which gives details concerning the physical, bio-physical environment and socio-economic environment at the project area.

- **Chapter Six:** contains the identification and evaluation of the positive and negative environmental and social impacts of the project that are likely to be generated from the different phases (the planning and designing, construction, operation and maintenance and the demobilization phases).

- **Chapter Seven:** presents the proposed mitigation measures for predicated impacts

- **Chapter Eight:** Presents the Environmental and Social Management Plan (ESMP).

- **Chapter Nine:** presents the Environmental and Social Monitoring Plan that contains the proposed institutions to carry out the monitoring activities, the monitoring indicators, time frame and the proposed budget for monitoring.

- **Chapter Ten:** contains the analysis of project alternatives

- **Chapter Eleven:** gives the summary and conclusions of the study

Report structure conforms to the environmental regulations requirements in Zanzibar for Conducting ESIA. Appendices containing some key primary information collected during the study are attached at the end of this report.

CHAPTER 2: POLICY, LEGISLATIVE AND REGULATORY FRAMEWORK

2.1 Policy and Strategy Framework

2.1.1 The Zanzibar Vision 2020

The overall Vision 2020's objective is to eradicate absolute poverty in society. The realization of the vision's objective is predicated on addressing the promotion sustainable tourism that emphasizes high class tourist industry; create an enabling environment for ensuring sustenance of peace, political stability and religious tolerance; attain high and self-sustaining
economic growth; developed and effectively utilized human resource and attain full employment by the end of 2020 and to improve the standard of education to meet the challenges of the twenty first century.

The major Vision's objectives include the enhancement of human and institutional capacity building in social and economic management during the development process and creating an enabling environment that will help to provide opportunities for directing, targeting and exercising selectivity in allocation of resources to priority sectors. Vision 2020 stimulates and encourages savings and investments as a basis for creating a high and growing economy of Zanzibar.

Vision's policy on environment is the conservation and protection of the environment, rational and efficient utilization of natural resources. It is envisaged that sustainable economic development should be accompanied by proper environmental management so that Zanzibar's natural resources and natural heritage are passed on to future generations.

2.1.2 Zanzibar Strategy for Growth and Reduction of Poverty (ZSGRP-III)

ZSGRP III - 2016-2020 (MKUZA-III) recognize that the transport sector is identified as a major contributor to socio–economic development in rural and urban areas. For this reason, the government considers the transport sector to be a kick-start for development in other sectors and for all communities in Zanzibar. The sector supports the development of other sectors such as agriculture in rural areas, tourism and social services (health, education) and other businesses by increasing access and reducing costs of production in those sectors.

However, there should be a sustainable land use program to protect, conserve and manage ecological resources, including flora and fauna, and in maintaining soil and water conservation and coastal ecosystem protection. Some objectives of MKUZA III were creation of an enabling environment for growth, the promotion of sustainable pro-poor and broad-based growth and the reduction of income poverty. The implementation plan of MKUZA III recognizes the importance of protection of land resource base, coral reefs, vulnerable species, conservation of land and soil, sustainable tourism, fisheries and Climate Resilience. ZSGRP or MKUZA 1 and 2 emphasizes environmental management issues such as sustainability and gender focused environmental management system, reduction of the

environmental degradation and waste management (solid, wastewater, hospital and hazardous waste).

2.1.3 Zanzibar Environmental Policy (2013)

Statement 15 of the Policy states that "The Government will ensure incorporation of environmental assessment into procedures for designing and implementing development programs, plans, policies and projects". This will be achieved through:

- Promoting application of Environmental Assessment Tools (Environmental Impact Assessment - EIA, Strategic Environmental Assessment – SEA, etc.) to all investment and development projects before their establishment. Strengthening public awareness and outreach programs on the application of Environmental Assessment Tools. o Enhancing monitoring programs and assessment for the state of the environment.

As far as construction industry is concerned, the policy recognizes that there is an increasing demand for non-renewable natural resources (sand, gravel, rocks, stones, soil, moorum, and limestone). The adverse effects and environmental impacts of land degradation caused by extraction of the resources and the situation are clearly un–sustainable. Issues: There is an increase of land degradation caused by unsustainable excavation of non-renewable natural resources leading to loss of productive lands and biodiversity, increased soil erosion and exposure of ground water aquifers.

The policy object is to minimize land degradation caused by excavation of non-renewable natural resources and rehabilitation of the excavated lands. In this regard, the Government will promote the rational use of non-renewable natural resources and rehabilitation, with minimal damage to the environment by:

- Develop and implement a zoning scheme for quarrying different non-renewable natural resources.
- Develop and implement participatory procedures for quarrying non – renewable natural resources and rehabilitate the quarry sites.
- Promote enforcement mechanism of the Environmental Management Act and Regulations pertaining to non-renewable natural resources.
- Promote public awareness on rationale use of non-renewable natural resources.
- Promote the use of alternative materials to non-renewable natural resources.
- Promote alternative sources of livelihoods.

2.1.4 Land Policy

Currently, there is no official land policy in Zanzibar. However, the National Land Use Plan (1995) recognizes the role of agriculture as a major land user, absorbing about 60% of total land area. The four major agro-ecological types of zones - namely Tree and Plantations, Coral, State Farms or Ranching and Rice Cultivation zones - have been clearly described under this plan. However, the plan does not recognize the possibility for diversification of aquaculture production under the coral rag areas and vast areas along the shore. The plan Fisheries promotes the extensive utilization of coral land for production of agriculture and livestock but remain silent in utilization of land in aquaculture production.

2.1.5 Zanzibar Forest Policy (1999)

Forest policy is one among a few sector policies in Zanzibar where effective environmental concerns are considered in detail in every policy sub-sector. The overall environmental goal of this policy is to protect and conserve forest resources including wildlife, flora and fauna and enhance the role of forest resources in maintaining soil and water conservation. The policy also puts emphasis on the conservation and development of forest resources for present and future generations, and on the need for comprehensive and perpetual tree planting as well as public education.

2.1.6 Zanzibar Water Policy (2000)

The water policy recognizes the importance of environmental consideration in the development and implementation of water resources and sanitation management in the country. It clearly states that the development of water and sanitation programmes should be done in a way that is not harmful to the environment and that the utilization of water by one generation should not in any way adversely affect the prospect of utilization by subsequent generations. The policy pays special attention to the implementation of Environmental Impact Assessment (EIA), environmental monitoring and control, water security, water pollution, soil degradation, depletion of water resources, drinking water quality, waste disposal, hygiene, drainage and sanitation as requisite issues towards provisions and supply of potable water. The policy calls on environmental authorities to provide environmental advisory and guidance to ensure that the set objectives for the water policy with respect to environmental conservation and protection are properly achieved.

Water is vital to health, safety and socio-economic development of people. The Zanzibar Water Policy recognizes the right to adequate clean and safe water as an essential element in reducing poverty and ensuring food security and nutrition through i) protection of water resources for quality and use in accordance with water and environmental conservation principles, and ii) the development and provision of water supply and sanitation in a sustainable manner, with a demand responsive outlook. The policy provides guidance on accessing clean and safe water for its people while considering nature conservation

2.1.7 Zanzibar Energy Policy (2009)

The Energy Policy of 2009 aims at satisfying the energy demand within the growth sectors of the economy in Zanzibar. The policy mentions the sustainable use of wood fuel, consideration of environmental impact for fossil fuel exploration in marine environment and potentiality for energy utilization from solar, wind and wave. The energy policy puts much emphasis on processing, storage, value addition and transporting agricultural products which include fisheries and aquaculture products. However, the policy does not adequately address the energy demand in small processing industries in the fishery and aquaculture sector, for seaweed farming

2.1.8 Zanzibar Transport Policy (2004)

The Zanzibar Transport Policy establishes the mission for the Zanzibar Transport Master Plan to: 'develop efficient, safe, secure, reliable, well maintained, cost effective and competitive, sustainable and integrated transport services which meet travel and transport needs in a manner which best responds to government strategies for socio-economic development at minimum environmental or cultural degradation'

2.1.9 Zanzibar Transport Master Plan (2007)

Environment Strategy and Global Warming Environment losses are a part of the price to be paid for development. Zanzibar's Growth Strategy (2006 – 2015) states: "The principal problems identified include insecure land tenure; uncontrolled urban development; initiation of investment projects without carrying out an Environmental Impact Assessment (EIA); uncontrolled coastal development; and shrinking biodiversity. Environmental protection will be accorded with high priority during implementation of the ZTMP as the Zanzibar natural environment faces real and increasing risks arising from population rise and including from transport developments. Implementation of the plan will seek means of dealing with growth in ways that minimize environmental impacts. Operations of transport services will strictly follow the Environmental Act with Zan Transport required to provide monitoring and control to ensure adherence.

The Master Plan recognizes that Zanzibar's Vision 2020 advocates integration of environmental issues with development objectives to ensure sustainable socio-economic development. For the transport sector the following legal steps are required:

- An Environmental Act for Transport Infrastructure and Operations to be developed, approved, introduced and enforced;
- An environmental code of practice to be developed for all three main transport sectors and made its use made mandatory;
- New major transport infrastructure construction/development project approvals to include an EIA with clear and enforceable mitigation measures;

The transport plan provides significant investment proposals, which respond to environmental concerns and global warming. The plan proposes Zanzibar will implement progressive transportation practices including:

- Promoting energy-efficient travel modes like walking and cycling; o Promoting energy efficient public transport;
- Introduction of regulations to encourage more fuel-efficient vehicles, aircraft and ships; Promoting private sector involvement in regulation of transport infrastructure, in becoming responsible for road-works and in management of the port, airport and all forms of public transport. Private management will almost always permit increased efficiency in use of fuels, etc. and hence be less polluting.

The plan proposals minimize land required for new transport infrastructure. The airport will remain within existing boundaries and the new seaport will be constructed almost wholly offshore. Proposals for new road construction are limited almost entirely to the Zanzibar urban area and measures including pedestrian and bicycle paths will ensure more efficient operation of the existing road infrastructure before adding new ones. In addition, flexible use of road standards is proposed to minimize use of land valuable for agricultural, open space etc.

On Health and Safety, the plan recognizes that, transport is a major contributor to health and safety problems. The major cause of death for person between 10-25 years is traffic accidents (WHO statistic, 2002). Relevant issues incorporated into the plan are focus upon improvements in traffic safety, occupational health and safety, emission impact, HIV/AIDS, etc.

Internationally acceptable occupational health and safety issues are included in all sectors as mandatory regulations and measures. These will be included in contract agreements, capacity building programmes and relevant documentation;

Traffic safety will be addressed continuously with both physical measures to provide safer roads, etc. plus regulations revised and adjusted to international standards and,
Emissions stemming from transport infrastructure and operations will be included during the preparation of the Environmental Impact Assessment studies and appropriate noise, pollution, dust and related mitigation measures will be required and implemented.

Incidence of HIV/AIDS continues to rise in Zanzibar. Proactive measures will be taken within transport sectors including provision of adequate treatment, care and support for publicly employed staff affected by the virus together with support for wider measures aimed at promoting behaviour change among the transport sector personnel

2.1.10 Zanzibar Agricultural Sector Policy

The agricultural Sector Policy includes crops, fisheries and livestock production. The overall goal of Agricultural Sector Policy is to promote sustainable development of the agricultural sector for economic, social and environmental benefits for Zanzibar people. The policy recognizes that environmental degradation is an issue of major concern in agricultural development attributed to lack of public awareness on the preservation and conservation of environment and natural resources. Other attributed factors include the rate of population growth and density; and use of dangerous agro-chemicals and pesticides in agricultural activities.

2.1.11 Food Security and Nutrition Policy (2008)

Under policy strategy 1.2: Increase efficiency in (domestic) food marketing and trade Priority areas for intervention. Among others, the policy requires to improve market infrastructure such as roads, transport, markets, and communication systems to ensure smooth movement of agricultural products from production areas to the final markets, both internally and externally.

Also, the policy underscores the significant and supportive roles of the Ministry of Infrastructure, Communication and Transport in accelerating growth of both urban and rural based economies through provision of efficient transportation and communication infrastructure that foster linkages between production, distribution and marketing centres for food and related inputs needed for improvement of productive and service sectors. The Ministry also assumes important role in facilitating trade, especially exportation and

importation of foodstuff and other commodities, which are important in ensuring national food availability

2.1.12 Zanzibar Health Policy (2011)

The Zanzibar National Health Policy is supposed to provide general directions to health sector development in Zanzibar. The main objective of the health policy is to improve health services and social welfare of the people of Zanzibar. Clean environment, chemical and e-waste, inadequate management of hospital (both solid and wastewater), and existence of households without proper toilet facilities, pollution of water sources, air and sounding environment and increasing population are highlighted in the policy as major constraints to better health communities in Zanzibar including the workforce and communities in the Corridor.

2.1.13 Tourism Policy (2005)

Tourism in Zanzibar plays a major role in providing the much-needed foreign exchange as well as the economic benefits through various industries that would emerge to cater for the sector. The objective is to enhance the quality of and accessibility to Tourism infrastructure existing and developing infrastructure to cope with the demands of high-class tourism.

2.1.14 National Spatial Development Strategy (NSDS)

The NSDS is an important the framework for decision making on spatial development. The framework provides the ways in which the Zanzibar space will be used and developed over the next decade and beyond is provided. The NSDS takes a more holistic and policy based view, providing: (i) a strategic national framework, focusing on clear and logical spatial planning principles, policies and guidance to be followed when Planning Authorities and Municipal Councils are preparing detailed Spatial Development Plans for their areas and when decisions are being made on specific development proposals; and, (ii) a broad spatial development context for key infrastructure and investment decisions that, in particular, have land use implications this include development of green corridor or urban regeneration.

2.1.15 Stone Town Master Plan (Zanzibar a Plan Historic Stone Town), 1994

The plan recommends for upgrading of public space in the Stone Towns this include public square, vacant land, playing field and area catering for informal activities such as fish market, food stalls and boating building. It further recommends that all actions to upgrade infrastructure should be coordinated by STCDA to ensure implementation is effective and within the general framework of the conservation plan. In addition, the plan proposes the reorganization of traffic and pedestrians to ease congestion along creek road and around the Darajani market area such as provision of paved pedestrian routes, bicycle lanes, and traffic calming measures. The project will comply with the recommendations of this plan and its proposal will be integrated in the project design.

2.2 Legislative and Regulatory Framework

2.2.1 Regional Administration Act (2014)

The Act specifies powers and function of the Regional, District, and Shehia government administrators. It covers all matters related to the social, economic, and environmental governance in the lower administrative units such as in the Shehias. Section 22 (1) (d) of the Act states that regional development committees established under this Act have been given a responsibility to mobilize people to participate, contribute, and if possible, assist in the use and management of natural resources, protection of the environment for sustainable development and in all activities of national development. The project proponent is supposed to ensure full adherence to the Act, collaborating with the various levels of authority in the implementing the social and environmental safeguards of the proposed project.

2.2.2 Local Government Authority Act (2014)

The Act specifies the LGA structures with their jurisdictional areas, powers and functions. It covers all matters related to social, economic, and environmental governance within the defined boundaries of jurisdiction. On environment, the Act emphasizes the local powers of prevention and control public nuisance, maintenance of sanitation, control environmental pollution. Others include supervising and ensuring measures to combat epidemic diseases; control extraction of stone, sand, wood, and other forms of natural resources, undertake reforestation and urban forestry initiatives, implement the land use plan, and deal with cross cutting issues of climate change, disaster management and population. The project proponent is obliged to comply with all the requirements of this act.

2.2.3 Environmental Management Act (2015)

The Zanzibar Environmental Management Act (ZEMA) No. 3 of 2015 replaced the Environmental Management for Sustainable Development Act of 1996. It was enacted specifically to address the environmental management priorities and focuses on the implementation of the key environmental management tools namely: Environmental and Social Impact Assessment process, Environmental Audit, Strategic Environmental Assessment, Pollution Prevention and Waste Management, Biodiversity Conservation, Environmental Education and Research, Integrated Coastal Zone Management, Climate Change Adaptation, Non-Renewable Natural Resources, and other matters of environmental emergency. The ZEMA requires an Environmental and Social Impact Assessment (EIA) to be carried out for the development of any proposed project which is likely to have a significant impact on the environment. The Act makes it mandatory for any person to comply with the environmental and social impact assessment requirements of the Project, which include screening, scoping and the review process. The project must conform to all requirements of environmental clearance and safeguards.

2.2.4 Road Transport Act No.7 (2003)

The Act provides for regulation of road vehicles, driver's licenses, vehicular registration, acceptable motor vehicles operating and performance standards; emissions testing, compliance, and the overall road safety and traffic management. Section 18 (1) guides environmental monitoring and standards for the vehicular emissions, waste oils and water disposal, etc.

2.2.5 Zanzibar Land Tenure Act, 1992

The Act stipulates that all land within the islands of Zanzibar occupied or unoccupied is public land vested in, and at the disposition of the President, for the use and common benefit, direct or indirect, of the people of Zanzibar. Compensation is to be paid to the persons or communities concerned; the compensation shall be equal to the fair market value of the land. All affected people whose houses, properties or farm plots are to be demolished or converted should be compensated accordingly.

In principle the Land Act recognizes four types of Land ownership, namely, the customary ownership, the Government -granted rights of occupancy, the inherited right and the transferred or sale right.

2.2.6 Land Allocation

According to the land decree the landowner with either a title deed or customary ownership must be monetary compensated for losing the land for other developments. The Government provides the resettled owner with alternative land plots of the same size in the nearest suitable location for both residential and business purposes. During the public consultation with communities and Shehas it was revealed that plots are available close to the buildings and farms of project Affected Persons. The District Authorities in collaboration with Shehas would assist in allocating the new area for resettlement of the displaced owners.

2.2.7 Compensation of Affected Properties

According to the law, the Ministry of Infrastructure, Communications and Transportation in collaboration with the Government Valuer from the Department of Lands are responsible for ensuring that effective compensation process is set and implemented. The Department of Lands is responsible for undertaking valuation and approval of Properties Valuation Report for buildings and land while the Ministry of Agriculture is responsible for the valuation and approval of the valuation for the affected crops and trees.

The district authorities through Shehas of responsible Shehias are supposed to provide plots to accommodate the displaced owners.

The Ministry of Finance through the Ministry of Communications and Transportation will liquidate the compensation sums using the funds allocated for that purpose.

2.2.8 The Valuers Registration Act, 2015

This act establishes Valuers Board as a Government Agency capable of acquiring, holding and disposing of movable and immovable property. Section 36 requires that valuation activities be undertaken only by registered valuers and/or firms. The valuers will be responsible for conducting valuation of properties to be affected by the implementation of the proposed project

2.2.9 Legislation on Right of Way

Currently Zanzibar has no law on the width of the Right of Way or Road reserve. As far as this project is concerned, the agreed Right of Way is 30m.

2.2.10 Labour Relations Act, 2004

The Labour Relations Act describes for the fundamental rights at the workplace. It emphasizes establishment of basic employment standards, provision of a framework for collective bargaining, and prevention and settlement of disputes and other labour related matters.
Section 5 of the Act prohibits employment of children under the age of 14 years. Employees aged from 14 years and above may only be employed for light works, which are not likely to cause harm to the child's health and development, and does not prejudice the child's attendance at school, participation in vocational orientation or training programmes approved by the competent authority or the child's capacity to benefit from the instruction received. The act also prohibits employment of a child under the age of eighteen years in any work site where work conditions may be considered hazardous.

2.2.11 The Ancient Monuments Preservation Act, 2002

The Act was established to protect and preserve the ancient monuments and antiquity in Zanzibar. The Act refers an antiquity as any movable object which the Minister, by reason of its archaeological or historical associations may think it necessary to protect against injury, removal or dispersion. a monument is any structure, erection, or memorial, or any tumulus or place of interment, or any cave, rock-sculpture, inscription of monolith, which is of archaeological, historical or artistic interest, or any remains thereof including the site of monument; portion of land adjoining the site of monument (as may be required for fencing or covering in or otherwise preserving such monument); and the means of access to and convenient inspection of monument. Section 4(1) empowers the Minister responsible to establish an authority to manage and supervise the ancient monuments or antiquity as he deems necessary. Section 8(1) allows the Minister to acquire monument or antiquity for public purposes especially when the protected monument or antiquity is in danger of being destroyed, injured or allowed to fall into decay.

2.2.12 Town and Country Decree (Cap 85), Regulations

The planning decree protects the natural and built heritage through proposing enterprise zones, designing historical or protected as well as housing areas. It directs all excavation works within conservation planning area except in the creek road area to be carried out manually. Taking into account the sensitivity of the area, the regulations require all works to get approval from the STCDA before commencement of the works in this area. The project will comply with these regulations by seeking the permit from the authority especially for improvement of new Mkunazini and creek roads.

2.2.13 The Stone Town Conservation and Development Act, 2010

The Stone Town Conservation and Development Authority was established under Act No. 3, 1994 and later amended by Act No. 4 of 2010. Under this Act, the Stone Town Conservation and Development Authority (STCDA) was empowered to carry out its functions integrating both conservation and development needs with the of protecting and preserving the cultural heritage of the Stone Town as a sustainable human settlement. Therefore, STCDA organizes the planning and regulation within the "Conservation Area" which includes the inscribed Stone Town World Heritage Site Property and its defined Buffer Zone.

2.2.14 The Zanzibar Occupational Safety and Health Act No.8 of 2005

The Zanzibar Occupational Safety and Health Act No. 8, 2005 establishes basic principles of safety and health in Zanzibar. It stipulates clearly the duties and responsibilities of key stakeholders in occupational safety and health. The Act establishes occupational safety and health management systems such as safety and health committees at national and enterprise level. At enterprise or workplace level, the occupational safety and health representatives form a committee. Furthermore, the Act establishes occupational safety and health inspectors for systematic and continuous monitoring and evaluation of work environments. Inspectors are required to devise mechanisms to eliminate and control hazards at workplaces. Client will adhere to this Act by ensuring/providing safe working environment during construction and operation phase of project implementation.

2.2.15 The Zanzibar Workers‟ Compensation (Amendment) Act No. 5, 2005

The aim of Workers Compensation (Amendment) Act, 2005 is to provide compensation to workmen for injuries or diseases suffered during their employment. The Act, is a principal legislation that guides all compensation claims of employees who are injured or affected by work related hazards in the private and public sector in Zanzibar. The project proponent has noted the provisions of the Workers' Compensation Act. Therefore, Client shall observe and implement all measures to govern OSH undertakings for the project.

2.3 World Bank Safeguard Policies

2.3.1 Background

These are World Bank Safeguard Policies approved by the Board for addressing environmental and social issues within the Bank's supported development projects. The proposed Michenzani Green Corridor Development project has been assigned Environmental Category B and triggers the following World Bank Safeguard Polices: (i) Environmental Assessment (OP/BP 4.01); (ii) Involuntary Resettlement Policy (OP/BP 4.12); (iii) Physical Cultural Resources (OP/BP 4.11and (vi) Natural Habitats (OP/BP 4.04) as well as related aspects including consultation and disclosure practices for Category B projects.

2.3.2 Environmental Assessment (OP/BP 4.01)

The World Bank's safeguard policy OP 4.01 Environmental Assessment requires that all Bank financed operations are screened for potential environmental and social impacts, a view shared by Zanzibar's National EIA procedures and processes. Both policies emphasize that the required environmental assessment be carried out based on the screening results. The World Bank's Environmental Health and Safety Guidelines also apply to

projects such as those proposed Green Corridor especially relevant guidance for the solid waste and sludge management from the corridor.

Regarding categorization of projects in terms of levels of environmental assessment, OP 4.01 requires that if program is categorized for detailed assessment, a full ESIA and ESMP will be required;

2.3.3 Physical Cultural Resources (OP/BP4.11)

Culturally, Zanzibar is extremely rich and diverse and is home to ancient civilizations: 300-yearold Arab settlements; 100–year-old European buildings; graveyards; sacred areas; mosques; churches; etc. To mitigate against the potential for adverse impacts on cultural property, particularly on stone Town, the Heritage Impacts assessment[1]has been conducted and PCR management plan prepared to ensure that cultural property resources are identified, and appropriate measures taken to avoid damaging them. Chance find procedures will be incorporated into civil works contracts and buffer zones will be created to avoid damage to physical cultural resources, especially archaeological and subsurface ones in Stone Town.

2.3.4 Involuntary Resettlement (OP/BP 4.12)

Involuntary Resettlement Policy OP 4.12 requires that all projects screened for potential environmental and social impacts be supported/guided by identifying involuntary resettlement sand development of Resettlement Action Plan (RAP). However, in Zanzibar, there is no explicit requirement for RAP. As regards compensation, the Zanzibari laws require that only the rightful land or property owner (statutory or customary rights of occupancy) should be compensated for land, though tenants and encroachers are eligible for some assistance (e.g. tenants based on the rights they have for the land/assets and encroachers for disturbance and transport allowances, loss of profits etc.). OP 4.12 on the other hand requires that any person (whether is rightful owner or not) who loses or is denied or restricted access to economic resources – including tenants, encroachers, squatters - should be compensated. Although there are no significant discrepancies between WB requirements and Zanzibar government's requirements regarding compensation and resettlement of Project Affected People (PAP). As far as the Michenzani Green Corridor is concern, the World Bank's safeguard policy will prevail, and the Consultant has must develop the Resettlement Action Plan.

2.3.5 Natural Habitats (OP/BP 4.04)

Natural Habitats policies are triggered due to environmental degradation and sanitation activities. The main site for disposing solid waste from the proposed development Corridor is at Kibele located in the buffer zone of a protected forest area.

[1] Physical cultural resources (PCR) impact assessment

2.3.6 Environmental, Health and Safety Guidelines

The IFC and World Bank Group EHS guidelines have been designed to be used with the relevant Industry-Sector EHS Guidelines to provide guidance on EHS issues in specific industry sectors. The guidelines recommend hierarchal approach and steps to be followed for effective management of environmental, health, and safety (EHS) issues such as identifying EHS project hazards and associated risks as early as possible in the project cycle, involving EHS professionals, understanding the likelihood and magnitude of EHS risks, prioritizing risk management strategies with the objective of achieving an overall reduction of risk. This project applies these guidelines to ensure effective management of EHS issues in the various phases of the project cycle.

2.4 International Agreement/Conventions

Tanzania has ratified several Multilateral Environmental Agreements (MEAs) and consequently is bound by obligations under these agreements. The most relevant MEAs to this project include:

- Convention on Biological Diversity (CBD) of 1992: ratified by Tanzania in 1996. Its importance comes with the protected areas (PAs) existing close to the road project. Meddling with the flora and fauna in the vicinity is contravening the CBD. o Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). o African Convention on the Conservation of Nature and Natural Resources. Like the CBD, this Convention alerts nations on the conservation the African nature and natural resources in their widest sense. The road project is likely to interfere with the normal lives of nature such niches, population and some habitats. o World Heritage Convention of 1972: the convention links together in the concepts of nature conservation and the preservation of cultural properties. The Convention recognizes the way in which people interact with nature, and the fundamental need to preserve the balance between the two. Tanzania ratified this convention in 1977. The Project will seek to align with the basic principles and requirements of the Convention as appropriate for the management and protection of cultural heritage in accordance with best international practice

- Safety and Health in Construction Convention, 1988 (No. 167) applies to all construction activities mainly buildings, civil engineering and erection and dismantling work including any process, operation or transport on a construction site, from the preparation of the site to completion of the project. Construction covers the construction of roads and highways, railways, bridges, etc. This project involves construction activities, which may risk health and safety to construction workers due to dust emission and construction related accidents to operation and movement of construction equipment / machinery. Thus, the Contractor will be required to take all precautions regarding the safety and health of construction workers. This includes the provision of safety gears and personal protection equipment (PPE), as well as medical care in case of injuries.

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2.5 Institutional Framework for ESIA

The Environmental Management Act 2015 outlines the framework for managing environmental matters in Zanzibar. During updating of ESIA it was found that the Zanzibar Island still use the same institutional framework as stipulated in the environmental management Act of 2015 for environmental management. The Act gives mandate to Zanzibar Environment Authority (ZEMA) to enforce compliance process of EIA and management of all environmental issues in Zanzibar. However, given the fact that Stone Town Mobility Management Program (STMMP) and Michenzani green corridor project (Michenzani Area Integrated Redevelopment project) cuts across different sectors, monitoring environmental issues of the project becomes a responsibility shared by several institutions. Below is the description of institutions that will be involved in the implementation of environmental and social management plan as well as resettlement process and heritage impact management plan.

2.5.1 Ministry of Finance and Planning and the Ministry of Infrastructure, Communication and Transportation

Ministry of Finance and Planning through Project Implementation team (PMT) and the Ministry of Infrastructure, Communication and Transportation through the Project Implementation Unit (PIU) are responsible for the overall management of BIG-Z activities. But for this project the Ministry of Infrastructure, Communication and Transportation through the Project Implementation Unit (PIU) will be the custodian responsible for its implementation including the environmental and social safeguard matters. PIU will provide overall coordination and technical support to participating institutions in this case, STCDA, DoURP, ZUMC MICT and DoMA. The Ministry of Infrastructure, Communication and Transportation has established a dedicated Project Implementation Unit (PIU) consisting of various specialists for the implementation (including monitoring implementation of ESMP) of the selected World Bank supported projects under BIG-Z. PIU will be responsible for coordinating and monitoring implementation of ESMP, RAP and heritage management plans.

2.5.2 Ministry of Agriculture, Natural Resources, Livestock, and Fishing

Ministry of Agriculture, Natural Resources, Livestock and Fishing (MANRLF) is the main central government authority responsible for natural resources and environment in Zanzibar. Four separate departments and one authority under the MANRLF relevant to this project are:

- Department of Fisheries and Marine Products (DFMP)
- Department of Commercial Crops, Fruits and Forestry (DCCFF)
- Department of Environment (DoE)
- Department of Cooperatives
- Zanzibar Environment Management Authority (ZEMA)

Department of commercial crops, fruits and forestry manages all borrow pits and quarry sites in Zanzibar. About this project, the department will be responsible for issuing permit to the contractor for extraction of stone, aggregates, sands and gravel.

2.5.3 Regional Administration, Local Government and Special Units

Coordination and administration of the connection between different tiers of government: Regional Administration, District administration, Local government and Municipal council

2.5.4 Commissioner for Lands, Chief Government Valuer Department of Lands and Registration Department of Survey and Urban Planning

Issuing right of occupancy on land, oversees land use planning and issues related to compensation and resettlement. Streamline Procedures for Land Acquisition, Valuation, Compensation and Allocation Regularization of Informal Settlements. Preparation of legal Framework for Land Valuation Approval of compensation schedule.

2.5.5 Zanzibar Environment Management Authority (ZEMA)

The Environmental Management Act, 2015 gives ZEMA overall responsibility for screening (decide on appropriate level of the assessment), undertaking scoping in collaboration with project proponent and reviewing ESIA report of projects. ZEMA constitutes multidisciplinary, multi-sectoral Technical Review Committees to review adequacies of environmental impact assessment reports. ZEAMA approves the ESIA report which is adequacy and submits recommendations to the Department of Environment (DoE) for issuing ESIA certificate. ZEMA has also the function of providing directives on the proper action to be taken for effective environmental management in Zanzibar.

2.5.6 Zanzíbar Urban Municipal Council (ZUMC)

The ZUMC core business is to formulate, coordinate and supervise implementation of plans for economic, commercial, industrial and social development; ensure the collection and proper utilization of revenue of Council; make by-laws applicable throughout its area of jurisdiction and consider, regulate and co-ordinate development plans, projects and programs of Shehia and township councils within its area of jurisdiction. The Council is organized into five Standing Committees and one of the committees is responsible for Labour, Construction and Environment. ZUMC will be responsible for coordinating projects activities that are undertaken within the Michenzani and Stone Town areas. In addition, the council will be responsible for monitoring the implementation of ESMP, RAP and HIA and general environmental management of this project.

2.5.7 Stone Town Conservation and Development Authority (STCDA)

STCDA is vested with overall responsibility to examine and approve all conservation and development efforts and projects in Stone Town and monitor infrastructure development this includes monitoring development to bring them in conformity with master plan. The Stone Town Master Plan of 1994 gives the authority the responsibility of approving all works in the Stone Town before its commencement. Therefore, STCDA will coordinate contractors and construction activities within Stone Town, issuing permits and monitoring environmental performance during implementation of this project.

2.5.8 Development Control Unit (DCU)

DCU is a governmental institution under the Ministry of Lands, Housing, Water and Energy responsible for enforcing the implementation of Land Use Plan, and Local Planning Schemes; managing development in all planned areas (in any site or heritage areas) in

Zanzibar; issuing building permits. During implementation of this project, DCU will play an important role on issuing building permist in collaboration with STCDA, monitoring during construction phase to ensure adherence to stipulated guidelines and public space and public ways developed as per local planning scheme and/or approved project design.

2.5.9 Shehia

Shehia is lowest level of administration in Zanzibar headed by Sheha. Shehia is responsible for all matters including law enforcement in the area and reports directly to the district commissioner (DC). Each Sheha has an advisory committee of not less than 12 members, a third of whom are required to be 60 years or above; and Committees on different issues including environment. During implementation of Michenzani green corridor project, Sheha will play an important role on disseminating information to the community and community engagement in general. Sheha will also be used as a starting point for PAPs to file grievance related to the project.

2.5.10 Zanzibar Association of the Disabled (UWZ)

An NGO struggling for the creation of non-handicapping environments which would allow for more independence and participation (accessibility) of people with disabilities. They are key stakeholders in pushing for more conducive environment for disabled during construction. In this project they have provided their concerns which will be taken into consideration and will be part and parcel during construction and implementation of the Stone Town and Michenzani project.

CHAPTER 3: PUBLIC CONSULTATIONS AND STAKEHOLDER ANALYSIS

3.1. Introduction

This chapter describes the stakeholder identification process, the consultation methodology used, identified stakeholder issues and concerns regarding Stone Town Mobility Management Program (STMMP) and Michenzani green corridor project. Consultation was conducted according to the requirements of World Bank OP 4.01 and ESIA ToR issued by Zanzibar Environment Management Authority (ZEMA) during scoping phase of the ESIA. Ongoing consultation will continue during the disclosure of this ESIA report and throughout the implementation of the project in Stone Town and Michenzani, Unguja, Zanzibar. Therefore, the contractor is expected to engage the community in Stone Town and Michenzani to update them regarding construction activities. Community engagement will also be used to provide stakeholders with an opportunity to submit grievances that could result from project activities in relation to environmental, social and safety impacts as well as of loss of cultural heritage.

The disclosure of this ESIA will be according to OP 4.01 to enable the community to access project specific information in a timely manner and understand expected project activities. The ESIA report and non-technical executive summary in Swahili (hard copy) will be available at the municipal office, ward office and shehia office which is located within the project area. ESIA report will also be disclosed through Ministry of Finance and planning website and World Bank website.

Public consultation is also emphasized by the Environmental and Social Impact Assessment guidelines issued by Zanzibar's Department of Environment (2009) which require that "public consultation is mandatory when conducting an ESIA and at a minimum the proponent must meet key stakeholders to solicit their views". The consultation process for this study started by the ESIA team, with support from the Client, identified initial stakeholders to be consulted. To ensure views from a broad range of stakeholders are collected, the consultation was conducted in two folds i.e. consultation was carried out by the consultant team responsible for the ESIA/RAP/HIA studies, as well as by KUKUA NGOs, which were engaged by the client to supplement the consultation activities of the ESIA, HIA, and RAP teams. During the update of this ESIA report, additional consultation was undertaken by the consultant DAR AL HANDASAH to verify information collected in 2020 and to incorporate issues related to Stone Town, which has now been included in the Michenzani scope. After identification of the stakeholders, the analysis of stakeholders was conducted in order to determine:

- Who are the relevant stakeholders o How are they are affected by the project
- Where they are located
- Their degree of influence over, and dependence on the project; and o Which issues are critical to them

3.2. Stakeholders Identification

During the scoping exercise and Environmental and Social Impact assessment process, the ESIA team used initial list of stakeholders to identify key stakeholders of the Stone Town

Mobility Management Program (STMMP) and Michenzani green corridor project including those who are directly or indirectly likely to be affected by the project (Project Affected Persons - PAPs), authorities and the interested or concerned parties. This list was expanded and stakeholders were categorized into 3 groups to analyze the needs, wants and expectations of stakeholders. The first group of stakeholders are those with influence over the project. The second group are the beneficiaries of the Michenzani Green Corridor project while the third group are the heritage advocates and organized interest groups interested in the conservation of heritage with the WHS and its buffer zone. These different groups are illustrated in Figure 3.1 below.

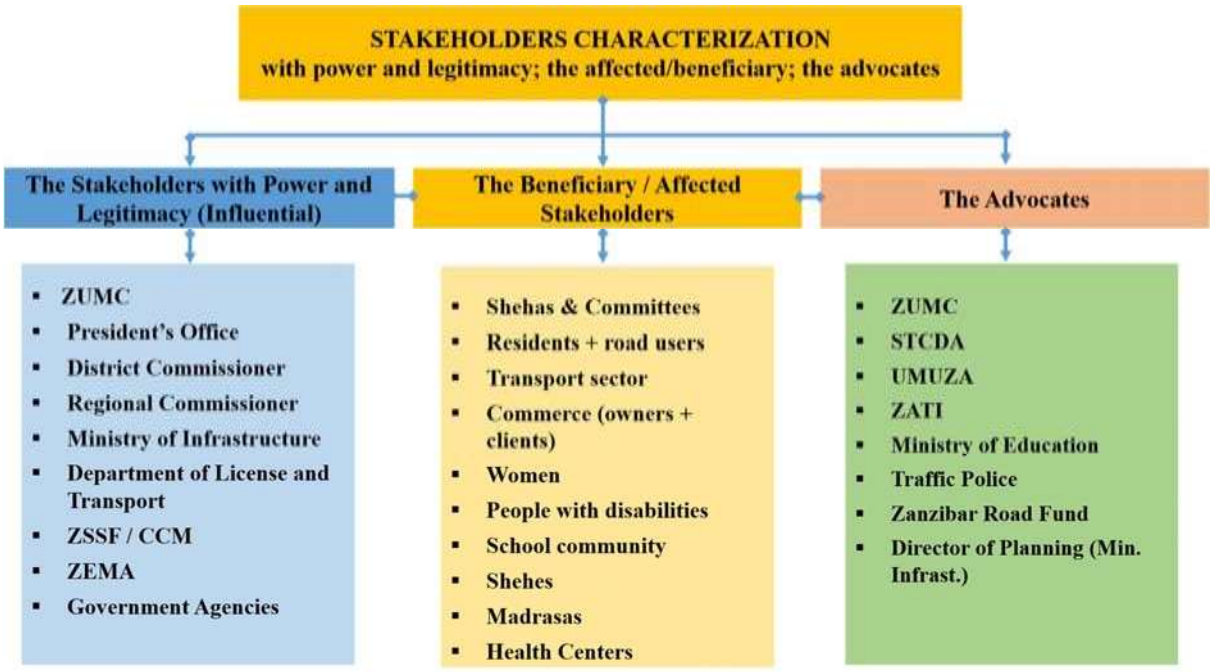

Figure 3.1: Shows the stakeholder grouping and characterization

The role, interest and influence for most of the stakeholders are presented in the Table 3.1 below.

Table 3.1: Stakeholder Identification and Analysis

Key Stakeholders	Interest, Role and Influence
Ministry of Finance and Planning	Facilitates planning, support and coordination of national financial and development issues. Negotiating and administering major financial arrangements with donors for proposed project implementation
Ministry of Infrastructure, Communication and Transportation	Development of transport policy and coordinating the implementation of the proposed project construction activities
Ministry of Information, Tourism, Culture, and Sports;	Project information dissemination and awareness and tourism promotion

Ministry of Labour, Economic Empowerment, the Elderly plus Youth, Women, and Children,	Providing governing policy on labour and employment. The implementation of the policy requirement is crucial particularly on labour employment during project construction
Ministry of Land, Water, Energy, and Environment	Providing policy guidance for planned activities on land, water, energy and environmental management
The Ministry Regional Administration, Local Government and Special Units	Coordination and administration of the connection between different tiers of government: Regional Administration, District administration, and Local government and Municipal Council,
Regional Commissioner (MjiniMagharibi)	Regional Commissioner is in charge of the administration of the region and the functions include monitoring, supervising, and assisting in the execution of government projects in the region

Key Stakeholders	**Interest, Role and Influence**
District Commissioner, Mjini District	District Commissioner has the same powers as the RC being the principal representative of the government in respective district with the following functions: - to supervise community development in the district resolve different conflicts which arise in the district; to take necessary measures for cross cutting issues; administer relationship/supervise projects in the district
Sheha/ Shehia Committees	Shehas who are head of Shehias are responsible for all matters including law enforcement in their areas of jurisdiction and reports directly to the District Commissioner. They are responsible for welfare and development at Shehia level implementation of all the Government policies and directives; coordination of public meetings; land development processes as witnesses; resolution of land disputes, initiation and mobilization of residents for development projects. Each Sheha has an advisory committee of not less than 12 members.
Zanzibar Environment Management Authority (ZEMA)	Enforcement of laws and regulations for environmental management and protection. Advisor to the government on all environmental matters, and technical arbitration in environmental Audits and ESIAs.

The Department of Environment (DoE)	Periodic monitoring to ensure that no adverse impacts result from implementation of development projects. The Department act as an environmental advisor to all stakeholders involved in environmental management including the proposed development project
Department of Roads	Responsible for Zanzibar Roads Maintenance and Management System (RMMS) during project maintenance and operation
Zanzibar Water Authority (ZAWA)	Management of water resources and water supply for both urban and rural areas including in the Green Corridor.
Zanzibar Electrical Company (ZECO)	Provide and maintain electricity utility in the Green Corridor
Commissioner for Lands, Chief Government Valuer Department of Lands and Registration Department of Survey and Urban Planning	Issuing right of occupancy on land, oversees land use planning and issues related to compensation and resettlement. Streamline Procedures for Land Acquisition, Valuation, Compensation and Allocation Regularization of Informal Settlements. Preparation of legal Framework for Land Valuation Approval of compensation schedule
Department of Urban and Rural planning (DoURP)	Responsible for all issues related to the spatial planning in Zanzibar and in particular Green corridor Development Plan
Stone Town Conservation and Development Authority	Provide guidance on the Green Corridor implementation activities which have impacts on Stone Town.
Zanzibar Municipal Council	Operation and maintenance of facilities to be developed under Green Corridors Development Plan Collecting revenue from the facilities to be provided in the
Key Stakeholders	**Interest, Role and Influence**
	development Plan e.g. parking, solid waste collection, sewerage services and other services in the Plan
Department of Forestry	Management of forestry including identifying the type of trees to be planted in the Green Corridor.
Development Partners	Funding Development projects
Zanzibar Association of the Disabled (UWZ)	An NGO struggling for the creation of non-handicapping environments which would allow for more independence and participation (accessibility) of people with disabilities

Other stakeholders: These are identified as those with ability to influence the project either as regulators or because they have special knowledge that can contribute to its design and implementation. These stakeholders include:
Zanzibar Chamber of Commerce Zanzibar Association of Tourism Investors (ZATI) Zanzibar Commission for Tourism (ZCT) Department of Lands and Registration ZBC Radio Department of Museums and Antiquities Department of Land and Registration Department of Land Administration Department of Survey and Mapping MPs and Representatives of constituencies Directorate of Occupational Health and Safety (DoSH) Land owners / users Land/building Occupiers Local government Townspeople / Urban population Local communities' members Environmentalists Competing land users Regulators Politicians Other Media Shareholders Suppliers Potential customers.

3.2.1 Meetings to initiate contact, schedule project presentations and start to build alliances.

The meetings were conducted in two phases, first phase back in 2019 when the original ESIA report covering Michenzani was prepared and the second phase conducted in 2024 to include institutions for Stone Town Safe and Sustainable Mobility. The meetings conducted in 2024 were important with the aim of merging Stone Town into the ESIA for Michenzani. All issues regarding Stone Town were added during the meetings conducted in 2024.
Back in 2019 the Consultant, DOHWA with support from KUKUA (Local NGO) which was engaged by the Client started with compiling initial stakeholder contacts. During preparation of Stakeholders Engagement Plan (SEP) KUKUA create relationships with key stakeholders, such as the Zanzibar Urban Municipal Council, who have demonstrated support and collaboration. KUKUA also built relationships with the Municipal Education Council, Drivers Association (UMUZA), as well as Social Sector stakeholders, such as ACRA and ANGOZA (Zanzibar NGO network).

Facilitation team conducted initial meeting with stakeholders for the purpose of collecting information of stakeholders, including institution, reference person, telephone number and email address which were used to develop a Contact Database. These initial meetings have also served to collect preliminary concerns and needs.

During updating of the ESIA report the design and supervision Consultant's team from DAR AL HANDASAH conducted additional stakeholder consultation to include recommendations and concerns for Stone Town Safe and Sustainable Mobility.

3.2.2 Meetings with strategic alliances to gain support, advice or prepare/schedule engagement activities with other stakeholders.

The updating of the ESIA was conducted in 2023 by the design review and supervision consultant who aimed at merging the issues for Stone Town in the Michenzani report. While undertaking the updating of the document the DAR AL HANDASAH team of consultants carried on the meetings with the different stakeholder including those who were consulted in 2019 and the ones specifically those for Stone Town Safe and Sustainable Mobility. These meetings were to ensure that the ESIA report would have complete informations covering both Michenzani and Stone Town.

It should be known that the original ESIA report which covered only Michenzani was carried out in 2020 with the process starting way back in 2019. Since June 2019, the ESIA team in collaboration with KUKUA began to build strategic alliances with certain stakeholders, gaining their support in the engagement plan. In this context the meetings were held with following stakeholders: o Zanzibar Urban Municipal Council: Officials from the Municipality shared their vision and advice on engagement and provided venue for trainings with Government Agencies, commerce, transport sector and Shehas. The officials formed a link with UMUZA and the Chamber of Commerce, joining KUKUA for meeting to present the project and summon for trainings. o UMUZA: with the support of ZUMC conducted a meeting with the leadership in of the association, which invited key transport stakeholders to attend workshop for the transport sector. UMUZA has many other transport sector associations under its umbrella (daladala, taxi drivers, bodaboda and private hire). o Department of Transport and License: the team held meeting to present the project and request support to work with daladala drivers, bodaboda and taxi drivers.

3.2.3 Meetings to present project and benefits, educate on project concepts, collect inputs, inspire and build coalition.

Meeting with Ministry of Infrastructure was conducted. The Ministry of Infrastructure is a crucial stakeholder for the MGCDP, considering the competences of this institution and its capacity for delivering relevant infrastructural programs. The meeting intended to raise awareness, inform the Minister and Directors of the different departments about the project's vision, main goals and convince the representatives about the consequent benefits.

In this meeting the following topics were covered introduction to the BIG-Z and Michenzani green corridor project, reasons for urban regeneration in the Michenzani axes, international context and the new paradigm presenting inspiring case studies, the vision and concepts of MGCP, expected benefits. Furthermore, methods and stakeholder's engagement program were covered.

3.2.4 Consultations and/or workshops to collect needs, ideas and input.

To officially roll out the SEP, KUKUA developed three consultation workshops to be carried out with government agencies, transport sector and the commercial sector. Session includes the following general objectives: o Introduce the basic concepts of the MGCDP.

- Create momentum for the project.
- Introduce and gain support for mobility concepts in the project.
- Obtain information, opinions and suggestions about and for the project.

Government agencies are a key group of stakeholders, fundamental for the feasibility of the project and the efficiency of its development. The complexity of the Green Corridors plan will affect different areas, requires acknowledgement and coo
rdinated implication of several departments of the administrative corpus. Some relate directly to the project implementation, other should review and inform from different perspective to assure compliance with environmental and social safeguards, in addition to those from which collaboration benefits project's development.

The following agencies participated in the workshop:

- Zanzibar Urban Municipal Council. o District Commissioner Office.
- Ministry of Labour, Empowerment, Elderly, Youth, Women and Children. o Zanzibar Environment Management Authority. o Zanzibar Water Authority.
- Department of environment – 2nd Vice President Office. o Housing Cooperation. o Ministry of Education. o Zanzibar Commission for Tourism. o Ministry of Infrastructure, Communication and Transportation. o Ministry of Information. o Stone Town Conservation and Development Authority.
- Department of Transport and License.

During the public consultation, some of the key issues those were raised by the communities and discussed. The concerns and responses are as indicated in the table below:

Table 3.2: Concern/Comments, Responses and ESIA recommendations

S/N	Concern/Comment	Stakeholder	Response	Responsible Person	Section for proposed measures
	Environmental Concerns				
1.	Air pollution from dust to be generated during construction;	Dwellers at Michenzani Flats	Watering will be done to suppress dust	Contractor	7.1.2.7
2.	Solid waste production and littering the environment;	Dwellers at Michenzani Flats	Proper solid waste collection and disposal	Contractor	7.1.2.6

3.	Blockage of storm water drainage due to dumping of solid waste into the storm water drainage;	Dwellers at Michenzani Flats	Awareness creation and law enforcement to avoid dumping of solid wastes	ZMC	7.1.2.6& 4.5.4
4.	Noise vibration during construction and transportation of construction materials;	Dwellers at Michenzani Flats	The construction works will not be undertaken during the nights and near religious buildings during worshiping	Contractor	7.1.2.2
5.	Beautification of the project area through improvement of infrastructures and landscape;	Local Community	The landscape will be implemented to beatify the Corridor	Designer, Contractor	4.2
6.	Disturbance to public due to shifting of public facilities e.g. bus stop, power line, Telephone line, water pipes etc.	Utility Authorities	Utility authority will be notified by the contractor in advance before construction starts to minimize the effect	Contractor	7.1.4.2
	Socio-economic concerns				
7.	Where does the Government plan to	Petty Traders	The proposal is to relocate the Petty Traders to Saateni (the	Municipal Council	7.1.4.1

S/N	Concern/Comment	Stakeholder	Response	Responsible Person	Section for proposed measures
	relocate us to?		area which has been allocated by the Municipal Council for petty business) however, this will require acceptance by the traders		
8.	Are we going to be compensated for the losses we are going to suffer due to the relocation?	Mobile Food Vendors	A livelihood programme and measures will be effected.	PIUPIU/ Municipal Council	7.1.4.1 (RAP has more details)

9.	Are we going to be assigned slots after the improvements to the current area have been completed? (Karume)	Petty Traders along Karume Road	Yes, all petty traders who are doing business will be considered	PIU/ Municipal Council	7.1.4.1 (RAP has more details)
10.	The JUWAVI Association should be given a prominent role so as to protect the rights and interests of its members	JUWAVI	These are among the key stakeholders that will be contacted and involved during the project implementation	PIU/ Municipal Council	3.1
11.	The government should consider assigning us alternative areas in Jangwani, Mnazi Mmoja, Kisonge, Bwawani or Malindi.	Mobile Food Vendors	Yes, the proposals will be submitted to the relevant authorities.	PIU	7.1.4.1 (RAP has more details),4.2.3
12.	How many people will be affected and compensated	Trade vendors	The number of PAPs will be identified during census of affected people and valuation will be conducted	Consultant and PIU	7.1.4.1
13.	Community involvement and particularly provision of work opportunities to the local communities;	Local community	The Contractor with assistance from Sheha will earmark unskilled labourers from the project area for employment	Contractor, Sheha	3.1 &7.1.2.8, 7.1.4.2, 7.1.4.4
	Safety concerns				
14.	Lack of pedestrian pavement and cycling infrastructure;	Local community	The Green Corridor will be provided e pedestrian pavement	Designer and Contractor	4.2.1
15.	Parking re-arrangement as well as relocation of the street and daladala bust station;	Taxi Drivers and Daladala operators	Alternative site for Daladala and Taxi parking will be provided	PIU	4.2.1 & 7.2.4.1

S/N	Concern/Comment	Stakeholder	Response	Responsible Person	Section for proposed measures
16.	Worries on reduction of traffic congestion if not increasing during the implementation of the project;	Daladala Commuters	During project implementation the road signs will be provided	Contractor	7.1.4.3
17.	Blockage of entrance and access to working places or business centers;	Traders, ZSSF	Alternative entrance will be provided	Designer, Contractor	7.1.4.1
18.	Motor traffic and freight access re-arrangement.	Traders, ZSSF	Alternative access will be provided	Designer, Contractor	7.1.4.3
	Policy Related concerns				
19.	Some projected affected people do not have legal and formal documents for affected properties will they be compensated?	PAPs at Darajani	Resettlement will be handled according to laws of RGoZ and World Bank OP 4.12, whereby encroachers and land users without legal title on the land have the right to be compensated	PIU	7.1.4.1 (RAP has more details)
20.	The timeframe and actual commencement of the project construction works.	All stakeholders	The Project is at the Design Stage it is expected that by mid next year the design will be approved	PIU	N/A

Table 3.3: Summary of consultation events and timeline

S/N	Consultation event/Method	Stakeholder/ means of disclosure	Date	Place (Unguja Zanzibar)
1	Interview	ZUMC, Ministry of education	June 2019	ZUMC offices
		UMUZA, ANGOZA, ACRA	July 2019	At each stakeholder's office

		Schools, Association of the disabled, Blind people organization, chamber of commerce, traffic police	August 2019	At each stakeholder's office
2	Meeting	Ministry of infrastructure Communications and Transportation	August 2019	Ministry of infrastructure conference room
3	Workshop	Representative from government agencies	August 2019	ZUMC conference room
		Representative from commercial sector	August 2019	ZUMC conference room
		Transport sector (public transport, cargo, car rental, bodaboda, taxi, traffic police, licensing authority)	August 2019	ZUMC conference room
		Local leaders (Shehas and Shehia committees)	September 2019	MoFP conference room
		School teachers, School children	September 2019	MoFP conference room; at each school
4	Disclosure of ESIA report	The disclosure will be according to OP 4.01. The report will be available on the website of the ministry of finance and planning as well as World Bank website; hardcopies will be available at PIU-MOICT, ZEMA and ZUMC	Soon after cleared by World Bank and ZEMA	

3.2.5 Consultation for Updating of ESIA report

Consultation during updating of ESIA report was done to include relevant information for Stone Town Mobility Management Program (STMMP) and to ascertain information gathered in the past for Michenzani Green Corridor**.** As explained earlier it was necessary to update ESIA report which was earlier covering Michenzani to integrate Stone Town Mobility Management Program (STMMP) into one report. The consulted for original ESIA was conducted in 2019 while those for additional and original stakeholders was conducted in 2024. In updating the ESIA report the following meetings were conducted.

Meeting with the Regional and District Commissioners

The courtesy visits helped to the team to introduce themselves to regional and Municipal security chairman and establish the right contacts in the project area, which in turn facilitated the study at the community level. The visits provided an opportunity to learn and share salient information about the proposed project with the authorities at the district and regional level. In addition, the team obtained important socio-economic secondary data about the project area.

Meeting with Municipal Council Officers

Both teams conducted interviews with heads of departments of Dodoma City Council that are relevant to this project. The officers consulted included;

- Municipal Director
- Municipal Environmental Officer
- Municipal Natural Resources Officer
- Municipal Land officer
- Municipal Town Planning Officer
- Municipal Community development officer

Meeting with Utility Companies

The preliminary design has shown that there are sections which power lines and water supply pipes shall be affected by the project and therefore needs to be relocated. ZECO regional TTCL and ZAWA technical managers were therefore consulted. The aim of consulting them was to introduce the project so that they are aware of the proposed project and to gain experience on the procedure to relocate the infrastructure (power lines and water pipes) which are within the proposed RoW of the project. One to one discussion was the method used to gather information.

Meeting with Institutions located near the project area

There are institutions which shall be affected by the fact that they are located either near the project area or the proposed project road passes near or within the institutions. Interviews and one to one discussion were the methods that were used during consultation. Table 3.4 below shows the list of institutions consulted and the reason for their consultation.

Table 3.4: Institutions Consulted by virtual of their location

SN	Institution	Remarks
1	ZECO	Proposed sub projects pass near the Electricity Utilities
2	ZAWA	Propose subprojects pass near the Company Water Utilities,
3	TTCL	Propose sub projects passes near the Company Premises and utilities.
4	Stone Town Conservation and Development Authority (STCDA)	The mobility project was constructed at stone town
6	ZEMA	Proposed sub project needs approval certificates for Environmental and Social issues

Separate Meetings with Shehia Leaders

Brief meetings were held with local leaders including ward and mtaa officials. Leaders from 9 Shehia of KwaAlinato, Miembeni, Raha Leo, Mwembeshauri, Gulioni, Mwembeladu, Kikwajuni, Mlandege, Malindi were consulted. Discussions focused on existing socio-economic situation in the area and the need to identify clusters of people likely to be adversely affected by the project. The discussions provided an opportunity to introduce the project to the community leaders and identify key informers. The meetings were also intended to encourage community consultative approach, thus fostering a community participatory approach right

from the initial stages of the proposed projects. The social study team had earlier met the leaders of the major settlements along the proposed road, during the scoping exercise. These leaders were informed about the project and initial contacts were established, including telephone numbers and other address exchanges. The questionnaire was provided to shehas to fill in the relevant secondary data available in the Shehia.

Public consultations

In the study area, the team conducted a number of consultation meetings with the general public. The public meetings were attended by all sub wards including women, youth, old people and even children. Whoever was available in the sub ward was allowed to attend. Table 3.5 below shows the list of wards, villages and the members of communities (in numbers) that participated in the public meetings. The minutes of the meetings are attached as appendix III.

Table 3.5: Public Meetings attendance

Date	SHEHIA	Participation
24/11/2024	RAHA LEO	46
24/11/2024	GULIONI	17
24/11/2024	MWEMBELADU	28
25/11/2024	MWEMBESHAURI	49
25/11/2024	MIEMBENI	36
26/11/2024	KWA ALINATO	48
	MALINDI	12
	MLANDEGE	19
Total		**255**

(Source: Dar Alhandasah, 2024)

Informal discussions

Informal discussions were held with key members of the community such as elderly people; influential persons; women/youth group leaders; and community-based resource persons.

Major Issues Raised by Stakeholders

The stakeholders in the project area raised the following issues;

1. **Demolition of Houses:** There will be partial especially verandas demolition of Houses or Kiosks before the construction unless there will be alignment along the sub project
2. **Spread of HIV/AIDS and other sexually transmitted infections**: Impaired community safety and risk of disease intensifications, especially HIV/AIDS. The contractor is required to conduct relevant preventive awareness creation seminars and campaigns on HIV/AIDS to both workers and the communities at large.
3. **Accidents:** It has been always observed and witnessed the increase in number of road accidents which are fatal and leave affected with disabilities after the tarmac road is constructed. This prompts fear that proposed tarmac road will claim people's lives through accidents. Advise the contractor/Ministry of Finance to carry out Road Safety Campaign to road users by disseminating right and appropriate information, education and communication in conjunction with placement or installation of clear and understandable

road signs (preferably in Kiswahili), use of speed humps at Mitaa and general traffic police surveillance.

4. **Improved Accessibility:** The road will guarantee easy accessibility of road transportation of goods, commodities and people hence therefore enabling more physical development.
5. **Dust during construction:** Dust production is inherent to all road construction works. The contractor must have means to damp the dust otherwise conditions may be intolerable.
6. **Recruitment of Labourers during construction phase:** Each Mitaa being transverse should be given priority in the provision of unskilled and semi-skilled labourers in the project. The contractor should therefore address the issue of local content policy in executing the project.
7. **Environmental Safeguard and Sustainability**: storm water channels should not be directed to farms as such practice has damaged crops and farming land due to accelerated erosion. It should be directed to the proper water channels that are not polluting environment.

The perception of people towards the project

The communities along various roads, as part of the mobility program are looking forward to seeing that the project is implemented effectively. However, all the communities along the road are quite worried about the compensation issues of the affected properties. Communities would like the government to compensate all the properties that will be affected by the construction of roads surrounding Michenzani and Darajani areas including Malawi, Mlandege, Felix Moumie, Karume and Creek roads since most of the properties are located near the road reserve.

CHAPTER 4: PROJECT DESCRIPTION

4.1. Project Area

The proposed project is in Zanzibar Urban Municipal Council (ZUMC) in Mjini District, Mjini Magharibi Region. The Michenzani (Ng'ambo) Green Corridor Plan and the Stone Town Mobility Management Program (STMMP) will be implemented in the Shehias of Mkunazini, Mlandege, Miembeni, Mwembetanga, Mwembeshauri, Kisimamajongoo, Vikokotoni, Rahaleo and Kisiwandui in Zanzibar.

Historically, the centre of Zanzibar Town is Stone Town and the adjacent Ng'ambo areas. For over a century, Stone Town and later Zanzibar Town expanded in semi-radial rings around their historic core, remaining within walking distance. Together with the massive growth of population, since the 1980's, the pattern changed, and development occurred along main roads and public transport. Major development occurred east of town and later the city's expansion moved further to the east and to the northern sections of the city

The project site for Stone Town Mobility Management Program (STMMP) is in the 8km while that of Michenzani Green Corridor is in the 6.3km away from the Zanzibar International Airport and 0.2km and 1.8km from the Zanzibar port respectively. The East part of the Creek Road divides Stone Town and an inland area of Michenzani (Ng'ambo). Some of the landmarks that distinguish the Stone Town area area include the famous Bait Al Ajaib (House of Wonders), the beautiful historical blocks which are parallel to each other and their narrow-paved streets, the Old Fort, the Forodhani area, famous Serena and Park Hyatt hotels which occupy buildings on the sea front, to mention few. Some of the landmarks which distinguish Michenzani area are Michenzani Apartment Blocks, the Revolutionary square, the Rahaleo centre, Jamhuri Garden, CCM political party headquarters, Darajani Market, the Kariakoo amusement centre and the Mao Tse Tung stadium, the schools of Haile Selasie, Ben Bella, Vikokotoni, Darajani, Kisiwandui and the Angalican church in Mkunazini are also included.The project area is as indicated in the Figure 4.1.

Figure 4.1: Location Map of Stone Town and Michenzania Project Sites

4.2 Project Scope and Components

The scope of the project has two main areas; Stone Town Mobility Management Program (STMMP) and the Michenzania Green Corridor. The project sites, referred to as Areas Directly Affected (ADA) where the proposed interventions will be undertaken are located in the two areas. These ADA are described in **Sections 4.2.1 and 4.2.4**. Areas outside those described in Section 4.2.1 and 4.2.4 such as Kariakoo, Mwemberadu, Mfereji wa Wima, Meya, Magomeni and Bububu are referred in this study as Areas Indirectly Affected (AIA) because they are just outside (immediate) after the project identified hotspots.

4.2.1 Stone Town Mobility Management Program (STMMP)

The Safe and sustainability Mobility Management Program for Stone Town (STMMP) encompasses a series of proposals and strategies in order to revitalize the Historic Centre of Zanzibar City. STMMP aims at setting the basis for a transport system; put focus on pedestrians; promotes sustainable modes of transport like bicycles and Daladalas; discourages private motorized vehicles and irregular and inefficient public transport systems and promotes an urban planning and design, economy and lifestyle that ensures the long-term sustainability of such an attractive area, promoting the conservation of its great cultural and heritage richness.

The STMMP proposes to introduce the following physical measures (Figure 4.2):

i. Defining a street hierarchy: pedestrian priority streets, shared streets (including the Mizingani Seafront), and vehicular streets, each of which is to be designed differently depending on the needs of the targeted priority user;
ii. The introduction of one-way streets on Shangani Road / Kenyatta Road, and on Malindi Road / Mizingani Road, which will reduce the volume of traffic on certain stretches of road;
iii. Reducing speed limits to either 10 km/h, 20 km/h or 30 km/h depending on the street within the hierarchy, making streets much safer for more vulnerable users;
iv. Along the Mizingani Seafront, the restriction of motor vehicles through controlled access, the introduction of a 10 km/h per hour speed limit, and its change into a one-way street;
v. The restriction of motorbikes to travel in certain street only;
vi. The restriction of parking to a limited number of defined locations, with the removal of all on-street parking;
vii. Taxi drop off and pick-up to be limited to dedicated sites;
viii. Parts of Shangani Road to become shared streets;
ix. Poorly paved streets to be resurfaced;
x. Adequate street lighting to be developed along key pedestrian routes;
xi. Deliveries to be undertaken during specific time periods only;
xii. Public transport to run along pre-determined routes, and stops located in specific locations; 13. The cycle network to comprise sharrows on shared streets, bi-directional lanes, and pedestrian-priority streets.

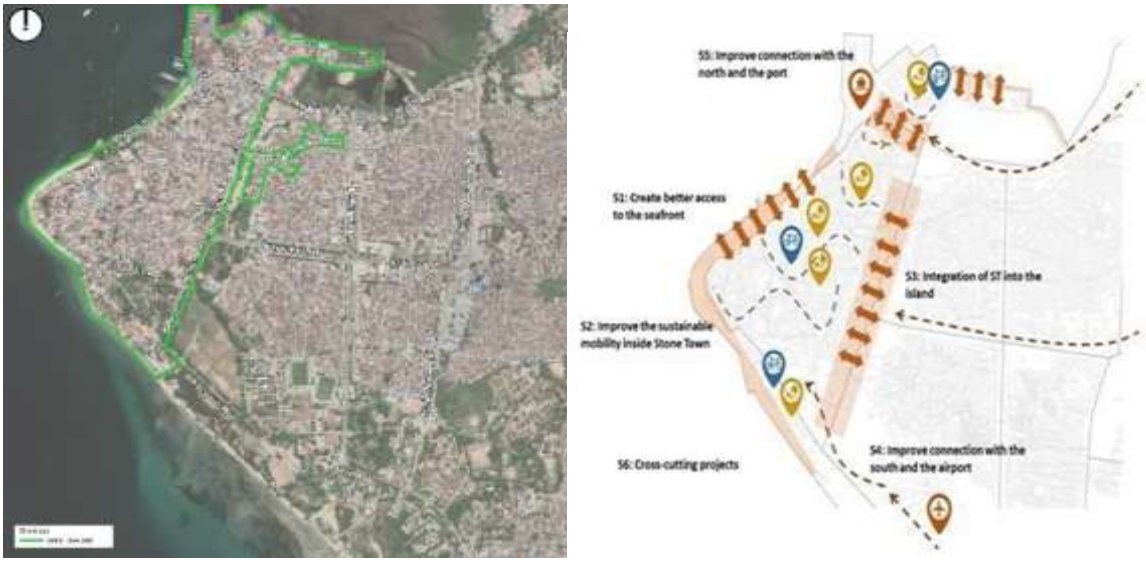

Figure 4.2: Stone Town study areas

The proposed roads and streets for Stone Town Mobility Management Program (STMMP) are Junction between Malawi & Vuga Road, Forodhani Garden, Shangani Loop, Junction to Shangani Street and Junction between Vuga and Mtoro Road.

4.2.2 Michenzani Green Corridor

The project supports integrated urban development investments for the regeneration of Ng'ambo main streets (including mobility improvements, service upgrading and public space improvements), which will transform the currently vehicle-dominated, congested area at the urban center of Zanzibar into a pedestrian-friendly, liveable urban space full of amenities for social interactions, economic vibrancy, and cultural heritage value appreciation. The activity will entail redeveloping of six roads, with total length of about 6.7km as follows: Karume Road (1.15km), Mlandege Road (1.67km), New Mkunazini Road (0.3km), Creek Road (about 1.29km) and selected mobility management interventions in Malawi Road (about 1km). In addition, the project will support development of community facilities such as solid waste collector (concrete slabs and skip buckets (collection points)), baraza, bus shelter and overall landscape work.

Looking at the urban structures, architectural forms and social life of the Swahili culture, it is certain that Ng'ambo has always been the home of the native Zanzibaris. Conserving and preserving this culture and heritage remain very significant and the identified cultural, tourist and social concepts show the Michenzani Blocks being the focal point; furthermore, there is a great potential to accommodate more interactions that will enhance the characteristics of Zanzibar. The project activities are hence aimed to regenerate the area while still persevering the cultural heritage of the area. The main components of the project for Michenzani Green Corridor are:

4.2.3 Street Improvement for Michenzani Green Corridor

The project will involve rehabilitation and upgrading of existing roads, this will include improvement of Streets, including rehabilitation or improvement of sidewalks and, bicycle lanes to improve the level of service for enhanced mobility.

Currently the traffic is mixed with pedestrians in both Stone Town and Michenzania areas; this condition lowers road safety levels within the project area, and in particular at Darajani and in all places with high pedestrian footfall like Stone Town, Mlandege and Karume roads. By expanding the capacity and flow on Mlandege road, providing additional access roads for the Michenzani Apartments and restricting the vehicular flows on Karume road and Creek Road and turning them into a non-motorized street, road safety levels will be enhanced. Specifically, the project proposes the establishment of a comprehensive Green Corridor along Karume Road, where pedestrian connections will be prioritized, and motorized vehicle traffic will be restricted. The main points are as follows:

- This option envisions Karume Road as a pedestrian-only street, allowing access only for emergency vehicles, with east-west bus routes redirected onto Malawi Road.
- Vehicular access on Creek Road will be limited, with vehicles redirected to Mlandege Road, although freight vehicles will not be permitted on Mlandege Road.

Certain sections of Creek Road, particularly from Darajani Market to Jamhuri Garden, will prioritize pedestrian use while allowing vehicle access for essential loading and unloading activities. Currently, pedestrians are crossing the road everywhere with no road signs. The road safety issues including pedestrians likely to be involved in traffic accident due to mixed-up.

4.2.4 The proposed Roads and Open Spaces for Michenzania Green Corridor

4.2.4.1 Mlandege/Dr. Salimin road

The capacity and flow on Mlandege road will be improved to accommodate vehicles, pedestrians and cyclist. The improvement will involve rehabilitation of the road and construction of walkways (width 2.4m) and bikeways on both sides of the road (two carriage ways for each direction). The road will continue to have a dual carriageway configuration and both public and private vehicles will continue to use this road (Table 4.1). Storm water drainage will also be constructed along this road. The sewerage network in this area will be improved and the sewers will be installed below the walkways.

4.2.4.2 Karume and Creek/Benjamini Mkapa Roads

Creek road and Karume road will be converted to pedestrian friendly roads after the improvement to Mlandege road and the additional access roads to the Michenzani Apartments. Karume road and part of Creek road (Figure 4.2) will involve construction of pedestrians walkway, bike lane as well as an emergency services lane to be used exclusive for emergency vehicles (ambulance, fire brigade etc) (table 4.1). Storm water drainage will be constructed to allow collected rainwater to be discharged to the sea.

4.2.4.3 New Mkunazini Road

The new Mkunazini road will be changed to non-motorized transport in order to improve pedestrian safety and reduce congestion. Improvement of this road will primarily involve resurfacing of the road using light equipment and traffic control restriction. No excavation and use of large equipment are expected on this road. No improvement is planned on existing storm water drainage and sewerage in this area.

4.2.4.4 Malawi road

The capacity of Malawi road will be enhanced to accommodate the increased traffic due to the public transport reorganization. Civil works involved in this road include its expansion to dual carriage way as indicated in Table 4.1. For Malawi road a significant amount of mangrove will be removed to allow for the expansion into dual carriage way (Figure 4.3a and 4.3b). The project has prepared a separate mangrove management plan to manage their removal. From the proposed road design (Cross section), existing corridor (RoW) is 18.5 m while the new proposed design requires extra 7 m and the stretch (Malawi road) has a length of about 290 m. Therefore, total area to be cleared is estimated to be 2,030 m^2. In that area the assessment has indicated that the total of 116 mangrove plants of different species, sizes, height and growth will be affected. The dominant mangrove species in this area include, *Avicennia marina (local name; Mchu),* and *Sonneratia alba* (local name; Mililana), other perennial species such as Narrowleaf cattails are dominantly found in the wetland area. The mangrove area is owned by the government while the mangrove trees are protected by the laws therefore compensation is not anticipated.

4.2.4.5 Felix Moumie Road

This road will be constructed to include dual carriage way and parking lane. Although the existing corridor is adequate the expansion of the parking lane might require demolition of front house slabs which will later be constructed after completion of the road. Other dimensions of the road are as included under Table 4.1 and Figure 4.4.

Figure 4.3a: Map showing project roads

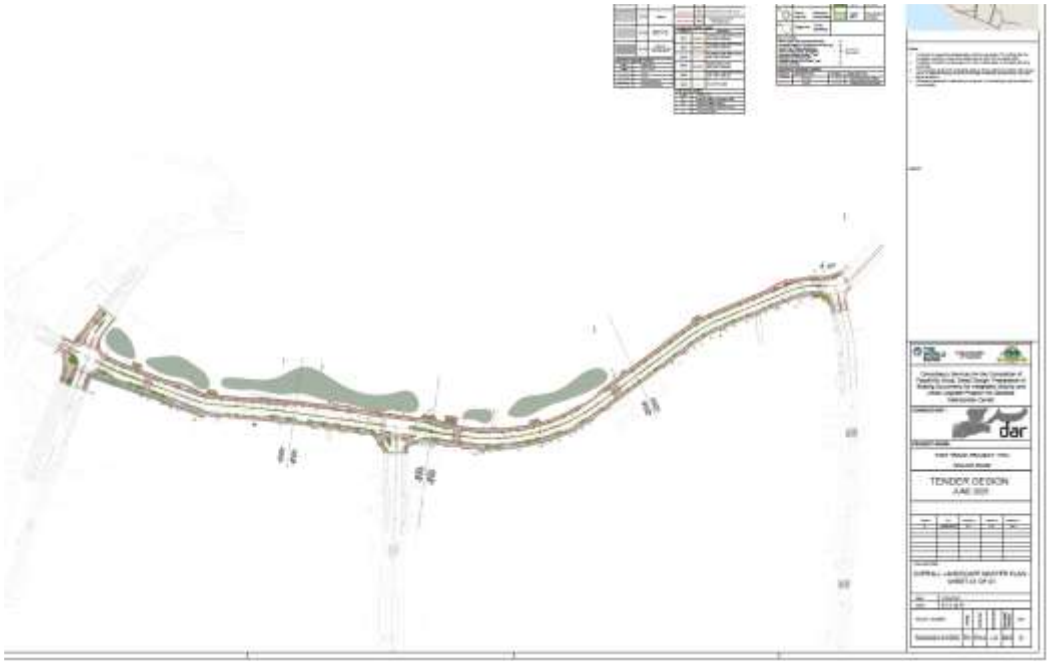

Figure 4.3b: Map showing Malawi road design including Mangrove area

4.2.5 Public Spaces

The project will improve public spaces such as the fountain at the center of Ng'ambo, Mapinduzi Plaza which has a sizable open space and Jamhuri Garden located south of the intersection of Karume and Creek road and the Darajani Market. The activities include general landscaping, drainage works, installation of street furnishing.

4.2.6 Infrastructures Improvement

The improvement of the infrastructure includes facilities for Water Supply, Storm water Drainage, Sanitary Sewerage and Electricity & Street Lighting, etc. Also, the project includes the Community Facility Development investments such as Solid Waste Collector (collection points), Public Toilet, Baraza, Bus Shelter and Public Street Markets.

4.2.6.1 Storm water drainage

Storm water will be constructed along all major thoroughfares with these major roads. The size for the storm water drainage pipes will range from 900mm to 1500mm; this size meets minimum requirement for maintenance which is 900mm.The manhole will be of concrete structure with ductile cast iron cover and located at the interval of 50m. No improvement is planned on existing storm water drainage in New Mkunazini Road.

4.2.6.2 Sewerage

The project will improve the existing sewerage network in Michenzani and Stone Town areas particularly for Michenzani blocks. The improvement will involve laying high capacity pipes with up to 400mm diameter. Manholes will be located at intervals of 100m and at every junction, change of direction, change of gradient and sewer size changes. No improvement of sewerage network along the New Mkunazini road is planned.

4.2.6.3 Solid waste collector

The project will support construction of new waste collection points within the project, which will involve construction of concrete slabs and provision of skip buckets. The location of the collection points will be identified in collaboration with ZUMC.

Table 4.1: Dimensions of some of the roads

	Karume Road	**Creek Road- (*Motorised Section*)**	**Mlandege Road**	**Felix Moumie**	**Malawi Roads**
Length of the Road	1.15km	1.29km	1.67km	2.2km	1.1km
Walkway (both sides)	3.5m	4m	3.5m	3.5m	3.5m
Bikeway	2.6m	2m	2.5m (Both sides)	2m	2m
Carriageway	14m	8m	14m	14m	14m
Emergency lane	3m	N/A	N/A	N/A	

Drains	900mm by 1500mm	900mm by 1500mm	900mm by 1500mm	900mm by 1500mm	900mm by 1500mm
Sewage pipe	400mm	400mm	400mm	400mm	400mm
Manholes interval for drains	50m	50m	50m	50m	50m
Manholes interval for sewage	100m	N/A	100m	100m	100m
Bus stops	N/A	Two (2) bus stops included and a parking tower for other vehicles	Four (4) bus stops included	N/A	N/A

4.2.7 Project Phasing

During construction a phased approach will be used whereby, Felix Moumie and Malawi roads will be constructed first, then used for traffic flow when other roads are being constructed (Figure 4.4). This will minimize traffic and safety related impacts to the community and other road users. It is envisaged that the proposed phasing approach will minimize potential cumulative impacts during the construction phase. After the construction of Felix Mounie and Malawi roads is completed other roads namely Mlandege, Karume, Creek and Stone Town will follow.

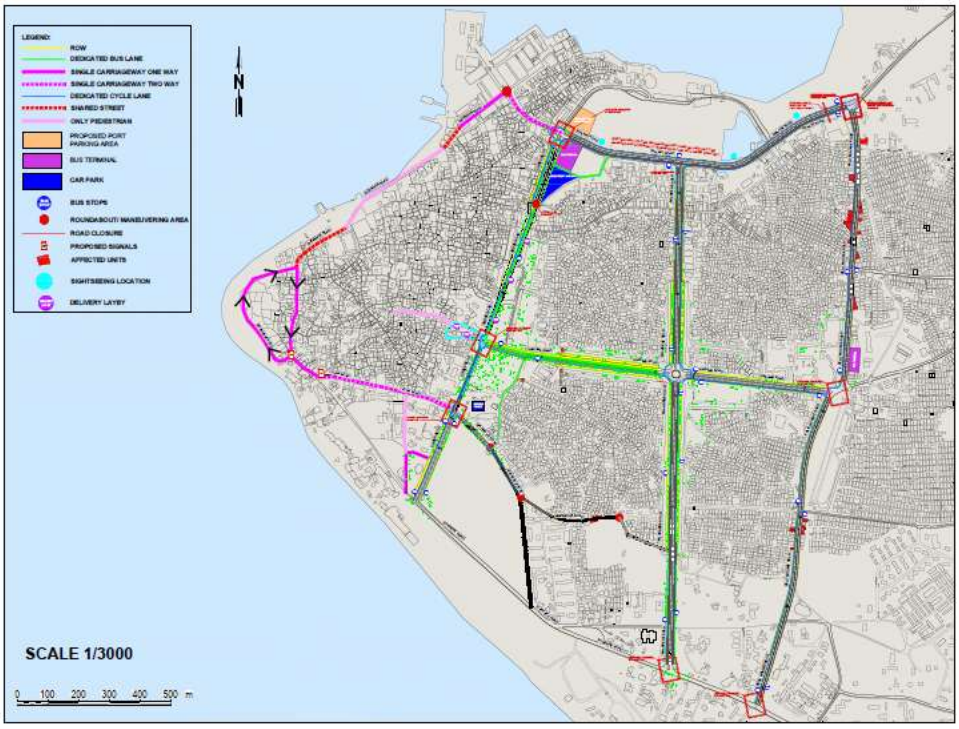

Figure 4.4: Project components for Stone Town and Michenzani areas.

4.3 Existing Conditions of the Project Site

The project will be implemented within the existing right of way of road infrastructure while some of the road such as the Malawi road will require removal of Mangrove plants as indicated earlier in Section 4.2.4.4. The area of mangrove which will be affected, tree species and number is as indicated at the same Section. General topography of the area is flat and the terrain has slight undulations with pronounced depressions forming the drainage of the general area. Soils are typical for Zanzibar, sandy with moderate drainage. There is a natural and seasonal stream crossing Malawi road into the Indian Ocean which carries storm water from surrounding areas. The stormwater drainage channel network will be upgraded to accommodate increasing storm water in the area due to urban development and climate change

4.3.1 Main Features of the Project Area

The project site comprises mainly six (6) roads, including Karume Boulevard, Mlandege Road, Creek Road, New Mkunazini Road, Malawi Road and Felix Moumie Roads. These roads connect Stone Town, Michenzani residential area and the rest of Zanzibar city. Zanzibar Port and Stone Town are adjacent to the east side of the project site and the Zanzibar International Airport is at 6 km to the south. The development of "of Michenzani (Ng'ambo) area of Zanzibar Town is envisioned to become the catalyst of inclusive public space that promotes commerce, cultural heritage, tourism attraction, and revitalization of a strategic mixed-use corridor.

One of the most distinctive buildings within the project area is the Michenzani apartment Blocks. The apartments were built in 1970s by Hubert Schultz's Master Plan (1968) to accommodate more people in the area. Currently the area lacks proper drainage, wastewater and water supply infrastructure, roads and sidewalks.

4.3.2 Public Spaces and Street furniture

Apart from billboards that dominate the streets, there aren't many street furniture used in the existing urban space. During the assessment, it was found that there are individual initiatives that have been adapted to informal public spaces within the project site. It is proposed to upgrade and modify the existing informal public spaces.

4.3.3 Urban Water Features

There is also a central water fountain in look the Michenzani – Ng´ambo area. The fountain mainly works during public events. Due to the condition the facilities it is proposed that the fountain to be replaced with relatively high-powered jets.

4.4 Project Development Activities

4.4.1 Project Mobilization & Construction Phase

The mobilization and construction phase will take place subsequently to the issuing of Environmental Impact Assessment Certificate, building/construction permits and once a construction contract with a suitable contractor is signed. The mobilization and construction phase will involve different activities as summarised below:

- Site clearance and construction of campsite
- Installation of temporary security fence at the camp sites, site office and storage facilities
- Acquisition of materials from a reliable sources and storage; o Testing of the construction materials; o Acquisition of other permits such as water use permits; o Confirmation of data and accuracy of topographical survey; o Mobilization of labour force, equipment and plant for construction works; o Relocation of utilities, o Earthworks; o transportation of equipment, workers, materials and storage; o Abstraction and transportation of water to the construction site;
- Collection, storage, transportation, treatment and disposal of wastes generated from construction activities;
- Actual construction works; o Movement of heavy equipment and machines o Occupational health and safety management; o Landscaping and environmental restoration o Transportation of workers

4.4.1.1 Campsite and Mobilization of workers

The Contractors' campsite will be temporary in nature (for the duration of the construction phase) and will include site offices, laboratory and other temporary facility for the contractor. The campsite will be small in size and occupying an area not exceeding one acre. It will be located outside of Stone Town world heritage property and its buffer zone. Once the location of the campsite is determined, the contractor will have to comply with ESMF requirements. All the contractors who will be hired under the project will be required to prepare site specific environmental and social management plan (C-ESMP) for prevention, minimizing and mitigating likely impacts including gender-based violence. The campsite area will thereafter be rehabilitated (i.e. returned to its pre-construction condition) at the end of the construction phase. If private land will be used the contractor will make all necessary arrangements with the owner and pay all rentals or other associated costs.

All efforts will be made to ensure that all construction work will be undertaken in compliance with local and national legislation, local and international best practice, as well as the Environmental and Social Management Plan (ESMP), which is included in this ESIA Report.

During the construction phase, both skilled and unskilled temporary employment opportunities will be created. It is difficult to specify the actual number of employment opportunities that will be created at this stage; however approximately 300 direct and indirect employment opportunities are expected to be created during the construction phase. It should however be noted that employment during the construction phase will be temporary, whilst being long-term during the operational phase.

4.4.1.2 Equipment and machinery requirements

Use of heavy construction equipment is expected for this project. At construction phase the project will employ various types of construction equipment and machineries for successful implantation of project activities. Expected typical machinery, equipment and vehicles that may be used during construction phase are provided in the Table 4.2 below.

Table 4.2: Equipment required for mobilization/construction phase

S/N	Type	Activity
1	Excavator	Foundation excavation
2	Bulldozer	Site grading, restoration
3	Wheel loader	Moving materials and loading
4	Roller-compactor	Compacting e.g. soil, gravel, concrete or asphalt
5	Concrete mixer	For mixing materials e.g. cement, sands, aggregates to form concrete
6	Asphalt machine	Asphalt related works
7	Truck	carrying goods, materials, or workers
8	Other vehicles	Transportation of staff and workers to work across the project site
9	Generator	Power backup to support construction works
10	Dumper	Carrying bulk materials

4.4.1.3 Delivery of equipment and machineries

All construction equipment and machineries will be delivered by specialized trucks. They will be delivered via Zanzibar port (for those from outside of the island) and will use the existing road network in Zanzibar. Due to the short distance (about 0.5km) from port to the project site no major impacts are expected during this process. However, it will be the responsibility of the contractor to take necessary measures to ensure safety for the community and workers this includes proper scheduling delivery and obtain appropriate transportation and safety permits.

4.4.1.4 Storage

Campsite will have specific storage area for materials that are sensitive to weather. Materials such as cement and oil will be stored in the campsite. Other materials, such as sand, stones, aggregates etc., will be stockpiled at the site. Refueling for some equipment such as compactors and generators will be done on site whereas for vehicles and trucks will be done outside the project area in existing fuel stations in Zanzibar.

4.4.1.5 Construction Materials: Aggregate’s, and Borrow Materials

Construction materials in Zanzibar are high regulated and controlled by the government. All the quarry, borrow pit and sand mining sites are owned and operated by government through the department of forestry to ensure equal access to the materials and control overexploitation. The project will obtain the aggregates and borrow materials from these

sources by applying for the permit from forestry department. The possible quarry, borrow pit and sand mining sites for the project are as indicated in the figure 4.5.

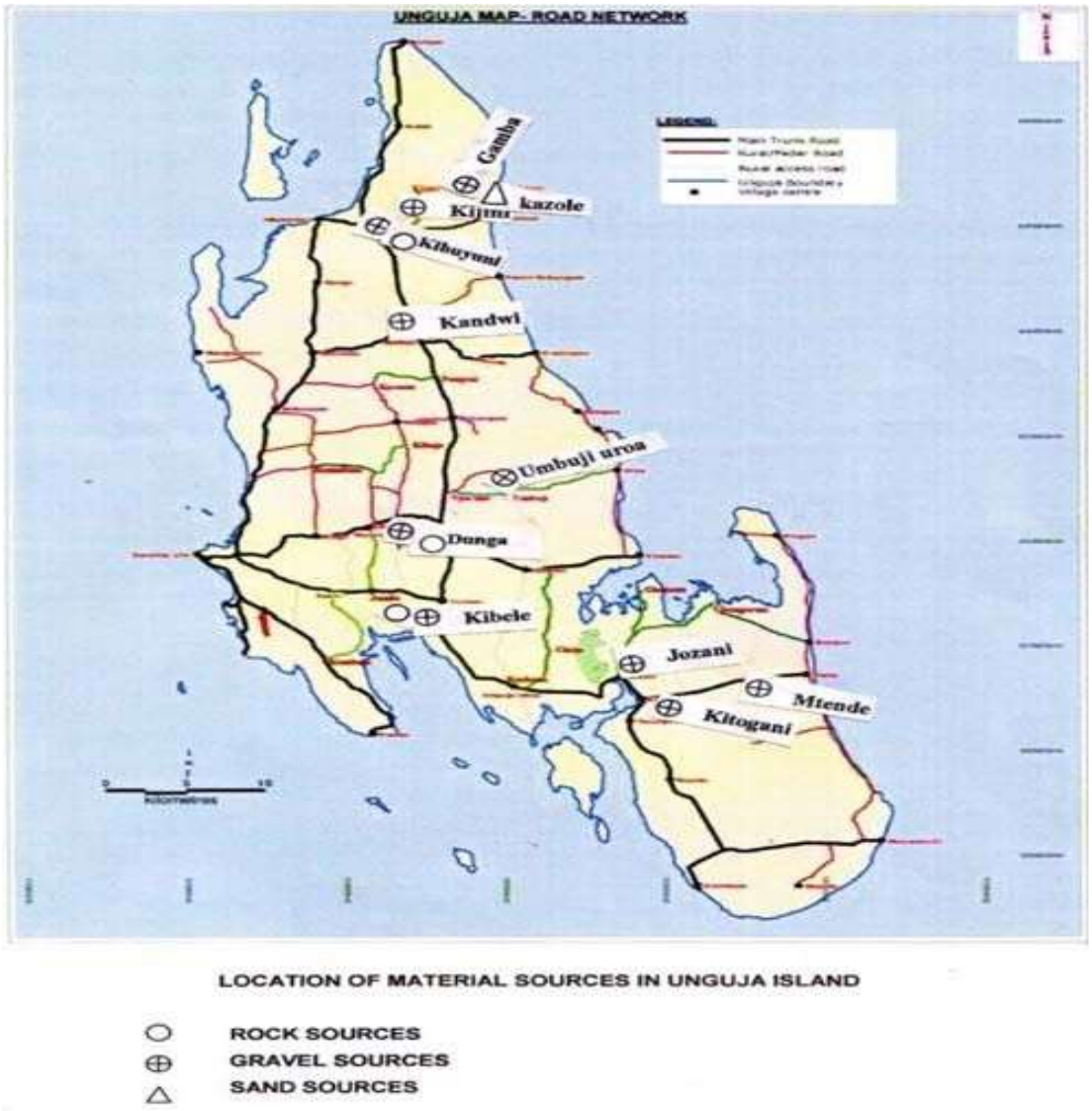

Figure 4.5: Sources of Construction Materials

4.4.1.6 Waste Management

During construction about 10kg is estimated as domestic wastes while construction wastes are estimated to be 7kg per day on average (Table 4.3). Due to the challenges facing existing waste management system in Michenzani and Stone Town areas, solid wastes management could be a concern during construction phase as there will be construction related wastes as well as additional wastes due to presence of construction workers at site. In this regard waste management plan shall be developed and implemented accordingly by the contractor. The plan shall include dedicated areas for storage such as spoil materials, removal schedule and final destination for disposal of the same. Waste bins shall also be provided for general solid wastes. In addition, the plan should take into account waste management initiatives that are in line with Stone town world heritage site conservation strategies.

Table 4.3: Amounts and Treatment/Disposal of Wastes during the Construction

Waste	Types	Amount (estimated)	Disposal /Treatment
Solid Waste (Degradable)	Remains of food, Vegetations (Trees and Grasses)	300kg per month	Source of Cooking Energy for Residents Near the Project
Solid Waste (Non-Degradable)	Scrap metals, drums	1ton per month	Sold to Licensed Recycles/Vendors
	Asphalt Concrete, Tins, Glasses and Plastics	1ton per month	Disposed at Kibele Dumpsite
Liquid Waste	Oil & Greases	20kg per month	Sold to Licensed Collectors
	Sanitary	$5m^3$/day	Onsite Pits and sewerage

Source: Consultant Survey

4.4.2 Project Operation Phase

Once the construction phase is completed, the roads, parking yards, walkways and recreational areas will start to operate to serve the intended purposes. The activities that are expected to be executed during operational phase include:

- Transportation and mobility in the corridor
- Recreational activities/Leisure o Traffic management

4.4.2.1 Road and Facilities maintenance

Due to consistent use of the corridor, particularly road during operational phase there will be a routine road maintenance as the results of wear and tear of the road that will affect its quality. Therefore, the road will require maintenance throughout the project life. Among others, the maintenance works will include:

- Repainting or road marks and signs
- Repairing cracks on the structures (culverts and bridges),
  o Routine maintenance of traffic/road lights

4.4.2.2 Project Supported Sewerage maintenance

In the project site there is sewerage network servicing Ng'ambo, Stone Town and neigboring areas. Most of the houses in the area are connected to this network, however, there are few houses not connected and are using onsite sewage facilities i.e. septic tank. The existing sewerage network in the area is managed by Zanzibar urban municipal council (ZUMC) using their budget. Planned sanitation facilities such as public toilets constructed under this project will be connected to this sewerage network and ZUMC will be responsible for management of these facilities. The existing management approach (public-

private system) for public toilets in Zanzibar, whereby users contribute for O&M cost (pay-and-use), will be applied for the project supported facilities. The collected money will be used for operation and maintenance of the facility this includes cleaning and repair, payment of water and electricity bills and buying necessary items for cleaning (e.g. detergent, disinfectant, gloves, hand wash soap etc).

4.5 Utilities

4.5.1Water Supply

4.5.1.1 Source of water

Water supply in project area is obtained from Zanzibar Water Authority. The project will use existing water sources. Therefore, main source of water for construction and operation phases will be from ZAWA and e boreholes as alternative source depending on the demand. The construction activities are expected to use water optimally, an average of 20m^3 per day.

4.5.1.1 Operation and maintenance of improved water supply infrastructure

Most of the water pipes in the area particularly Michenzani blocks are old with several leakages and small in size to meet the current water demand. As part of integrated area redevelopment this project will also improve water supply infrastructure (replacement of old pipes, rehabilitation/construction of water tanks etc) particularly for Michenzani blocks. Operation and maintenance of the improved system will be under ZAWA, as the authority is responsible for development and maintenance of infrastructure for water supply.

4.5.2 Power Supply

4.5.2.1 Sources of power

Currently the power supply in the project area is from Zanzibar Electrical Company (ZECO) through an overhead line. Power outage has been occurring in the areas hence necessitating certain businesses e.g. banks, hotels etc., to install standby generators. Power supply for the project will be provided by ZECO and supplemented by standby generators for performing hot works, lighting etc. During operation phase of the project streetlights will mainly use solar power and connected to ZECO power lines as alternative source of power.

4.5.2.2 Operation and maintenance of street lighting

Street lighting is among of the project activities which will be implemented in Michenzani area. Installation of streetlight will increase security and enable people in the area to undertake business activities in the night without fear, which in turn will improve their economy. Light emitting diode (LED) street light will be installed along project roads; the system will consist of under ground cable for supplying power to the lights and supported by blocks left and right. Separate distribution pillars will be installed in order to provide separate billing. ZUMC is responsible for management of street light in their area of jurisdiction. Therefore, operation and maintenance of installed street light system in Michenzani will fall under ZUMC.

4.5.4 Waste Management

4.5.4.1Solid wastes

The operation of the Michenzani green corridor investment and Stone Town Mobility Management Program is not expected to generate huge quantity of solid waste. It is likely; most of the waste will be generated due to commercial/business activities that will be undertaken in the area. In view of this, food waste and packaging waste such as paper and boxes will be the main type of waste generated in the area. It is estimated that about 40 tons of solid waste will be generated per day.

Michenzani and Stone Town areas like other parts of ZUMC have a waste management system in place. Thus, the management of waste generated with the proposed Michenzani and Stone Town projects will use the existing system during operation phase of the project. The system has waste management infrastructures to include waste bins (outdoor bins and skip buckets) which are available in strategic locations throughout the project areas and waste trucks for transportation to treatment or disposal site. However, efficiency of this system is questionable particularly on timely collection of waste and transportation to the landfill for final disposal. Therefore, the existing system should be enhanced for sustainable waste management in the area.

4.5.4.2 Solid Waste collection facilities

The project will provide facilities to enhance waste collection and transportation for disposal. The equipment and tools provided by the project will facilitate waste segregation. Adequate number of concrete slabs will be constructed in strategic areas and skip buckets will be provided. To control street littering, outdoor waste collection receptacles will be provided and placed in all strategic locations. Operation and maintenance of these facilities will be under ZUMC.

The waste shall be collected daily from the outdoor bins and placed in the skip buckets at the collection point. To enhance collection system project should procure three-wheeled garbage truck or mini-tipper truck which will be used for collection of waste from outdoor bins placed in various locations. On daily basis (especially at night) the waste from the skip buckets at collection point will be collected by garbage truck to the landfill for final disposal. Using three wheeled garbage trucks will allow removal of waste from narrow streets where normal waste truck cannot access (Figure 4.6).

Figure 4.6: Example of mini-tipper truck and 3 wheeled garbage truck

4.5.4.3 Liquid waste

During construction and operation phases of the project, generation of sanitary waste is expected. Sanitary waste shall be handled through the existing system in the area. The camp site as well as public toilets will be connected to sewerage network. Wastewater from mobile toilets for workers will be treated using sewage treatment facility at Kibele. The amount of the wastes from the site will be small as will be mainly generated during the day. It also expected that during construction small amounts of liquid wastes such as used oil are likely to be generated. The used oil shall be accumulated in drums and once full shall be hauled to the smelting company where they are using as source of energy in smelting process. The oil separator shall be designed to handle small amount of oil from in case of spill outside the bund wall. Hence its design capacity will not exceed 6 cubic meters with two compartments.

4.5.1 Storm water

Storm water in the project site is currently collected though constructed drains or natural channel to the sea. Existing storm water drainage will be rehabilitated and improved to accommodate storm water from the project site. Collected storm water will be directed to the existing drainage patterns of the area

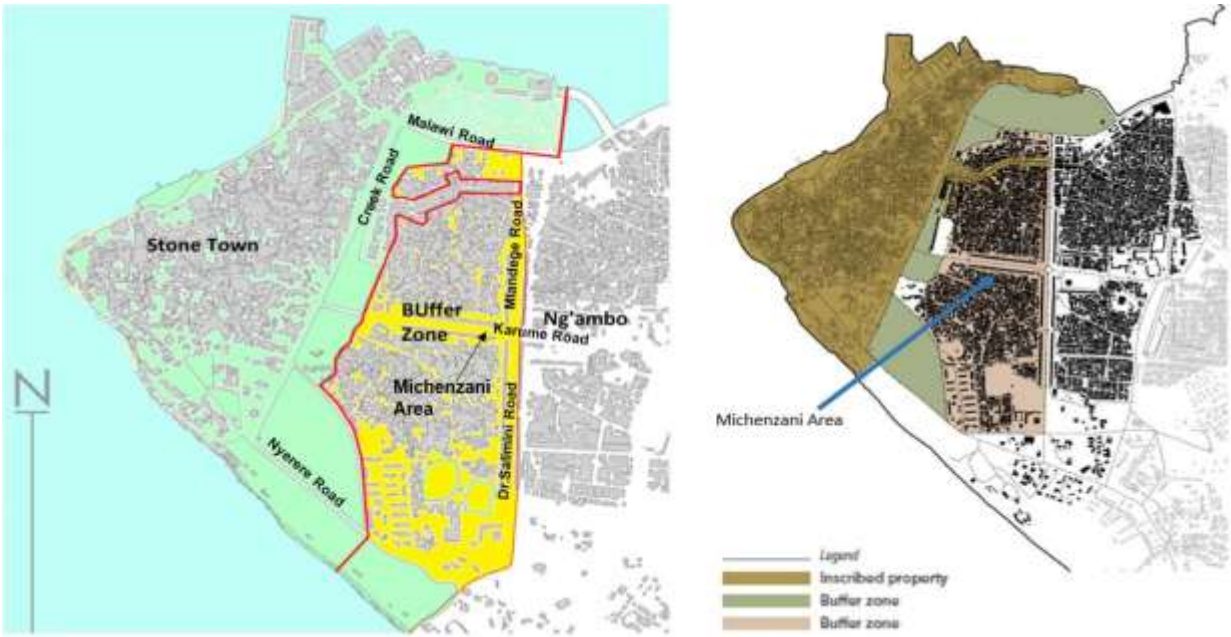

Figure 5.3: Map showing the UNESCO World Heritage Site and buffer zone - the Green Belt and half of Ng'ambo (Source: DoURP and AMM, 2018)

As part of the Michenzani Area falls within the Stone Town and its buffer zone, it also contains various tangible heritage assets of values. The following Table 5.1 describes the attributes, the associative value typologies and the cultural significance of the values, while detailed discussion on these assets and the heritage impacts of the Project can be found in the attached full HIA report.

Table 5. 1: Inventory of heritage attributes and their significance of values near project area

Attribute of Tangible Heritage in the Buffer Zone	**Associative Value Typologies**	**Cultural Significance of Value**
Darajani Corridor and Creek Road		
Vikokotoni and Darajani Schools	Educational value, Historical value, social value, Cultural values, Tourism value	High significance

Bwawani Hotel Complex	Architectural value, Historical value, social value, cultural value, Economic value, Capital value	High significance
Street *Baraza* in Darajani	Social value, historical values, cultural values, aesthetical value, ICH values	High significance
Trees in Darajani Corridor	Ecological values, historical values, social values,	High significance
MnaziMmoja,	Ecological values, historical values, social values, Recreational value	Medium significance
Jamhuri garden	Ecological values, historical values, social values, Recreational value, Tourism Value	High significance
Malindi playground	Ecological values, social values, Recreational value	Low Significance
Bwawani swamp	Ecological values	High Significance
Architectural Typologies in Ng'ambo		
Single storey Classic Swahili typology	Architectural values, Historical values, Identity values, social values, Authenticity values, Aesthetics values, Local distinctiveness, Tourism values, Typological values, Distinctive value	Medium significance
Multi storey Swahili typology	Social values, Aesthetics values	Negligible significance
Swahili 2020 typology	Social values, Aesthetics values	Negligible significance
Michenzani Apartment blocks	Architectural values, Historical value, Technological value, Economic value social values, Tourism values, Political values.	High significance
Suburban Villa typology	Architectural values, Historical values, Symbolic values, Identity values, social values, Authenticity values, Aesthetics values, Local distinctiveness, Tourism values, Typological values	Low significance
Market Mall typology	Economic values, social values, Typological values, Community value	Low significance
Indian Shop front typology	Economic values, Historical values, Symbolic values, social values, Tourism values, Typological values	Negligible significance
Modern Indian shop front typology	Economic values, Monetary value, social values	Negligible significance

High street typology	Social values	Negligible significance
Public or private school	Educational value, Historical value, social value	Low significance
Government houses	Political values, social values, administrative values	Negligible significance
Religious Heritage Facilities		
Madrasa	Educational value, Historical value, social value, Symbolic value, Identity value, Religious Value	Medium significance
Mosques	Architectural values, Historical value, social value, Symbolic value, Identity value, Religious Value, Spiritual values	Medium significance
Others		
The CCM Building	Political values, Historical value, social value, Identity value, cultural value, Regime value	Medium significance
Karume's house	Political values, Historical value, social value, Identity value, Cultural value, Symbolic values, social values, Tourism values	Medium significance
Street Designs	Townscape value, social value, Cultural values, Historic values, Identity values	Low significance
Street *baraza* / House type	Social value, Historical values, Cultural values, Aesthetical value,	Highly significant

5.2.6 Religion:

Most of the population of Zanzibar are Muslims (97%) and there are Christians and Hindus. As reported in the town there are 161 Mosques, 13 Churches and 7 Temples.

5.2.7 Health and HIV/AIDS

Malaria, Diarrhea and Cholera are among the common diseases in Zanzibar, which are associated with environmental health related problems. Zanzibar has been experiencing seasonal epidemics of Acute Diarrheal Diseases (ADD) including cholera as in most developing countries. The most common months are those coinciding with the rainy season, i.e. in the periods of March to June and October to November every year. According to the Annual Health Information Bulletin of 2010, there was a major reduction in the number of patients admitted to health facilities with a diagnosis of cholera from 605 cases (2009) to 248 cases (2010) on both Unguja and Pemba. These results may have been attributed to the positive impact of Oral Cholera Vaccination (OCV) intervention conducted by Ministry of Health and other Development Partners (World Health Organization, Swiss Tropical Institute and International Vaccine Institute). The Zanzibar Malaria Control Programme (ZMCP) has mainly focused on integrated interventions for malaria control. These interventions include among others Vector Control, Case management, Surveillance and Monitoring. Through this approach, Zanzibar has experienced a dramatic decline in number of malaria cases and now recognized at national and global level to be among countries moving towards a new phase of malaria elimination

The Government is working to address HIV/AIDS in the high-risk areas. The Government is aware that - in a country with a small population like Zanzibar and limited skilled workforce - responding effectively to HIV/AIDS is both an urgent health issue and a development imperative. HIV/AIDS is widely known to have had devastating impacts on families and communities in Zanzibar. Moreover, HIV/AIDS has affected the environment sector through impacts on human capacity, natural resources and land use change dynamics. Gender and vulnerable groups

The Government recognizes the importance of gender equality as a vital component of sustainable development. Men and women, youths and people with disabilities (PWD) play an important role in most environmental management issues. Without full and equal access to all levels of economic opportunity, education, and health care services, women and other vulnerable groups are more likely to suffer first from the adverse effects of environmental pollution, degradation of natural resources, climate change, and deterioration in the national health performance. In general, women, children and people with disabilities are more vulnerable to the effect and impacts of climate change, environmental pollution and degradation

5.2.8 Social Services in the Project Area

Transport –The roads in the project area are a combination of four-lane roads and two-lane roads with bi-directional sidewalks. The area is very active with commercial activities and major institutions such as: Darajani Market, Central Daladala Terminus, city council and schools. The narrow streets of the Stone town make most parts of the town inaccessible by cars. The inadequate repair and cleaning of drainages leads to spilling of storm water along access roads and streets. In order to improve and sustain clean environment there is a need to construct more drainages, enforce regular removal of sand and other solid wastes in order to allow a correct storm water runoff.

There is one main bus station in Darajani by Creek Road that functions as the central bus terminal. The presence of this bus terminal is a major boost to the mobile food vendors as the users of the bus terminal also happen to be their customers.

The project area is accessible by private and public transport as well as motorcycles, bicycles and pedestrians. Public transport involves both taxis and daladala. Daladala are of two types, the traditional roofed pick up (Chai maharage) and the minibus (daladala) carrying 15-20 passengers. There is also a large number of private vehicles running on the streets; the number is dramatically increasing, but without being served by a proper infrastructure and related parking supply. This situation leads inevitably to more road traffic congestion and decrease of urban quality.

Education - The total number of schools in Zanzibar town is 114. However, the project area only has 2 schools one being a primary school (Darajani Primary School) and the other a secondary school (Vikokotoni Secondary School). These schools will not be directly affected by the project implementation.

Discussion conducted with the PAPs during the Census exercise revealed that at least 50 % of the PAPs at Darajani Market and along Karume Road are Secondary School drop outs. Therefore, these economic activities providers an alternative source of income.

The Gross Enrolment Ratio (GER) for basic education in Zanzibar, which includes the primary level (Standard 1–Standard 7) and first cycle of lower secondary education (Form 1–Form 2). It must be noted that in Zanzibar basic and compulsory education is for nine years.

Overall, the GER for basic education decreased from 113.5% in 2012 to 95.3% in 2014 and declined to 93.6% in 2015. Girls registered a better GER than boys, at 113.5% in 2012, while boys' GER was 110.9%.

Water Supply- The supply and distribution of portable water in Zanzibar is done by the Zanzibar Water Authority (ZAWA). Any development project that will use water during establishment and or operation should be approved by ZAWA. In the project area water supply networks and water tanks are exposed on the ground, which shows the necessity of designing them underground.

Sanitation - Currently, there is in-sufficient data for the entire area of Zanzibar (Unguja and Pemba) to estimate the amount of waste water generated.
The project site is served by separate sewer system which collects sewage from the houses and untreated wastewater is discharged into Sea due to lack of wastewater treatment facilities in the project area. The existing sewer network is limited to Stone Town and a very small section of Ng'ambo area. There are public toilets at Darajani area which is not hygienically good. The sewer chambers are not adequately attended and at times used for solid waste dumping.

Storm water Drainage - the city lacks proper and adequate storm water drainage system except for Stone Town and new entry roads to the town. Open culverts along the main roads constrain development to urban standards and hinder movement of pedestrians and cyclists. As in the sewer chamber, the storm water drainages are not well attended and have at times been used for solid waste dumping:

Solid Waste Management - One of the fundamental problems faced by the residents of Zanzibar Town is the lack of a proper system for solid waste management and this is most apparent in the informal settlements. There is no solid waste separation in all steps of solid waste management and subjected to crude form of dumping.

Energy-Current estimates for energy consumption in Zanzibar are fuel, wood, charcoal and agricultural residues account for 97 percent of the domestic energy consumption and more than 90% of the population of Zanzibar continue to rely on wood-fuel as a source of domestic supply of energy for cooking.

Erratic power supply from Tanzania mainland (electricity supply via underground sea cables, sourced from hydro power, gas turbines and diesel generators) has compelled the islands of Zanzibar to revert back to the use of fossil fuel-powered generators for domestic and industrial electricity back up supply.

5.2.9 Local labour force: and employment opportunities

According to the Integrated Labour Force Survey (ILFS, 2006), the employment to population ratio in Zanzibar at 78.4% (84.8%for males and 73.3% for female). In urban areas the employment ratio was below national average which is only 68% i.e. (78.1% for males and 58.9% for female). The MKUZA II targeted to reduce youth unemployment rate to 11.4% by 2015 which was to be achieved through creation of enabling environment including imparting entrepreneurship skills and provision of Labour Market Information to youth. Petty trade, hand craft, construction sector and fishing are the largest employers in urban areas. Most of these activities are carried out informally and uncoordinated. The uncoordinated activities not add little in national wealth because they are not adequately captured in national accounts but also a threat to environment.

With respect to formal employment, the public sector dominates the formal employment in Zanzibar Town with 20% in public administration, 19% in education, over 5% in health and 2% in electricity3. While, Communications (14%) and Accommodation and Food including tourism (13%) are the largest employer among the private sectors in this area. Wages in Zanzibar are low averaging only $850 pa in 2011.

CHAPTER 6: IDENTIFICATION AND EVALUATION OF IMPACTS

6.1 Introduction

The development of projects usually causes a wide range of environmental and social impacts. The impacts may be direct or indirect and may be short-term or long-term in duration. Many constructions related impacts will be short-term. Long term impact would persist after construction and include those that are resulting from the operation of the project. Direct impacts are physical impacts caused by construction and operation of the project. Indirect impacts are those, which may be encouraged or enabled due to the presence of the project or, during construction, due to the presence of construction works, facilities, jobs, and other construction-related features.

The main impacts associated with the anticipated improvement of the proposed project include socio-economic, physical resources (hydrology, surface water quality, soils, air quality and noise); traffic and mobility patterns (public transport reorganization and re-routing of traffic flows); ecological resources (eco-system); material assets, public health and safety, aesthetics and landscape.

6.2 Identification of impacts

Impact identification is a process designed to ensure that all potential significant impacts are identified and taken into account in project design and implementation. A checklist and matrix methods were used in this assessment. The checklists, was developed from previous experiences, provided lists of potential impacts associated with specific activities. The Impacts identified were classified into two major groups i.e. Positive impacts and Negative impacts. The negative impacts are described based on the project implementation phases (i.e. mobilization phase/construction phase, and operation phase.

6.3 Evaluation of impacts

6.3.1 Assessment Methodology

This section assesses the significance of the environmental impacts that have been identified by the specialists that formed part of the team, which conducted the environmental impact assessment process.

The team members reviewed literatures of available information related to the site conditions and with respect to similar project prior to visiting the site. The team spent the time on site gathering information through field studies, including gathering of samples. The combined site visit by all specialists assisted in integration of ideas and findings among the members. The ESIA team undertook a social survey through conducting interviews with a broad spectrum of community members.

The role of each specialist was to collect sufficient data to assess the environmental impacts. In order to achieve this, the ESIA team assessed the environment as it existed at Stone Town conducted during review of the ESIA report and Michenzani area during preparation of the original ESIA report and secondary data from published and unpublished sources.

6.3.2 Criteria for impacts Evaluation

6.3.2.1 Environmental impact rating scale

To ensure a direct comparison between various ESIA team members, a standard assessment methodology was used to assess the significance (The importance of the impact in the overall context of the affected system) of the identified impacts. The criteria that were considered in the determination of the impact significance are:

- Severity/Benefit: *the importance of the impact from a purely technical perspective;*
- Spatial scale: *extent or magnitude of the impact (the area that will be affected by the impact);*
- Temporal scale: *how long the impact will be felt:*

Degree of certainty: the degree of confidence in the prediction; Likelihood: an indication of the risk or chance of an impact taking place;

To ensure integration of social and ecological impacts, to facilitate specialist assessment of impact significance, and to reduce reliance on value judgments, the severity of the impact within the scientific field in which it takes place (e.g. vegetation, fauna) is assessed first. Thereafter, each impact is assessed within the context of time and space, and the degree of certainty in the prediction is indicated.

The impact is then assessed in the context of the whole environment to establish its "significance". This assessment incorporates all social, cultural, historical, economic, political and ecological aspects of the impact. Thus, the severity or benefit of an impact within a specialist discipline is first assessed before the significance of the impact is evaluated in a broader context. Consequently, two rating scales are required, one to determine the severity or benefit, and one to determine environmental significance.

6.3.2.2 Severity / benefit

Severity is based on the professional judgement of the various specialists to evaluate the extent to which negative impacts would change current conditions, or how beneficial positive impacts would be on a particular affected system (for ecological impacts) or a particular affected party (for social impacts). The severity of impacts can be evaluated with and without mitigation in order to demonstrate how serious the impact is when nothing is done about it. The word mitigation means not just "compensation", but also ideas of containment and remedy. For beneficial impacts, optimization means anything that can enhance the benefits. Mitigation or optimization must be practical, technically feasible and economically viable.

6.3.2.3 Impacts' Temporal Boundaries

The impacts temporal boundaries can be either short term or long term. The short-term impacts are considered to be those which will be apparent only for a short period and as such will include mainly construction related impacts. The long-term impacts are considered to be those which will be apparent after construction activities have been completed but may include also

impacts which may become apparent during the construction phase (Table 6.1). Short-term impacts include noise, dust and vehicle movements. Long-term impacts include revenue to the government, employment and benefit to the local communities in terms of accessibility to agricultural markets, industrial goods, transport, health services etc.

Table 6.1: Temporal scale

Temporal scale	Explanation
Short term	Less than 5 years.
Medium term	Between 5 and 20 years
Long term	Between 20 and 40 years, and from a human perspective essentially permanent
Permanent	More than 40 years and resulting in a permanent and lasting change.

6.3.2.4 Impacts' Spatial Boundaries

The spatial dimension encompasses the geographical spread of the impacts regardless of whether they are short term or long term. The spatial scale considers the receptor environmental component and can be local or broader. Two zones of impacts namely core impact zone and influence impact zone are considered. The core impact zone includes the area immediately bordering the project (Table 6.2). In the case of this project local impacts will include the site of the construction (borrow areas, quarries and the actual road construction site) and the immediate surrounding areas. With regard to the actual route, the core impact area is the area immediately bordering the project area which is considered to be up to 500m from the project area. The influence impact zone includes the area beyond 500m from the project area and covers the wider geographical areas of Unguja Island.

Table 6.2: Spatial scale

Individual	Individuals in the area could be affected
Household	Households in the area could be affected
Localised	A few hectares in extent (i.e. land earmarked for construction of project physical structures). The specific area to which this scale refers is defined for the impact to which it refers.
Study Area	Includes the entire Michenzani and Stone Town Areas
District	Includes are area around Michenzani and Stone Town i.e. Mjini district
Regional	The impacts will be of such a nature that it may affect Mjini Magharibi Region
National	The impacts will be of such a nature that it may affect the entire Zanzibar.
International	The impact would affect resources and processes outside the border of Tanzania

6.3.2.5 Cumulative impacts

Cumulative effects are changes to the environment that are caused by an action in combination with other past, present and future human actions. Cumulative effects occur as interactions between actions, between actions and the environment, and between components of the environment. These "pathways" between a cause (or source) and an effect are often the focus of an assessment of cumulative effects. Cumulative Effects Assessment (CEA) is done to ensure that the incremental effects resulting from the combined influences of various actions are assessed. These incremental effects may be significant even though the effects of each action, when independently assessed, are considered insignificant. Assessment of CEA include other past, existing and future (e.g., reasonably foreseeable) actions; and evaluate significance in consideration of other than just local, direct effects.
The proposed Michenzani Green Corridor project will involve movement of construction machines which will be associated with noise and vibration, dust and gases emissions while that of Stone Town will involve light physical activities such as installation of street lights and marking of pedestrians walkawayss. Also, pedestrianizing of Karume road is likely to lead to increased traffic movement in other roads within the area. The cumulative impacts associated with the project are examined and their analysis follows the same method as that for study of socio-economic and environmental impacts within each of the project phases.

6.3.3 Significance Rating

Significance is an indication of the overall importance of the impact taking into account all the above-mentioned assessment criteria. Significance was assessed in the relevant context, as an impact can be relevant to the ecological environment, the social environment or both (Table 6.3). The ESIA team ensured that all above-mentioned objective criteria are adhered to, which reduced subjectivity as far as possible.

Table 6.3: Significance of an impact

Significance	Explanation
High	These impacts will usually result in long-term effects on the natural and/or social environment that will only be mitigated over very long periods of time.
Moderate	These impacts will usually result in medium to long term effects on the natural and/or social environment. These impacts are real but not substantial, and usually result in moderately severe effects or moderately beneficial effects.
Low	These impacts will usually result in medium to short term effects on the natural and/or social environment. These impacts are considered to cause fairly unimportant and usually short-term change to the (natural and/ or social) environment. These impacts are not substantial and are likely to have little real effect.
No significance	There are no primary or secondary effects at all that are important to scientists or the public.

6.4 Positive Social and Environmental impacts to be enhanced by this project

The beneficial (positive) impacts that could be expected are in terms of employment creation, income generation of income for the local people and improvement of traffic movement as well as safety for pedestrians.

6.4.1. Promotion of employment opportunities and poverty reduction

The implementation of Stone Town and Michenzani Green Corridor will attract employment during construction and operation. The employment will increase income to local communities as most of the casual laborers and some skilled workforce will be sourced from Unguja Island and the whole Zanzibar. Apart from opportunities for self-employment, there will increase income-generating activities like selling food and other merchandise to the construction workforce during construction and increased pedestrian movement during operation. In addition, procurement of materials from local sources will be a positive aspect of the project, as it will reduce the cost of the project and benefit local producers and suppliers.

Besides, employment and income generating activities, the development of the corridor will improve tourism in the Island, which contributes to the improvement of national economy thus eradication of poverty. *This is considered to be positive impact, short-term and high significance.*

6.4.2. Smooth vehicle and pedestrian movement

The road paving, provision of Pedestrian walkway and bicycle road improvement will enable smooth vehicle and pedestrian movement in the corridor. At present, the road pavement is installed with asphalt, but the pavement condition shows spoiled by unmanaged status. The improvement will have enhanced movement on the road sections with heavy traffic route with buses and freight vehicles, which appear seriously discarded without maintenance.

Currently, pedestrian route is cut by section, and also its pavement condition is not managed well. This project can provide a good pedestrian connectivity and qualified paving. Furthermore, there is no independent bicycle road at present; bicycle paths will be physically separated from vehicles and pedestrians, it can secure a sound NMT (Non-Motorized Transportation) network. *This is considered to be positive impact, long-term and high significance.*

6.4.3. Improvement of road safety and enhancement of people centred environment

The aim is to provide not only an improvement of mobility, but also improve the livability of the urban space. Key measures include:

- Reducing mixed traffic: Separating pedestrian and vehicular traffic to reduce accidents.
- Road expansions and access roads: Expanding Mlandege Road and adding access roads to ease congestion.

- Non-motorized streets: Converting Karume Road and Creek Road into pedestrian-only zones.

This is a long-term impact, and the significance level is major, the impact is applicable for both Michenzani and Stone Town areas.

6.4.4. Diversification of local economy and promotion of investment

A well-designed pedestrian friendly scheme will result in a substantial increase in the number of pedestrians visiting the pedestrianized area, which in turn may increase retail turnovers. Hence attracts more investments in the area. The increased investment will bring in more employment opportunities to the local people including diversification of economic activities hence, reduce dependence on existing sources of local economy. More economic activity is expected due to the improved infrastructure in the main market area, operations of the proposed vehicles parking, and recreational areas. *This is considered to be positive impact, long-term and moderate significance.*

6.4.5. Improvement of ambient air quality, drainage and storm surge protection

During the operation phase of the project, there will be significant improvement of air quality around Stone Town and Michenzani areas due to reduced traffic and dust generation after paving of walkways and adjacent roads. Generally, noise and exhaust (CO_2) of vehicles that are currently used in the area will substantially be reduced after completion of the project. Road construction will include drains which will be responsible for collecting storm water runoff. Construction of drains will alleviate floods in the area and improve storm surge protection. *This is considered to be positive impact, medium-term and high significance.*

6.4.6. Diversification towards a Green and Carbon-Neutral Economy

With the current global drift towards green economy and reduction in Greenhouse gas (GHG) emissions from the transportation sector, this project will play a significant role in contributing to the Zanzibar Government alignment with this global trend in coherence with the Sustainable Development Goals (SDG) particularly number 11&13 and cultivating a resilient Zanzibar city. This will be achieved through increased use of bicycles and pedestrian access, thus reducing the absolute dependence on petroleum and vehicular transportation. In this regard, the project hold potential of being a good step forward. *This is positive impact, medium term and of moderate significance.*

6.5. Negative Environmental and Social Impacts

6.5.1. Negative Social Impacts during Mobilization/Construction Phase

6.5.1.1 Cultural Heritage Impacts

The Stone Town as a World Heritage Sites is adjacent and connected to the proposed development. Likely negative impacts, especially on an intangible dimension of heritage of the area have been identified through Heritage Impact Assessment (physical cultural resources

impact assessment). In this section few potential impacts are presented, however, more impacts and associated mitigation measures have been discussed in Heritage Impact Assessment which is prepared as a separate report.

Potential impacts on buried archaeological remains

Implementation of this project may impact archaeological remains in various area particularly during undertaking civil works; this includes physical disturbance, degradation due to change of burial environment, displacement and loss of context for artefacts. Similar incidents were noted during the restoration of houses in Stone Town. Therefore, taking precautionary actions during the construction phase is crucial. *This impact is considered to be negative, long term and of high significance.*

Potential Changes to social fabric due to urban renewal

The current cultural landscape in the project area has shaped the social fabric and is now woven into the daily lives by the various groups in the society, especially, the use of the open *barazas* under the trees in Darajani area. This daily cultural life and activity have been unconsciously designed around the existing landscape. Changes to the existing landscape will potentially have a negative impact on the richness and quality of social fabric in this area.*This is the negative impact, long term and of high significance.*

6.5.1.2 Impacts Caused by Land acquisition and Pressure on Social Services

Land Acquisition, Resettlement and Relocation of Business

The implementation of the project will require land. During updating of the ESIA report the number of structures and PAPs was also revised. The details of land acquisition, resettlement and relocation of business have been discussed in the Resettlement Action Plan (RAP) submitted separately. The preliminary number of properties/people to be affected is as indicated in the updated RAP which is also completed and submitted separately.

Involuntary displacement or resettlement would cause social disruption and economic loss for the affected individuals and their families. Currently the proposed project area is famous for vending businesses, during the construction works, these businesses may be affected (Figure 6.1). Some of business to be affected are vendors at Darajani and Bust stops along Karume and creek roads. *Therefore, it is considered negative impact, medium term and of high significance*.

Figure 6.1: Some of Business to be affected Darajani Market area (Site Inspection)

Interruption of Utility Services

The proposed project will involve relocation of utility facilities such as water supply and sewer pipes, telephone and electric cables. During construction, the water and sewer pipes as well as telephone and electric cables may be broken/cut and deny services to the public. This impact is direct and has residual impact as other impacts may arise in because of the absence of utility services. The absence of adequate water supply may cause the outbreak of water borne diseases and insanitary condition. *This is considered to be negative impacts, short-term and high significance.*

Road Traffic Congestion

Traffic passage pattern caused by the project can result into road congestion during and after construction if not managed well. During construction, rerouting and access restrictions can cause the congestion unless appropriate sings, and other traffic control measures are taken

Decrease of community cohesion due to labour influx

It is likely most of the migrant workers who will be attracted by the project will be male. This male workforce may stay in Ungula, Zanzibar for extended period away from families and normal social environments which may lead to increases in unplanned pregnancies, and ultimately to more single parent households and changes in family structure. Because of the financial status of migrant workers, may engage in relationship with girls, which in turn may increase school dropout, teenage marriage and unsafe abortion. In addition, influx of labour may result in conflicts between locals and non-locals concerning employment opportunities; and may cause increases in crime and violence against women and girls. *This impact is considered to be negative, medium term and moderate significance.*

6.5. 2 Negative Environmental Impacts

Potential Loss of trees

Loss of trees such as mangroves and other sea plants will reduce shade and local climate amelioration which is important for pedestrians and people working in the area. For the case of Mangrove trees the separate mangrove management plan has been prepared. *This impact is considered to be negative, medium term, and of high significance.*

Pollution due to noise and vibrations

Increased traffic movement during construction across the project area is likely to cause noise and vibrations. Construction equipment such as compressors, electric grinders, bulldozer, excavators, loaders, trucks, engines (generator), vibrators and concrete mixers, etc. will produce relative high noise and vibrations than the existing noise level during construction. Noise from construction activities plus the existing noise will result into high noise level exceeding the allowable limit i.e. daytime noise levels of 70 dBA for industrial area and 60dBA for residential and industry/small scale production and commerce. *This impact is considered to be negative, cumulative, short term and of moderate significance.*

Soil erosion

Removal of soil cover due to site clearing as well as other earth works will make soil susceptible to water and wind erosion. The eroded soil may cause siltation of the storm water drainages and mangroves wetlands along Malawi road. Improper cutting for road embankment may also accelerate soil erosion along the road embankment. However, the construction activities will be confined within existing road space, which means that cut and fill earth works will be minimal. *Therefore, this impact is considered to be negative, short term and moderate significance.*

Visual and auditory disturbance

During construction phase, there will be more noise which causes auditory disturbance to the local community. Besides, the dust produced by construction equipment, machinery, and vehicles, if in an excessive amount, could impair visibility on the road, making the construction area prone to traffic accidents. The dust could also cause temporary discoloration of buildings and vegetation along the construction site. In addition, stockpiles of construction materials will impair scenic and visual quality. *The impact is considered to be negative, short-term duration and of moderate significance.*

Pollution due to poor solid waste management

The solid waste generated on the work site will include, among others, cement bags, wood, plastic and metal containers such as drums, and tins, bottles etc. During the construction phase, if there is an influx of labour, there could also be increased waste generation from consumption of goods, particularly food packaging, bottles, etc.

Also, during construction there would be waste materials generated from soil cutting, filling and levelling of project site, which will also include surplus materials. Poor management of these wastes can result to pollute both terrestrial and marine environment. *Poor construction waste management constitutes negative impact, of short-term duration and of high significance.*

Pollution from liquid waste generation

Wastewater generated from campsite will increase liquid waste generation in the area eventually impose more loading to sanitation facilities to handle. Wastewater generated from campsites, may be contaminated by fuel, oils and/or other chemical spills. If unattended, such wastewater generation would cause pollution to the environment and may result the outbreak of water borne diseases. *Therefore, this impact is considered negative, of medium term duration and of high significance.*

Atmospheric pollution

Karume, Malawi, Airport, Creek and Michenzani roads are main roads used to access Stone town and city centre from other parts of Unguja Island. Traffic movement in these roads is high and most of vehicles used are old. Dust, noise and gases emission along these roads is substantial and the situation is bad when there is wind. The pollution level is expected to continue in the future due to expected increase of road traffic as a result of economic improvement. Introducing construction machines and trucks in this area will increase atmospheric pollution and worsened the situation for the whole period of construction.

The dust generated on the construction site from land clearing, extraction, transportation, offloading, stockpiling and spreading of sand and gravel will have negative impact to the air quality. In addition, movements of vehicles and construction machinery within the construction area may generate more dust. This situation will be worse during the dry season. Another source of air pollution will be due to exhaust fumes from operating construction machinery, equipment and vehicles. The equipment and vehicles will invariably emit gases such as CO_2, NOx, SOx, particulate matters and hydrocarbons. Dust and gases emitted from construction activities together with the existing dust and gases emissions in that area is likely will exceed the national standards (TSP: 0.20mg/m^3, PM_{10}: 0.10mg.m^3, $PM_{2.5}$:0.05mg/m^3, CO:10mg/m_3, NO_2:0.1mg/m^3, NOx:0.15mg/m^3, SO_2:0.125mg/m^3) which may have adverse health effects to people living in that area. *This is considered negative impact, cumulative, long-term and of moderate significance.*

Competition for natural resources due to uncontrolled labour influx

It is estimated that more than 200 people will be employed by the proposed project for construction and supervision. While the contractor and supervision consultant will be strongly encouraged to hire local workers to the extent possible, an influx of labour from outside of Zanzibar may still be attracted. The presence of migrant workers is likely to increase demand for scarce freshwater resource and energy (particularly fuelwood), which may result into competition of the same resources with hosting community. In addition, migrant workers may exacerbate the engagement in illegal fishing and/or cutting of mangroves for human consumption and firewood. If the competition is uncontrolled might cause conflicts with local

communities in the utilization of scarce natural resources and/or basic services. *This impact is considered to be negative, short term and of moderate significance.*

6.5. 3. Negative Occupational Health and Safety Impacts

Occupational Health and Safety Risks

The construction workers will be exposed to respiratory diseases due to dust, fumes and cement. During construction, the workers may be at high risks of injuries due to construction machine operations. Construction workers may fall from the construction equipment and be injured or causing death. Among others, the occupational Health and Safety problems associated with road construction works include:

- o Injuries or death due to lack or poor separation of working areas and traffic area;
- o Accidents involving pedestrians and street vendors o Lack of working gears such as nose and ear masks;

The construction activities will expose workers, visitors and the general public to different physical hazards (e.g. from falling into trenches or being hit by falling objects, striking against object, overexertion, electric shock, fire and explosion, etc.), chemical hazards (contact with skin, inhalation of harmful chemical etc.), etc. *This is predicted to be negative, short term and of high significance.*

6.5. 4. Negative Community Health and Safety

Safety risks to Pedestrians

During construction pedestrians will be exposed to different hazards, which if not well controlled may result into incidents. Pedestrians may be exposed to the risk of falling and slipping when there are obstacles on the surface and walking on uneven or loose surface. When pedestrians crossing road under construction may cause collisions with moving vehicles or construction equipment and may be stuck by moving/flying objects. Pedestrians may also be exposed to sharp items such as timber and other materials with projecting nails, if good housekeeping will not be practiced. This *is considered to be negative, short term and of high significance.*

Potential threats from spread of Sexual Transmitted Diseases and GBV/SEA

During construction, it is likely migrant workers will be attracted resulting into high interaction with the locals. Interaction with locals can provoke higher rates of violence, injury, alcohol and drug consumption and sexually transmitted diseases in the local population. This may cause a high risk of spread of HIV/AIDS and other sexually transmitted infections if the migrant workers and the local residents are not well informed, educated, or protected. Vulnerable residents of the host communities, such as youth and women, may be subject to exploitative behaviours as well. Besides, there could be high social interaction between community members, casual labourers and some skilled workforce who are coming from different places during construction phase, which may result in gender-based violence (GBV),

sexual exploitation and abuse (SEA) as well as attitude and behaviour changes among local people. *This is negative impacts, medium term and of high significance.*

6.5.6 Operation Phase

6.5.6.1 Negative Social Impacts

Cultural Heritage Impacts

Changes to 'recent' historic pattern of public access and transportation

The project will bring changes to the accessibility patterns in terms of both, public and private transport. This will have an immediate direct impact on the people in Stone Town and Ng'ambo city center. The cultural activity of the people has been designed around the current *daladala* spots and pick up points which were introduced since the post-revolution period. Thus, this current pedestrian plan will impact negatively on the cultural routine of the people. This will especially affect the elderly and the sick. The emergency vehicular route will take a while before its benefit can change the immediate negatives to be introduced by the pedestrianizing project. *This is considered to be negative impact, medium term and of moderate significance.*

Potential cultural dilution

Besides the economic boom that tourism will potentially bring to Stone Town and Michenzani areas, the cultural expression will be threatened by the imminent influx of tourists that will be encourages by the design of the narrow streets of Stone Town and Karume Boulevard. Such a large wave of people into the areas will likely affect the rich cultural expression. The natural cadence of change and evolution of culture will be subjected to rapid cultural change and shifts. The rapid inflow of tourist might also be a threat to the conservation of older versions of Kiswahili in the long term. *This is considered to be negative impact, medium term and of high significance*

Changes to 'Recent' Historic Pattern of Public Access and Transportation

Changes to the accessibility patterns in terms of both, public and private transport will have an immediate direct impact on the people in Stone Town and Ng'ambo city center. The cultural activity of the people has been designed around the current *daladala* spots and pick up points which were introduced since the post-revolution period. Thus, this current pedestrian plan will impact negatively on the cultural routine of the people. This will especially affect the elderly and the sick. The emergency vehicular route will take a while before its benefit can change the immediate negatives to be introduced by the pedestrianizing project. *This is considered to be negative impact, medium term and of moderate significance.*

Parking Spaces reduction

Change of current parking pattern of Ng'ambo may increase the inconvenience of the drivers who wish to go to the destination inside the plan area, it can generate new parking culture through strict enforcement on illegal parking, securing parking space outside the plan area and improving mobility transit facilities. The following Table 6.4 demonstrates how the users will be affected through the change of parking pattern and new parking space from the view point

of usage and facility. *This is considered to be negative impact, medium term and of high significance.*

Table 6.4: Effects from Change of Parking

Contents	Likely parking effects
Current parking Pattern	Locating new parking lots outside the plan area may cause inconvenience of current users who wish to park near usage destination.
Resident parking space	Residents with vehicles can be affected adversely by the lack of passage and parking space
Securing parking lot inside and outside plan area	For discouraging parking in city center, securing the parking space outside the plan area and encouraging internal passage by walking and bicycle improving mobility transit facilities, facility improvement, change of the user awareness, and legal parking culture needs to be accomplished.

6.5.6.2 Negative Environmental Impacts

Pollution along the roads

Noise and gases emission along the project roads is remarkable. Taking into account the government efforts to improve economy of the people, it is expected that number of vehicles in the island will increase in future. Unfortunately, most of the vehicles used are old as large number of people imports used vehicles which emit high noise and gases due to poor maintenance and law enforcement. Diverting all vehicles using Karume road to Malawi and airport roads will substantially increase air pollution in these areas.

Additional noise due to the project to existing one along these roads it is likely will exceed allowable thresholds for both day and nights. This may affect residence along these roads particularly during the night time. Besides, increasing of traffic movement along Malawi and airport roads will result in emissions of air pollutants such as NOx, VOCs, PM, CO, SO2. Emissions from increased traffic movement due to the project will add on existing emissions along Malawi and Airport roads and it is likely will exceed national standards (TSP: 0.20mg/m^3, PM_{10}: 0.10 mg.m^3, $PM_{2.5}$:0.05mg/m^3, CO:10mg/m_3, NO_2:0.1mg/m^3, NOx:0.15mg/m^3, SO_2:0.125mg/m^3), which will negatively affect local air quality. Exposure to these air pollutants can cause adverse health effects to people residing and working along those roads, such as neurological, cardiovascular and respiratory damage. *This is negative impact, cumulative, long term and high significance.*

Pollution due to inadequate waste management

After completion of construction works, Michenzani area will attract substantial number of petty traders and food vendors from other area due to availability of modern infrastructures and facilities such as baraza and other street furniture, public toilets and shed. This will create

a kind of street market. Generation of significant solid waste as well as liquid waste is expected in the area, which can result into pollution of soil and water and generation of bad odor if not well managed. *This impact is considered to be negative, cumulative, long term and moderate significance*

6.5.6.3 Occupational Health and Safety

Health and safety risk associated with operation and maintenance

Project supported infrastructures will be operated by different authorities after completion of construction, for instance waste management facilities and improved public space will be under ZUMC, water supply infrastructure will be under ZAWA, while improved roads will be under department of roads. Maintenance of these infrastructures may involve closure of the roads, entering in the sewer, working at high height to repair street light etc. Such maintenance activities may increase safety risk to workers involved as well as the surrounding community.

Safety risk involved with repair of street light (replacement of LED) is falling of workers and objects from working platform, collapse of the mobile elevated working platform (MEWP), contact of live cables or overhead services which may cause severe injury leading to death. On the other hand, workers involved in maintenance of sewage may be subject risk of exposure to poisonous gases/fumes/vapour, water ingress and being swept away and traffic hazard. Road maintenance can have safety risk to the workers and road users if precautions not taken

6.5.2.4. Community Health and Safety Impacts

Risk of accidents to pedestrians and Customers

Traffic volume along Malawi and Mlandege roads will increase during operation phase. Improvement of these roads may prompt high speed driving, which is likely to cause accidents to pedestrians. This problem will be more severe in sections with movement of people such as Mlandege shopping area, Mnazi Mmoja hospital. Also, residents and customers visiting Michenzani area may fall into open storm water drains constructed along the roads, which may result into injuries or fatal. *This impact is considered to be negative, cumulative, long term and moderate significance*

CHAPTER 7: MITIGATION MEASURES

7.1. Mobilization/Construction Phase

7.1.1. Cultural heritage impacts

During mobilization phase (pre-construction) the contractor will prepare a Site-Specific Cultural Heritage Management Plan for project area which provides: maps of areas to be disturbed, showing locations of Stone Town heritage sites and buffer zone. PIU will apply for the permit from STCDA for undertaking construction works in Stone Town area and New Mkunazini road as well as Creek Road and project building permit from DCU. The specific measures are required for Stone Town cultural heritage site, such as, avoidance, salvage, documentation etc. as will be specified by heritage and tourism specialist/Coordinator. The contractor will implement cultural awareness to workers before construction activities commence to induct on Stone Town heritage site and requirement to avoid all sites not authorized for disturbance, procedures for responding to chance finds of cultural heritage sites, including skeletal material etc. More details regarding impacts on cultural heritage are described in the heritage impact assessment (HIA) which is conducted as a separate study.

7.1.1.1 Potential impacts on buried archaeological remains in construction phase

Before commencement of this project, archaeological test survey and recording should be done for the open portion of the project boundary. STCDA and DMA will be consulted before starting of actual construction works and will be involved during construction phase of this project. Monitoring excavations in New Mkunazini road and other area as may be specified by STCDA shall be undertaken manually.

7.1.1.2 Potential Changes to social fabric due to urban renewal

The RGoZ through the PIU should undertake broader community engagement in order to sensitize and raise awareness of the public before the commencement and during implementation of the project. Different approaches and communication media such as multimedia outlets e.g. Radio, TV, newspaper, social media, workshops and meetings will be used to reach different target groups.

7.1.2 Negative Social Impacts

7.2. 1 Land acquisition, resettlement and relocation of business

The Contractor will be required to enter into agreement with land owner to use that piece of land for establishment of camp site. To reduce the risk of land acquisition and occupation the following will implemented:

- avoid land acquisition and temporary occupation as far as possible during project design and implementation;
- replace affected structure (with improved condition prior demolition) or o provide project-affected people with compensation at full replacement rate; o take measures of recovering incomes and livelihoods

The implementation of the compensation shall comply with Zanzibar Land Laws and the World Bank Safeguard Policies (WB OP 4.12). The compensation and resettlement should be done before or during construction period.

The resettlement and relocation of businesses can be avoided or minimized by undertaking construction in phases at Darajani while allowing vendors to continue with business in the neighbouring area without active construction and the one construction has finished. Also, the impact will be minimized by providing the affected business owners (in other areas) an alternative site for conducting their businesses. Saateni area has been proposed by Zanzibar Municipal Council to resettle business owners. Zanzibar Municipal Council has constructed the market at Saateni as alternative market to Darajani market. Currently, some businesses conducted at Saateni market area) are as shown in Figure 7.1.

Figure 7.1: Proposed relocation site (Sateni Market) for vendors (Site inspection)

Otherwise, the vendors at Darajani have to be organized by Zanzibar Municipal Council and conduct business at the proposed and agreed scheduled hours to reduce congestion at Darajani area.

7.2. 2 Interruption of Utility Services

The utility authorities like TTCL, ZAWA and ZECO will estimate the cost for relocating the utilities to be affected. The relocation of utilities will be done before the construction works starts. The cost for utilities relocation will be borne by the project. The utilities authorities will be notified by the Contractor earlier before the construction process starting in order to minimize the effect of long service interruption.

7.2.3 Road Traffic Congestion

The Contractor will ensure that the traffic flow is not interfered during the whole construction period. No total closure of the road will be allowed. The Contractor shall provide diversions and deploy a person responsible for traffic safety. To prevent delay, frustration and avoidable road incidents current public transport system will be reorganized; reorganization plan will be prepared and shared with stakeholders. There should be clear separation of working area and traffic area by marking, barricading, fencing as well as speed restriction. Furthermore, the construction will start with New Mkunazini, Karume, Mlandege roads, other roads will follow

after completion of these roads to minimize traffic and allow public easy access to Stone Town and city centre.

The design of the project has taken into account of safety concerns especially at human habitation crossings e.g. installation of bus stops at business/resettlement areas. Safety measures have been incorporated in the engineering designs to include for example details of signboards to notify the public about the potential dangers, markings, intersection layouts, access restrictions, bus stops, crossings, footpaths etc. The traffic management plans shall be prepared during construction and be presented both in English and Swahili.

Working in project area shall entail the Contractor to make special arrangement with the local government leaders (Shehias) to receive traffic police guidance during the construction works. Also, in considering the risks involved, it is recommended to provide adequate insurance cover to all workers. The road signs will be installed throughout the project site; particularly in the high traffic areas to direct and control car speed.

Also, since the project includes rehabilitation and upgrading of main roads in Ng'ambo area, passage and safety measure during construction must be considered. For the smooth and stable settlement of transportation system after the implementation of the improvement measures, from the design and construction stage, the contractor has to take measures to educate and publicize the citizen about the contents of the construction, duration, and detour routes to minimize the grievance of the users

Transportation mitigation measures during construction

Since congestion and inconvenience are anticipated during construction, measures must be taken to adapt the users to the construction gradually through appropriate construction procedure and method.

Also, when it comes to transportation passage measures during construction of Karume Road and Creek Road, it is recommended that in order to alleviate the congestion by the change of public transportation and detoured transportation pattern the two roads should be constructed in phases, i.e. to close one side of the road for construction while leaving the other side open for traffic and then switch.

Transportation mitigation measures after construction

Implementing the improvement plan will be followed by changed seamless traffic system such as the diversion of traffic volume of Karume Road and Creek Road, reorganization of bus terminals and public transportation network, and transportation system of parking outside the site and pedestrian transfer system.

7.2.4 Decrease of community cohesion due to Influx of Labour

The contractor shall prepare and implement awareness campaign on the impact of labour influx. Workers and local community will participate in this campaign. Furthermore, the

project should prepare and implement interventions on sexual and reproductive health including providing information regarding transmission and safer sex practices. This should be conducted in partnership with competent authority such as hospital, UMATI etc. To empower women financially and reduce power imbalance during construction, the contractor should employ more community women in skilled and clerical positions. Means for women workers and other community members to report abuse in the work place shall be provided by the contractor and should be clearly presented in the contractor's ESMP (C-ESMP). All workers will sign code of conduct and monitoring on adherence will be undertaken regularly as presented above section

7.2.5 Monthly community leaders (Sheha) engagement meeting will be organized, among others, to discuss incidents related to violence against girls and women involving project workers in each Shehia/harmlet.

7.1.3 Environmental Impacts

7.1.3.1 Potential Loss of trees

Unnecessary removal of the vegetation especially trees should be restricted and when it is not avoidable, removed tree will be replaced by original species soon after completion of construction works. In order to reflect project concept of green corridor, specific tree planting activity will be included in the biding document. In collaboration with ZUMC, all areas without trees will be planted with tree of indigenous species.

7.1.3.2 Pollution due to noise and vibrations

Construction activities that will cause noise will be scheduled at times where the impact on businesses, the two schools and the nearby hospital is minimal. The project will also adhere to Tanzania Standard TZS 932:2007 which stipulates maximum permissible i.e. 70 dBA for industrial area and 60dBA for residential and industry/small scale production and commerce for daytime.

The project will also mitigate, the nuisance of noise and vibration by adhering to the measures as required by Standard Specification for Road Works 2000 and Special Specifications. The contractor will implement the following measures:

- Use good work practices; o Use machinery with noise reducers; o No working at night especially in areas with settlements/public services like hospitals and religious buildings.
- The construction work should not be permitted during the nights, the operations on site shall be restricted to 07.00hrs -19.00hrs.
- Workers should use working gears like ear masks and helmets or hardhats; o The vehicles that are excessively noisy due to poor engine adjustment or damage of noise abatement equipment shall not be operated until corrective measures have been taken. o The residents will be kept informed of the planned works and advised in advance of noisy works
- The location of noisy equipment will be chosen as far as possible away from sensitive receptors (houses, workplaces, schools, mosques, churches and hospitals).

- The Contractor will ensure that equipment and vehicles are well maintained and properly fitted with exhaust mufflers.

7.1.3.3 Soil erosion

The area of surface clearance will be minimized. Cleared surface will be stabilized by revegetating with natural vegetation. The Contractor will avoid unnecessary disturbance of soil cover. In addition, the water flow speeds, especially for side drains will be controlled by constructing erosion checks.

Lined drainage channels at sensitive terrains shall be provided to control speed and volumes of storm-water. The discharge points must be carefully chosen to avoid erosion of arable land and creation of gullies. Nevertheless, all cuts in sloping grounds shall be refurbished firmly and provided with the vegetation cover to reduce the effect of soil erosion. For cleared land, it will be re-vegetated to slow down the movement of storm water.

It is a requirement of the Contractor to control water during construction to minimize chances of erosion before the permanent works are completed will part of the specifications in the bidding documents.

7.1.3.4 Visual and auditory disturbance

The diverted public traffic shall be controlled not exceeding the capacity of the bus stops in the diverted roads. Also, unnecessary siren in the residential areas particularly during the night shall be avoided. Dust suppressant measures such as use of water, covering of dust related materials, removal soil from the road will be implemented. Stockpiles of materials in areas with high movement of people or vehicles will be avoided, where avoidance is possible the height will not exceed 2m. Petty business at the bus stops shall be controlled to avoid visual impacts.

7.1.3.5 Pollution due to poor solid waste management

To mitigate the impacts from solid wastes an efficient collection and disposal system based on the principles of reduction, re-use and recycling of materials, shall be instituted at the camp and construction sites. The solid wastes produced especially from the camp sites as well as at the construction sites will be collected by municipal garbage truck or registered company and disposed of at Kibele landfill where waste is currently disposed of. Other wastes like uprooted trees will be given to the local communities for firewood. To ensure adequate waste management during construction, the following specific measures will be implemented: o Introduction of waste disposal bins, warning notices, “Dos &Don’ts” etc. posted at strategic points, through the campsite and construction sites o No, on site burial or open burning of solid waste shall be permitted

- Cleared vegetation (if any), top soil and rubble from demolished structures at the construction site will be used to fill up gravel roads or pits that needs filling
- Instructions to contractor to put on his/her methodologies for handling hazardous waste such as oils, lubricants and non-combustible waste during bidding process will be provided
- The waste generation will be avoided and reduced prior to reusing materials on-site in order to minimize the off-site waste disposal as far as practicable. Uprooted trees should be given to local communities for other use in lieu of burning.

- The hazardous waste like used batteries will be recycled or collected and disposed of according to Zanzibar environmental Management Act, 2015 and subsequent regulations.

7.1.3.6 Pollution from liquid waste generation

The sewage shall be discharged into the designated area by the ZUMC e.g. sewage treatment facility at Kibele. The Contractor shall avoid oil and fuel spills into the storm water to control these chemicals to flow into forested habitats, wildlife and biodiversity. This can be avoided by:

- o The liquid waste used oils will be filled in the drums and containers for disposal to the authorized dumping places. Domestic effluents at the campsite or generated by the increase population will be treated in public sewerage system or soak away pits and septic tanks.
- No re-fueling of plant or transfer of materials near watercourses,
- Placement of enough sanitary facilities/toilets e.g., septic tanks and soak pits at the campsite depending on the number of workers present;
- Immediate clean-up of local spillage to soil.
- Contractor will to carry out re-fueling only in areas and in a manner approved by Engineer which will not contaminate water or soil; o Construct bunds with concrete pads for spillage containment in the filling stations/workshops;
- Good housekeeping required within material storage compounds and vehicle maintenance yards;
- The drains provided with oil separator to prevent pollution into the water bodies; retained oil will later be removed for further treatment together with other used oil.

7.1.3.7 Atmospheric pollution

To the large extent, the nuisance of atmospheric pollution like dust will be mitigated by adhering to the Standard Specification for Road Works 2000 and Special Specifications. Also, it will be mitigated by:

- Use good work practices;
- Use of water to suppress dust must be practiced on all working sections including areas of cutting and filling, haul roads, in the borrow areas and quarries, and any sections of existing road travelled by construction equipment or trucks;
- All workers exposed to the risk of dust and exhaust gas should use appropriate personal protective equipment (PPE) such dust mask
- Contractor should consider good selection of machinery and vehicles; regular service and lubrication to reduce fumes from construction machinery and vehicles. o Switching off the machines and vehicles when not in use will help to minimize the exhaust fumes.
- all construction machinery will be maintained and serviced in accordance with the contractor's specifications
- No equipment will be used that generates excessive black smoke o Routine inspection of equipment’s will be done

7.1.3.8 Competition for natural resources due to uncontrolled labour influx

Local workers will be given priority for employment to deter influx of workers from outside of Zanzibar. All employed workers for the project will sign code of conduct, among other, it will prevent illegal utilization of natural resources, prevent gender related violence. Breach

of code of conduct my result into suspension or termination of the contract. Water use efficiency measures will be implemented at the project site. The contractor will obtain water from authority sources i.e. ZAWA water supply network. Permit for obstructing water from other sources will be sought. Rainwater as alternative source of water will be utilized by the contractor

7.1.4 Occupational Health and Safety

7.1.4.1 Occupational Health and Safety Risks

Construction works Including Michenzani Green Corridor are accompanied with several activities which may cause safety risks to the labourers at different phases to avoid these safety risks the Contractor should conduct training for construction workers on occupational health and safety, also the Contractor should ensure that the project employees are comply with Occupational Health and Safety requirements.

Appropriate working gear (such as nose and ear mask and clothing) and good camp management shall be provided. During construction, the Contractor shall ensure that the campsite is fenced and hygienically kept with adequate provision of facilities including waste disposal facilities, sewage, firefighting equipment and clean and safe water supply as required by Standard Specification for Road works (2000).

A well-stocked First Aid kit (administered by medical personnel) shall be maintained at each work site and campsite. The medical personnel shall also be responsible for primary treatment of ailments and other minor medical cases as well as providing some health education to the workforce.

7.1.5 Community Health and Safety

7.1.5.1 Safety Risks to Pedestrians

Pedestrians' walkways should be designated; the walkway should be clearly indicated by signs, notices and marking indicating the routes, hazards and warning and lit at night (defining the limit of safe area). The contractor will develop special rules ensuring designated walkways are kept clear from any obstacles, debris and litter; and walkway should frequent checked to ensure compliance. Physical barrier (fencing or guarding) will be erected in all places where there is risk of collision with vehicle, moving/flying object and fixed objects and risk of falling. Road danger light should be placed at the end of the barrier at night. The contractor will use temporary barriers/cones/warning tape to prevent access to certain areas for certain time. The signs, notices and markings used will be clearly visible, conspicuous and easily understood to ensure that pedestrians are aware of any dangers and what they should do avoid them. Access to shops and houses e.g. cross bridge for residents and customers will be provided.

7.1.5.2 Potential threats from Spread of Sexual Transmitted Diseases and GBV/SEA

In order to prevent more HIV/AIDS infection, during the implementation phase, the project should implement HIV/AIDS awareness and prevention program and related costs will be reflected in the bidding document. The implementation of the program will help to raise more awareness on HIV/AIDS and means to suppress its incidence.

The Contractor will be required to have a mechanism which will allow his employees to get information on HIV/AIDS alleviation programs. The Contractor will have educational awareness campaign during the construction phase to prevent further spread of HIV/AIDS due to construction activities. The Contractor shall deploy locally available labour to address the issues of spreading of STD, and HIV/AIDS.

In addition, the contractor will integrate measures for prevention and handling Gender Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) in the contractor's environmental and social management plan (C-ESMP). Every Gender Based Violence (GBV)-related incident should be reported and appropriate actions taken. The contractor will develop an induction programme, including a Code of Conduct, for all workers directly related to this project. A copy of the Code of Conduct should be presented to all workers and signed by each addressing various issues such as:

- respect for local residents and customs;
- zero tolerance to violence (whether physical, verbal or otherwise)
- zero tolerance of bribery or corruption;
- zero tolerance of illegal activities by construction personnel including:
    - o prostitution;
    - o illegal sale or purchase of alcohol;
    - o sale, purchase or consumption of drugs; o
    - illegal gambling or fighting;
- description of disciplinary measures for infringement of the Code and company rules

7.2 Operation Phase

7.2.1 Cultural Heritage Impacts

7.2.1.1 Changes to 'recent' historic pattern of public access and transportation

The project proponent will have to undertake a sensitization and awareness raising program as part of project preparation before commencement and during implementation of the project in conjunction with the civil society groups.

Detailed Heritage Impact Assessment (PCR impact assessment) which outlines mitigation measures has been conducted and PCR management plan prepared and is annexed to this report. Reference should be made to PCR management plan for details regarding mitigation measures for impacts on physical cultural resources.

7.2.1.2 Potential cultural dilution

Undertake a large-scale sensitization and awareness raising program before the commencement of operation phase of the project in conjunction with the Radio and TV and in synergy with Reclaim Women Space in World Heritage, Zanzibar Stone Town Heritage Society and other civil society groups. Implement tourism education programs to ensure respect of local customs. Incorporate design elements to encourage interactions between certain stakeholders and tourists to ensure compliance with local culture. Implement anti-drug awareness programs for the youths

7.2.1.3 Changes to 'Recent' historic pattern of public access and transportation

Consider the possibility of modifying the current public transport regulations and practices and defining institutional and organizational strategy needs to achieve a smooth transition. Consult with daladala operators and other stakeholders to define an acceptable process to assign the changed bus services to operators. Define a new public transport reorganization scheme with the definition of terminals and drop-off/pick-up facilities in order to guarantee a high-level accessibility of the entire Ng'ambo area with sustainable modes. Modify current public transport regulations and practices as well as change bus size in the long term and keep existing daladala for the short term

7.2.2 Negative Environmental Impacts

7.2.1.1 Pollution along Malawi and Airport roads

Noise

The diverted public traffic shall be controlled to avoid unnecessary siren in residential area particularly during the night. Restriction on unnecessary horns and sound amplifying exhaust will be imposed. Awareness of on noise reduction measures for structures owners along Malawi and airport road will be raised. Noisy trucks or machines (exceeding maximum limit) passing in this area will be restricted to day time i.e. 06:00AM to 10:00PM. Vegetation along these roads will be planted to reduce noise impact on residential areas. Where possible municipal council will install roadside barrier i.e. wall to reduce noise impact on nearby dwelling houses

Air pollution

The public transport vehicle shall be regular be maintained to reduce smoke and fumes. Speed will be controlled along Malawi and Airport roads. Awareness campaign to drivers on exhaust emission reduction e.g. slow acceleration, should be implemented. Roadside vegetation will be planted and maintained, which may act as barrier to remove some of the smallest particulate pollutants from the roads. ZUMC in collaboration with traffic policy should ensure vehicles with excessive smoke are not allowed to operate in this area.

7.2.1.2 Pollution due to inadequate waste management

To prevent this impact this project will introduce new solid waste collection points (which will include construction of concrete slabs and supply of skip-buckets) in strategic locations within the project area. Existing waste collection system under ZUMC will be used for collection of wastes to the landfill on daily basis. Street waste collection receptacles should be provided and emptied regular in a day. For sustainability, polluter pays principle should be applied, whereby each waste generator will provide financial contribution for waste management. Public toilet should be connected to the existing sewerage system.

7.2.3 Occupational Health and Safety

7.2.3.1 Health and safety risk associated with operation and maintenance

To mitigate health and safety related impacts during operation of the infrastructures supported under this project the supervision consultant will prepare sewerage maintenance manual including safety measures specific to Zanzibar. The manual should, at least, include the following measures: Working at height and in confined space should be avoided as much as possible. Where avoidance is not possible then the risk should be minimized. Procedures, plans

and equipment for rescues must in place during undertaking maintenance activities. Workers should be provided with personal protective equipment

Working at confined space (sewer)

All workers involved in sewerage maintenance should have adequate training, which should be repeated regularly. The training should involve respiratory equipment, gas-testing equipment, rescues procedures, first aid treatment including artificial respiration, evacuation and emergency procedures. Before starting the works in the sewer the atmosphere shall be checked to determine if it contains sufficient oxygen, is free from both toxic and inflammable vapour and is fit to breathe. When testing the atmosphere breathing apparatus must be worn before entering.

No worker should be allowed to work in sewer without wearing approved breathing apparatus. Where practical the worker working in the sewer should wear a belt or harness with a rope securely attached. Appropriate PPE such as hard hat, coverall, boots, gloves, safety spectacles and radio shall be provided and used before entering in the channel/pipe. During undertaking maintenance work monitoring should be carried-out by trained personnel with individual detector tubes. For manholes within the road area, traffic should be warned by high-level signs far ahead of the job site. Traffic cones, signs, or barricades arranged around the work, or a flagger shall be used to direct traffic.

Working at height (street light)

Operation and maintenance manual will be prepared by the supervision consultant, among others, it will include safety measures during maintenance. The manual will include at least the following mitigation measures: Use high level signage to warned traffic far ahead of working area. Use traffic cones, signs, or barricades arranged around the work, where necessary a flagman shall be used to direct traffic. The mobile elevated working platform (MEWP) shall be sited on firm and stable ground; barricade the MEWP area with barrier to prevent the platform being struck by traffic and to keep people from beneath of the working platform. Worker should wear safety harness as additional precaution.

Working in the roads (road maintenance)

During repair of the roads, working area will be barricaded (fencing or guarding) to prevent workers or equipment being struck by traffic. Road danger light should be placed at the beginning/end of the barrier at night. Temporary barriers/cones/warning tape will be used to prevent access to certain areas for certain time. The signs, notices and markings used will be clearly visible, conspicuous and easily understood for pedestrians and drivers to be aware of any hazards and what they should do to avoid them. Temporary speed (30km/hr) control such as potable humps may be used where necessary.

7.2.4 Community Health and Safety

7.2.4.1 Risk of accidents to pedestrians and customers

Mitigation of this impact will involve installing speed restraining measures at approaches to all black spots or sections with high concentration of people and school areas such as installation of safety signs (e.g. speed limit, pedestrians crossing etc) introduction of speed humps, Zebra and pelican crossings. The contractor must put concrete slabs or culverts on open drainage channel to allow access by residents and customers to their houses and

shops/businesses respectively; in area with high concentration of people closed storm water channel should be used. In addition, a road safety awareness campaign will be implemented during and after construction, targeting all the local communities, including school children.

7.2.5 Social Impacts

7.2.5.1 Parking Spaces reduction

The implementation of this project aims to shift vehicular motorized traffic to sustainable modes as well as restructuring overall parking management. Illegal on street parking will therefore be regulated and the parking supply currently located on Karume road will be relocated along the back access streets along behind Michenzani apartments and in dedicated off street parking structures.

With the aim of converting illegal parking spaces to formalized parking supply, the following measures are proposed:

- Ensuring an overall parking supply as per current condition.
- Include part of the parking supply within the proposed road design (on Mlandege road and behind Michenzani blocks)
- Promote off street parking facilities to facilitate smooth interchange between cars and public transport
- Ensure a smooth transition towards the new parking facilities through dedicated wayfinding system and awareness campaigns

Table 7.1: Calculation of on- and off-street parking demand inside and outside parking lot size

Contents	Current Parking Demand	Parking plan (as per current road design)	Required parking spaces (to be hosted in dedicated off street parking facilities)	Required area of off-street parking structure (m²)
Terminal	564	139	425	8,500
Port	383	57	326	6,600
Stone Town	192	61	131	2,700
Sum	1,138	257	881	17,800

Table 7.2: Other Parking reduction effects and its mitigation measures

Contents	Likely parking negative effects	Mitigation description
Current parking Pattern	Locating new parking lots outside the plan area may cause inconvenience of current users who wish to park near usage destination.	Accordingly, two-track strategy shall be considered that "negative strategy" as discouraging the motorized access and "positive strategy" as absorbing the essential demands such as tourism and neighborhood convenience facility access.
Resident parking space	Residents with vehicles can be affected adversely by the lack of passage and parking space	For internal passage of the residents' vehicle and parking, back yard of Michenzani flats should be considered.
Securing parking lot inside and outside plan area	For discouraging parking in city center, securing the parking space outside the plan area and encouraging internal passage by walking and bicycle improving mobility transit facilities, facility improvement, change of the user awareness, and legal parking culture needs to be accomplished.	Outside the plan area the parking facilities are proposed to be constructed in close proximity to Malawi road near heavy traffic volume facilities like terminal and port in close proximity to the existing hospital providing various intermodal transfer. Adjacent to Stone Town, it is necessary to secure the smallest off-street parking lot for tourism and public facilities that inevitably require vehicle access.

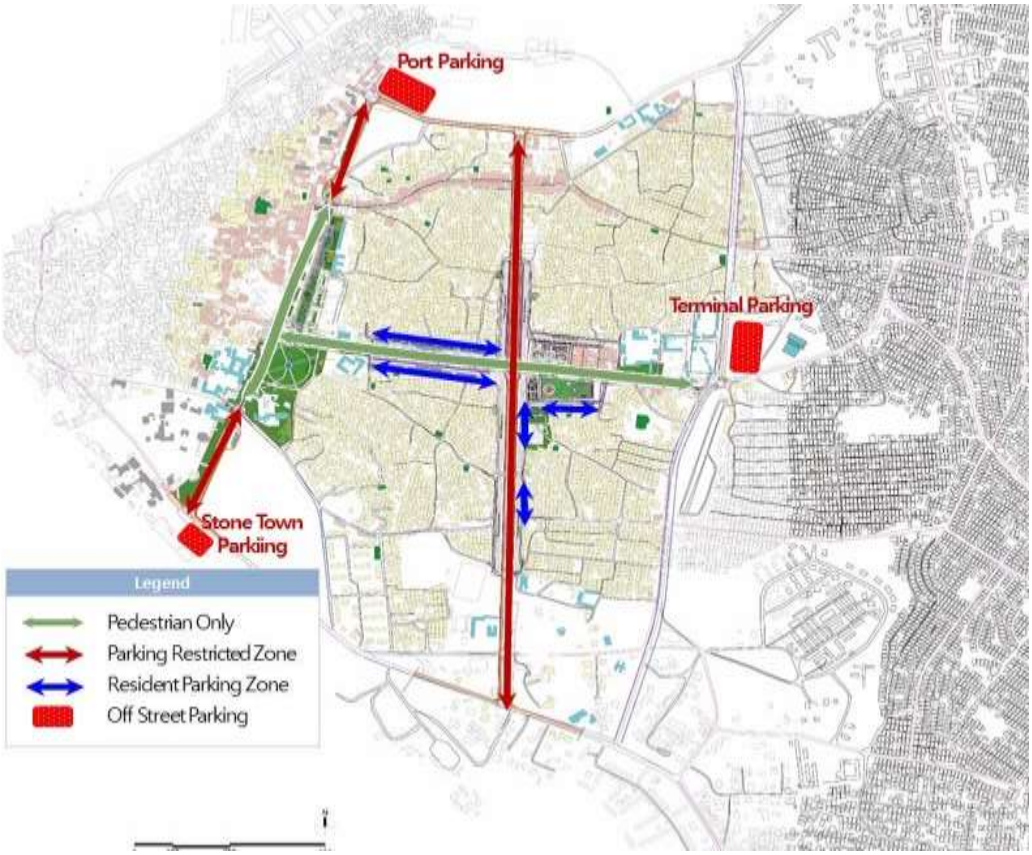

Figure 7.2: Parking areas distribution (on-and off street)

7.3 Cumulative Impacts

As explained in section 6.2.2.5, cumulative effects occur as interactions between actions, between actions and the environment, and between components of the environment. It is envisaged that during the implementation of this project the likelihood of cumulative impacts occurring is low. This is based on the rationale that the cumulative impacts under this project are likely to occur in two ways:

Spatial and temporal crowding: Cumulative effects may occur if proposed activities are to be carried out within too small an area and in to brief a period of time. The updated ESIA for Stone Town and Michenzani Corridor has indicated that most of the likely negative impacts are envisaged to be associated with the construction phase, will be site specific and can be adequately mitigated during the project implementation stage. The proposed phasing of construction of roads will also mitigate potential cumulative impacts by avoiding crowding of activities within a small area and over a short period.

Construction is also proposed in other activities under the BIG- Z project, including: (i) physical investments for improving living conditions and urban resilience, such as drainage and retention ponds, solar-powered street lighting, renovating and greening of public spaces etc., as part of *Area-based Upgrading Programme for Unguja (AUP-U;* (ii) construction/rehabilitation of waste collection points (skip pads) as part of Solid Waste Management Improvement Programme (SWMIP); and (iii) rehabilitation of selected assets of cultural heritage. However, the geographical locations of proposed physical investments under BIG-Z and the envisaged site specific and short- term negative impacts are not likely to reach

thresholds that may be exceeded and affect the environment not to recover to pre-disturbance conditions, hence unlikely to require Cumulative Environmental Assessment (CEA). Potential environmental impacts during construction activities may include traffic disruption and access restrictions; noise, gaseous and dust pollution, soil erosion and pollution of water sources from borrow pits and quarries; and occupational hazards. Spatial crowding results in an overlap of effects among actions such as noise from construction machinery, dust and pollution of water sources is expected to be minimal. Mitigation measures have been proposed in this ESIA (section 7.1&7.2) and ESMP (chapter 8), and the same will be prepared as part of the preparation of other activities.

Growth-inducing potential: Each new action can induce further actions to occur. The effects of these "spin-off" actions such as increased vehicle movement access into a previously congested area may add to the cumulative effects. The construction phase will involve the transportation of personnel, construction materials and equipment to the active construction sites for the proposed physical investments. Traffic Management issues will be short term and measures to mitigate the impacts during construction of six 6 roads including Karume Boulevard, Mlandege Road, Creek Road and Malawi Road have been proposed in section 7.1&7.2 and in the ESMP. The traffic management Plan for the other investments under the project will be prepared and approved prior to commencement of works as part of the site-specific ESMPs and in accordance with the ESMF.

CHAPTER 8: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

8.1 Introduction

The Environmental and Social Management Plan (ESMP) presented in the table below for the proposed Stone Town and Michenzani Green Corridor project aims to address the impacts associated with the proposed project. Based on the assessment undertaken as part of the ESIA, a series of mitigation measures have been identified which aim to reduce and / or eliminate the predicted impacts of the project. It is important that these mitigation measures are appropriately applied to the project mobilization, construction and operation, and this management plan provides a strategic framework for their implementation.

Based on the assessment undertaken as part of the updating of this ESIA, a series of mitigation measures have been identified which aim to reduce and / or eliminate the predicted impacts of the project. It is important that these mitigation measures are appropriately applied to the project mobilization, construction and operation phases, and this management plan provides a strategic framework for their implementation. Some of the mitigation measures related to engineering aspects, will be included in the detailed engineering design as appropriate and related costs will also be included in the engineering costs. The proposed environmental and social mitigation measures will be incorporated in the detailed engineering design and be part of the Bidding documents. The estimated costs for implementing the mitigation measures are just indicative to enable project proponent budget the necessary funds. In any case the ESIA team used informed judgment to come up with these figures.

8.2 Objective of the ESMP

The objective of this ESMP is to describe the measures that should be implemented by the Contractor, PIU and implementing partners during the implementation of the project to eliminate or reduce to acceptable levels key potential impacts i.e. social and health impacts related to project activities. The specific measures set out in the ESMP must be fully adhered to by all the project parties. The project must strive to avoid significant impacts on the bio-physical, social and cultural heritage, or health aspects during implementation. Avoidance through good, detailed design of site-specific works and through preparation of the detailed site-specific contractor's ESMPs will be key to success in this area. Where impacts cannot be avoided, they must be mitigated using appropriate measures. The ESMP has been developed to:

- Bring the project to comply with the Government of Zanzibar applicable national environmental and social legal requirements as well as World Bank environmental and social safeguards standards;
- Provide guidance on EHS issues as required by the IFC and World Bank Group EHS Guidelines
- Outline the mitigating, monitoring, consultative and institutional measures required to prevent, minimize, mitigate or compensate for adverse environmental, social and cultural heritage impacts.
- Provide an operational reference and tool for environmental management during project construction as well as operation activities.

All contractual and legal obligations relating to the ESMP apply to the main Contractor and any Sub-Contractors appointed by them. It is the responsibility of the Construction Contractors to provide adequate resources to ensure effective implementation and control of ESMP. The Sub-Contractor is responsible to its respective Contractor for compliance with the measures presented in the ESMP. It is also the responsibility of the Construction Contractors and their Sub-Contractors to ensure that all project workers are trained and procedures are understood and followed.

8.3 Institutional Capacity and Implementation Arrangement

The Ministry of Infrastructure, Communication and Transport (MOICT) through the Project Implementation Unit PIU has overall responsibility of implementing this ESMP. The PIU will supervise and monitor all components implemented by the contractor and operators. PIU shall provide the necessary supervisory oversight to ensure the mitigation measures are implemented. To to ensure the sound development and effective implementation of the ESMP, it will be necessary to identify and define the responsibilities and authority of the various people and organizations that will be involved in the project. The following entities will be involved in the implementation of this ESMP:

 The Ministry of Infrastructure, Communication and Transport (MOICT) (PIU);
- Consultants;
- Contractor;
- The Zanzibar Environmental Management Authority (ZEMA)
- Funding Institution

8.3.1 Ministry of Finance and Planning and the Ministry of Infrastructure, Communication and Transport

The Ministry of Finance and Planning will coordinate the project through the Project Management Team (PMT), while the Ministry of Infrastructure, Communication and Transport (MoICT), via the Project Implementation Unit (PIU), will oversee the Michenzani and Stone Town projects. The PIU is responsible for implementing ESMP mitigation measures and contract requirements. Environmental and social safeguards monitoring during construction and operation will be conducted by the PIU team, with ZEMA representatives involved if needed. The PIU has designated Environmental and Safety as well as Social Officers/Consultants to manage these tasks.

- Recommending solutions for specific environmental problems;
- S/He shall facilitate the creation of liaison group with the stakeholders and shall monitor the compliance with ESMP;
- Organizing consultations at key stages of the project with the stakeholders and interested parties;
- S/He will be required to liaise with the ZEMA and OSHA on the level of compliance with the ESMP achieved by the project on a regular basis for the duration of the contract;
- Supervising the implementation of the ESMP;

8.3.2 Supervision Consultant

The supervision Consultant through its Environmental Specialist will be required to oversee the construction programme and construction activities performed by the Contractor, in compliance with the ESMP. It is recommended that prior to commencement of actual construction, the Consultant should submit a work plan that complies with the national and World Bank environmental guidelines and an updated ESMP for the different phases of the work. The environmental plan should specify the location of sources of materials, disposal area of construction debris and arrangements for traffic management. The plan should take into consideration the mitigation measures proposed in this ESIA.

8.3.3 The Contractor

Contractor will be responsible for construction works of the project in accordance with the Technical Specifications required. The Contractor will implement the project fully in accordance with the ESIA Mitigation measures. During mobilization phase, the Contractor will review the ESMP and develop specific ESMP (contractor's ESMP) for implementation of specific proposed mitigation measures. The Contractor will nominate an Environmental and Safety Officer (ESO), Social Officer (SO) and traffic control/management expert (TC) to implement the mitigation measures outlined in this ESMP and will be the Contractor's focal point for all environmental, social and traffic control matters. The ESO, SO and TC will be routinely on-site for the duration of the construction works. These officers will also be responsible for:

- Supervising the implementation of the ESMP and C-ESMP;
- Undertaking consultations with the stakeholders;
- Managing project environmental and social issues
- Training of workers and daily site inspection
- Preparing environmental progress reports on the status of implementation of mitigation measures at site.

8.3.4 The Zanzibar Environment Management Authority

The Zanzibar Environmental Management Authority will play a key role in monitoring the project during the construction and operational phases to ensure that the mitigation measures set out in chapter 7 above are fully implemented.

8.3.5 Funding Institutions

The Revolutionary Government of Zanzibar through Ministry of Finance and Planning has prepared an application for funding this project from the World Bank. The funding organization will have an overarching responsibility to ensure that the Project is carried out to the highest environmental and social safeguards standards, at least, in accordance with the ESIA and the mitigation measures set out therein. Additionally, it is a requirement that environmental and social impacts are managed in accordance with World Bank safeguards standards as well as relevant EHS Guidelines.

8.4 Capacity building for implementation of ESMP

Capacity of PIU and implementing partners is critical for ensuring successful implementation of this ESMP. ESMF for BIG-Z project emphasizes capacity building of implementers for

subprojects financed under BIG-Z. Based on the consultation with project implementing partners capacity building on World Bank environmental and social safeguards, environmental and social impact assessment, environmental and social monitoring, OHS risk assessment and control and management of PCRs have been conducted and are ongoing. This is because the project is at the design review stage and this ESMP has been updated to accommodate the Stone Town area which was not part of this report. Participants (sector specialists, environmental officer and staff from departments responsible social planning/Community Development, Economic Planning, Urban Planning, Land and Health) from implementing partners such as PIU, ZUMC, DoURP and STCDA as well as ZEMA will be trained

8.5 Environmental and Social Management Table

The ESMP has been developed with project knowledge and information available to date. As project commencement and scheduling plans are developed and changed, components of the ESMP might require amending. This is therefore a working document, which can be updated whenever new information is received or there are changes to site conditions. Table 8.1 below presents the ESMP. It outlines corresponding management strategies proposed in Chapter 7 that will be employed to mitigate potential adverse environmental impacts and assigns responsibility for the implementation of the mitigation measures.

Table 8.1: Environmental and Social Management Plan (ESMP)

S/N	IMPACT	MITIGATION MEASURE	RESPONSIBLE INSTITUTION	BUDGET (TSH)
MOBILIZATION/CONSTRUCTION PHASE				
Cultural Heritage Impacts				
1	Potential impacts on buried archaeological remains	o Apply permit for undertaking construction works at New Mkunazini and Creek roads. The same should be undertaken if needed for the Stone Town area. o o Implement cultural awareness to workers before construction activities commence o Use manual excavation along New Mkunazini road o Undertake an archaeological test survey and record for the open portion of the project boundary o Consult STDCA and DMA from designing to operation phase	Contractor, Project Implementation Unit (PIU), STDCA, DMA	15,000,000
2	Potential Changes to social fabric due to urban renewal	Undertake broader community engagement before commencement and during implementation of the project	PIU, STDCA	15,000,000

	Other impacts	o other impacts and proposed mitigation measures are discussed in Cultural Heritage Site Management Plan. The contractor should implement mitigation measures outlined in the cultural heritage management plan attached to this report	PIU	5,000,000 (Some of the features have been included in the consultancy fees for design review and others will be part of the contractor's budget undertaking the physical activities)

S/N	IMPACT	MITIGATION MEASURE	RESPONSIBLE INSTITUTION	BUDGET (TSI
		Social Impacts		
12	Land Acquisition, Resettlement and Relocation of Business	o The site of construction camp will be acquired by renting or buying. o The land acquired will be compensated at a full replacement rate (in kind compensation is recommended) covering the property and land to be affected. o The implementation of the compensation shall comply with Zanzibar Land Laws and the WB Safeguard Policies including Operational Policy (OP) 4.12. o The compensation and resettlement should be done before or during the construction period.	PIU, Contractor, Supervising Consultant, Chief Government Valuer	Covered in RAP

		o Provision of accessible alternative site for the affected business owners More details can be found in the Resettlement Action Plan appended to this report			
13	Interruption of Utility Services	o Relocation of Utilities o Early notice before any service interruption o Funds for relocation of the infrastructure must be part of the project costs.	Contractor, ZAWA, ZECO, TTCL, PIU, Supervising Consultant	20,000,000 (Some of the features have been included in the consultancy fees for design review and others will be part of the contractor's budget undertaking the physical activities)	
14	Road Traffic Congestion	o Ensure that the traffic flow is not interfered during the whole construction period. o No total closure of the road will be allowed. o Provision of diversions and deploying a person responsible for traffic safety. o Separation of working area and traffic area by marking, fencing as well as speed restriction. o Project design to consider safety concerns especially at human habitation crossings e.g. installation of bus stops at business/resettlement areas. o Provision of signboards to notify the public about the potential dangers, markings, intersection layouts, access restrictions, bus stops, crossings, footpaths etc.	Contractor, Supervising Engineer, PIU, Traffic Police, local communities	5,000,000.00	

		o Development of Traffic Management Plan		

S/N	IMPACT	MITIGATION MEASURE	RESPONSIBLE INSTITUTION	BUDGET (TSH)
		o Provision of adequate insurance cover to all workers. o Provision of road signs particularly in the high traffic areas to control car speed		
15	Decrease of community cohesion due to Influx of Labour	o Implement awareness campaign on the impact of labour influx o Implement interventions on sexual and reproductive health including providing information regarding transmission and safer sex practices o Employ more community women in skilled and clerical positions o Provide means for women workers and other community members to report abuse in the workplace o All workers will sign the code of conduct	PIU, Contractor, and project implementing partners	5,000,000.00 (Some of the features and their costs have bee included in the consultancy fees for design review and othe will be part of the contractor's budget undertaking the physica activities)

		o Conduct monthly community leaders' engagement meeting to discuss incidents related to violence against girls and women involving project workers		

Environmental Impacts				
S/N	**IMPACT**	**MITIGATION MEASURE**	**RESPONSIBLE INSTITUTION**	**BUDGET (TSH)**
3	Potential Loss of trees including the Mangrove	o Unnecessary removal of trees should be restricted o Removed tree will be replaced by original species soon after completion of construction works o Include tree planting activity in the bidding document for the areas without trees o For the removal of mangrove plants, all measures identified in the mangrove management plan must be applied.	PIU, STDCA, ZUMC, DoF	5,000,000 (Some of the features have been included in the consultancy fees for design review and others will be part of the contractor's budget undertaking the physical activities)

4	Pollution due to of noise and vibrations	The contractor will implement the following measures: o Use machinery with noise reducers; o No working at night especially in areas with settlements/public services like hospitals and religious buildings. o The construction work should not be permitted during the nights, the operations on site shall be restricted to 07.00hrs -19.00hrs. o Workers should use working gears like wear masks; o The vehicles that are excessively noisy due to poor engine adjustment or damage of noise abatement equipment shall not be operated until corrective measures have been taken. o The local residents will be kept informed of the planned works and advised in advance of noisy works o	Contractor, Supervising Engineer, PIU, MOICT	5,000,000
5	Soil erosion	o Surface clearance will be minimised. Cleared surface will be stabilised by re-vegetating with natural vegetation. o Avoid unnecessary disturbance of soil cover. In addition, the water flow speeds, especially for side drains will be controlled by constructing erosion checks.	Contractor, Supervising Engineer, PIU, Department of Forestry, local communities	5,000,000.00
6	Visual and auditory disturbance	o Remove and properly dispose of left-over of construction materials after construction. o Providing good slope at these sites and spread with top soil to allow vegetation. o Fencing of the sites to avoid falling into the quarry. o Stockpiles of materials in areas with high movement of people or vehicles will be avoided, where avoidance is	Contractor, Supervising Consultant, PIU, local communities	5,000,000.00

S/N	IMPACT	MITIGATION MEASURE	RESPONSIBLE INSTITUTION	BUDGET (TSH)
		possible the height will not exceed 2m		
7	Pollution due to poor solid waste management	o Awareness creation o Solid wastes to be disposed of properly at Kibele dumping site/landfill o Other wastes like uprooted trees will be given to the local communities for firewood. o The hazardous waste like used batteries will be recycled or collected and disposed of through incineration. o The waste generation including uprooted trees will be avoided and reduced prior to reusing materials on-site in order to minimize the off-site waste disposal as far as practicable. o	Contractor, Supervising Consultant, PIU, ZEMA, ZUMC local communities	10,000,000.00

8	Pollution from liquid waste	o used oils to be filled in the well labelled drums or containers to be disposed of according to the ZEMA 2015 and guiding regulations o Domestic effluents at the campsite or generated by the increase population will be treated in public sewerage system or soak away pits and septic tanks. o No refueling of trucks or construction machines near watercourse, o Construction of culverts at the crossing of watercourse and drainage systems to collect surface run-offs; o Placement of enough sanitary facilities/toilets e.g., septic tanks and soak pits at the campsite; o Immediate clean-up of local spillage to soil; o Contractor will to carry out refueling only in areas and in a manner approved by Engineer which will not contaminate water or soil; o Construct bunds with concrete pads for spillage containment in the filling stations/workshops; o Good housekeeping required within material storage	Contractor, Supervising Consultant, PIU, ZEMA, ZUMC local communities	10,000,000.00

S/N	IMPACT	MITIGATION MEASURE	RESPONSIBLE INSTITUTION	BUDGET (TSH)
		compounds and vehicle maintenance yards; o The drains will be provided with de-silting chambers to reduce siltation into the water bodies.		

9	Atmospheric pollution	o Use good work practices; o Use of water to suppress dust must be practiced on all working sections including areas of cutting and filling, haul roads, and any sections of existing road be passed by construction equipment or trucks; o Workers should use working gears like nose masks. o Contractor should consider good selection of machinery and vehicles, regular service and lubrication to reduce fumes from construction machinery and vehicles. o Switching off the machines and vehicles when not in use will help to minimize the exhaust fumes.	Contractor, Supervising Engineer, PIU, local communities	5,000,000.00
	Competition for natural resources due to uncontrolled labour influx	o Local workers will be given priority for employment o All workers for the project will sign code of code of conduct, among other, it will prevent illegal utilization of natural resources, prevent gender related violence. Breach of code of conduct my result into suspension or termination of the contract o Implement water use efficiency measures o Secure before abstracting water from other sources o Harvest rainwater for use during construction	PIU, Contractor, and project implementing partners	20,000,000.00
Occupational Health and Safety Impacts				

10	Occupational Health and Safety Risks	o The workers shall be provided with the protected equipment to protect them from cement dusts, dust and fumes and enhancing safety. o Establishing Occupational Health and Environment induction course o Provide working gears and good camp management o Installing well-stocked First Aid Kit at every camp site	Contractor, Supervising Consultant, PIU, ZEMA Directorate of Health and Safety, local communities	10,000,000.00

S/N	IMPACT	MITIGATION MEASURE	RESPONSIBLE INSTITUTION	BUDGET (TSH)
Community Health and Safety				
11	Safety risks to Pedestrians	o Designated pedestrian walkways will be provided o The contractor will ensure designated walkways are kept clear from any obstacles, debris and litter o Physical barrier (fencing or guarding) will be erected in all places where there is risk of collision with vehicle, moving/flying object and fixed objects and risk of falling o Road danger light should be placed at the end of the barrier at night o The contractor should provide signs, notices and markings which are clearly visible, conspicuous and easily understood to ensure that pedestrians are aware of any hazards and what they should do avoid them o Provide access to shops and homes for residents and customers	Contractor, supervising consultant PIU and project implementing partners	10,000,000 (Some of the features have been included in the consultancy fees for design review)

	Potential threats from Spread of Sexual Transmitted Diseases and GBV/SEA	o Develop and implement HIV/AIDS awareness and prevention program. o Develop mechanism which will allow employees to get information on HIV/AIDS alleviation programs. o Deploy locally available labour to address the issues of spreading of STD, and HIV/AIDS. o Integrate measures for prevention and handling Gender Based Violence (GBV) and Sexual Exploitation and Abuse (SEA) in the contractor's environmental and social management plan (C-ESMP). o Record and report every Gender Based Violence (GBV)-related incident and take appropriate actions o Develop an induction programme, including a Code of Conduct, for all workers directly related to this project. A copy of the Code of Conduct should be presented to all workers and signed by each	Contractor, Supervising Engineer, PIU, ZUMC	15,000,000
OPERATION PHASE				
Cultural Heritage Impacts				
17	Changes to 'recent' historic pattern of public access and transportation	Undertake a sensitization and awareness raising program as part of project preparation before commencement and during implementation of the project in conjunction with the civil society groups.	PIU, ZUMC	10,000,000

	Potential cultural dilution	o Undertake a large-scale sensitization and awareness raising program before the commencement of the project in conjunction with the Radio and the Zanzibar TV and in synergy with Reclaim Women Space in World Heritage, Zanzibar Stone Town Heritage Society and other civil society groups. o Implement tourism education programs to ensure respect of Ng'ambo customs. o Incorporate design elements to encourage interactions	PIU, STCDA	15,000,000

S/N	IMPACT	MITIGATION MEASURE	RESPONSIBLE INSTITUTION	BUDGET (TSH)
		between certain stakeholders and tourists to ensure compliance with local culture o Implement anti-drug awareness programs for the youths		
	Changes to 'Recent' historic pattern of public access and transportation	o Consider the possibility of modifying the current public transport regulations and practices. o Define institutional and organizational strategy needs to achieve a smooth transition. o Consult with daladala operators and other stakeholders to define an acceptable process to assign the changed bus services to operators. o Define a new public transport reorganization scheme with the definition of terminals and drop-off/pick-up facilities in order to guarantee a high-level accessibility of the entire Ng'ambo area with sustainable modes o Modify current public transport regulations and practices,	MICT, PIU	10,000,000

		o Change bus size in the long term and keep existing daladala for the short term		
Environmental Impacts				
18	Pollution along Malawi and Airport roads	***Noise pollution*** o Restriction on unnecessary horns and sound amplifying exhaust will be imposed. o Awareness of on noise reduction measures for structures owners along Malawi and airport roads will be raised. o Noisy trucks or machines (exceeding maximum limit) passing in this area will be restricted to day time i.e. 06:00AM to 10:00PM. o Vegetation along these roads will be planted to reduce noise impact on residential areas. o Where possible municipal council will install roadside barrier to reduce noise impact on nearby dwelling houses Vehicle Licensing Authority, ZEMA, ZUMC During construction and operation N/A	Vehicle Licensing Authority, ZEMA, ZUMC	10,000,000

S/N	IMPACT	MITIGATION MEASURE	RESPONSIBLE INSTITUTION	BUDGET (TSH)

		Air pollution o The public transport vehicle shall be regular maintained to reduce smoke and fumes o Speed will be controlled along Malawi and Airport roads. o Awareness campaign to drivers on exhaust emission reduction e.g. slow acceleration, will be implemented. o Roadside vegetation will be planted and maintained, which may act as barrier to remove some of the smallest particulate pollutants from the roads. o ZUMC in collaboration with traffic policy will ensure vehicles with excessive smoke are not allowed to operate in this area.		
19	Pollution due to inadequate waste management	o Assess waste generation in various locations within project site to identify strategic locations o Introduce new solid waste collection points with required facilities in strategic locations o Ensure existing waste collection system under ZUMC is used for collection of wastes to the landfill on daily basis. o Provide street waste collection receptacles and emptied regular in a day o Introduce waste collection fee for each waste generator o Public toilet should be connected to the existing sewerage system o ZUMC conduct daily inspection to ensure facilities are in good and waste collection system is working effectively and efficiently	ZUMC, PIU and contractor	To be covered under contractor's budget and ZUMC budget

Occupational Health and Safety Impacts				
	Health and safety risk associated with operation and	o Prepare sewerage maintenance manual as well as street light maintenance manual including safety measures specific to Zanzibar	Supervision consultant	10,000,000.00 (Some of the features have been included in the consultancy fees for design review and others will be part of the contractor's budget undertaking the physical activities)

S/N	IMPACT	MITIGATION MEASURE	RESPONSIBLE INSTITUTION	BUDGET (TSH)

	maintenance	o Avoid working at height and in confined space as much as possible. In case working at height is required and un-avoided the mitigation measure should be to use and ensure that the scaffolds are of recommended/acceptable standards by OSHA and International Institutions. o Provided workers with appropriate personal protective equipment *Working at confined space (sewer)* o Sewerage maintenance workers should be adequately trained and repeated regularly o The training should involve respiratory equipment, gas-testing equipment, rescues procedures, first aid treatment including artificial respiration, evacuation and emergency procedures o Check the atmosphere before starting works in sewer to determine if it contains sufficient oxygen, is free both toxic and inflammable vapour and is fit to breathe o Use breathing apparatus when testing the atmosphere o Provide appropriate PPE to workers before entering in the sewer such as hard hat, coverall, boots, gloves, safety spectacles and radio shall be provided and used before entering o traffic should be warned by high-level signs far ahead of the job site for sewer works in the road o barricade the working area and use flagman to direct traffic *Working at height (street light)*		

		o Use high level signage to warned traffic far ahead of working area o Barricades around the work, where necessary use a flagman to direct traffic o Site the mobile elevated working platform (MEWP) on firm and stable ground o Barricade the MEWP area with barrier o Worker should wear safety harness as additional		

S/N	IMPACT	MITIGATION MEASURE	RESPONSIBLE INSTITUTION	BUDGET (TSH)
		precaution *Working in the roads (road maintenance)* o Barricaded (fencing or guarding) working area to prevent workers or equipment being struck by traffic o Place road danger light at the beginning/end of barricade at night o Use clearly visible, conspicuous and easily understood signs, notices and markings o Use temporary speed control such as potable humps to reduce traffic speed		
Community Health and Safety				
20	Risk of accidents to pedestrians	o Install speed restraining measures at approaches to all black spots or sections with high concentration of people and school areas such as installation of safety signs (e.g. speed limit, pedestrians crossing etc.,) introduction of speed humps, Zebra and pelican crossings. o Put concrete slabs or culverts to allow residents and customers to access their houses and shops/businesses. o Implement road safety awareness campaign during and after construction, targeting all the local communities, including school children. o Use closed storm water channel in areas with high concentration of people	Supervision consultant, contractor and PIU	To be covered in contractor's price

Social Impacts				
21	Parking Spaces reduction	o Ensuring an overall parking supply as per current condition. o Include part of the parking supply within the proposed road design (on Stone Town, Mlandege road and behind Michenzani blocks) o Promote off street parking facilities to facilitate smooth	PIU, ZUMC and Police	15,000,000.00 (Some of the features have been included in the consultancy fees for design review and others will be part of the contractor's budget undertaking the physical activities)

S/N	IMPACT	MITIGATION MEASURE	RESPONSIBLE INSTITUTION	BUDGET (TSH)
		interchange between cars and public transport o Ensure a smooth transition towards the new parking facilities through dedicated way finding system and awareness campaigns		
	Total			**235,000,000.00**

CHAPTER 9: ENVIRONMENTAL AND SOCIAL MONITORING

9.1. Overview

The purpose of this chapter is to outline the key monitoring requirements identified through the ESIA updating process to monitor the environmental and social performance of the project. This monitoring plan covers both the Stone Town and Michenzania areas.

All the monitoring parameters, frequency and methods have been maintained during updating of the ESIA because the situation has not changed significantly to require change. The overall objectives of the monitoring activities are to:

- Ensure regulatory requirements are met;
- Check that impacts do not exceed national environmental and safety standards
- Verify predictions made in the ESIA by obtaining real time measurements;
- Verify that mitigation measures are effective and implemented in the manner described in Chapter 7 and 8;
- Provide early warning of potential environmental impacts; and
- Inform future operations and contribute to continuous improvement in the management of environmental and social issues related to the project.

Monitoring will be carried out by the project Contractor pursuant to her contractual obligations to undertake inspections, monitoring and reporting. After the contractor's tenure is completed and other form of monitoring will be carried out by the responsible organizations as stipulate in the monitoring plan.

The following four types of inspections and monitoring must be employed.

a) Inspections: planned and conducted on a regular basis to ensure that mitigation measures and commitments are properly maintained and implemented, and that specific management procedures are followed.

b) Receptor monitoring: undertaken to verify predictions made in the ESIA and to confirm that the activities at the site are not resulting in an unacceptable deterioration i.e. monitoring disturbance to affected residents (through a grievance mechanism).

c) Compliance monitoring: involving periodic sampling or continuous recording of specific environmental quality indicators or discharge levels to ensure compliance of discharges and emissions with project standards.

Monitoring results will be presented in regular reports and reviewed at monthly and quarterly site meetings. The results of the inspection and monitoring activities will be reported to the Client. Monitoring should check if and to what extent the impacts are mitigated, benefits have been enhanced, and new environmental, social and cultural heritage issues are adequately addressed.

The selection of the parameters to be monitored is based on the high likelihood of occurrences of the selected parameters. Monitoring of these parameters will be done in various stages of the project as follows:

Mobilization stage: Monitoring of the parameters at this stage is meant to establish the baseline information of the target parameters in the project area.

Construction stage: Monitoring at this stage is meant to establish the pollution levels and impacts in the community around the project site that arise from the construction activities. It is also to verify the effectiveness of the mitigation measures and to allow Contractor to take corrective and preventive actions if necessary.

Operation stage: Monitoring at this stage is meant to check on the impacts that might arise as the result of normal use of the infrastructure.

Decommissioning: Decommissioning is not anticipated in the foreseeable future. However, if this will happen, may entail change of use (functional changes) or demolition triggered by change of land use.

9.2. Monitoring Responsibility

PIU in collaboration with Stone Town Conservation and Development Authority (STCDA), the Department of Urban and Rural Planning (DoURP) and the Zanzibar Urban Municipality Council (ZUMC) will implement the ESMoP, supervise and monitor all components of the plan and maintain detailed records of monitoring outcomes. PIU has technical capacity and human resources to successfully conduct supervisory oversight of ESMoP implementation.

9.3. Environmental and Social Monitoring Plan

The details of environmental, social and cultural heritage issues, proposed parameters to be monitored and timing, agencies responsible for execution of proposed actions during mobilization, construction and operation and stages are presented in Tables 9.1 below.

Table 9.1: Environmental and Social Monitoring Plan

Item	Parameters	Monitoring frequency	Sampling Area	Measurement Units	Method	Target level	Responsibility for monitoring	Annual costs estimates TZS)
Mobilization Phase								
Air quality	suspended Particles/dust	once for establishment of baseline and as needed for pollution control	Around construction site		Dust level meter, Combustion Gas analyzer or dragger pump with detector tubes, noise meter	ZBS/TBS standards	Contractor	20,000,000.00
Water pollution	Turbidity, BOD	Thrice before the actual construction starts	All tributaries of rivers used for domestic purposes and shallow wells in the project area which includes Areas Directly Affected (ADA) and Areas Indirectly Affected	NTU	Laboratory Analysis	30	Contractor	800,000.00
	pH, heavy metal			-	pH meter, laboratory analysis	6.5-9.2; TBS and WHO standards		7,000,000.00

			(AIA) as described in Section 4.2.					
Resettlement	Compensation	Once before the construction starts	Around construction site	-	File records and inquiry.	All PAPs compensated	PIU Ministry of Lands and Local Governments	10,000,000.00
Construction Phase								

Item	Parameters	Monitoring frequency	Sampling Area	Measurement Units	Method	Target level	Responsibility for monitoring	Annual costs estimates TZS)
Heritage	Damage (physical disturbance, degradation, displacement or loss of content) of buried archaeological remains	Quarterly and wherever buried archaeological remains found	Construction site	-Number of incidents -Extent of impact	Survey	No damage	PIU, STCDA, DoURP, Contractor	9,000,000
Air quality	suspended Particles	Daily for visual inspection, Quarterly for laboratory test	Around construction site	-	Visual Observation, laboratory test	No Complains, ZBS/TBS standards	Contractor	15,000,000.00

Noise and Vibration	Noise level and vibration caused by construction works	Weekly or as needed (quarterly for using noise meter)	Around construction site especially at Health occupation centre	Noise level (dB)	Noise level instrument, interview with persons concerned and Hospital	No Complains; TBS/ZBS standards	Contractor	5,000,000.00
Traffic congestion	Vehicular flows	Daily	Along the road near the project area	-	Observation and Interview	Travel time	Contractor, PIU, ZMC, Traffic Police	1,000.000.00

Item	Parameters	Monitoring frequency	Sampling Area	Measurement Units	Method	Target level	Responsibility for monitoring	Annual costs estimates TZS)
Public Transport accessibility	Public Transport coverage (stop/terminal location and ease of access)	Monthly	Major roads within the project area	-	Interview	No of public transport vehicles	Vehicle Licensing Authority, Traffic Police, MoICT, ZMC	
Loss of trees	Number of trees planted; % of tree survived	quarterly	Around construction site	-	Visual Observation and meetings with Contractor	Replacement should be twice as much as lost trees; as many as	Contractor	10,000,000.00

						possible		
Dust-control	suspended Particles	Regularly during the dry season before starting the construction process	Around construction site		Inquiries, observation and measurement of concentration	TBS/ZBS standard	Contractor	Included in the contract lamp sum
Water pollution	Turbidity, BOD, COD	Every month	All tributaries of rivers used for domestic purposes and shallow wells in the project area which includes Areas Directly Affected (ADA) and Areas Indirectly Affected (AIA) as described in Section 4.2.	NTU	Laboratory analysis	30	Contractor	200,000.00
	pH, metals			-	pH meter, laboratory analysis	6.5-9.2		100,000.00

Item	Parameters	Monitoring frequency	Sampling Area	Measurement Units	Method	Target level	Responsibility for monitoring	Annual costs estimates TZS)
Soil erosion	Visible Erosion	Daily for excavated areas and at least weekly else where	project area –	Level of erosions – visible erosion	Site inspection	As minimum as possible	Contractor,	200,000.00
Solid waste generation	Amount of solid waste generated	Daily	Camp and work sites	Weight of solid waste generated	Quantity analysis	As minimum s possible	Contractor, ZMC	-
Health and safety of construction workers	Registered sick workers (Injury /illness)	Daily and wherever, there is an incident.	Work sites including campsite	Number of illness cases/injury	Medical records, and site inspection	-Zero incidents and illness cases	Contractor, PIU, Directorate of Occupational Health and Safety	-
	Proper use of Personal Protective Equipment (PPE) and general safe practices	Daily	Work sites including campsite	Percentage of workers not using Personal Protective Equipment (PPE)	Site inspection records	All required workers		

Item	Parameters	Monitoring frequency	Sampling Area	Measurement Units	Method	Target level	Responsibility for monitoring	Annual costs estimates TZS)
Poor camp environment	Surrounding of Camp site, water and sanitary facilities	Every month	Camp site	-	Visual Observation	-	Contractor	-
Operation Stage								
Safety of human beings	Road accidents and road signs	Three times a year	Around construction site	Number of incidences of road accidents, Number and types road signs	Zero accident and sufficient number of road signs	-	Traffic police, Urban Municipal, Stone Town Conservation and Development Authority (STCDA) and ZANROAD	-
Increased noise	Noise Level	Twice a year	Around project site	dBA	Measurements		ZEMA, Urban Municipal, Stone Town Conservation and Development	6,000,000.00

							Authority (STCDA)	
Air pollution	Ambient gases	Twice	Around project site	mg/m3 or mg/Nm3	Laboratory analysis	TBS/ZBS standards	ZEMA, Urban Municipal, Stone Town Conservation and Development Authority (STCDA)	15,000,000.00
Total estimated cost								**98,300,000.00**

CHAPTER 10: IDENTIFICATION OF PROJECT ALTERNATIVES

10.1 Overview

In the ESIA process, it is important to consider different alternatives, or options, which will achieve the project's objectives. It is also important to include a consideration of what would happen without the project – that is the no project alternative. During the updating of this Environmental and Social Assessment, each alternative was considered for evaluation, since each alternative is likely to have a different set, or degree, of impacts.

A range of systematic methods was used for comparing and evaluating various alternatives. These include simple checklists, overlay maps, complex matrices, mathematical models descriptions of the main impacts and the reasons for their rejection. In this EISA consultations with stakeholders and site visits have provided basis for identifying alternatives.

10.2 Alternatives

10.2.1 The 'No Action Alternative'

This alternative involves leaving the existing corridor without improvement could have been the best option for leaving the environment undisturbed. However, leaving the existing situation will not secure smooth traffic flow and reducing congestion in the Corridor In so doing, the enhancement and improvement of socio-economic environment will not be achieved.

The advantages of 'No Action Alternative' include:

- Absence of resettlement;
- Minimum environmental and social disturbance

Disadvantage of 'No Action Alternative' include:

- Unresolved prevailing traffic congestion in area. o Enhancement and improvement of socio-economic environment will not be achieved. o Unimproved road safety o No employment opportunities as there are no construction activities.
- Failure to implement the ZanPlan.

10.2.2 Mobility Alternative for Stone Town and Michenzani Areas

The mobility alternative provided here are for Michenzani where physical activities which involve road construction are expected. In Stone Town the alternative were those described earlier in Section 10.2.1 consisting of no action alternative. Although no massive physical intervention is expected the design is mostly for improvement of the mobility using the existing routes. There will however be some improvements on the streets including opening of various

access roads, street lighting and other renovation of the buildings to make the area attractive for tourists.

a) Alternative 1: Full Green Corridor

The main concept is to achieve a Full Green Corridor concept by focusing on providing Pedestrian linkages along Karume Road while taking into account of the existing bus routes/network. The schematic map of the proposed alternative 1 is as illustrated and explained below:

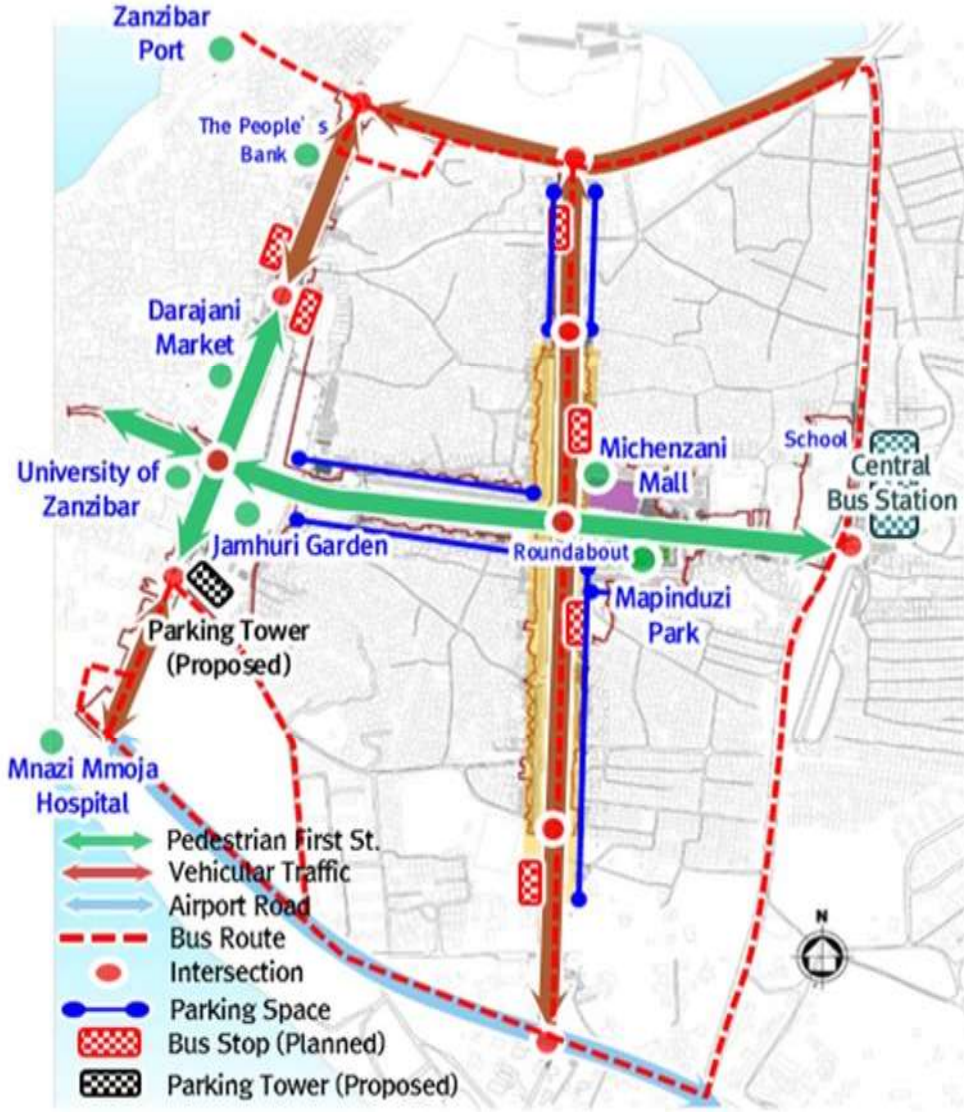

Figure 10.1: Schematic Map for Alternative 1 (Source: Feasibility Study Report)

Karume Road

Karume Road will be transforming into a pedestrian first street, which means vehicular traffic cannot use Karume Road (Only emergency vehicles can pass Karume Road) Karume Road will represent the core structure of history, culture, and economical

landscape in city center of Ng'ambo. The corridor will be acting as the key driver for the urban regeneration of the area.

Creek Street

A section of Creek Road from Darajani Market to Jamhuri Garden will be for pedestrians only while the rest will be open to vehicular access.

Mlandege Road

As Creek Road will be partially closed from vehicular access, vehicles will divert to Mlandege Road. However, freight vehicles cannot pass through Mlandege Road. Nevertheless, road enhancement with elegant street furniture will transfer this road into avenue, which provides another route towards the ocean to city center and vice versa.

b) Alternative 2:Semi-Green Corridor
The schematic map of the proposed alternative 2 is as indicated and explained below.

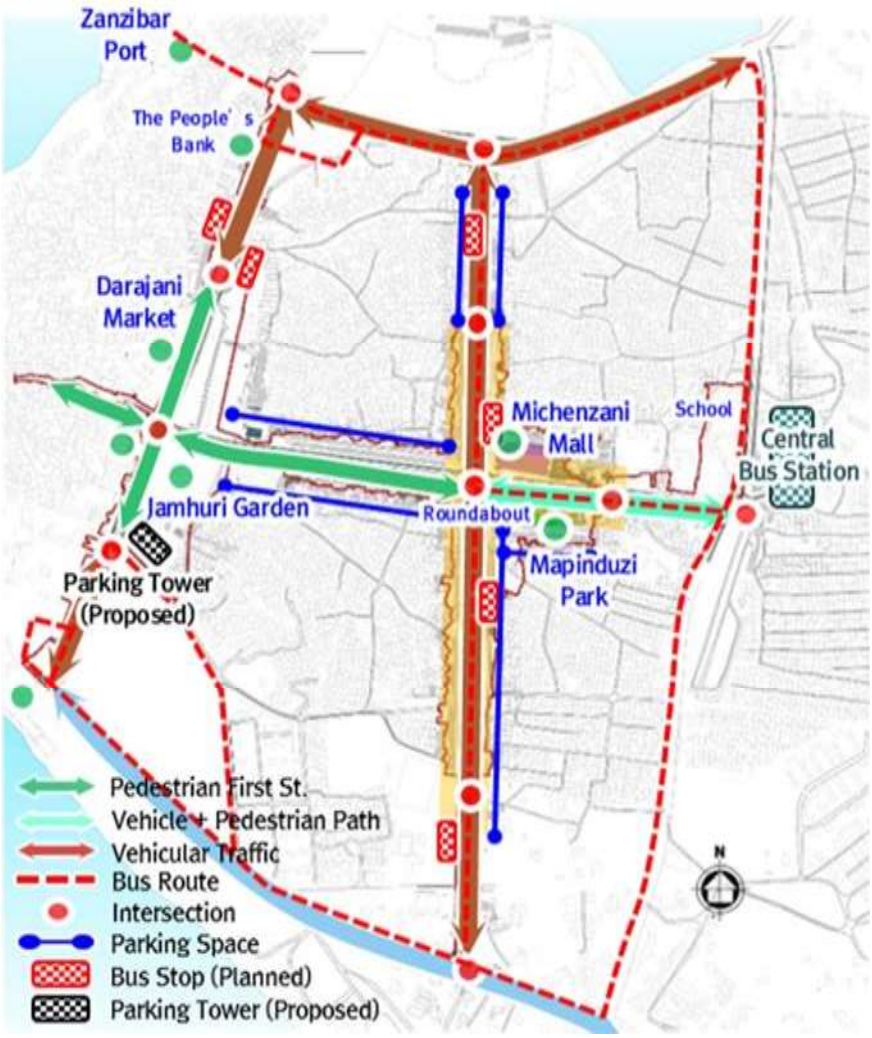

Figure 10.2: Schematic Map for Alternative 2 (Source: Feasibility Study Report)

The main concept is to achieve a Semi-Green Corridor concept that provides a balanced mix of pedestrian and transport network around Karume Road. The section of vehicular lane on Karume road will still have the more than 20m pedestrian & cycle paths to achieve an efficient pedestrian linkage.

1. Pedestrian First Street (Half of Karume road & Creek road) o Vehicular traffic can use east side of Karume Road (From intersection of Felix Moumie Road to Roundabout). However, this section will still have more than 20m pedestrian & cycle paths.
   o A section of Creek Road, from Darajani Market to Jamhuri Garden will be for pedestrian First Street while the rest will be open to all types of vehicles.
2. Balance between pedestrians and vehicular traffic o Pedestrians are allowed to access Stone Town using Karume Road. Private vehicles can use east side of Karume Road which enhances accessibility of Michenzani Mall.

3. Pedestrian Movement o Sidewalks and cycle paths planned side by side

c) Alternative 3: Public Transport Corridor

The main concept is to achieve a balanced mix of pedestrian linkages with public transport system on Creek and Karume Roads. The main focus is put on public transport linkage which complements the existing Bus Shuttle line.

1. Public Transport with Green Street (Karume Road) o Operating Public Transit oriented street (2 Bus lanes + pedestrian path) o Vehicles except public transport are not allowed to pass through Karume Road
2. Optimal option for using public transport as well as pedestrian first street (Public Transit with Green Street)
3. Access road from Felix Moumie Road. Private vehicles can access up to Michenzani Mall, but they cannot access the mall using Karume Road.

The schematic map of the proposed alternative 3 is as indicated below

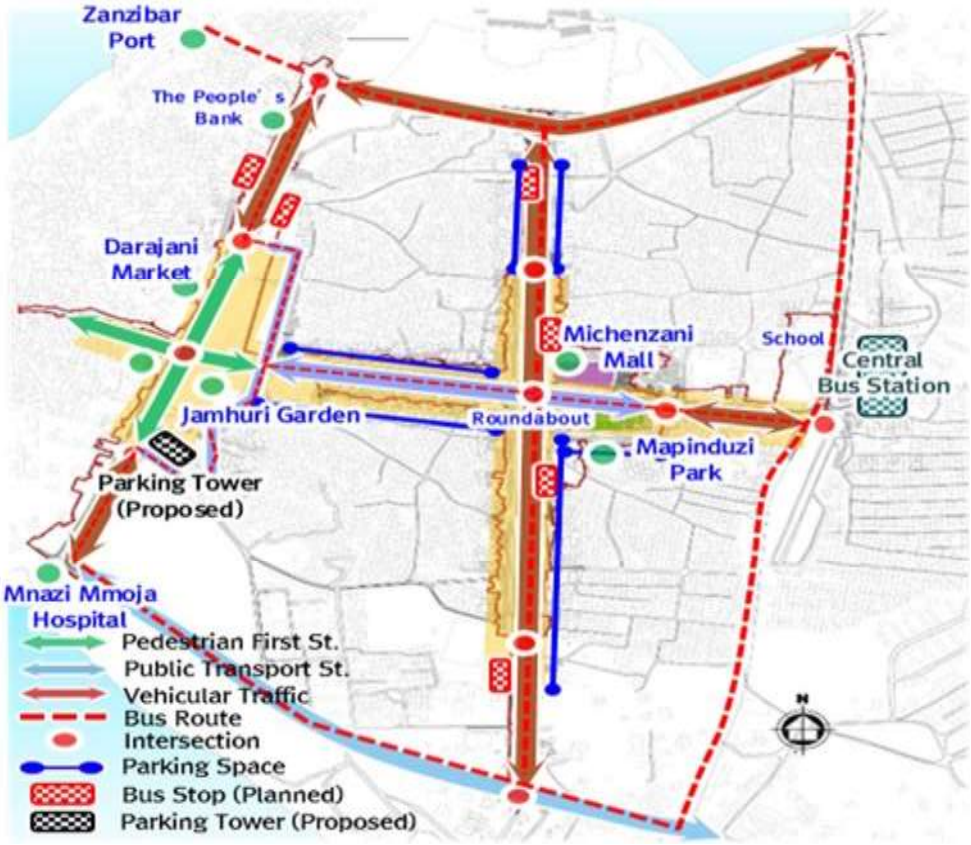

Figure 10.3: Schematic Map for Alternative 3 (Source: Feasibility Study Report)

10.2.3 Pavement Design (Technology) Alternatives

The alternatives considered for pavement design for both Stone Town and Michenzani include:

a) Asphalt surfacing

Asphalt is commonly used as a surface on main roads and pavements that need a smooth finish. When used as pavement it is generally heated and mixed with aggregate off-site before being transported to the road construction site. The material is then deposited in layers using special machinery and compacted before curing into a solid mass. This has the potential to affect storm water if runoff occurs before curing (because of the creosol and PAHs in the asphalt) or if compacting is inadequate.

Advantages of asphalt surfacing include;
o Comfortable and safe travelling of the motorists;
o Less slippery as compared to concrete roads;
o Lessen the travelling time; and
o Employment opportunities during construction phase

Disadvantages of asphalt surfacing include;
o Very expensive to construct and maintain;
o Costly for importation of bitumen materials;
o Use of heavy-duty construction equipment;
o Air and noise pollution;
o Requirement of skilled labour.
- Increase of surface run-off which might cause soil erosion if not well disposed.

b) Concrete Paving Alternative

Economical and durable all-weather roads, especially suitable for farms and rural areas that can be made with concrete strips laid as wheel-tracks. These roads can be built without expensive or sophisticated equipment and by comparatively unskilled labour that can receive a little instruction. The work can be done in short time period as labour is available. Strip roads are a particularly useful means of making steep farm roads passable in all-weather.

Advantages of concrete paving include:

- Long maintenance-free life: Concrete roads have a life span of 40 years or more, compared to 20 years for bituminous ones. In addition, concrete roads require almost no maintenance, whereas bituminous ones need frequent repairs due to damage by traffic, weather, etc. o Gain in traffic speed: A study conducted in Mumbai, Calcutta suggests that an increase is traffic speed significantly. This increase in speed of vehicular movement is due to the smooth concrete road surface. Increased traffic flow means saving time and fuel, as well as reduction of pollution caused by idling engines. (reference)
- Economy in use of materials: For the same traffic load conditions, concrete pavements are thinner than bituminous ones. Where the load bearing capacity of the soil is poor, a bituminous pavement may have to be made more than one-and-a-half times thicker than a concrete one. o Environmental Friendliness: Production of concrete does not pollute the atmosphere like the hot-mix bitumen-based and faster movement of vehicles on concrete roads leads to lower pollution from vehicular emissions.
- Use of Indigenous Materials: Concrete roads use cement, which is manufactured from locally available materials like limestone, of which a plentiful supply is available. Bituminous roads need bitumen, which will be obtained from imported crude oil. o Light reflection: Concrete paving surface reflect light better than bitumen surface during the night, a safety advantage.

Disadvantages of concrete paving include:
- Workmanship is not guaranteed; o Suitable for short distance roads
- Pavement failure is very easy in case of heavy loading

10.2.4 Recommended Alternative

After analysis of mobility alternatives, taking into account environmental and social impacts including views from Stakeholders and the Cabinet of revolutionary Government of Zanzibar, alternative 1 was recommended to be implemented while on the pavement alternative the concrete paving was also recommended.

CHAPTER 11: CONCLUSION AND RECOMMENDATIONS

The updated ESIA study results show, although, some limited negative environmental implications of the project, the Corridor improvement will have high socio-economic benefits to the people along the project area and adjoining regions as well. The associated negative impacts, to a large extent will be minimized through good engineering design and envisaged construction practices. Specific mitigation measures have been suggested in this report to offset the inherent adverse impacts especially. In implementing these mitigation measures there would be an increase of environmental soundness and social acceptability of the project. The total cost for implementing Environmental Management Plan including the Monitoring Plan is tuned to TZS 333,300,000.00 excluding costs for resettlement and relocation of business.

It is, therefore, concluded that, implementation of Stone Town and Michenzani Green Corridor project will entail no detrimental impacts on the environment, social and physical cultural resources if the recommended mitigation measures are adequately and timely put in place. The identified adverse impacts shall be managed through the proposed mitigation measures and implementation regime laid down in this ESIA. Ministry of Finance and Planning through PIU and other relevant stakeholders as identified in this updated ESIA are committed in implementing all the recommendations given in the ESIA and further carrying out the environmental monitoring schedules.

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ANNEX I: ZEMA'S GUIDANCE ON THE UPDATING OF ESIA AND RAP

THE REVOLUTIONA GOVERNMENT OF ZANZIBAR
THE ZANZIBAR ENVIRONMENTAL MANAGEMENT AUTHORITY (ZEMA)

26 Malawi Road
Maruhubi, P. O. BOX 2808
71111 Urban West, Zanzibar
Website: www.zema.go.tz
Email: info@zema.go.tz

Ref No.: ZEMA/BA.110/901/01/82 **Date: 25th June, 2024**

DIRECTOR
DAR AL-HANDASAH CONSULTANTS
(SHAIR AND PARTNERS)
P.O.BOX 2626
CHUKWANI
ZANZIBAR (0777118535)

RE: REF: ESIA AND RAP GUIDANCE

Reference is made to your letter reference number TA24043-ZEMA-0001-24 dated 24th June, 2024 regarding the above-mentioned subject.

I am pleased to inform you that, the Zanzibar Environmental Management Authority (ZEMA) has no objection for. DAR AL-HANDASAH CONSULTANTS (Shair and Partners) to update the existing Environmental Impact Assessment Report project for Michenzani ESIA and RAP by including Stone Town as part of the same project and to be referred as Michenzani and Stone Town, Unguja - Zaznibar. For the preparation of the report, the Company should be registered to ZEMA to complete the work.

Therefore, the Company is required to follow and observe the General Terms of Reference (ToR) for conducting Environmental and Social Impact Assessment in Zanzibar which is attached with this letter. All requirements on the contents, formats of the EIA/ESIA Report and its submission are described in ToR. According to the legal procedures, you are required to register the project by filling the attached EIA/ESIA registration forms and submit to ZEMA.

Upon completion of Environmental and Social Impact Assessment report, you are required to share with the project owner the Final Draft Report to understand, familiarize, satisfy and agreed with all mitigation/enhancement measures, environmental and social management plan and environmental monitoring plan for the project.

ANNEXII: TERMS OF REFERENCE

Environmental and Social Impact Assessment
For Stone Town Mobility Management Program (STMMP) and Michenzani Area Integrated Redevelopment Project
(Michenzani Green Corridor Plan) in Mjini District, Unguja Zanzibar

TERMS OF REFERENCE (TOR) FOR CONDUCTING ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

1. INTRODUCTION

The Ministry of Infrastructure Communication and Transportation (MOICT) of the Revolutionary Government of Zanzibar (RGoZ) through BIG Z Project Implementation Unit (PIU) has requested the World Bank support for the development of the Michenzani Green Corridor Development Plan in the Zanzibar Municipal Council (ZMC). The Consultant service comprises the preparation of the design of the sub-component and the provision of procurement support in the procurement of the works Contractor. A first step is to prepare a brief feasibility study which would look at options and their phasing, and then to prepare the planning and detailed engineering design for the works proposals.

The area is aimed to be developed as a best practice of inclusive public space, ecological principles, cultural heritage, and revitalization of a strategic mixed-use corridor.

Under the guidance of the PIU, RGoZ and Department of Urban and Rural Planning (DoURP) of the Commission for Lands are taking the lead on this sub-component. The DoURP wishes to develop a "Green Corridor" at the Michenzani (Ng'ambo) area of Zanzibar Municipal Council as an integral part of the Local Area Plan of the City Centre which is currently under development. The corridor development is envisioned as best practice example of inclusive public space, ecological principles, cultural heritage and revitalization of a strategic mixed-use corridor. To further this work, the DoURP has prepared a scheme design of the project area in March 2016 which is a guiding document for planning and design of the green corridor proposal.
According to the recommendations of the ZMC Development Strategy and Structure Plan and subsequently Local Area Plan, the Ng'ambo sub-component will support low-impact urban upgrading using existing right of way for public spaces, develop new vibrant area of the City to share economic benefits of the Stone Town UNESCO World Heritage Site, improve public services (transport, markets, etc.), enhance business facilities of the City Centre to promote cultural heritage, better capitalize at the transformative power of urbanization the island (currently 46.3% Urban population) as well as provide improved services to the underserved areas

In this regards, among others, the Ministry of Infrastructure Communication and Transportation (MOICT) has engaged DAR AL HANDASAH to carry out Consulting Services for review of Feasibility Study, Planning, Detailed Engineering Design and Procurement Support including Environmental and Social Impact Assessment (ESIA);

development of Environmental and Social Management Plan (ESMP), review of Resettlement Action Plan (RAP) for the Michenzani (Ng'ambo) Green Corridor Plan.

2. OBJECTIVES OF THE PROPOSED CONSULTANCY SERVICES

The main objectives of the project include:

- Repair and upgrade the inclusive public open space and underlying infrastructures; o Maintain the unique cultural heritage and green development principles; o Provide for the revitalization of a key economic and transport hub; and
- Develop as a 21st Century City Centre of Zanzibar with functions of commercial & leisure, tourism, green pedestrian street, historical and traditional place and mixed-use development.

3. THE OUTCOME OF THE SCOPING EXERCISE

In undertaking the scoping exercise the following issues emerged from the public consultation and document reviews:

(a) Restricted movement of vehicles and enhance pedestrians in the project areas
(b) Effects to Heritage site (Stone Town)
(c) Land acquisition and compensation
(d) Resettlement and relocation of business
(e) Recruitment of local members in the affected Shehias during the construction phase
(f) Presence of cultural sites within the project areas
(g) Potential conflicts in sartorial implementation of mega projects in the same project zone. (h) Cases of fresh water shortages, falling water tables and fresh water availability (i) Issues of occupational, public health risks and traffic accidents.
(j) Challenges posed by potential threats from the spread of HIV/AIDS.
(k) Lack of adequate information disclosure on the local communities and misperceptions in overall community attitude towards the project.

On the aspect of pure Environmental Impacts, the Scoping has identified key concerns from this project:

(a) Effects to Stone Town
(b) Resettlement and relocation of business
(c) Potential fragmentation of the forested habitats, wildlife and biodiversity.
(d) Potential threats on community forests and plantations.
(e) Watershed pollution and considerable degradation of catchments.
(f) Soil erosion and siltation due to top-soil run-offs.
(g) Physical alteration of elevated landscape.
(h) Potential disruption of streams.
(i) Visual and auditory disturbance.
(j) Storm water drainage flooding.

(k) Solid waste generation from soil materials waste and construction debris.
(l) Threats from unsustainable quarrying in the project zone.
(m) Water salinity and ground water extraction within the project zone.
(n) Atmospheric pollution.

These identified issues should form the basis of the ESIA and RAP that a selected Consultant should pursue. Once completed, the EIS and RAP shall be submitted to the Zanzibar Environmental Authority (ZEMA), for Review Process before the decision about issuing of environmental clearance certificate is reached.

4. THE OBJECTIVES OF THE TOR

The objective of this ToR is to be used as a guiding document to conduct a comprehensive Environmental and Social Impact Assessments (ESIA) for the proposed entire Michenzani Green Corridor Development Plan in the Zanzibar Municipal Council (ZMC). The aim of ESIA study is to ensure that the adverse environmental and social impacts arising from the proposed project are identified, either prevented or minimized to acceptable levels. The ESIA will also address potential environmental and social impacts which may arise and provide adequate mitigation measures including management and monitoring plan to prevent or minimize adverse impacts.

This ToR has been prepared to fulfil the requirements of section 39 of Zanzibar Environmental Management Act, 2015 which states that a person shall not carry out or cause to be carried out; any activity which is likely to have significant impact on the environment and society without Environmental Impact Assessment Certificate issued by the Authority. The ToR shall be followed by proponent/consultant preparing the intended Environmental and Social Impact Assessment Report. In the end, the Report will inform ZEMA to grant permission for this kind of project to continue to go ahead, possibly with conditions attached to the permission to proceed, or not.

5. TASKS TO BE PERFORMED

Task 1: Description of the Proposed Project

The Consultant shall provide a brief description of the relevant parts of the project/plan using maps of appropriate scale where necessary and include the following information: -

- Project justification
  - Location
  - General layout, size and capacity
  - Area of influence of the construction works
  - Pre-construction activities
  - Construction activities
  - Schedule of project activities
  - Staffing and support;
  - Facilities and services
  - Operation and maintenance activities

- Life span

Task 2: Description of the Environment

Assemble, evaluate, and present baseline data on the relevant environmental characteristics of the study area. Include information on any changes anticipated before the project commences. Modify the lists below to show the critical information for this project category or which is relevant to it. Environmental characteristics of the study area shall be presented on a map to facilitate the understanding of the study area:

- **Physical environmental:** This shall cover; topography; soils; climate and meteorology; physical structures at site, utilities and services available
- **Biological environment:** All flora and fauna present at the project site.
- Socio-cultural environment; population, land use; planned development activities, community structure; goods and services; recreation (if any); public health; Gender issues and HIV/AIDS, Cultural/historic properties (if any) and attitudes to the project.
- **Cultural and historical environment**. As part of the project will include within Zanzibar Stone Heritage Site as UNESCO site and its buffer zone, there is a critical need to look on this aspect.

Task 3: Legislative, Policies, Administration Framework

Describe the pertinent regulations and standards governing environmental quality, health and safety, protection of sensitive areas, protections of endangered species, sitting, and land use control at national regional and local levels, Stone Town and World Heritage sites The Consultant shall undertake a review of all relevant policies, legislations and administrative framework within which the environmental management of the proposed Michenzani Corridor Project/plan..

Task 4: Assist in Inter-agency Coordination and Public/ NGO Participation

Assist in coordinating the ESIA with other government agencies, in obtaining the views of local NGOs and affected groups, and in keeping records of meetings and other activities, communications, and comments and their disposition. Establish the views of the public with regards to the potential impacts of the proposed project. Identify the different groups of stakeholders, and then use the most appropriate method to establish their views. Particular attention shall be paid to the local communities near the project site that may be affected by the proposed project. The Consultant shall undertake an open and transparent consultation process to ensure that the views of interested and affected parties are incorporated in the project design.

Task 5: Analysis of Alternatives to the Proposed Project

Describe alternatives that were examined in the course of developing the proposed project and identify other alternatives, which would achieve the same objectives. The concept of alternatives extends to site (positioning), design and technology selections, construction techniques and phasing, and operating and maintenance procedures. Compare alternatives in terms of potential environmental and social impacts; capital and operating costs; suitability under local conditions, and institutional and

monitoring requirements. When describing the impacts, indicate which are irreversible or unavoidable and which can be mitigated.

To the extent possible, qualify the costs and benefits of each alternative, incorporating the estimated costs of any associated mitigating measures. Include the alternative of not constructing the project to demonstrate environmental and social conditions without the project. Various environmental and social criteria should be developed to select the best alternatives.

Task 6: Identification, Analysis and Assessment of Potential Impacts

The Consultant shall identify, analyze and assess environmental and social impacts of the proposed construction. The Consultant shall distinguish between positive and negative impacts, direct and indirect impacts, and immediate and long-term impacts. Identify impacts that are unavoidable or irreversible. Wherever possible, describe impacts quantitatively, in terms of environmental components affected (area, number), environmental and social costs and quality of available data, explaining significant information deficiencies and any uncertainties associated with the predicted impact.

The assessment should focus on the potential for negative environmental and social impacts caused by planned and unplanned (spontaneous) traffic congestion; air and noise pollution; safety and health risks and increased pressure on social services and utilities.

The significance of impacts of the proposed project shall be assessed, and the basis of this assessment shall be specified. The Consultant should take into consideration existing bylaws, national and international environmental standards, legislation, treaties, and conventions that may affect the significance of identified impacts if any applies. The Consultant shall use the most up to date data and methods of analyzing and assessing environmental and social impacts. Uncertainties concerning any impact shall be indicated

Task 7: Mitigation and Enhancement Measures

The Consultant shall suggest cost-effective measures for minimizing or eliminating adverse impacts of the proposed project. The costs of implementing these measures shall wherever possible be estimated and presented. If compensation is recommended as one form of mitigation, the Consultant shall identify all the names and physical addresses of people to be compensated.

Task 8: Environmental and Social Management Plan (EMP)

The Environmental Management Plan focuses on three genetic areas: implementation of mitigation measures, institutional strengthening and training, and monitoring. The Consultant shall prepare an Environmental and social Management Plan, which will include proposed work programmed, budget estimates, schedules, staffing and training requirements and other necessary support services to implement the mitigation measures. Institutional arrangements required for implementing this management plan shall be indicated. The cost of implementing the monitoring and evaluation including staffing, training and institutional arrangements must be

specified. Where monitoring and evaluation will require inter-agency collaboration, this should be indicated.

Identify institutional needs to implement environmental assessment recommendations. Review the authority and capability of institutions at local, regional, and national levels and recommend how to strengthen the capacity to implement the environmental and social management and monitoring plans. The recommendations may cover such diverse topics as new laws and regulations, new agencies or agency functions, inter-sectoral arrangements, management procedures and training, staffing, operation and maintenance training, budgeting, and financial support.

Prepare detailed arrangements to monitor the implementations of mitigating measures and the impacts of the project during construction and operation. Include in the plan an estimate of capital and operating costs and a description of other required inputs.

6. FORMAT FOR ENVIRONMENTAL SOCIAL IMPACT STATEMENT REPORT

The Consultant shall submit the Environmental & Social Impact Statement Report and Resettlement Action Plan of the proposed activities in the following format: o The Environmental & Social Impact Assessment Report submitted as Volume 1 o The Resettlement Action Plan should submitted as Volume 2 o Heritage Impact Assessment as Volume 3

VOLUME 1

For the preparation of the Environmental & Social Impact Assessment Report, the following format should be submitted:

1.1. Cover Page

The cover page must display important information prominently and facilitate referencing. It should therefore contain information such as:-

(a) Title of the Environmental & Social Impact Statement
(b) Location (s) of the proposed Projects' activities
(c) Project Proponent
(d) Lead Consultants(s)
(e) Contact Addresses – post office box number, fax and phone numbers, and email
(f) Reviewing Authority
(g) Approving Authority
(h) Date of completion of the report

Table of Contents

The page of contents should contain the following: -

(a) List of major section of the report

(b) List of Tables
(c) List of figures (including maps, graphs and plates) and illustrations
(d) List of appendices
(e) Page numbers of the report

List of Acronyms

Definitions of technical terms
Non-Technical Executive summary of the environmental and Social Impact Statement in both English and Swahili.

Chapter 1: Introduction

1.1. Brief description of the project – name, nature, size, location of the project, its importance and justification, etc.
1.2. Land description – Project location, shehia, District, etc.
1.3. Profile of the project proponent, organization, project Consultants, etc.
1.4. Objectives, Scope, and Study Methodologies

Chapter 2: Policy, Legislative and Regulatory Framework

This Chapter will cover all the relevant and existing policy, legislative, and the regulatory frame works associated with the proposed project. The project proponent also will be required to show relevant legislative and administrative linkages with other sartorial plans and programs associated with and not limited to:

1.1. Zanzibar Environmental Policy
1.2. Zanzibar Forest Policy
1.3. Zanzibar Water Policy
1.4. Zanzibar Energy Policy
1.5. Zanzibar Transport Policy and Master Plan
1.6. Zanzibar Agricultural Sector Policy
1.7. Food Security Policy
1.8. Zanzibar Irrigation Master Plan
1.9. Zanzibar Health Policy
1.10. Zanzibar Land Policy and Land Use Master Plan
1.11. Zanzibar Local Government Authority

And other relevant policies, acts, guidelines may be reviewed as may be required as may be required in the process. Moreover, the Consultant shall cite national policy provisions and institutional set-up on relevant issues and matters concerning the proposed project activities.

Chapter 3: Public Consultations and Stakeholder Analysis

The project proponent shall present the findings of all the stakeholders consulted in the stakeholder analysis process. These stakeholders shall include but not limited to the following:

1.1. Zanzibar Environment Management Authority
1.2. Department of Environment, Zanzibar
1.3. Department of Forestry and Non-Renewable Natural Resources, Zanzibar
1.4. Department of Lands and Registration
1.5. Department of Urban and Rural Planning
1.6. Department for Roads Construction, Zanzibar
1.7. Stone Town Conservation Development Authority (STCDA)
1.8. Department of Agriculture
1.9. Department of Health
1.10. Zanzibar Water Authority (ZAWA)
1.11. Zanzibar Electricity Corporation (ZECO)
1.12. MjiniMagharibi Region
1.13. Mjini District Administrative Office
1.14. Communities from shehias forming boundaries within proposed project schemes
1.15. people whose business, lands, plots, crops, trees, etc. directly affected by the project

Chapter 4: Project Description

Project Feasibility Study and references from Detailed Project Document covering

1.1. Ddetails about description of the project site, geology, soil, topography, hydrological survey, ground water survey, wetlands, biodiversity, socio cultural environment of the surrounding area, economic aspect of the project for the local communities and for the country, etc. Should be included.
1.2. Quantity of Raw materials involved during the construction phase of these proposed projects with their source of origin.
1.3. use of existing public infrastructure such as other road networks, water supply lines, electricity lines, built-up environment, etc. in the construction activities should be elaborated.
1.4. Cost and budget, financial projection, etc. of each project component should be highlighted.
1.5. Details of Land acquisition, compensation, resettlement, incentives
1.6. Resources, manpower and time frame involved, etc.
1.7. Monitoring and Evaluation of the construction phase etc.

It is extremely important that the following maps and drawings be presented:

- Maps specifying project locations
- Land Use Map showing activities of the surrounding areas
- Site layout plan showing all details of design, construction and operations

Chapter 5: Description of the Environment

1.1. This section should include detailed biophysical profiles of the project locations
1.2. Topography of the proposed project sites should be clearly stated.

1.3. Geology of the proposed project sites including soil profile and quality;
1.4. meteorological Data of the study area;
1.5. Hydrological and Ground water survey of the project sites.
1.6. Water quality assessment of surface and ground water in the project sites
1.7. Soil quality and atmospheric pollution assessment in the sites.
1.8. Drainage and watershed survey
1.9. Biological Environment (Baseline data of flora and fauna, whether there are endangered species in the surrounding areas)
1.10. Socio-economic and occupational health hazards (socio-economic survey, demography of the surround human settlements, health status of the communities, existing infrastructural activities, employment status, etc.)

Chapter 6: Evaluation of Predicted Impacts

The following consideration should be included for each identified impact: Statement of impact or effect; Brief description of the impact or effect; Group(s) affected, including land owner(s); Statement of criteria for determining significance (could include magnitude, geographic extend, duration, frequency, risk or uncertainty, size of group affected); Significance of or effect without mitigation: Suggested measures for mitigation or optimization; Significance of impact with mitigation or optimization measures. The predicted impacts should reflect key issues highlighted during the findings of the scoping study.

Chapter 7: Mitigation Measures

This section will show how the mitigation measures proposed against the identified impacts. For each of the environmental effect identified in the evaluation of impacts, the mitigation measure should be elaborated.

Chapter 8: Environmental and Social Management Plan

This section will show how the proponent is committed to implementing the mitigation measures proposed against the identified impacts. Responsibility for carrying out monitoring by other institutions has to be shown under this section as well.

Chapter 9: Environmental and Social Monitoring Plan

This section will show how the proponent will finance the implementation of the Environmental and Social Management Plan. For each of the identified environmental effect, the project proponent should show how the mitigation measure should be implemented under specified cost and budget.

Chapter 10: Analysis of the Project Alternatives

- Description of efforts made by the project proponent to minimize the impacts. o Details on how the minimization of impacts as described in the scoping study has been carried out

- Description of the results of these efforts and how effective or feasible would they be
- The economic and feasibility costs of the project's investments

Chapter 11: Conclusion and Recommendations

Technical Appendices o Input into logical framework planning matrix of the project design – intervention o Logic, indicators, assumptions and preconditions
- Maps of the project area and other illustrative information not incorporated into main report
- Other technical information and data, as required
o Records of stakeholder engagement

Please note that the findings of Resettlement Action Plan (RAP) and Heritage Impact Assessment shall be mainstreamed in the Environmental and Social Impact Assessment Report. However, the full respective Final Report need to be submitted to the relevant authorities for final approval and required action.

ANNEX III: LIST OF STAKEHOLDERS CONSULTED

The list of stakeholders consulted during 2000's was replaced by those for 2024 who were consulted during the updating of this ESIA report.