REVOLUTIONARY GOVERNMENT OF ZANZIBAR

PRESIDENT'S OFFICE - FINANCE AND PLANNING,
MINISTRY OF INFRASTRUCTURE COMMUNICATION AND TRANSPORT

UPDATED ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

BOOSTING INCLUSIVE GROWTH FOR ZANZIBAR (BIG-Z): INTEGRATED DEVELOPMENT PROJECT

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PREPARED BY:
PROJECT MANAGEMENT TEAM (PMT) AND PROJECT IMPLEMENTATION UNIT (PIU)
PRESIDENT'S OFFICE - FINANCE AND PLANNING AND MINISTRY OF INFRASTRUCTURE COMMUNICATION AND TRANSPORT

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LIST OF ACRONYMS

BIG-Z	Boosting Inclusive Growth for Zanzibar
CERC	Contingent Emergency Response Components
DMA	Department of Museum and Antiquity
DoURP	Department of Urban and Rural Planning
DSDSW	Division of Sewerage, Drainage and Solid Waste
EHS	Environmental, Health, and Safety
EIA	Environmental Impact Assessment
EIS	Environmental and Social Impact Statement
ELO	Environmental Liaison Officer
EO	Environmental Officer
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FAO	Food and Agriculture Organization
GBV	Gender Based Violence
GHGs	Green House Gases
HIA	Heritage Impact Assessment
HSSE	Health, Safety, Security and Environment
LAD	Local Area Development
LGAs	Local Government Authorities
LGRCIS	Local Government Revenue Collection and Information system
LULUCF	Land use, land-use change, and forestry
MKUZA	Mkakati wa Kukuza Uchumi na Kupunguza Umasikini Zanzibar (Zanzibar Strategy for Growth and Reduction of Poverty)
MoFP	Ministry of Finance and Planning

MOICT	Ministry of Infrastructure, Communication and Transport
NGO	Non-Government Organization
PAPs	Project Affected Persons
PDO	Project Development Objective
PDO	Project Development Objective
PMT	Project Management Team
PIU	Project Implementation Unit
PPP	Public Private Partnerships
PTCs	Pemba Town Councils
RAP	Resettlement Action Plan
RGoZ	Revolutionary Government of Zanzibar

RPF	Resettlement Policy Framework
SH	Sexual Harassment
SMOLE	Sustainable Management of Lands and Environment
STCDA	Stone Town Conservation & Development Authority
STWHS	Stone Town World Heritage Site
TA	Technical Assistance
TIA	Technical Implementation Agency
UNESCO	United Nations Educational, Scientific and Cultural Organizations
UNFCCC	United Nations Framework Convention on Climate Change
VEC	Valued Environmental Components
WHO	World Health Organization
ZAWA	Zanzibar Water Authority
ZBS	Zanzibar Bureau of Standards
ZECO	Electricity transmission lines
ZEP	Zanzibar Environmental Policy
ZUMC	Zanzibar Urban Municipal Council
ZUSP	Zanzibar Urban Services Project
ZUSP-AF	Zanzibar Urban Services Project Additional Financing

EXECUTIVE SUMMARY

Background

Zanzibar, in the Indian Ocean off Tanzania's coast, is a leading African tourist destination. Most of the tourists visit Stone Town which is a UNESCO declared World Heritage City. Unfortunately, the public infrastructure within the World Heritage City of 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 the 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) project is being prepared. BIG-Z will further extent the achievement obtained under Zanzibar Urban Services Project (ZUSP original and Additional financing).

Project Objective and Components

The revised development objective of the project is ***to increase access to improved living conditions and service delivery in targeted areas in Zanzibar and to enhance institutional capacity of the government***. The project components include: i) Component 1: Area-Based Integrated Development (US$126 million), with three subcomponents 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$13 million) which focuses on institutional development and capacity building, including municipal finance, urban management, and enhancing the enabling and regulatory environment for development, it has three subcomponents; iii) Component 3: Project Management, Operation, Monitoring and Evaluation (US$11 million); and iv) Component 4: Contingent Emergency Response Component (US$0 million)for situations of urgent need of assistance.

Environmental and Social Impacts

Proposed project investments may have significant negative impacts on biological, physical and social environment. These impacts include:

- Direct pollution and degradation of natural habitats and ecosystems
- Groundwater contamination by leachate
- Decreased water quality and pollution to water sources

- Land degradation and soil erosion
- Solid and effluent waste hazards generation and pollution
- Decreased air quality due to dust and air particulates
- Noise and vibration impacts
- Health and safety hazards to construction workers and public
- Physical damage to the built environment, physical cultural resources and restricted access
- Access restriction due to temporary closure of road
- Displacement of people
- Potential impacts on buried archeological remains

It is expected that the anticipated impacts from implementation of the proposed investments to be funded by the BIG-Z will be short-term, site specific, confined, reversible and can be managed through the application of the mitigation and monitoring measures. While most of the proposed project investments are likely to pose substantial environmental and social risks and impacts, the Environmental and Social Management Framework (ESMF) provides environmental and social screening process[1] to determine appropriate site-specific instruments that will guide on mitigation measures. Investment with substantial risks and impacts will be subjected to full Environmental and Social Impact Assessments (ESIAs) and for those with low risks comprehensive Environmental and Social Management Plan (ESMP) will be prepared by project proponents.

Despite negative environmental and social impacts that may be caused during implementation of the project, overall, project activities are intended to provide environmental benefits including improved sanitation, reduction of flooding, air pollution, pedestrian accidents as well as employment and other economic opportunities.

Environmental Category and Safeguards Triggered

BIG-Z project is classified as category B and triggers four safeguards policies i.e. Environmental Assessment (OP/BP 4.01), Involuntary Resettlement Policy (OP/BP 4.12), Physical Cultural Resources (OP/BP 4.11) and Natural Habitats (OP/BP 4.04).

Environmental and Social Impacts Mitigation

The ESMF includes a summary of generic impacts and mitigation measures which will serve to facilitate site specific mitigation measures. This summary ESMP is based on information pertaining to the environmental and social management of infrastructure projects (small civil works) provided in this ESMF. It clearly indicates the institutional responsibilities regarding implementing mitigation measures, monitoring of the implementation of these mitigation measures and time horizons.

Capacity building

With respect to the environmental and social management capacity at different levels to implement the proposed screening process and mitigation measures, implementing entities have previous

[1] Is the process of environmental and social screening and assessment using simple methods (checklists) and procedures recommended in this ESMF.

experience with management of environmental and social issues related to construction/ civil works. The Project Management Team (PMT) under the Ministry of Finance and Planning (MoFP) and the Project Implementing Unit (PIU) under the Ministry of Infrastructure, Communication and Transport (MoICT) have the capacity and experience to supervise, coordinate and provide backstopping support to the local governments and other beneficiary institutions. However, the participating local government capacity is still in an early growing stage both to support and supervise construction work of the proposed infrastructure and to implement the required environmental and social screening process described above. At national level Zanzibar Environmental Management Authority (ZEMA) has mandate to build capacity of local governments and other project implementing entities. In addition, the role (ZEMA) is review, approve of project documents, monitor and audit the implementation of ESMP.

For capacity building related to institutional strengthening and innovation on governance particularly on applying innovative technologies for managing development under project subcomponent 2.2, the project will apply to the proposed technical assistance. The ESMF recommends capacity building at all levels through the provision of training to staff and decision makers who will be designated the role of planning, reviewing, implementing, and monitoring the construction of the different infrastructure and their auxiliary structures.

ESMF implementation costs include institutional development, training, technical assistance, allowances for subproject plan review and approval, and annual reviews. The estimated ESMF implementation budget is $772,000 over five years. In parallel to this ESMF, a Resettlement Policy Framework (RPF) has been prepared.

Consultation

Consultations were conducted and focused on key stakeholders that are relevant to BIG -Z project. The purpose of consultation was to inform the affected and interested parties of the proposed project and to collect views of stakeholders for improving the project design and mitigation measures. Key stakeholders that were consulted included ZEMA, Zanzibar Urban Municipal Council (ZUMC), the Forest Department, the Zanzibar Water Authority, Department of Roads, Department of Urban and Rural Development, Stone Town Conservation and Development Authority, Central District, local authorities, private sector and the community. Additional stakeholder consultations with affected communities and other stakeholders will be conducted during undertaking ESIA, RAP, implementation of ESMP for subprojects and during disclosure of this ESMF.

Monitoring and Reporting

Monitoring is an important activity for measuring implementation of ESMP and effectiveness of the mitigation measures. Environmental and social monitoring will take place during the mobilization, construction as well as operation and maintenance phases of the sub-projects. The ESMP that will be developed for subprojects financed under BIG-Z will include monitoring objectives that specify the type of activities linked to the mitigation measures. Monitoring at subproject level will mainly be conducted by the site engineers and environmental officers, while PMT and PIU will undertake monitoring at project level. Monitoring results will be reported to PMT and PIU for decision making.

1. INTRODUCTION

1.1 Background

Zanzibar is in the Indian Ocean off the coast of Tanzania mainland, it is among the top tourist attractions in Africa. Two main islands make up Zanzibar i.e. Unguja (1,666km^2) and Pemba (988 km^2). Tourism is one of the most important economic activities on the islands, in 2017 more than 433,000 tourists arrived in Zanzibar. Most of tourists visit Stone Town which is a United Nations Educational, Scientific and Cultural Organizations (UNESCO) declared World Heritage City. Unfortunately, the public infrastructure within the World Heritage City of Stone Town is in a dilapidated condition. Substantial areas of the Zanzibar Urban Municipal Council (ZUMC) are very dense, unplanned and informally developed, with poor access to services.

About 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. Only around 45 percent of the solid waste generated within the ZUMC area is collected and transported to a waste disposal site. Uncollected waste compounds the problems of flooding. There is a general lack of streetlights. While dark streets in the narrow lanes of the Stone Town hinder tourist activity, dark areas along poorly maintained or unpaved and flooded roads in the *Ng'ambo* areas pose safety risks to the population.

Increase of motorization level has made the government to be not well suited to cope with current and future demand for transport services and infrastructure. Weak enforcement of traffic laws, unregulated public transport, and inadequate road and non-motorized infrastructure are worsening mobility and increasing 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 (NMT) and public transport systems.

In response to a request from the Revolutionary Government of Zanzibar (RGoZ) in 2008, the Zanzibar Urban Services Project (ZUSP) was developed to finance critical infrastructure investments in key urban areas within the Zanzibar Urban Municipal Council and Pemba Towns. Additionally, the project aims to strengthen management capacities for urban development and administration. To further the achievement obtained under ZUSP, "Boosting Inclusive Growth for Zanzibar" project (BIG-Z) is being prepared, to improve living conditions and promote local economic development in Zanzibar. BIG-Z recognizes the strategic importance of Zanzibar urban centers as the engines for the country's structural transformation, economic growth and nationwide improvements in welfare (figure 1).

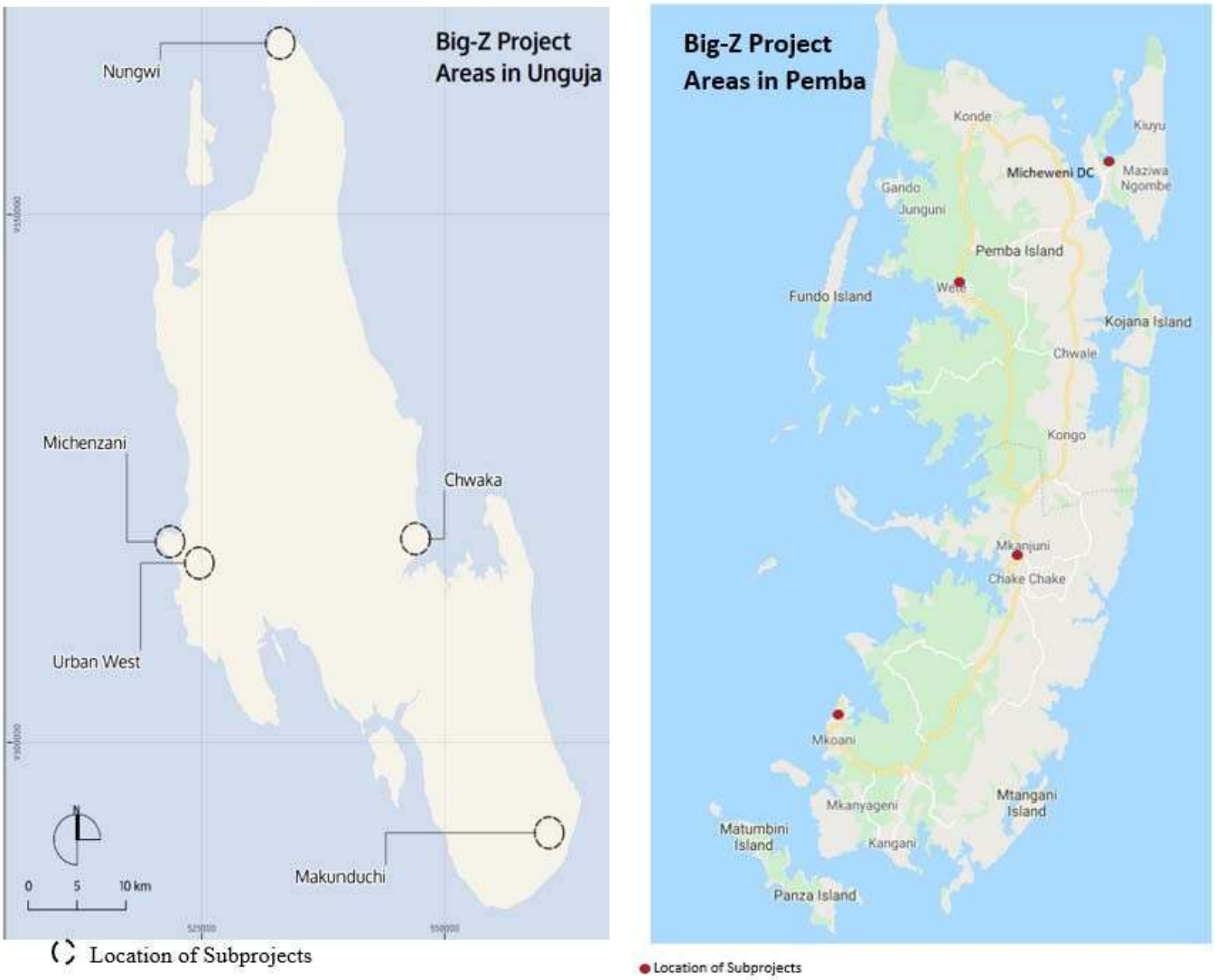

Figure 1: Location of subprojects in Unguja and Pemba Islands

1.2 Project Objective and Results

Integrated Development Project-Boosting Inclusive Growth for Zanzibar is being prepared to further the achievement obtained under Zanzibar Urban Services Project. This project, which will be implemented by the Revolutionary Government of Zanzibar and supported by the World Bank, is expected to run between 2020 and 2024. BIG-Z aims to improve service delivery, cultural heritage preservation, and integrated urban management, among other key areas. The project will use an integrated approach towards sustainable development in Zanzibar and consequently improve climate resilience through both mitigation and adaptation.

The revised development objective of the project is ***to increase access to improved living conditions and service delivery in targeted areas in Zanzibar and to enhance institutional capacity of the government***. Expected outcomes of the project include: improved access to infrastructure and basic services, improved mobility, and enhanced job and/or business opportunities for local residents of the targeted areas, as well as strengthened government institutions with increased capacity for managing urban development and economic growth.

1.3 Purpose and Objectives of the ESMF

BIG-Z project has been classified as Category B with potential impacts less adverse and limited and site specific. The project triggers the following safeguard policies: Environmental Assessment (OP/BP 4.01), Natural Habitats (OP/BP 4.04), Physical Cultural Resources (OP/BP 4.11) and Involuntary Resettlement (OP/BP 4.12).

The project investments, for which most of the designs are not completed, are likely to fall under Category B. This ESMF is envisaged as a road map to ensure the investments/sub-projects to be financed under this project are designed and implemented in an environmentally sound and socially acceptable manner and meets all RGoZ legislative requirements as well as World Bank Safeguard Policies. This ESMF sets out principles, rules, guidelines and procedures to assess environmental and social risks and impacts. The objective is to have in place a practical ESMF to enable early screening for potential impacts and select appropriate instruments to prevent, minimize, mitigate or compensate adverse environmental and social impacts and enhance beneficial impacts. Specific ESMF objectives are to:

- Establish clear procedures and methodologies for screening all proposed sub-projects for their potential adverse environmental and social impacts
- Specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to project.
- Determine the training, capacity building and technical assistance needed to successfully implement the provisions of the ESMF.
- Establish the project funding required to implement the ESMF requirements; and
- Provide practical information resources and guidelines for managing and monitoring environmental and social concerns related to subprojects once their nature and locations are known.

1.4 Scope of the ESMF

The Environmental and Social Management Framework identifies the general potential impacts and mitigation measures of yet-to-be identified investments in urban upgrading, mobility improvement, tourism growth and local area development, solid waste, promoting technology and innovations, as well as institutional strengthening activities, to screen subprojects. Also to guide the preparation of ESIAs of subprojects once they are known. The ESMF includes a practical, operational set of guidelines and procedures that will be used by PMT and PIU, ZUMC and Pemba Town Councils to guide future ESIAs and ESMPs preparation.

This ESMF is specifically designed for BIG-Z activities thus will further guide the next phase of implementation of the project. The ESMF will also cover all other project investments that may be

identified in future for financing under the project. The ESMF strives to conform to relevant RGoZ policies and legislation and is consistent with the World Bank Safeguard Policies, including consultation and disclosure practices for the Category B project. Where there are gaps in the RGoZ policy and legislation, the standards and procedures in the Safeguard Policies will be the prevailing guidance.

The document draws from existing standards and guidelines on environmental management, cultural heritage conservation as well as existing environmental and social management plans, resettlement action plan etc. Specifically, the ESMF contains subproject screening guidelines, guidelines for impacts identification, evaluation and mitigation. It also contains guidelines and best practices for mitigation implementation, supervision and monitoring as well as consultation processes, and a description of the grievance redress mechanism for the project.

1.5 Users of the ESMF

The ESMF shall aid the objectives of BIG-Z project by facilitating project team and other project participants aware of environmental and social requirements for assessing project activities. Thus, enhancing their capacity to effectively manage environmental and social issues during the preparation (designing, planning) and implementation of the individual sub-projects. The tools and guidelines are tailor-made and suited to the needs of project team and services providers, specifically:

- PMT, PIU, Department of Urban and Rural Planning (DoURP), ZEMA and others responsible for developing support strategies / activities of implementation.
- Project Teams at ZUMC, Pemba Town Councils (PTCs), DoURP, and staff in target sectors (roads, sanitation, environmental management, cultural heritage etc.) who are responsible for application/planning, review, approval, and supervision of the sub- projects.
- Statutory committees at the urban authorities, and local management committees overseeing environmental and social aspects.
- Leaders and representatives from sub-project host communities.
- Consulting engineers, Contractors and service providers involved in subproject planning / design, construction and installation works.
- Environmental and social assessment consultants and development services providers who provide services to ZUMC in non-core functions such as management training or technical support.
- Respective Regional and District Offices

1.6 Approach and Methodology for Development of the ESMF

1.6.1 Overall Approach

The approach used to develop the framework document took two forms: 1) identification of impacts, mitigation measures and monitoring procedures; 2) provision of guidance to implementers (of sub-projects to be identified in the future) on how to overcome the specific potential impacts arising from implementation of individual or clusters of the investments.

Identification of impacts and mitigation measures and monitoring procedures

The ESMF was prepared through consultation with stakeholders and literature review. Documents for the project which incl draft project appraisal document and ZUSP safeguard instruments and implementation reports related to environmental and social management were reviewed to determine prevalent conditions /trends and to establish the extent of achievement of the set targets against key result elements and performance indicators. In addition, observations at representative sites and meeting with various participants and key informants to assemble evidence/lessons on impacts encountered, measures undertaken and their roles and responsibilities etc. The results of the situation analysis were augmented by experts' knowledge of activities likely to cause impacts and mitigation measures and best alternative approaches conventionally associated with similar programs.

Provision of guidance to implementers on managing safeguards issues emanating from subprojects

The framework of analysis for determining guidelines required by subproject planners/implementers is based on identification of the nature of safeguard assessment and management process applicable to the project followed by determination of the nature of management tool needed by various actors at each stage of subproject implementation. The tools include:

1. Subproject specific ESIA process which implementers shall follow.
2. Sub-project screening guidelines.
3. Guidelines for impacts identification and evaluation.
4. Guidelines for impacts mitigation.

1.6.2 Methodology

Desk Reviews: Review of relevant literature was undertaken during initial preparations and continued throughout the assessment phase and preparation of the framework documents. Information sources include documents from the World Bank; relevant Ministries, Departments, Agencies and Authorities (MDAAs) of the Revolutionary Government of Zanzibar (RGoZ); Participating Local Government Authorities: Zanzibar Urban Municipal Council and Pemba Town Councils. Other sources include national and local data and information centres and web search.

Stakeholders Consultation: Relevant stakeholders were consulted during preparation and updating of this ESMF for Boosting Inclusive Growth for Zanzibar: Integrated Development Project. ESMF preparation involved consultations with PMT, PIU, relevant MDAAs (Departments of Environment, Roads, Urban and Rural Planning, Land and Registration, Forests, Surveys, Tourism (STCDA)) and ZUMC (Divisions of sanitation, environmental management and community development, physical planning) and relevant Council Management Committees. It is however, considered that the public involvement initiated by the ESMF will be built upon at the various project levels.

Activities involved during consultation included gathering available documents (i.e. environmental/economic/social data, land use plans and materials from previous planning

sessions); conducting interviews/discussions with Focal Persons and staff directly responsible or involved in BIG-Z project implementation and implementers, persons in-charge and beneficiaries, extension officers, community leaders and representatives at subproject level.

Site visits: Visit to selected representative sites within the councils, included sites under construction i.e. drainage channels at Michenzani green corridor site i.e. Karume, Michenzani, Mkunazini and Creek roads; proposed drainage and urban upgrading areas i.e., Ziwa Maboga-Tomondo, Mpendae and Magomeni; cultural heritage sites in Stone Town.

1.6.3. Principles of Environmental and Social Management Framework

The ESMF sets out the principles, rules, guidelines and procedures to assess the environmental and social risks and impacts. It contains measures and plans to reduce, mitigate and/or offset adverse risks and impacts. A key principle is to prevent and mitigate any harm to the environment and to the community by incorporating environmental and social concerns throughout the project cycle.

2. PROJECT DESCRIPTION

2.1 Project Objectives and Outcomes

The development objective of the project is to improve living conditions and promote local economic development in Zanzibar.

2.2 Project Components

The project components are:

Component 1: Area Based Integrated Development:

This component finances investments in infrastructure and basic services as well as various support programs to improve the livelihoods of residents in three types of areas in Zanzibar: i) urban core, ii) fast-growing urban areas, and iii) emerging towns/villages. This component consists of the following sub-components:

i) Subcomponent 1.1: Urban Core Revitalization and Mobility Improvements -

This subcomponent finances investments in infrastructure and services to improve the livability of the core of urban development in Zanzibar, namely the neighborhoods of Stone Town and the adjacent Ng'ambo city center area. Planned activities under this subcomponent are as follows:

a) Michenzani Area Integrated Redevelopment Program (MAIRP)-A mobility improvement program that entails the regeneration of the main streets in the Michenzani area in Ng'ambo, including street and sidewalk improvements, infrastructure and service upgrading, as well as public space improvements). The objective of the MAIRP is to catalyze a modal shift in mobility, and transform the current vehicle-dominated, congested area at the urban center of Zanzibar City into a safe, pedestrian-friendly, and livable urban space.

b) Stone Town Mobility Management Program (STMMP)-A strategic program of mutually reinforcing mobility and public space policies, regulatory actions and physical investments for the UNESCO World Heritage Site of Stone Town. The STMMP will improve livability and economic potential and reverse the gradual deterioration and increasing congestion in and around the heritage site through intensified stakeholder engagement and citizen participation. Physical investments under the STMMP may include: building/rehabilitating a safe and climate-resilient pedestrian network, implementing public transport facilities to improve accessibility to/from Stone Town, investments to alleviate access/egress to the Malindi Port and decrease the rampant congestion of the north of Stone Town, as well as uplifting of key public spaces and parking facilities for all mechanized modes adjacent to Stone Town.

c) Revitalization of Key Heritage Assets Program (ReKHAP)-Designed to rehabilitate selected assets of cultural heritage and local economic development importance. Through consultations with key beneficiary agencies (STCDA and DoMA), historic preservation experts, and civil society organizations, several priority assets are picked from a priority list of Gazetted Monuments in Stone Town that are currently dilapidated, underutilized or under preserved, such as the Palace Museum, Old Custom House, and Darajani market. The final selection of sites will be mutually agreed upon based on urgency, development impacts, economic feasibility, and complementarity with other development partners.

ii) Subcomponent 1.2: Upgrading and management of fast-growing urban areas - This subcomponent delivers area-based upgrading solutions in selected fast-growing urban neighborhoods in Zanzibar City that were previously suffering from a large service backlog. Planned activities include:

a) Area-based Upgrading Programme for Unguja (AUP-U)-Including 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. These investments will not only improve the access to basic services but also contribute to the mitigation and adaption of climate risks as well as reducing gender inequalities, as women are currently disproportionately affected by poor mobility options and unsafe public spaces. The actual locations of the AUP-U are currently being discussed and selected through consultations with government agencies, community organizations and other stakeholders, based on a set of criteria such as population density, service backlog, flood risks, poverty status, among others.

b) Solid Waste Management Improvement Programme (SWMIP) - Aims to improve SWM service delivery in urban areas of Zanzibar where most municipal waste was generated but mismanaged. Prioritized activities are being discussed with the RGoZ based on the recommendations of the Zanzibar Solid Waste Management Strategy, recently developed under ZUSP and endorsed by the government. The SWMIP will finance the construction/rehabilitation of waste collection points (skip pads) in communities as well as sorting and composting facilities in designated areas, to reduce open dumping and increase recycling rate. Besides, it will also provide technical assistance to municipalities and local communities, in collaboration with shehias and local NGOs, to increase awareness in good SWM practice among residents and businesses.

iii) Subcomponent 1.3: Integrated Local Area Development (LAD) for emerging towns and villages - Supports infrastructure improvement and local economic development in selected towns or villages in both Unguja and Pemba, which are currently lagging in economic growth and poverty conditions. The project aims to inject catalytic investments into these areas to promote more equitable and sustainable growth, with a special attention on poverty reduction and social inclusion. Planned activities under this subcomponent include:

a) Integrated Program for Local Area Development (IPLAD) in "gateway" villages of Unguja, i.e. settlements where tourists pass through on their way to resort areas-Aiming to improve access to basic infrastructure and services for local communities as well as tourism infrastructure that would stimulate local economic growth. To address the disconnect between the fast growth in the tourism sector and the weak economic gain by local communities, the project will prioritize investments that can improve the connectivity between resorts and villages, increase market access of local businesses, and enhance interaction between tourist patronage and local communities. Proposed physical investments are based on the Local Area Plans of these villages developed by the DoURP. The list includes a set of small-scale investments such as rehabilitation of access roads, installation of solar-powered LED streetlights, improvement and greening of public space and landscapes, rehabilitation of markets and community facilities, building of incubators and crafts centers, etc.

b) Area-based Upgrading Programme for Pemba (AUP-P)-i.e. a mix of multi-sector upgrading investments for improving access to infrastructure and urban services in the town councils of Pemba, which uses a similar planning and prioritization process as AUPU. A long list of community needs has been selected collaboratively with the town council representatives, based on which a feasibility study will be carried out to inform the final selection of priority investments to be implemented.

Component 2: Strengthening Institutions for Urban Management and Encouraging Innovation
This component focuses on institutional development and capacity building, including municipal finance, urban management, and enhancing the enabling and regulatory environment for development as follows:

i) Subcomponent 2.1: Urban planning, management and municipal finance
This subcomponent includes the following:

a) development of planning instruments such as integrated master plan for Pemba Island; identification of priority investment needs; and mobility plans for Unguja and Pemba;
b) technical assistance on establishing a Building Regulatory Framework for Zanzibar, including the development of a building code and regulatory compliance mechanisms, with a focus on climate resilience and energy efficiency;
c) technical assistance on municipal finance, including budgeting, capital investment planning, asset management, climate risk financing, own-source revenue (OSR) collection, as well as capacity building and training for local government officials in Unguja and Pemba.

ii) Sub-component 2.2: Feasibility studies and detailed design for future urban upgrading and mobility improvement projects - It includes the following activities:

a) Preparatory studies for the scale-up of integrated upgrading programs in Unguja and Pemba, including feasibility, costing and prioritization, as well as the preparation of design documents and safeguards instruments needed.
b) Feasibility study and design of selected strategic mobility programs, which may include public transport modernization, critical streets/roads, and a Malindi port area redevelopment program.

Sub-component 2.3: Institutional strengthening and innovations in governance - The following are the planned activities:

a) Customized capacity building program for key government institutions, such as MoFP, MoICT, MoITH, ZUMC, STCDA, DoMA, DoURP, etc., including hiring professional consultants to provide capacity building and technical support to the PMT and PIU, providing equipment and trainings to government officials of various institutions, developing business plans for sustainable operations of under-capacitated institutions, and advancing new core functions such as mobility management and urban road safety in the case of
MoICT;

b) Technical assistance on applying innovative technologies for managing development, such as establishment of basic spatial data infrastructure and institutional arrangements to collect, manage and apply geospatial information across different functions and departments, as well as on-demand technical assistance and capacity building for applying new approaches and technologies for managing climate risks, urban growth and economic development.

Component 3: Project Management, Monitoring and Evaluation: This component involves the direct costs of the management and operation of this project to ensure smooth implementation of all project activities in accordance with the Bank's policies and guidelines. It will support the borrower in the areas of project coordination, supervision, financial management (FM), procurement, monitoring and evaluation (M&E), communication, audits, quality assurance and preparation and supervision of implementation of the safeguards' instruments, preparation of related surveys, including through the provision of training, operating costs, goods and services for the required purpose.

Component 4: Contingent Emergency Response Component: The Contingent Emergency Response Component (CERC) is included under the project for situations of urgent need of assistance, as a project-specific CERC. Given the increasing climate risks in Zanzibar, particularly the risks of flooding, CERC will allow the RGoZ to request the Bank to rapidly reallocate project funds to support response and recovery by funding eligible list of activities in the aftermath of a disaster. This component will have no funding allocation initially and will draw resources from other categories with unallocated expenditure in the case of activation. If an Immediate Response Mechanism (IRM) is established, this component will serve as an IRM CERC to allow the reallocation of uncommitted funds from the project portfolio to the IRM Designated Account (DA) to address emergency response and recovery costs, if approved by the Bank.

2.3 Implementation Arrangements

The implementation of BIG-Z will continue to use existing staff structures and government systems. The key implementers will be the Ministry of Finance through the existing PMT and the Ministry of Infrastructure, Communication and Transport through PIU assisted by project management consultancy (PMC), the ZUMC and DoURP.

Ministry of Finance: will continue to be responsible for the overall management of Program activities, providing overall coordination and technical support to ZUMC. The Ministry of Finance has established a dedicated Project Management Team consisting of its own personnel for the implementation of all World Bank supported subprojects under ZUSP, the same team will be used for BIG-Z. However, PMT may be assisted by Project Management Consultancy firm (PMC) to improve the management and expedite project implementation.

The Ministry of Finance shall maintain throughout the period of Project implementation, a Project steering committee ("PSC") with membership/ representation at Principal Secretary-level under terms of reference acceptable to the WB. The committee shall be responsible for providing policy and strategic guidance for, and exercise the general oversight of, the PMT and PIU implementation of Project activities, including

approving the Annual Work Plan and Budget (AWPB) prepared by the PMT and the PIU**;** and assessing/reviewing the Progress Reports from the PMT and the PIU.

The Ministry shall further establish by not later than six (6) months after the Effective Date, and thereafter maintain throughout the period of Project implementation, a Project Technical Committee ("PTC") headed by the Director (External Finance) of President Office Finance and Planning (POFP), with membership/representation from MDAs, at Director-level, acceptable to the Association, and under terms of reference acceptable to the Association, which committees shall be responsible for reviewing, approving, and making decisions on key project deliverables and ensure the MDAs' provision of technical inputs, specialized knowledge and skills required by the PMT and the PIU for Project implementation, including the secondment of MDAs' staff to the PMT and PIU(?);

It will also maintain within POFP, throughout the period of Project implementation, the Project Management Team ("PMT") headed by a Project Coordinator assisted by competent staff with experience and qualifications, in numbers and under terms of reference acceptable to the Association, and vested with such powers, financial resources, functions and competencies, acceptable to the Association, as shall be required for it to carry out the day-to-day implementation of **Parts 1.1(b), 1.2(b), 1.3(a), 2.1(a), 2.1(b), 2.1(d), 2.2, 2.3(a), 2.3(b), 3(a) and 4 of the Project**, including, the inter-institutional coordination with other MDAs, the carrying out of procurement, financial management, monitoring and reporting activities, the screening of Project activities pursuant to the Safeguard Documents, as well as the preparation of any required Heritage Impact Assessment (HIA), Environmental and Social Management Plan (ESMP), Environmental and Social Impact Assessment (ESIA), Resettlement Action Plan (RAP), as the case may be, and the monitoring and enforcement of contractors' implementation of/compliance with the respective Safeguard Documents; and

A Project Implementation Unit (PIU) has been established under the Ministry of Infrastructure, Communications and Transport (MoICT) to manage technical inputs for design and procurement, supervision of works (including safeguards compliance), and quality control activities for selected activities under Subcomponent 1.1. Collaborating institutions include ZEMA, Ministry of Land and Department of Forestry. Specific roles and responsibilities in implementing the BIG-Z project include:

- Overall project oversight
- Planning and budgeting, including subproject design, sub-projects ESIA, RAP preparation.
- Review and approval of plans and budgets
- Procurement of services of contractors and consultants
- Overseeing project implementation, supervision, monitoring and reporting
- Review of project implementation reports and provide updates to MoFP

The Ministry of Infrastructure Communication and Transport (MoICT), shall
(i) establish and maintain throughout the period of Project implementation, a Project Implementation Unit ("PIU") headed by a Project Manager assisted by competent staff with experience and qualifications, in numbers and under terms of reference acceptable to the Association, and vested with such powers, financial resources, functions and competencies, acceptable to the Association, as shall be required for it to carry out

the day-to-day implementation of the activities under Parts 1.1(a), 1.2(a), 1.3(b), 2.1(c), 2.3(c) and 3(b) of the Project, including, the inter-institutional coordination with other MDAs, the carrying out of procurement, financial management, monitoring and reporting activities, the screening of Project activities pursuant to the Safeguard Documents, as well as the preparation of any required HIA, ESMP, ESIA, RAP, as the case may be, and the monitoring and enforcement of contractors' implementation of/compliance with the respective Safeguard Documents.

Project Management Consultancy: Given the limited capacity of the PMT and the PIU and the complexity of the project, the PMT and PIU will be supported and reinforced by a professional PMC in the first years of implementation to provide enhanced capacity to support technical, fiduciary, and safeguards areas. The PMC will provide implementation support and specialized advisory services to the PMT, and other stakeholders involved in project implementation on a phased basis. The PMC shall be expected to provide the PMT/PIU with concrete 'on the job' training during the first few years of the project, with the expectation to be phased out after the mid-term review (MTR) of the project

Participating local governments and Beneficiary Institutions: ZUMC and the Department of Urban and Rural Planning (DoURP) will take the primary responsibility of implementing own sub-projects including fiduciary, environmental and social safeguards, and reporting requirements. The ZUMC has bestowed responsibility for coordinating project funded by BIG-Z under Division of Sewerage, Drainage and Solid Waste (DSDSW). The DSDSW will continue to work with other experts within or outside the ZUMC. Similarly in PTCs, subproject related to waste management are under the TCs Sanitation Department. The Department of Urban and Rural Planning (DoURP) will continue to take responsibility of planning and overseeing implementation of prioritized and approved urban upgrading infrastructure.

3. BASELINE ENVIRONMENTAL AND SOCIAL CONDITIONS

This chapter presents an overview of the existing baseline conditions obtained from primary data and secondary literature review. Detailed baseline environment of the Project area (covering biophysical and socioeconomic environment) will be collected and presented in the sub-project ESIA.

3.1 Overview of project area

Boosting Inclusive Growth for Zanzibar (BIG-Z): Integrated Development Project will be implemented on both islands of Zanzibar i.e. Unguja and Pemba. Three major areas which will be involved in this project are (a) urban core area, (b) fast-growing urban areas and (c) emerging towns/villages (figure 3). The urban core area includes Stone Town and the adjacent Ng'ambo city center area; it a busied centre district which is characterized, among others, by high traffic movement, high concentration of pedestrians and high density. Fast-growing urban areas include urban neighborhoods in Zanzibar City that were previously suffering from a large service backlog such as floods, poor access road and poor sanitation services just to mention a few. Emerging towns/villages involve selected towns or villages in both Unguja and Pemba, which are currently behind in economic growth and poverty conditions for instance Nungwi, Chwaka, and Makunduchi.

Figure 2: Showing area: A-urban core area (Stonetown, Michenzania area and Ng'ambo area); B-fast growing urban area; C-emerging town/villages

3.2 Key Valued Environmental Components in Project Area of Influence

The identification, appraisal, management and monitoring of environmental and social impacts emanating from implementation of BIG-Z project (and subsequent sub-projects) starts with a focused process to identify the key Valued Environmental Components including physical, chemical, biological, social, economic, archaeological and cultural heritage and any other receptors that are likely to interact with project activities. Below is a description baseline condition of general project site relevant to the project including aspects likely to have potential implications related to stormwater management, urban infrastructure development, mobility improvement, upgrading of local infrastructure and cultural heritage landscapes. Specific baseline conditions for each subproject will be established during preparation of ESIA, RAP, HIA or ESMP of individual investment.

3.2 Bio-Physical Features

3.2.1 Air Quality

On the legal and at the policy level, the Zanzibar Bureau of Standards is preparing a set of air quality standards that are expected to be operational in the immediate future. Overall, there are no specific or officially sanctioned quantitative measurements to assess the level of Carbon Monoxide (CO), Nitrogen Oxides (NOx), Sulphur Oxides (Sox) or even suspended particulate matters (SPM)in the Zanzibar Municipality. There are no competent laboratories inside Zanzibar that are dedicated to air quality monitoring while only have managed to only address qualitative analysis of the ambient air in their specific spatial boundaries. There is an urgent need to establish permanent air quality monitoring stations around urban areas. Without such facilities and monitoring instruments, it will be difficult for the project to accurately implement the Environmental Monitoring Protocols with scientific data.

The ambient air quality around the ZUMC areas and the whole Unguja Island appears to be deteriorating rapidly. Major sources of air pollution include burning of woody biomass, production of charcoal, slash-and-burn practices, quarrying, dust emissions from unpaved roads, and the traffic pollution which is increasing in great proportion. Most of the imported vehicles are used cars which would have almost certainly failed to test general emission testing criteria from their point of origin. The Zanzibar Bureau of Standards has already adopted the Tanzanian Ambient Air Quality and Stack Emissions Standards, but their implementation is yet to be enforced.

In recent years the use of motorized transport has substantially increased in Zanzibar, this trend is likely to continue in future due to improvement of the economy of urban residents. The effect on air quality of the increased traffic flow is likely to be significant if no controls are enforced. Under good maintenance schedule, traffic exhaust emissions will be intermittent and atmospheric dispersal of exhaust emissions will maintain the sound ambient air quality. However, concerted efforts to check engine performance are needed to deter vehicles not road-worth from using the roads. Improved roads are critical in addressing the air quality situation.

3.2.2 Climate

The islands of Zanzibar are characterized by an equatorial Monsoon system (Hot and Wet seasons). The long Masika Rains from March to May come before the onset of the South-West Monsoons also known as the Kusi (which blow from April to November) while the short Vuli Rains (September to November) come before the onset of Northeast Monsoon winds known as the Kaskazi which blow from November to April. The rainfall pattern is bimodal in nature. During Masika contributes to 50% of the annual rainfall while Vuli contributes between 25% and 30%. On average, Pemba receives more rainfall (1900mm) than Unguja (1600mm). The distribution of rainfall is such that there is more rainfall in the western halves of each island than in the east.

The hot and humid season is between the months of December to March while the cool and dry season is between the months of June to September. Temperatures range between 25 degrees Celsius to 35 degrees Celsius. But, with higher humidity levels, temperatures can be felt to range

above 40 degrees Celsius on some occasions. The relative humidity is high, with a monthly average ranging between 75% to 85%.

Table 1: Annual climate patterns on Unguja Island

Items	Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Precipitation (mm)	1,561	87	86	127	403	249	54	48	37	33	105	187	145
Mean. Temp(℃)	26.0	27.2	27.8	27.5	26.9	26.1	25.3	24.4	24.3	24.5	25.2	25.8	26.8
Max. Temp(℃)	30.2	31.4	31.9	31.9	30.3	29.4	28.3	28.3	28.9	29.9	30.4	30.4	31.2
Min. Temp(℃)	21.8	23.0	23.7	23.1	23.5	22.8	21.7	20.6	19.7	19.2	20.1	21.3	22.5
Humidity(%)	79	78	76	81	83	81	76	75	75	76	77	83	81
Wind(m/s)	2.0	1.9	1.8	1.8	1.6	2.2	2.3	2.3	2.2	2.2	2.0	1.6	2.0
Sunshine(%)	62	60	65	60	48	59	63	61	71	70	67	60	64
Daylength(h)	12.1	12.4	12.3	12.1	12.0	11.8	11.7	11.8	11.9	12.1	12.2	12.4	12.5

3.2.3 Climate Change

Zanzibar's economy is very dependent on climate, but recent studies have confirmed that the islands' climate is changing negatively[2]. Recent decades have seen rising temperatures, increased rainfall variability, higher wind speeds, rising sea levels, and extreme weather events. Currently Zanzibar has been experiencing droughts and municipal floods which have had economic costs in terms of GDP. In this case, Zanzibar is not yet adequately adapted to the current climate change impact and the Government needs to address adaptation deficit to lead to immediate benefit as well as providing resilience to future climate change.

As a least developed country, or part of the contracting party to the United Nations Framework Convention on Climate Change (UNFCCC), Zanzibar produces negligible carbon emissions that do not necessarily or directly impact the global effects of the carbon emissions. According to the study on Economic Impacts of Climate Change in Zanzibar (2012), the total CO_2 emissions for Zanzibar in 2010 was 763 $GgCO_2$ equivalent resulting in per capita emissionof0.6 tCO_2 Equivalent. Wastes take up a small share of total CO_2 emissions (4%). Energy sector is the leading source of Carbon dioxide (CO_2) emissions (39%) followed by Agriculture (28%), and Land use, land-use

[2] Paul Watkiss (2012) Economic Impacts of Climate Change in Zanzibar. UK Department for International Development

change and forestry-LULUCF (29%). The projected CO_2 emissions by 2030 in Zanzibar are expected to climb to 2200 Gg CO_2 equivalent to LULUCF, Agriculture and Transport sectors leading in these emissions.

3.2.4 Noise Emissions

There is currently no available data on ambient or occupational noise pollution in Zanzibar. It is more likely that there hasn't been any organized collection of regular or periodic data for ambient or occupational noise levels. Abstract analysis of noise levels indicate that ambient noise levels exceed human threshold during daytime especially around the municipal zone and arterial roads exceeding 90 to 120 db. The Zanzibar Bureau of Standards has already adopted ambient and occupational noise standards whose implementation and enforcement is yet to be activated. Community consultations have indicated a rising scale of public nuisance caused by increased garbage trucks traffic flow through the locality. Such a highly audible flow needs a regulated standard procedure in order to avoid environmental and public health challenges

Overall, and in the context of the Zanzibar Municipality, major sources of noise pollution in Zanzibar and typically around the zone of influence include motor vehicles which have proven to be a big source of noise pollution. Increasing traffic has given rise to traffic jams in congested areas where the repeated hooting of horns by impatient drivers pierces the ears of all road users. Moreover, noise from airplanes using the Zanzibar International Airport has been affecting a portion of the municipality situated in the vicinity of the Kisauni Airport. Public Address System and the use of loudspeakers contribute heavily in its own way towards noise pollution while other miscellaneous sources such as automobile repair shops, construction-works, stone crushing etc. are other sources of noise pollution that are worth considering in preparing environmentally monitoring protocols. Noise assessment i.e. more in situ measurements are required to develop a monitoring baseline.

3.2.5 Surface Fresh Water Quantity and Quality

Overall Assessment

According to the Zanzibar Water Authority (ZAWA) Strategic Plan 2013-2018, natural resources for drinking water in Zanzibar are restricted to groundwater, which is in abundance, whereas surface water resources are modest. Past studies of available groundwater resources have tended to agree on a possible upper abstraction limit of 339 million cubic meters annually (Mm^3/a), as shown in the table below. The present actual abstraction is estimated to be 71 Mm^3/a, while ZAWA abstraction is estimated to be 33 Mm^3/a. The data and forecasts prepared by Halcrow in 1994 and projected forward to 2015 arrive at a water inflows and resources for each island (in million cubic meters per annum, Mm^3/a) as follows:

Table 2: Annual water budget in Unguja and Pemba

Description	Unguja	Pemba	Total
Average annual Rainfall	2,445	1,525	3,970
Estimated groundwater recharge	565	121	686

Acceptable aquifer yield	293	46	339
Estimated actual abstraction	60	11	71
Estimated ZAWA abstraction	23	10	33
Irrigation & private wells	n/a	n/a	n/a

In the 2008 – 2013 estimated abstraction by ZAWA is 33 M m3/year has been mentioned, but without bulk water meters this figure cannot be confirmed. Attempts to estimate a correlation figure by using power consumption records from the electricity meters and the pump rating have been unsuccessful so far. This is partly due to lack of on-going records and partly due to the application of substantial meter reading factors by ZECO all of which are not known.

Surface Water Terrain and Morphology on Unguja

According to KOICA Feasibility Study on Zanzibar Irrigation Master Plan (2010), almost all surface water streams in Unguja have several flooding outputs with peak discharge in a short time in rainy season but have low or no discharge in the dry season. These streams are divided into those that reach the sea and those that do not. The four systems flow to the sea in the northwest sector of island, and there are smaller streams along the western coast, such as at Bububu and Mtoni, but they do not represent a significant economic resource, apart from channeling heavy flow of rainwater downstream and into the sea during the heavy rainy seasons.

Several other streams disappear into the coral rag limestone or sink holes known locally as Pokezi or Kibonde. Three examples of such streams are the Kinyasini, Pangeni, and Mwera. While the project site is not known to have any surface water body in the vicinity, the characteristics of these surface runoffs annually and during wet season in Unguja are given in the following table:

Table 3: Features in River Flow in Unguja-Annual (KOICA 2010)

Name River	**Catchment Area (km^2)**	**Length (km)**	**Annual Specific Discharge (m^3/sec/100 km^2)**	**End of outflow**
Mwera	28.0	20.0	1.70	Pokezi
Kipange	15.0	9.0	1.67	Indian Ocean
Mwanakombo	10.0	9.2	1.78	Indian Ocean
Zingwe-zingwe	9.0	25.5	0.77	Indian Ocean
Bwabwaja	3.6	6.0	1.33	Pokezi
Mawe	4.5	5.3	1.07	Pokezi
Kinyasini	7.6	9.7	1.10	Pokezi
Pangeni	8.6	23.0	1.07	Pokezi

Table 4: Features in River Flow in Unguja-Masika Season (KOICA 2010)

Name River	Record Length (2010)	Daily Average Folw	Estimated Yield ('000 m^3)	Period Rainfall	Runoff potential
Bububu	20 Apr to 8 Jun	0.2 m^3/s	700	571 mm	30 to 40%
Zingwe-zingwe	31 Mar to 9 Jun	1.6 m^3/s	9,800	938 mm	30 to 50%
KitopeMchanga	30 Mar to 9 Jun	0.4 m^3/s	2,600	938 mm	40 to 55%
Mchanga	30 Mar to 8 Jun	0.4 m^3/s	2,300	938 mm	30 to 40%
Mwanakombo	24 Apr to 8 Jun	1.7 m^3/s	6,700	670 mm	40 to 55%
Kinyasini	30 Mar to 12 May	0.7 m^3/s	4,500	880 mm	45 to 60%
Mwera	25 Apr to 7 Jun	5.7 m^3/s	20,300	736 mm	40 to 50%
Kipange	22 Apr to 12 May	1.6 m^3/s	3,000	448 mm	40 to 50%

Recent Studies on Water Quality in the Zone of Influence

ZAWA does not keep regular track of the baseline data on the percentage (%) of Water Samples Passing Bacteriological Quality Tests or the percentage (%) of Samples of Supplied Water Passing Physical Chemical Quality (Turbidity) Test. There are series of external peer reviewed studies from various locations of the island that provide an indicative picture of the state of freshwater quality.

For example, Mohammed A.J *et al* (2013)[3]assessed the level of total hardness and heavy metals (hexavalent chromium and copper) in springs and underground water sources in some areas of Zanzibar. Levels of copper, hexavalent chromium and total hardness in the studied samples ranged between 1.38 - 11.0 mg/L, 0.05 - 0.4 mg/L and 32.02 - 1009 (as mg/L CaCO3), respectively. About 77% of all samples had total hardness values higher than the World Health Organization (WHO) guidelines, while the proportion of samples with dangerous concentrations of copper and hexavalent chromium were 70% and 96.6%, respectively. The levels of most of the studied parameters in the drinking water samples exceeded the permissible limits of the WHO drinking water quality guidelines. The results show the urgent need to take immediate mitigation measures and continue the water quality monitoring in Zanzibar, as well as establish drinking water treatment plants.

Another recent peer-reviewed physical-chemical and microbial analysis study by Abdul A.J. Mohammed *et al* (2014) reveals the effect of rainfall on pH and electrical conductivity (EC) of

[3] Abdul A. J. Mohamed, Ibrahim Abdul Rahman, Sadri A. Said, Lee H. Lim, Islam S. Mchenga (2013). Levels of Hexavalent Chromium, Copper, and Total Hardness in Springs and Underground Water in Zanzibar Island. Asian Journal of Applied Sciences (ISSN: 2321 – 0893) Volume 01– Issue 05, December 2013.

Zanzibar groundwater sources[4]. In June 2012, thirty water samples were collected from spring and underground water sources for fecal coliforms (FC), total coliforms (TC), alkalinity, phosphate (PO4-P) and ammoniacal nitrogen (NH4-N) analysis. The levels of PO4-P, NH4-N, and alkalinity in water samples were in the range of 0.08-5.15 mg/L, 0.03-6.71 mg/L and 47- 430 (as mg L CaCO3) respectively.

During dry period, the lowest and the highest EC levels were 181.02 µS/cm and 6180. µS cm respectively, while 167.36 µS/cm and 7985.03 µS/cm were the respective lowest and highest EC levels measured during wet period. The variation of pH levels during dry and rainy period were in the range of 6.31- 8.30, and 7.13 - 8.44, respectively. During dry and wet period, 40% and 17% of the samples respectively had EC level beyond the guideline recommended by World Health Organization (WHO). FC and TC contaminated 43% and 67% of the water sources respectively. The presence of FC, TC and elevated levels of EC in some of water samples show how groundwater quality has been deteriorating with the physical growth of the municipality.

3.2.6 Groundwater Quantity and Quality

In recent years there has been a major increase in private well drilling as demand exceeded supply from the ZAWA networks, and as expansion of agricultural irrigation abstraction continued. So far there is no data to give an estimate for these abstractions. ZAWA states that this will be the subject of potentially future research. Although there is no immediate risk of depleting the groundwater aquifer, certain areas, particularly in the Eastern areas of Unguja around tourist resorts, have experienced intrusion of sea water into the aquifer, reportedly due to excessive abstraction of groundwater. This has affected supply in adjacent villages – both in quantity and quality.

Other areas experiencing constraints and possible saline intrusion include the Urban West part of Unguja. Due to the increasing variability of rainfall made worse by climate change as well as normal drought cycles, raises the level of risk of saline intrusion as the aquifer limit is approached. On the other hand, pollution of water resources from human settlements with ineffective pollution control measures and from human encroachment in the rainwater catchment areas is imminent. If bacteriological contamination becomes established this will raise ZAWA's cost of treatment of groundwater.

3.2.7 Geology and Morphology

Unguja's geological profile is composed of Miocene sediments as considered country rock, overlain by Quaternary sediments derived from Miocene rock. The Miocene sediments are divided as three Miocene (M) layers which are classified as M1, M2 and M3, respectively, from bottom to top. Quaternary sediments also are divided as Q1, Q2 and Q3 due to record periods of higher sea level, marine erosion with wave-cut cliffs and platforms, reworked marine and fluviatile sediments.

[4] Abdul A. J. Mohamed, Ibrahim Abdul Rahman, Lee H. Lim (2014). Effect of Rainfall Variability on pH and Electrical Conductivity of Springs and Groundwater in Zanzibar Urban West Region. Asian Journal of Applied Sciences (ISSN: 2321 – 0893) Volume 02 – Issue 01, February 2014.

The M3 strata consist of poorly consolidated but well-bedded calcareous sandstones, detrital limestones, clayey sands and sandy clays. The limestones are soft, chalky, and marl rocks with irregularly calcified hard patches. They are generally pale colored, with buff and light brown colors predominant at the surface, passing down into blues and blue grey, below the weathering to bright red and reddish-brown colors.

The M2 strata consists of sand and sandstones, forming distinct characteristic horizons throughout the Miocene in the corridor or channel system. The sands are coarse clean and siliceous, distinctly angular and sometimes sugary, white, opaline, glassy and pearly grey. They are friable, usually lacking any cementing material. Though they form distinct stratigraphic horizons, they are rather more likely to occur as lenses or deltaic sandbanks and levees. Their average thickness is from 10 to 15 meters, and within the outcrop expression of the M3, they produce distinct landforms of locally open elongated treeless, grassy and water-logged depressions.

The sandstones have a similar lithology to sands, but calcite and siliceous cement occur irregularly. Some siliceous bands are extremely hard and difficult or impossible to drill with small weights of drilling tools. Most deep M2 intersections occur on eastern side of the island from Cheju through to Upenja, Kibokwa, Chaani and Matemwe. Surface outcrops and shallow intersections are confined to the western side of Zanzibar.

There are three limestone in M1: 1) crystalline limestone which is mainly found in the south east area, 2) sandy limestone and reef limestone which are mainly formed as fringing reefs of the east coast, 3) detrital limestone, which being colluvial in origin and crushed in part by wave action, are a re-cemented rock of calcic clays, broken limestone with crushed shell, corals and shark's teeth. Typically, all the Zanzibar limestones are somewhat detrital, sandy and of marl characteristics. They are regarded as being of shallow marine origin. The interstratified lenses and continuous limestone horizon are found as subordinate strata in the M3 sediment material, on the northwestern parts of the island with the main Miocene sequence and in the Makunduchi regions[6].

3.2.8 Soils

The soils of Zanzibar fall under three main groups depending on the geological feature of parent rocks; 1) sandy soils, 2) calcareous red soils, 3) clay soils. The sand soil group derived from noncalcareous sediments, the sandy group varies from very deep sandy to rather heavy reddish through brown, yellowish grey, to grey shallower types. The calcareous red soils are the free draining soils derived from limestone. The clay soils derived from clays and mudstone. There are five main soil categories called Mchanga, Kinongo, Uwanda, Maweni and Kinamo in Unguja.

Maweni soil is in the coral rag limestone that forms the extensive eastern and southern portions of the island. This soil covers more than 40% of arable land and supports traditional shifting cultivation. Mchanga soil is found on the western part of the island covering 20% of land area. This soil is suitable for both tree and annual crops. Uwanda soil forms the interface between the plantation area and coral rag zones covering 17% of the area. This soil is generally open grass area for unimproved grazing. Kinongo soil is the most fertile on the island and provides high potential

for food crop production. Kinamo soil covers only 5% of the land area and is found in the north and small patches in central and south zones. This soil is suitable for rice cultivation.

Table 5: Shows Zanzibar soils comparing to the FAO classification of soil (FAO)

Soil type	FAO Classification
Reddish Mchanga	Haptic Acrisols and EutricGleysols
Greyish Mchanga	Umbric Gleysols, Dystric Fluvisol, Mollic&EutricGleysols
Sandy Mchanga	Cambic Arenosols, Umbric Gleysols, CalcaricRegosols, Areni Haptic Acrisols
Deep Kinongo	Haptic and Ferric Acrisols, RhodicFerralsols
Shallow Kinongo	RhodicFerralsols, CalcaricCambisols
Kinamo	CalciVertisols, Areni Gleyic Cambisols, Haptic Nitisols
Maweni	RendzicLeptosols, Lithic Leptosols
Uwanda	MollicLeptosols

3.2.9 Vegetation

Generally, vegetation in Zanzibar falls under regional formations and can be classified into four main physiognomic types encompassing:

- Secondary Grassland
- Secondary Bushland
- Cultivated lands with settlements
- Restoration vegetation

Secondary Grassland covers various opportunistic grass species which are frequently cleared or slashed. The common grass species seen throughout include *Heteropogoncontortus, Cynodondactylon, Dactylocteniumgeminatum, Digitaliaciliaris, Eleusinecorocana and Hyparrheniafilipendula*. Secondary Bushland covers an assemblage of woody shrubs and dwarf trees exposed to constant clearing and pruning. Dominant small trees throughout the island include *Blighiaunjugata, Albizialebbeck, Annona senegalensis, Ziziphusmucronata, Balanitesaegyptics, Flueggeavirosa, Millingtoniahortensis, Tremaorientalis, Sorindeiamadagascariensis, Suregadazanzibariensis, Dryopteris natalensis, Syzygiumcumini, Antidesma venosum*, and *Mallotusoppositifolia*. Dominant herb climbers include *Acalyphaclaoxyloides* and *Perquetinanigrescens*

Cultivated Lands with Settlements covers various agricultural crops such as Plantains, Cassava, Yams, Coconut, Mangoes, Oranges, Papaya, Almonds, Bread fruit, and other vegetables, etc.Restoration vegetation include Acacia and Casuarina Trees.

The project area survey shows the presence of the following wild species:

- Kikwayakwaya (*Stachytarphetaindica*)
- Mchongoma (*Flacourtiaindica*)
- Mjengaua (*Gliricidiaspp*)
- Mkeshia (*Acacia auriculiformis*)
- Mkwamba (*Flueggeavirosa*),
- Msina (*Leucaena leucocephala*)
- Mtopetope (*Annona senegalensis*)
- Mvinje (*Casuarina equisetofolia*)
- Mwarobaini (*Azadirachta indica*)

3.2.10 Land Use

An analysis conducted by SMOLE project 2004, indicates that, current land use is rapidly ongoing expansion of the city, sprawling and intruding into agricultural lands; rapid decline of unoccupied open space with large tracts either being developed or brought under cultivation. Indeed, if the trend continues it is reasonable to expect that very large tracts will become peri-urban over the coming generation. The vast bulk of the landmass in the Urban district remains undeveloped although combined built areas now extend slightly over 100 km^2 or 36% of the landmass. Residential uses, including local services, infrastructure and public space, account for fully 81% of the built areas with public services and limited public space (combined 9%), economic (4.7%) and infrastructural uses (>5%), accounting for the balance.

In Zanzibar Town today there are over 840ha dedicated to public services, and 54ha dedicated to public open space. Combined these are equivalent to 9% of the built area and <3% of the surface area. Of these, approximately 200ha in total are located in the Inner City.

3.2.11 Biodiversity

Zanzibar (both Unguja and Pemba islands) is endowed with mangrove vegetation estimated to cover nearly 6.1% of the total land area. The mangrove forest area is the second largest natural forest vegetation after the coral rag thicket, which is estimated to cover 40% of the total land area (RGoZ, 2015)

The islands have critical habitats which harbor diverse flora and fauna, of global importance. Pemba island has been identified as an important bird and Key Biodiversity Area based on the presence of significant population of globally threatened species and significant population of endemic species known only to be found in limited areas. Unguja island is also an important bird and Key Biodiversity Area based on the presence of significant congregation of one or more bird species at certain times of their life cycle or seasonal migration. Plant and animal species in the two islands are threatened by degradation associated with unsustainable human activity. This includes 276 bird species, endangered and threatened mammal and amphibian species, and coral reefs in surrounding waters. The introduction of a network of Marine Protected Areas is one of the important measures taken to protect ecosystems and biodiversity (figure 4). Marine protect areas

in Zanzibar includes Chumbe Island Coral Park, Menai Bay, Misali Island and Mnemba (Spaulding et. al. 2001). While on terrestrial ecosystem there are forest reserves which are Jozani, Ngezi, Kiwengwa/Pongwe. Many of these assets are under threat, for example due to deforestation for charcoal production and pollution discharges into waterways. A detailed inventory of terrestrial ecosystems and Zanzibar's biodiversity is included in Annex A.

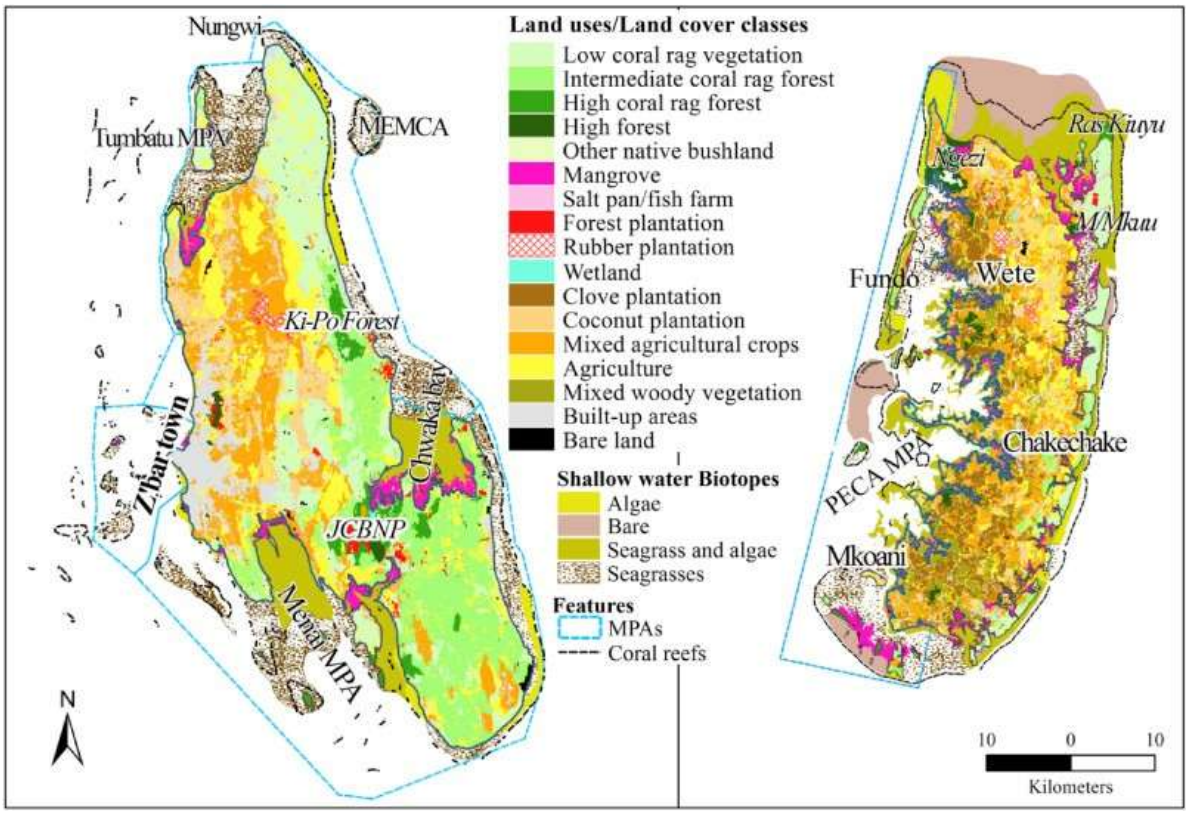

Figure 3: Land uses and marine protect areas (MPAs) in Unguja and Pemba Islands (Khamis A.Z et al, 2017)

3.3 Social, Economic and Cultural Conditions

3.3.1 Population and Demographics

Urban community's characteristics in Zanzibar

According to the Census, 2012, the population of Zanzibar is 1.3million people, the largest population is in Unguja 900,000 and Pemba 400,000 people. The Zanzibar urban communities bear most of the important features found in other urban areas of the developing world. It is a cosmopolitan society made of multicultural and multi-ethnic originated from as far as India, Middle east, Mainland Tanzania and other areas around the coat of Indian Ocean. However, despite its social heterogeneity, Zanzibar urban has less problem of homelessness compared to other cities in the world. Many middle-and low-income people have (though insufficient) accommodation. In addition, Zanzibar urban is also a home for extremes cases, i.e. the richest as well as the poorest people; The best and the worst forms of ethical behaviour; Superior creativeness and chronic

unemployment all are found in urban Zanzibar. However, the insanitation, high population and congestion, pollution and unhealthy environment that affect the health of the inhabitants is almost everywhere in Zanzibar urban.

Local labour force: employment opportunities; health and safety of workers

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 do not add little to national wealth because they are not adequately captured in national accounts but also a threat to the 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 electricity[5]. 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 p.a in 2011.

3.3.2 Urban facilities and services

Potable Water.

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. For instance, part seven, section 84 (1) of Zanzibar Water Regulation 2007 states that:

"*No water supply project or part of it shall be undertaken until (a) Surveying of the proposed project area, (2) Drawings,(3) Bill of Quantity, and (4)Project write-up are done and approved by the Authority":- While* Section 84 (2) state that: "*No person or institution shall initiate water project and or supply equipment and or materials for water supply project without the technical recommendation and corporation of the Authority in advance"*

However, very often the water supply lines get damaged leading to leakage of water which does not only reduces community access to this important resource but also (and more importantly) may be contaminated by wastewater drain from houses, overflow storm water and blocked drainages systems thereby increase the risk of Gastrointestinal infections that cause diarrhea, vomiting, and abdominal pain. It is not clear yet about the actual demand of portable water in urban districts but

[5] POFEDP (2013) Technical Assistance for the Preparation of a Diagrammatic Indicative Structure Plan for Zanzibar Municipality and Its Immediate Periphery and Urban Development Policy for Zanzibar Town Review Report October 2013

what is clear is the district has not been adequately supplied with this service. Expanding the coverage is also a big challenge given the increasing population and business establishments in stone town and peri-urban areas that require water and other services. Some of the challenges for supply of potable water is the ongoing degradation of surface and ground water resources caused by encroachment into water retention areas, deforestation of the catchment zones, sewage contamination and climate change, (SMOLE, 2012)

Access roads

The network of access roads in the Urban District was (as of December 2013) made up of 68km of urban roads of which 55km are paved and 12 km are unpaved. Among the paved roads, 29km were in very good conditions, 14km were good, 7km fair, 3 km were poor and 2km were in very poor condition.

Zanzibar Town's main and most important road is Creek Rd. This four-lane road with bidirectional sidewalks is surrounded by commercial activity and major institutions such as: Darajani Market, city council and schools, etc. The narrow streets of the Stone town make most part of the town accessible by cars. The ZUMC cleaning staff use push carts to take solid waste to the areas that can be taken by trucks for disposal to the dumping sites. Though the current road network in Zanzibar Town may seem sufficient to support current traffic volumes, but with the increasing population and motorization rates, soon it will not be enough. The inadequate repair and cleaning of drainages lead to spilling of wastewater around access roads and streets. To improve and sustain clean environment there is a need to construct more drainages, regular removal of sand and other solid wastes to allow easy flow of storm water.

Urban transportation

The concentration of social services in the Stone Town area resulted into increased traffic movement in this part of the Urban District. All essential services such as hospital, high court, birth and death registration offices, banks, Zanzibar Port, warehouses, main fish lending site and actions, Government ministries and departments, tourism hotels and restaurants are available in Stone Town. There are also more shops that attract more customers than any other area in Zanzibar. The Stone Town Conservation Authority is controlling (though without success) the movement of vehicles inside Stone Town by limiting the weight of cars that can be allowed in this area. The increasing number of vehicles entering Stone Town is a big threat not only to the life of buildings but also to the environment and serenity of the Stone Town. The largest volume of bus pre-load area is located along the main roads at the entrances to Zanzibar Town. Malawi and Karume roads are the main PT corridors. Usually of the commuter buses start on five main routes (Kinanzini, Magomeni Amani and Kilimani) and thereafter splitting into various roots in the West District. Minibuses (15-20 passenger seats), Haiss (popularly known as *Chai Maharage)* of 20 seat capacity and Ford Convoys with 17 seats are the most common commuter bases for public transportation service in Zanzibar.

Waste disposal sites

With increasing population and peoples' incomes in many cities, local governments are hard pressed to collect and dispose waste that could cause higher methane emissions. Globally, landfills

and dumpsites are the third largest sources of methane (World Bank 2016). In Philippines example given in the above report about 60 percent of greenhouse gases from waste are generated by towns and cities. The rest is from municipal wastewater (14%), industrial wastewater (13%), and human sewage waste 13 percent (World Bank 2016).

The Zanzibar Municipal Council is responsible for collecting and disposal of waste from the Urban District. Currently the council is expected to generate around 220 tons of solid waste per day; however, its current collection capacity is about 160 tons per day which is about of the total waste generated in the district per day (ZUSP PAD, 2010). The remaining 65 percent of the waste is not properly collected and therefore accumulated and haphazardly dumped in various places near people's houses. The old Stone Town area as well as the western part of Zanzibar Town is given priority in waste collection services by the Municipal Council by allocating about 80 percent in these areas of workforce due to its importance for tourism. The case in almost akin to solid waste management in which stagnant water ponds covering more than 173 hectors are very common and directly affect around 3,645 households (ZUSP PAD, 2010)

Within the ZUMC area, the sewer network is concentrated in and adjacent to the old Stone Town areas, covering a total area of 96 Ha. The sewer network is also available to a limited extent in some parts of some of the surroundings of Stone Town, including Michenzani Flats, the Police Barracks, and beyond Creek Road in areas such as Mchangani and Mlandege (POFEDP 2013). Domestic wastewater often combines storm water and gets disposed of into the sea since Zanzibar has no wastewater treatment plant. The rest of Zanzibar Town has no sewerage system and therefore liquid waste discharged haphazardly into the immediate environment. The above report also indicated that, the direct exposure to raw sewage, particularly during the rainy season make the health of presidents in Stone Town (including of visitors) endangered. The area often suffers from sewer odours, negatively impacting upon living conditions and the tourism experience. According to Zanzibar Sanitation and Drainage Program 1 (2005), all waste disposal sites in Zanzibar are of open dumping types in which, waste is disposed without sorting and without meaningful consideration of health standards.

There have been some community initiatives in waste collection and management. For instance, the CBO known as Labayka was operating waste collection points within their communities to avoid crude dumping within the settlements. There are also some private individuals who collect waste from some hotels outside the Zanzibar Municipal Council. These private companies usually use open trucks to collect and dispose waste somewhere in the forest or farms. Similarly, Vikokotoni Environment Society in Zanzibar Town close to the main market was engaging in cleaning up the streets every morning before they go to work. The Zanzibar Scrapers Environment Association (ZASEA) is a registered NGO in Zanzibar Town established in 2008 to handle recyclable waste fractions. The organization is recognized by the Department of Environment as registered association with around 100 members.

However, the sustainability of this activity is questionable, as the organizations are relying on external aids for financial resources while the ZUMC itself is ill equipped to promote and support this kind of community initiatives.

3.3.3 Economic Activities and Livelihoods

Urban Agriculture,

Urban District is by far the most important urban centre in Zanzibar. The district receives an average annual precipitation of between 1,500 to 2000mm mostly from two main rain seasons.

i.e. *Masika* (long rainy season) which rains from March to May and *Vuli* (short rain season) from October to December). Urban agriculture is practiced in open places and fairly low-density areas in town owned by private individuals or public institutions such as military camps. Such are found in Migombani, Bomani, Maruhubi and Mpandae.

Collectively, there are about 360 acres of different short-term crops in Urban District *(Conversation with Urban District Agricultural Officer)*. Leafy vegetables particularly spinach and *Matembele* occupying larger part of the agricultural land in this district. The crops that are grown in negligible quantity are tomato, sweet peeper, Chinese cabbage, okra, eggplant, onion, cassava and rice.

In most cases farmers rely on tap water from ZAWA supply lines or produce rain-fed conditions. The main challenge with this agricultural land is that some of these areas have become important storm water drains which may flood the area, pollute and contaminate the farm with waste chemicals and harmful microbes and eventually make the harvests unsafe for human consumption. In addition, the existing weak enforcement of laws to control air, water and soil pollution, sewage that discharged untreated into land and is the main concern of urban agriculture in Zanzibar. In addition, the land for agricultural production has been declining because of increasing urbanization, through horizontal expansion of buildings.

Livestock keeping and business activities

Currently there is no official statistic on the amount and types of animals kept in urban districts. However, the biggest beef and chicken markets in Zanzibar are found at Darajani in this district. On average about 19,606 cattle and 3,329 sheep & goats (table 6) are being slaughtered annually at Kisakasaka in urban west region most of these meats are sent to Central Meat Market at Darajani for wholesaling and retailing. There is no specialized abattoir for chicken in Zanzibar. Chickens are mostly slaughtered at Darajani and Mwanakwerekwe Markets. The challenge here is a lack of appropriate infrastructures and regular maintenance services in the marketplace. For instance, Darajani market drains its waste to the Central sewage system of the Stone Town, but very often the market lacks potable water, inadequate cleaning leading to the blockage of the drainage to create unhygienic condition in the market.

Table 6: Cattle, sheep and Goat and Chicken slaughtered annually (2011- 2014)

Year	Animal slaughtered		
	Cattle	Goats	Chicken
2011	17,341	3,996	300,228
2012	19,569	4,845	330,658
2013	20,501	3,001	251,185

2014	18,747	2,142	5,009,311

Sources: Ministry of Livestock and Fisheries (no date)

Unfortunately, both agricultural Sector Policy (2002) and Livestock Policy of 2011 are silent on the vital issues pertaining to urban agriculture and livestock keeping in urban respectively, and the land for such production activities.

Fishing and Fisheries activities

Like all other districts in Zanzibar fishery is an important economic activity in Urban District. The district houses the largest fish landing sites and auctions at Malindi, Darajani, and Maruhubi and Kizingo. Malindi, Darajani are also the largest retail markets for fish in Zanzibar. There are also small but formal fish markets (such as Kwa Haji Tumbo and Mikunguni). Some informal market exist in Magomeni, Jangombe, Saateni and Makadara.

These activities and functions are performed by different actors including; Fishers (2,129) who do the actual fish catching, 84-foot fishers (they fish without using vessels), 324 fish mongers and138 gear repairs. (Table 7): There is high risk of fish contamination with chemical and biological agents discharged from households and industries at various stages of value chain starting from the surrounding sea, landing sites, at auction and retailing sites.

Table 7: Key Actors in Fisheries Value Chain in Urban District and types of service

District	Fishers	Foot fishers	Fish mongers	Gear repair	Fish fryers
Urban	2129	84	324	138	20
Zanzibar Total	**27187**	**7384**	**2141**	**2061**	**127**

Sources: Frame Survey 2010.

The existing markets generally lack essential infrastructures required for proper maintenance for hygiene and food safety. The insufficient water supply, poor drainage system can be seen vividly in virtually all fish markets in the district. The waste water in Darajani market is directed to the Central Drainage System of Stone town. But very often the get blocked by solid waste and sand deposits. Whereas, in Market that are close to the sea such as Malindi and Maruhubi the drain is directed to the sea. Sometime, wastes in these markets stay longer and produce smell leading to air pollution.

Fishing is not only providing a good source of protein but also a good source of employment and income. The previous Frame Survey (2010) indicated that about 3,097 individuals were directly employed in the fisheries subsector in urban district (Table 8). Out of this, 392 were vessels owners, 2,129 fishers, 84-foot fishers, 324 fisher mongers, 238 gear repair and 20 fish fries who fry fish within landing sites. The sustainability of fishing industry requires among other things maintenance healthy environment of both in shore and offshore water.

Table 8: Fisheries as a source of Employment in Urban District

Types of employment	Vessels owners	Fishers	Foot fishers	Fish mongers	Gear repair	Fish friars	Total
Number	392	2129	84	324	138	20	**3087**

Source: Extracted from Frame survey (2010)

Petty Trade

Zanzibar like other urban areas in developing countries has a substantial number of petty traders. Contribution of petty trade to the employment and income in Zanzibar has grown-up in recent years, however, this growth has associated some with challenges. Petty traders themselves have become a nuisance to motorists and pedestrians. They are obstructing the walking pavements along the famous streets in Ng'ambo such as Karume road, Mchangani and Darajani Street. Large part of these streets has been occupied by the traders causing unnecessary jam to vehicles and pedestrians. Some of the petty traders found in these areas includes house hold goods sellers, food vendors, fruits vendors, mobile phone banking and vouchers, second-hand clothes and shoes, DVD/CD sellers, fried fish/sardines' sellers.

Several attempts have been made to remove petty traders popularly known as 'Machingas' or Jua kali, from Zanzibar, Darajani area. The RGoZ established Machinga Complex at Mpiga duri (popularly known as Pinda Mgongo) but most of them decided to continue business as usual. ZUMC has started registration of all petty traders at Darajani collecting necessary information for planning and decision-making purpose. However, the challenge has been on mobile petty traders who moves from one area to another depending on availability of customers.

These traders drop huge litter of solid waste every day. They sometime throw in solid waste into the drainage system and cause blockage. They don't even provide adequate space and time for ZUMC staff to clean up the area properly.

Business and trade

With the exception of agriculture, Zanzibar Town is a centre of all other activities: commercial, administration, social and cultural. The presence of harbour, central fish market, and fish landing, referral hospital, tourist of tourist hotels and restaurants make the Urban District as the business centre for Zanzibar. The area contains the main harbour in Zanzibar for importing and exporting passengers and Cargo. There are also a number of warehouses around port and Saateni areas. Some street of stone is full of shops, tours operators and airline; office banks and the likes.

Tourism

Tourism in Urban Zanzibar is mostly done in Stone Town area which is categorized in Tourism Zoning, as Zone 1 (The Zanzibar Commission for Tourism (as cited by RGoZ (2009c). Most of the visitors to the island spend one or two nights in Stone town before or after staying at the beaches in north or east coasts of the Island. According to the Zanzibar Commission for Tourism, there are about 140 tourist hotels in Stone Town that provide accommodations to tourists (ZCT, 2010). The main tourist attractions in this zone are the Old Fort, The Palace Museum, the Anglican Cathedral

with old slave market and other historic sites and museums. Others are dhow harbour and Forodhani Garden.

Despite the importance of Stone Town as an impotent tourism product in Zanzibar, the hygienic and sanitary requirements to support this sector has not been encouraging. The spread of litters of solid waste and spread of liquid waste in the streets due to blockage of drainage systems are the normal occurrences in this area. The effort to develop tourism industry in Zanzibar should give more emphasis on town cleanliness; since mismanagement of solid waste can lead to pests, odor and disease which may dramatically deter tourism.

Zanzibar has many exciting recreation areas to carter for the need of locals and visitors. This includes; Palace Museums, Forodhani park, white sand beach at Forodhani, Ngome Kongwe, Anglican Church Mkunazini, Botanical Gardens, open places for sports and recreation at Maisara, Mnazimmoja, Kariakoo Recreation Park, Mao Tse-Tung and Amani football stadiums. The challenges is however to keep this area green and clean, and install and maintaining drainage infrastructures for better management of liquid waste and storm water in these areas.

3.3.4 Cultural Heritage

Stone town is the type of town developed on the coast of East Africa, further expanded under Arab, Indian, and European influences, but retained its indigenous elements, to form an urban cultural unit unique to this region. The town retains its urban fabric and townscape virtually intact and contains many fine buildings that reflect its particular culture, which has brought together and homogenized disparate elements of the cultures of Africa, the Arab region, India, and Europe over more than a millennium.

Stone town occupies the most western edge of the Town of Zanzibar with a total area of 96 hectares and buffer zone area of 84.79 hectares which make about 5.4 % of the total area of Zanzibar Town. The Stone Town was declared as World Heritage Sites by UNESCO in 2000. Its architectural features are executed principally in coralline rag stone and mangrove timber, set in a thick lime mortar and then plastered and lime-washed, reflect a complex fusion of Swahili, Indian, Arab and European influences in building traditions and town planning. The two storey houses with long narrow rooms, reached through a narrow corridor, are distinguished externally by elaborately carved double 'Zanzibar' doors, and some by wide verandahs, and by richly decorated interiors.

The major buildings date from the 18th century include monuments such as the Old Fort, built on the site of an earlier Portuguese church; the house of wonder, a large ceremonial palace built by Sultan Barghash; the Old Dispensary; St. Joseph's Roman Catholic Cathedral; Christ Church Anglican Cathedral commemorating the work of David Livingstone in abolishing the slave trade and built on the site of the last slave market; the residence of the slave trader Tippu Tip; the Malindi Bamnara Mosque; the Jamat Khan built for the Ismaili sect; the Royal Cemetery; the Hamamni and other Persian baths. In particular the Stone Town's importance is marked by it being the site where slave-trading was finally terminated. Considerable efforts have been taken by both Government (Stone Town Conservation Authority) and non–governmental Organization to work with communities within Stone Town in preserving its heritage and culture. The rehabilitation of

Forodhani Park in line with the requirement of Stone Conservation regulations and reconstruction of Mzingani Sea Wall as an iconic sea face of the Stone Town is some of the recent examples of these efforts.

Other sites

Apart from Stone town - a world heritage site, a collection of buildings has been marked as the most cultural and architecturally important in Zanzibar such as Sultan Khalifa's bungalow, Maruhubi Palace and Kizimkazi Mosques (Annex E). Many of these demonstrate classic features of this unique architectural and cultural synthesis. However, most of these buildings and associated infrastructure are neglected and in poor condition for both islands.

3.4 Existing Environmental and Social Challenges

Zanzibar is an Island within the United Republic of Tanzania, but the environmental problems that the islands have are reminiscent of similar issues faced by other islands. Therefore, the urgency to apply regional and international environmental related conventions, protocols and agreements and seek support in enforcing the Climate Change Convention, Integrated Coastal Zone Management, (ICZM), environmental and conservation of natural resources; energy, and pollution control and waste minimization in the context of sustainable development has never been more critical.

There is a growing number of environmental and social challenges faced by the Zanzibar Municipalities and are affecting the country's environment, social and economy of the urban inhabitants in the island. Zanzibar finds itself amid emerging environmental and social challenges of the current times, mostly caused by the increase of urban population with less urban infrastructure development. These environmental challenges compelled the Government of Zanzibar to institute a new Zanzibar Environmental Policy of 2013, towards an environmental governance framework that focuses upon the island's environmental and social protections. The Revolutionary Government of Zanzibar recognizes the need for urgent action to address these challenges in a multi-pronged approach for the benefit of present and future generations.

According to Zanzibar environmental policy of 2013, the major environmental pressures, currently, affecting the country relate to:

i. The adverse effects of climate change;
ii. Environmental pollution aggravated by inadequate management of solid waste and wastewater;
iii. Increasing depletion of fresh water resources as a result of increased demand, failing monsoon rains, deforestation and destruction of water catchments and wetlands;
iv. Increased demands for land resources and associated land degradation and pollution;
v. Inadequate energy supply, unreliable electricity supply and sustainable alternative energy sources;
vi. Irresponsible tourism development and practices that destroy the natural environment; vii. Loss of biodiversity and destruction of habitat both from terrestrial and marine environment; and
viii. Inadequate scientific research on environmental management and conservation.

4. POLICY, LEGAL AND INSTITUTIONAL REQUIREMENTS

All sub-projects implemented under BIG-Z project shall comply with relevant national environmental and social management requirements as well as the World Bank Safeguards Policies applicable to the project, namely OP 4.01 on environmental assessment; OP 4.04 on natural habitats; OP4.09 on pest management; and OP 4.36 on forests; OP 4.11 on physical cultural resources; OP 4.12 on involuntary resettlement. The legislation and institutions relevant to environmental, social and resettlement management and infrastructure development are presented for the users of the ESMF to know the minimal legislative requirements and key actors involved in approving, enforcing, implementing or coordinating the requirements.

4.1 Zanzibar Environmental and Social Management Requirements

In recognition of the importance of natural resources to Zanzibar economy and way of life, the country has a comprehensive body of environmental law. The detail of the law is contained in a number of important Acts and Regulations, many of which have been recently promulgated as older laws in the country are being revised to reflect the relatively new privatization policy and following the general global trend for greater focus on environmental protection, particularly in relation to natural resources utilization and loss of biodiversity; and to energy production and global warming.

Infrastructure investments under the BIG-Z project may be established in all sectors of the economy. As such several sectoral legislations will have bearing on the development and operations of the individual project. Most of the sectoral legislation requires the project developer[6] to respect integrity of the environment and recommends that environmental and social impact assessment should be carried out to achieve that. The Zanzibar Environmental Management Act No. 3 of 2015 is the principal Act that establishes and sets out environmental and social management instruments, permitting requirements and bestow enforcement powers and coordinating roles and responsibilities for institutions and bodies at all levels. Authorities relevant to sector specific environmental and social management, aspects are prescribed in the various laws. Zanzibar Environmental Management No. 3 of 2015 supersedes other Acts in this regard except for of the National Constitution. Below is outlines of key policies and laws applicable to project.

4.1.1 Policies Relevant to the Project

Zanzibar Environmental Policy (2013)

The Zanzibar Environmental Policy (ZEP) was officially launched in 2013 (replaced the old ZEP of 1992). All economic and development sectors including Water, Forestry and non-renewable natural resources, Tourism, Energy, Fisheries and Marine Resources, Health, Agriculture and Livestock, Lands, Industries, Infrastructure, Disaster Management, and Local Government are implemented in accordance with the top priorities laid down in the ZEP of 2013. Other cross cutting sub-sectors considered in the policy include climate change, gender mainstreaming, education, NGOs, private sector, and collaboration with international development partners.

[6] Proponent refers to an institution or investor who is responsible for promoting or investing in a project

Other key policies include:

- Zanzibar Vision 2020
- Zanzibar Poverty Reduction and Growth Strategy (MKUZA-II)
- Zanzibar Environment Policy (2013)
- Zanzibar Land Tenure Related Policies
- Zanzibar Forest Policy
- Zanzibar Water Policy
- Zanzibar Disaster Management Policy.
- Zanzibar Tourism Policy Zanzibar Transport Policy (2008) Zanzibar HIV/AIDS Policy.
- Zanzibar Information Policy.
- Zanzibar Local Government Policy.
- Occupational Safety and Health Policy.

4.1.2 Laws Relevant to the Project

Environmental Management Act (2015)

The Zanzibar Environmental Management Act (ZEMA) No. 3 of 2015 was recently assented to on 27th March 2015 (replaced the former Environmental Management for Sustainable Development Act (EMCDA of 1996). The Act was established to address the environmental management priorities set in the ZEP, 2013. The Act, among other key legal powers, 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. These above management instruments are supposed to be mainstreamed in all pertinent sectors and cross cutting sub-sectors targeted by the ZEP (2013)

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 ESIA provides the institution responsible for environment sufficient information to justify, on environmental, social and community development grounds, the acceptance, modification or rejection of the project and its implementation. More importantly, the ESIA is targeted to provide the basis for guiding subsequent actions of the project life cycle which -through management and monitoring plan - will ensure that the proposed project is carried out taking into account the environmental, socio-economic issues, and resettlement initiatives identified along with requirements for compliance throughout the project's life cycle.

The Act makes it mandatory for any person to comply with the environmental and social impact assessment requirement of the Project which includes environmental screening, scoping, preparation of the Environmental Impact Statement and its review before the decision on environmental clearance is made. As per the Act, there is ESIA screening, scoping and the review process, while the preparation of the EIS is carried out by the consultant forwarded by the project

proponent and only after having been approved by the Zanzibar Environmental Management Authority. The project has to conform to all requirements of environmental clearance and safeguards and they include EIA, Auditing, Monitoring, and implementation of the environmental and social management plans for the project.

Zanzibar Land Tenure Act, 1992

All-natural land within the islands of Zanzibar occupied or unoccupied is declared to be public land is vested in, and at the disposition of the President, to be held by him, for the use and common benefit, direct or indirect, of the people of Zanzibar. Riparian occupiers along non navigable waterways are required to accord the right of passage over a strip ten (10) meters in width on each bank. 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.

Regional Administration Act

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 environment for sustainable development and in all activities of national development. The project proponent should ensure full cooperation towards the Act, collaborate with the regional, district and Shehia governments in the implementation of social and environmental safeguards of the proposed project, and coordinate with the community in the implementation of the corporate social responsibility.

Local Government Authority Act, 2014

The Act specifies on establishment of the Local Government Authority structures with their jurisdictional areas, powers and functions. It covers all matters related to the social, economic, and environmental governance within the defined boundaries of the local government authorities. In the context of environment, the Act has emphasized on the local powers prevent and control public nuisance and ensure sustainable management of land and natural resources. Section 26 (1) of the Act specifies general functions of the council which include maintenance of environmental sanitation, promotion of tourism and other investment opportunities available in their areas, keeping record of land and marine transport vehicles and vessels within their jurisdictional areas, control environmental pollution and prevent private nuisance.

Others include supervising and ensuring measures to combat epidemic diseases; control extraction of stone, sand, wood, and other forms of natural resources, undertake afforestation and urban forestry initiatives, implement the land use plan, and deal with cross cutting issues of climate change, disaster management, and population issues. Section 63 provides powers to enter any premise and check if the development has been approved with a permit. Sections 83 and 84 of the Act specify offence under Nuisance and unauthorized land use, respectively. The project proponent should comply with all the requirements within the jurisdiction of the local government council in

terms of land acquisition, necessary public works and permits, environmental clearance, prevention of public and private nuisance, and other activities that require certification and permits, etc.

The Ancient Monuments Preservation Act, 2002

The Act aim to protect and preserve the ancient monuments in Zanzibar. It provides for the preservation of ancient monuments and objects of archaeological, historical or artistic interest. The Act empower the minister responsible to declare any monument or antiquity to be a protected monument or antiquity. Furthermore, it empowers the minister 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. For the purpose of protecting heritage sites the Act impose punishment, fine or imprisonment for any person who destroys, removes, injures, alters, defaces or imperils a protected monument or antiquity. The BIG-Z project will comply with all requirements related to ancient monument and antiquity

Stone Town Conservation and Development Act No. 3 of 1994

The Act establishes the Stone Town Conservation and Development Authority (STCDA) as a legal entity with exclusive jurisdiction in the administration of Stone Town. The Act stipulate the functions of the authority, among others, is to initiate plan, prepare, co-ordinate and control all matters related to the conservation of the Stone Town conservation area and to approve conservation and development efforts and projects in Stone Town and monitor the same. Furthermore, the authority is responsible for providing advice to relevant stakeholders on the issues concerning restoration, rehabilitation, conversion of building and public space. The project proponent will comply with the requirements of this Act and work in collaboration with STCDA from designing to operation phase of BIG-Z project.

Town and Country Decree (Cap 85), Regulations, 1994

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 with 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 proponent will comply with these regulations such applying for the permit from STCDA for project investments to be implemented within Stone Town and its buffer zone.

Other key laws include:

- Zanzibar Forest Resources and Conservation Act
- Zanzibar Water Act
- Zanzibar Land Tenure Act, 1992
- Zanzibar Fisheries Act
- Zanzibar Maritime Act., 2009,
- Regional Administration Act.
- Local Government Authority Act.

- Zanzibar Investment Promotion and Protection Act, 2004,

4.1.3 Environmental Management Tools Applicable in Zanzibar

Besides the ZEP and ZEMA several environmental management tools prescribed in the ZEMA, 2015 and/or other environment-related Acts of Zanzibar which are in use include:

Strategic Environmental Assessment (SEA)
Established under Part X of the ZEMA No.3 of 2015 and in accordance to Section 48 of the ZEMA, SEA is primarily designed to engage the implementation of the strategy, program, and planning for oil and gas exploration and production industry. There are no Regulations as yet or officially recognized procedures or guidelines to implement the SEA.

Environmental and social impact assessment (ESIA)
Established under Part IX of the ZEMA No. 3 of 2015. Initially ESIA was part of the now defunct EMSDA of 1996. The ESIA Regulations of 2002 were established under the old EMSDA and later supported by the ESIA guidelines, checklists and other tools all developed under the auspices of the Sustainable Management of Lands and Environment -II (SMOLE-II) Project. These tools have not been amended with the advent of ZEMA of 2015. Identification of the sectors and programs subject to ESIA were developed under the Schedules of the now defunct Environmental Management for Sustainable Development Act. These were later strengthened under the implementation of the SMOLE-II project. According to Annex of the ESIA Guidelines and Procedures, these included Agriculture and Aquaculture;
Extractive Industry; Energy Industry; Production and Processing Factories and Industries; Chemical Industry; Food Industry; Textile, leather, paper & wood industry; Infrastructure projects; tourism development projects; etc.

Social Impact Assessment (SIA)
This is part of the overall ESIA process as already explained in the previous sections of this table. There is no legal tool so far dedicated to SIA in the context of EIA. Most of the time the SIA is done in accordance with methodologies and best practices under the International Finance Corporation methods. The SIA focuses on the social aspects of the programs sectors mentioned in the previous section. There are no detailed guidelines dedicated to SIA but most of the time issues concerning land acquisition, involuntary resettlement, direct and indirect benefits, direct and indirect recruitment, community health and safety, information disclosure, occupational safety and health; and communicable diseases.

Health impact Assessment (HIA)
Still under drafting process from the Ministry of Health Zanzibar as of 2015. The Environmental Health Unit, Department of Preventive Services and Health Education of the Ministry of Health – Zanzibar is formulating HIA procedures under the Zanzibar Public and Environmental Health Act No. 11 of 2012

Environmental and Social Management Plan (ESMP)

It is part of the procedures under ESIA guidelines, checklists, and other tools developed under the Sustainable Management of Lands and Environment -II (SMOLE-II) Project in 2009. According to SMOLE-II Annex of the ESIA Guidelines and Procedures, ESMP must be presented in all ESIA Report for all the programs and projects related to Agriculture and Aquaculture; Extractive Industry; Energy Industry; Production and Processing Factories and Industries; Chemical Industry; Food Industry; Textile, leather, paper & wood industry; Infrastructure projects; tourism development projects; etc.

Environmental and Social Management System (ESMS)

ESMS for Zanzibar in the Drafting process under the Zanzibar Bureau of Standards. The system is fully adopted from the ISO series in mainstreaming and applying environmental safeguards development activities and services. Various sectors, programs and activities with significant impact on environment in accordance with Part IX of the Zanzibar Environmental Management Act No 3 of 2015 pertaining to Environmental Impact Assessment; and Section 50 of the Zanzibar Environmental Management Act No 3 of 2015 pertaining to powers of the Director of Environment to propose environmental standards to the Zanzibar Bureau of Standards related to noise, water, air, wastewater and in augmenting the quality of environment in general.

Environmental Audit (EA)

Established under Part IX of the Zanzibar Environmental Management Act No. 3 of 2015. (Section 46). Could be used interchangeably as the ESIA in accordance with Section 46 (1) (a) of the Act or for programs and projects operating for more than five years after securing ESIA clearance in accordance with Section 46(1)(b) of the Act. Both these Sections function under the workings of the ESIA part of the Act.

Environmental Standards (ES)

Environmental Standards for Zanzibar are in the Drafting process under the Zanzibar Bureau of Standards in accordance with the arrangement defined in the Zanzibar Environmental Management Act. Various sectors, programs and activities with significant impact on environment in accordance with Part IX of the Zanzibar Environmental Management Act No 3 of 2015 pertaining to Environmental Impact Assessment; and Section 50 of the Zanzibar Environmental Management Act No 3 of 2015 pertaining to powers of the Director of Environment to propose environmental standards to the Zanzibar Bureau of Standards related to noise, water, air, wastewater and in augmenting the quality of environment in general.

Economic Instruments (EI)

No specific economic instruments related to environment have been legislated under the Zanzibar Environmental Management Act No.3 of 2015. However, the Concessions Project Act of 2015 on means an exclusive right granted by a Public Authority to a Private Partner for the purpose of building, setting up, owning, operating, renting, leasing, financing, modernizing, managing, maintaining, developing, or transferring an Infrastructure Facility for a specified period of time in accordance with a concession agreement; has been formulated. This is a legal empowerment of a public-private partnership on collaboratively implementing the means, activities or any combination, such as the design, construction and development of new infrastructure facilities,

rehabilitation, modernization, and expansion of existing infrastructure facilities; or administration, expansion or other services pertaining to new or existing infrastructure facilities.

Environmental and Social Management Frameworks (ESMF)

There is no specific ESMF established under Environmental Law even though most of the ESMF mechanisms from larger internationally financed projects apply the IFC HSE Guidelines. For example, the RGoZ has developed Environmental and Social Management Framework (ESMF) (and Resettlement Policy Framework as stand-alone document) as a tool to be used by the BIG Z PMT and others responsible for project design and implementation. These tools are yet to be integrated into the Environmental Authority's enforcement requirements. Various sectors, programs and activities with significant impact on environment in accordance with Part IX of the Zanzibar Environmental Management Act No 3 of 2015 pertaining to Environmental Impact Assessment; and according to SMOLE-II Annex of the EIA Guidelines and Procedures, on Agriculture and Aquaculture; Extractive Industry; Energy Industry; Production and Processing Factories and Industries; Chemical Industry; Food Industry; Textile, leather, paper & wood industry; Infrastructure projects; tourism development projects; etc.

Resettlement Policy Framework (RPF)

There is no specific RPF established under the laws of Zanzibar even though most of the RPF requirements from larger internationally financed projects apply the IFC RAP Framework. There are procedures under the Land Tenure Act of 1992 (Amended various times) that guides how compensation is to be paid to the persons or communities concerned, compensation being equal to the fair market value of the land under the established rules. The framework should in principle be applied to programs and projects mentioned in the SMOLE-II Annex of the EIA Guidelines and Procedures, e.g. Agriculture and Aquaculture; Extractive Industry; Energy Industry; Production and Processing Factories and Industries; Chemical Industry; Food Industry; Textile, leather, paper & wood industry; Infrastructure projects; tourism development projects; etc. However, the compensation and relocation procedures practiced by the sectors do not necessarily have to follow the principles of the ESIA process.

Resettlement Action Plan (RAP)

There is no specific RAP legislation established under the laws of Zanzibar. There are procedures under the Land Tenure Act of 1992 (Amended various times) that guides how compensation is to be paid to the persons or communities concerned, compensation being equal to the fair market value of the land under the established rules. These procedures are sometimes deemed not compatible with the World Bank and IFC's standards and practices for the affected parties. The framework should in principle be applied to programs and projects mentioned in the SMOLE-II Annex of the ESIA Guidelines and Procedures, e.g. Agriculture and Aquaculture; Extractive Industry; Energy Industry; Production and Processing Factories and Industries; Chemical Industry; Food Industry; Textile, leather, paper & wood industry; Infrastructure projects; tourism development projects; etc. However, the compensation and relocation procedures practiced by the sectors do not necessarily have to follow the principles of the ESIA process and this creates more challenges in adequately implementing the principles of World Bank RAP standards given the policy gaps.

Environmental Monitoring and Reporting
Established under Part IX of the Zanzibar Environmental Management Act No. 3 of 2015. (Section 43). Monitoring is required for all the major projects and programs such as Agriculture and Aquaculture; Extractive Industry; Energy Industry; Production and Processing Factories and Industries; Chemical; Food Industry; Textile, leather, paper & wood industry; Infrastructure projects; tourism development projects; etc.

State of Environment Report
Established under Section 13 (f) of the Zanzibar Environmental Management Act No. 3 of 2015. (Section 43). The Director of Environment is required to develop the State of Environment for Zanzibar every 5 years and to be submitted to the Minister responsible for Environment. The last State of Environment of Zanzibar Report was made in 2004.

Public Awareness and Participation
This is ingrained in Part VIII of Zanzibar Environmental Management Act No. 3 of 2015. (Sections 37 and 38). For ESIA review process, Section 42 of the Zanzibar Environmental Management Act No. 3 of 2015 empowers the Zanzibar Environmental Management Authority to conduct a public hearing in accordance with the procedures that are to be formulated by that Authority. Access to environmental information and environmental research in various key areas prioritized in the Zanzibar Environmental Policy of 2013 have been made mandatory under the Act.

Information Communication and Education (ICE)
This is covered under the theme of "Access to environmental information and environmental research" in which all prioritized areas in Zanzibar's Environmental Policy of 2013, ICE has been made mandatory by the Zanzibar Environmental Management Act No. 3 of 2015. (Sections 37 and 38).

4.1.4 Permitting Requirements for Project Development

To establish and operate a sustainable project that is environmentally suitable, socially/culturally acceptable and economically feasible the BIG-Z project implementers need to adhere throughout the project's cycle to the requirements stipulated by the principal policies and legislations. Below are ESIA approvals for project establishment and operations:

Environmental approval for new development projects is a requirement under Environmental Management Act No. 3 of 2015. This is backed up by the established ESIA Guidelines and Procedures of 2009. ESIA Certificate is issued by ZEMA

Environmental clearance for existing projects is a requirement under Section 46 of the Environmental Management Act No. 3 of 2015. Environmental Audit Certificate is issued by ZEMA

Conduct of ESIA & Audit by ESIA Experts or Firms of experts is a requirement under Section 41 of Environmental Management Act No. 3 of 2015. The Certified individual and firms are registered and issued an EIA Expert Certificate by ZEMA

Changes in existing EIA Certificate, Transfer of EIA Certificate, change of name of EIA Certificate, Surrender of EIA Certificate and Cancellation of EIA Certificate are all not defined under ESIA Guidelines and Procedures of 2009 or under Environmental Management Act No. 3 of 2015 2009. May be done administratively.

Establishment of public facilities such as waste disposal site, market, bus stand, slaughterhouse etc. require a number of permits as stipulated by relevant acts and issued by various departments at the Ministry of Lands and / or Zanzibar Municipal Council:

- Town Planning (TP) Drawing: required under Land Tenure Act No. 12 of 1992 and issued by Department of Urban and Rural Planning.
- Survey Plan: required under Land Tenure Act No. 12 of 1992 and issued by Department of Survey and Mapping.
- Rights of Occupancy: required under Land Tenure Act No. 12 of 1992 and Title Deed issued by Department of Land Administration.
- Right of Way (for roads, water supply, sewage, storm water, electricity transmission lines, pipelines etc.) should be done in coordination with relevant utilities
- Building Permit: required under Municipal Act No. of 1995and issued by the ZUMC

Valuation of land, property and assets require several approved documents / reports as stipulated by relevant acts and issued by various departments at the Ministry of Lands and / or
Zanzibar Municipal Council

- Valuation Report: survey / measurements of property (land, buildings, structures) undertaken by Certified Surveyors; valuation and report prepared by a Certified Valuer and approved by the Chief Valuer at the Ministry of Lands
- Compensation Schedule: Prepared by Valuer, approved by Chief Valuer and payments issued by Ministry of Finance

4.1.5 Legal Requirements by Project Phase

Mobilization phase

Extraction of construction materials from existing borrow pits is carried out under Part VII of the Environmental Management Act No.3 of 2015. Section 33 prohibits any excavation and exploitation of the non-renewable natural resources unless a permit in the form of Mining License, Surface Right (including fees / charges) are given by the institution responsible for nonrenewable natural resources, the Department of Forestry and Non-Renewable Natural Resources. Extraction is also done under the Zanzibar Regional Administration Act No.8. of 2014 under Section 22 (1) (d) and Local Government Authority Act No.7 of 2014 empowers local authorities (Regional, District and Shehia administrator) to issue permits on excavations under Section 26 (1). Roads authority do not have quarries and rarely are they located on private land.

Extraction of water from natural rivers, lakes, underground aquifers: Water Right issued by ZAWA required under the Zanzibar Water Act No.4 of 2006 under Part IV on Water Resources.

Connecting to Municipal water supply system: permit issued by ZAWA required under the Zanzibar Water Act No.4 of 2006

Connecting to nearby electricity supply system: drawings submitted to ZECO required under Zanzibar Electricity Corporation Act of 2006

Construction/Operation

Emissions into the air: in accordance to Air Quality Standards issued by ZBS, a requirement under Section 17 of the Zanzibar Standards Act of 2011; also, a Discharge Permit issued by the Department of Preventive Services and Health Education of the Ministry of Health as a requirement under Zanzibar Public and Environmental Health Act No. 11 of 2012.

Effluent (wastewater) discharge: in accordance to Water Quality Standards issued by ZBS a requirement under Section 17 of the Zanzibar Standards Act of 2011.

Wastewater Discharge: Permit issued by Department of Preventive Services and Health Education of the Ministry of Health, a requirement under Zanzibar Public and Environmental Health Act No. 11 of 2012

Disposal of hazardous substances: Hazardous Waste Disposal Permit issued by ZEMA / DoE, a requirement under Section 56 of the Environmental Management Act No.3 of 2015.

Disposal of Biomedical Wastes: Disposal Permit issued by Department of Preventive Services and Health Education of the Ministry of Health Zanzibar a requirement under Public and Environmental Health Act No. 11 of 2012

Noise emissions in accordance with Environmental Standards on Noise Emission issued by ZBS a requirement under Section 17 of the Zanzibar Standards Act of 2011.

Waste oil collection, transportation and disposal Waste Oil Collection Permit issued by ZEMA/DoE; a requirement under Section 56 of the Environmental Management Act No.3 of 2015

Sludge collection, transportation and disposal: Sludge Collection Permit issued by Department of Preventive Services and Health Education of the Ministry of Health a requirement under the Zanzibar Public and Environmental Health Act No. 11 of 2012

Collection of scrap metal and related transactions: Scrap Metals Permit issued by Department of Trade; a requirement under the Zanzibar Trading Act No.14 of 2013.

Moving extra weight, large loads / vehicles on main highway roads: Permit a requirement under the Roads (Amendment) Act 2013

Oil Spill: Oil Spill Contingency Plan approved by Zanzibar Maritime Authority, a requirement under Zanzibar Maritime Authority Act No.3 of 2009; or ZEMA, DoE under Environmental Management Act No.3 of 2015.

Occupational Health and Safety: OSHA Certificate issued by Directorate of Occupational Safety and Health, a requirement under Occupational Safety and Health Act No.8 of 2005

Fire: Fire Safety Certificate issued by Fire Brigade, a requirement under Fire Brigade and Rescue Act of 1999

4.2 Institutional Framework

Administrative Arrangements of the LGA

Given the above legal framework, currently there are three levels of Local Government in Zanzibar, namely,

- The urban local governments made up of the Zanzibar Urban Municipal Council (ZUMC) located in the Urban District of Unguja, and
- Three Town Councils located at Chake Chake, Mkoani, and Wete in Pemba.
- District Councils of which are nine (9). Five (5) District councils are in Unguja and four (4) are in Pemba.

Administratively, Zanzibar is divided into five (5) Regions, three (3) of which are in Unguja, and two (2) are in Pemba. The Regions are sub divided into 10 Districts - six (6) in Unguja and four (4) in Pemba. Also' there are two (2) sub-districts - one in Unguja (Tumbatu) and one in Pemba (Kojani). Below the Districts level are the Wards and they are 141 in total.

Under the central government governance structure, the Shehia is at the lowest level-headed by a Sheha who is appointed by the Regional Commissioner upon advice from the District Commissioner. To date there are 332 Shehias established under Act number 1 of 1998.

Regional Commissioner-appointee of the President - heads each region assisted by a Regional Administrative Officer who is responsible for the day to day running of government business in the region. Districts are headed by District Commissioners assisted by District Administrative Officers. District Commissioners and Administrative Officers are Presidential appointees.

Local government authorities should play important role in implementation of Big-Z project. Resolution of involuntary resettlement and construction related grievances should start at Shehia (lowest level administrative level) level, if not satisfied it will be taken to ward level, then district level and region level, finally to ministry level (ministry of land) before being transferred to the court of laws (more details section 8.1). Therefore, current administrative arrangement of LGA should be used for resolving grievances, community engagement (dissemination of messages) and awareness raising related activities for the project.

Urban Local Government Authorities Specific Powers, Roles and Responsibilities

The Zanzibar Local Government Authority (LGA) refers to the government machinery that has an authority over a sub-national territory. A Local Government bodies operate within powers delegated to it by legislation from a higher legal authority, in this case, the House of Representatives. The Revolutionary Government of Zanzibar, through Article 120 of its 1984 Constitution, has already committed itself to institute an efficient and effective Local Government system. It has further decided that for the Local Government system to be effective and involve the people at the grass root level, it should be based on the principle of Decentralization by Devolution meaning "the transfer of governance responsibilities for specific functions to subnational level" (grass root level).

The implementation of the constitutional requirements led to the enactment of Act number 3 of 1986 on Regional and Local Government administration. The Act was repealed and replaced by Acts number 3 and 4 of 1995 together with Act number 1 of 1998. The 1995 Acts established the existing Local Government structure, while the 1998 Act established the Regional Administration structure.

4.3 World Bank Safeguard Standards and Guidelines

4.3.1 Safeguards Policies

The World Bank Safeguard Policies are approved by the Board for addressing environmental and social issues within the Bank's supported development projects. BIG-Z is rated Environmental Category B and triggers the following safeguard policies: Environmental Assessment (OP/BP 4.01), Natural Habitats (OP/BP 4.04), Physical Cultural Resources (OP/BP 4.11) and Involuntary Resettlement (OP/BP 4.12). Subsequently, the same policies will apply to all sub-project activities financed under the project (table 9).

Table 9: Triggered Safeguards Policies (BIG-Z PAD, 2019)

Safeguards Policy	**Triggered Policy**
Environmental Assessment (OP/BP 4.01)	□
Involuntary Resettlement Policy (OP/BP 4.12)	□
Physical Cultural Resources (OP/BP 4.11)	□
Forests (OP/BP 4.36)	□
Natural Habitats (OP/BP 4.04)	□
Pest Management (OP/BP 4.09)	□
Performance Standards for Private Sector Activities (OP/BP 4.03)	□
Indigenous Peoples (OP/BP 4.10)	□
Safety of Dams (OP/BP 4.37)	□
Projects on International Waterways (OP/BP 7.50)	□
Projects in Disputed Areas (OP/BP 7.60)	□

The below safeguard policies considered applicable to the project in general relate to environmental management, resettlement planning, cultural heritage conservation and related aspects including consultation and disclosure practices for Category B project.

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 (see above). 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 project activities such as those included in the BIG-Z e.g. construction of wastewater treatment facility, construction of stormwater drainage system, rehabilitation of transport infrastructure.

The BIG-Z activities are intended to provide environmental and social benefits but can have adverse environmental impacts. The ESMF is designed to summarize these potential impacts, and direct PMT and PIU, other projects implementers and local leaders to evolve practical ways of avoiding or mitigating them through the ESIAs and ESMPs. The ZUMC and participating government authorities through the screening process will determine the safeguards policies triggered by a particular proposed investment/subproject and prepare appropriate safeguard instruments.

Regarding categorization of projects in terms of levels of environmental assessment, OP 4.01 requires:

- If that a subproject is categorized for detailed assessment, a full ESIA and ESMP will be required;
- A standalone ESMP will be prepared for subprojects with small impacts; and
- For sub-projects with minor impacts, environmental enhancement measures will suffice.

Thus, the proposed screening process under Chapter 7 of this ESMF will be consistent with the Zanzibar legislation and the World Bank policy on environmental assessment.

Physical Cultural Resources (OP/BP4.11)
Culturally, Zanzibar is extremely rich and diverse and is home to ancient civilizations: 300-year-old Arab settlements; 100–year-old European buildings; graveyards; sacred areas; mosques; churches; etc. To mitigate against the potential for adverse impacts on cultural property training of LGA project teams, local leaders and management committees and providing subproject planning checklist as well as other tools, will ensure that cultural property resources are identified during subproject planning, and appropriate measures are 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

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 a Resettlement Policy Framework (RPF) that identifies involuntary resettlements under the planned project, identifies impacts i.e. severe

economic, social and environmental risks and based on this defines the scope of the resettlement assistance program (i.e. Resettlement Action Plan (RAP) for affected persons. However, in Zanzibar, there are no explicit requirements for a RPF or RAP. As regards compensation based on the Zanzibar the 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 a 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 World Bank requirements and Zanzibar government's requirements regarding compensation and resettlement of Project Affected People (PAP), as far as this ESMF for BIG-Z project is concerned, the World Bank's safeguard policy will prevail.

The Project will support investments in various types of subprojects that may require small amounts of land for the construction or rehabilitation of infrastructure. To ensure that current landowners or users are properly compensated, a Resettlement Policy Framework (RPF) has been prepared to be used by LGA teams, local leaders and management committees concurrently with this ESMF. The RPF provides the framework for determining the need for and content of a Resettlement Action Plan (RAP) for subprojects.

Natural Habitats (OP/BP 4.04)

The currently identified sub-projects, i.e. Michenzani green corridor and integrated drainage and resilient urban upgrading will have impact on natural habitats. The subprojects will have impacts on mangrove forest and marine environment. The ESIA for subprojects will assess the potential impacts on natural habitats and propose mitigation measures.

4.3.2 Environmental, Health and Safety Guidelines

The IFC and World Bank Group EHS Guidelines were updated and released on April 2007. These guidelines have been designed to be used with the relevant Industry-Sector EHS Guidelines to provide guidance on EHS issues in specific industry sectors. Use of this EHS Guidelines will be tailored to the hazards and risks established for each subproject based on the results of an environmental and social assessment in which site-specific variables, such as local context, assimilative capacity of the environment, and other factors, are considered. The extent of application of guidelines and recommendations depends on the professional opinion of qualified technical experts. However, when Zanzibar/Tanzania regulations differ from the levels and measures presented in the EHS Guidelines, the individual subproject is expected to achieve whichever is more stringent.

5. BIG-Z PROJECT ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION

In this ESMF, environment is broadly defined to include natural environment (air, water and land) and human wellbeing, health and safety. The section below presents project activities both physical investments and proposed Technical Assistance (TA) / plans likely to cause environmental and social impacts albeit of varying degrees at different locations as well as the adverse and positive impacts that have to be explicitly managed when the specific subprojects and their location are known.

During the screening process undertaken by the PMT and PIU (see Annex A), if it is determined that a subproject is likely to cause potential adverse environmental and social effects, ESIA Consultants will use ESMF checklist and resources and participation sheets to support environmental planning and management. The Project Team (see Section 1.3) will screen each subproject and determine components /activities/TA/plans likely to cause impacts by filling in the "No" or "Yes" part of the ESMF checklist. This screening process will help to scope the ESIA and gain an initial picture of subproject impacts and safeguards triggered.

5.1 Activities Likely to Cause Environmental and Social Effects

BIG-Z project will have various activities ranging from plans, studies to physical works; however, not all activities are likely to have potential environmental and social impacts. In view of this, below are the activities likely to have potential environmental and social impacts.

Subcomponent 1.1: The key activities under this subcomponent include street and sidewalk improvements, infrastructure and service upgrading, as well as public space improvements under Michenzani redevelopment subproject. Proposed activities under Stone Town Mobility Management Program including building / rehabilitating a safe and climate-resilient pedestrian network, implementing public transport facilities to improve accessibility to/from Stone Town, investments to alleviate access/egress to the Malindi Port and decrease the rampant congestion of the north of Stone Town, as well as uplifting of key public spaces and parking facilities for all mechanized modes adjacent to Stone Town. While under Revitalization of Key Heritage Assets Program (ReKHAP) subproject planned activities including physical rehabilitation and improvement of the structures/buildings and the public space around them, but also business and management plans. Priority investments will be selected from the priority list of Gazetted Monuments (Annex E).

Subcomponent 1.2: 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 under Area-based Upgrading Program for Unguja (AUP-U) subproject. In addition, the Solid Waste Management (SWM) Improvement Program will finance the construction of waste collection points and the procurement of waste bins in urban neighborhoods of needs, as well as technical assistance to the Zanzibar Urban Municipal Council to improve their overall capacity in SWM service delivery.

Subcomponent 1.3: Proposed activities include a set of small-scale investments such as rehabilitation of access roads, installation of solar-powered LED streetlights, improvement and

greening of public space and landscapes, rehabilitation of markets and community facilities, building of incubators and crafts centers, etc., under Integrated Program for Local Area Development (IPLAD) subproject. On the other hand, proposed activities under Area-based Upgrading Programme for Pemba (AUP-P) include mix of multi-sector upgrading investments for improving access to infrastructure and urban services in the town councils of Pemba.

Subcomponent 2.1: This subcomponent involves development of planning instruments such as integrated master plan for Pemba Island, identification of priority investment needs, and mobility plans for Unguja and Pemba. Other activities include technical assistance on establishing a Building Regulatory Framework for Zanzibar and technical assistance on municipal finance.

Sub-component 2.2: Activities under this subcomponent include preparatory studies for the scale-up of integrated upgrading programs in Unguja and Pemba including feasibility study and preparation of design documents; feasibility study and design of selected strategic mobility programs, which may include public transport modernization, critical streets/roads, and a Malindi port area redevelopment program.

Component 4: This component is intended to provide contingent emergency support upon occurrence of an "eligible" emergency[7] during the life of the loan as a project-specific CERC. Given the increasing climate risks in Zanzibar, particularly the risks of flooding, the RGoZ may request the Bank to reallocate project funds to support mitigation, response, recovery, and reconstruction. The nature of activities to be financed under CERC are event and demand driven and should be consistent with CERC's purpose of providing short-term bridge financing for immediate recovery needs according to eligible emergencies.

5.1.1 Land Acquisition

Rerouting into new land
While all new projects would be implemented in existing rights-of-way, small amounts of land may be required for example to improve roadside drains, improve pedestrian walkways or avoid sensitive/important natural or social/cultural or economic features.

Acquisition of additional land
Construction of some structures (e.g. roads, drainage channels) may require acquisition of additional land for expansion of diameters or extension of lengths of existing infrastructure or to achieve subprojects design requirements. The necessity for increasing the size of the way leave may extend into nearby land uses.

Acquisition of new land
Few subprojects are "green field" developments but in some areas, land-take may be needed for establishment of new infrastructure or facility. Examples of subprojects falling into this category include construction of pocket car parks.

[7] Emergency or crisis is an event that has caused, or is likely to imminently cause, a major adverse economic and/or social impact associated with natural or man-made crises or disasters (OP 8.00, "Rapid Response to Crises and Emergencies")

5.1.2 Mobilization of Resources

Delivery of resources: construction materials (sand, gravels, stones and water), industrial supplies (cement, metals/steel, plastics, chemicals, etc.), equipment/machinery and crew/staff happen throughout the life of a project with activity level tending to be high prior to construction phase and wane off and become routine during operation/maintenance phase. Mobilization extends the impact area to include offsite locations – i.e. transportation routes and sources of materials. Activities likely to cause impacts include (but not limited to) extraction of materials and water, transportation, stock/piling and storage etc.

5.1.3 Construction Activities

Construction entails the erection or laying down of structures on the project site – involving both new and maintenance/rehabilitation/upgrading/expansion works. Activities known to cause impacts include (but is not limited to) vegetation clearing, installation of the temporary support structures (i.e. fence, site office and materials storage yard), earth works (removal of structure remnants and top soils, digging and trenching, filling, trimming, leveling/grading and compacting, and draining), civil works (concrete, block/brick and steel/metal), installations works (plumbing, safety equipment, security system, electricity and communication services as well as landscaping services), operations of construction equipment and machinery, and finally demobilization (demolition and dismantling of temporary structures; general cleaning, construction waste collection and disposal; site rehabilitation and restoration, detainment of working tools, equipment and facilities).

5.1.4 Infrastructure Operations and Maintenance

These are long-term activities related to the use of the developed infrastructure. Sources of impacts are commonly associated with deficiencies in management and monitoring procedures including inadequacies in waste management (collection, transportation and disposal) for some subprojects, inadequacies in supply of services and consumables, improper use of infrastructures, lack of resources for maintenance (equipment, inputs, manpower) and associated internal and external hazards and risks.

5.1.5 Decommissioning

At the end of its life or rehabilitation or upgrading an infrastructure or its component may involve demolition/dismantling of structures, demobilization and site restoration. Activities known to cause impacts include disposal of demolition wastes and scrap building materials, termination of employment etc.

5.2 Potential Direct Environmental and Social Impacts and Mitigation Measures

Potential direct environmental and social impacts will be a result of interactions between the BIG-Z activities with the relevant valued environmental and social receptors (physical, chemical, biological, built or human) outlined above (Chapter 3). Impacts may emanate from any of the Subproject infrastructure type funded by the project. Different impact areas have been identified associated with project including environmental impacts; resettlement impacts and consequent

losses; socioeconomic and cultural impacts including positive impacts; and risks and hazards existing in the environment that may affect project structures, cause disruption of operations or exacerbate maintenance costs. The mitigation measures below should be considered for subproject Environmental and Social Management Plans as relevant for specific subprojects.

Since many of the subprojects will entail small civil works with typical construction impacts, some of these measures have been compiled into general guidelines for contractors and the project teams, included as **Annex C**.

5.2.1 Environmental Impacts

Loss or degradation of remnants of natural areas and vegetation
Some subprojects funded under BIG-Z may affect natural areas particularly in urban and peri urban parts of Zanzibar including land and water areas. Construction works may necessitate clearance of natural vegetation and storm water drainage over construction sites loaded with waste, oil, sediments etc. which may lead directly or indirectly into or cut across natural areas. Two broad direct impacts on such natural areas are possible: damage of natural vegetation; disturbance of contained fauna and direct pollution /contamination of the natural areas all subsequently causing loss or outmigration of affected species. However, such natural areas within boundaries or near vicinity of ZUMC and Pemba town councils occur albeit as small groves of natural vegetation or wetlands but whose ecological functions have already been essentially modified by human activities. Furthermore, none of the project activities are likely to involve total clearance of natural vegetation as they mostly involve improvements of existing structures and may constitute small land take extending into neighboring areas.

 Mitigation measures for the ESMP/Proposed management actions
Mitigation measures in the ESMF checklist (to be adopted in subproject ESMPs) aim to minimize vegetation loss through i.e. avoidance strategies such as circumventing natural areas and implementation of pollution prevention measures. Proposed management actions for ZUMC and Pemba town councils, to minimize potential impacts are to establish / enforce land use plans taking into consideration the conservation of important natural areas within the boundaries of jurisdiction.

Degradation of water resources and management
Water resources in Zanzibar constitute fresh surface water found in natural water bodies (rivers, wetlands, ponds), man-made water retention structures in Bwawani Hotel, underground aquifers and the salt oceanic water. The temporary dams and ponds are mostly found in areas where there were illegal sand mines or where natural water ways have been obstructed, such areas include, Uwanja wa Farassi, Mwanakwerekwe, Kwa Biti Amrani and Sebleni. Some subprojects supported under BIG-Z may be located close to or lead into natural water sources and likely to cause impacts on local fresh water resources: (i) Eroded soils from construction activities may obstruct natural drainage systems causing effects on the integrity of watercourses, drainage, and sedimentation regime; (ii) Paving of surfaces of some types of infrastructure such parking areas/stand etc.) could increase rain water catchment and exacerbating storm water management of an area; (iii) Construction activities requirement for water inputs e.g. for mixing, cleaning, dust dousing etc. and water for cleaning and ablution purposes for construction crew have potential to deplete water resources if obtained from a source under water stress.

On the positive side, BIG-Z infrastructure development is designed in many respects to improve water management of affected areas and reduction of associated risks i.e. flooding due to poor drainage systems.

 Mitigation measures for the ESMP /Proposed management actions

Mitigation measures in the ESMF checklist (to be adopted in subproject ESMP) include integration of infrastructures to balance the water flow regime, design for adequate drainage, channeling surface water from paved areas to storage troughs; adopt measures to prevent / manage deposition of eroded soils into water bodies (i.e. cut-off drains, silt traps, silt fencing, gabion structures, etc.); determination of water needs before extraction to determine available quantities (especially if involve underground water resources); adoption of alternative strategies to avoid/minimize extraction from natural water bodies such as sourcing water for any subproject purpose from authorized Municipal/community water supply systems.

Land/soil degradation and depletion

Depending on the type of subproject and nature of locality, construction works may involve some degree of land disturbance and/or movement of soil or export of soils and thus expose the soil to erosion by the elements (wind, rain) and lead to land degradation at construction sites and offsite quarry sites. Main manifestation of degradation of land and soils – is the formation of gullies and reduction of soil quality in terms of nutrients, water retention and physical properties etc. below acceptable levels. Requirement of construction inputs, fill materials etc. may cause depletion of soil and mineral resources. Soils on hilly and undulating areas when exposed are more susceptible to erosion. Construction of new drainage systems, new bridges, waste disposal facilities, and recreational facilities may require more work and for longer periods. However, many of the additional infrastructure e.g. upgrading of roads are short length, road furniture and local structures require medium sized sheds or concrete buildings envisaged not to require moderate construction works and limited land disturbances. Secondary impacts at points of extraction of the construction materials may include depletion of local construction materials e.g. stones/aggregates, sand, gravel, cobblestones, and fill materials.

 Mitigation measures for the ESMP/Proposed management actions

Mitigation measures focus in this ESMF checklist is on the need for prior planning by authorities and Contractor to undertake proper needs assessment and to identify sustainable sources of materials required for the project. These measures should be coupled with sustainable materials usage procedures. Instructions to the Contractors shall include soil erosion control and land rehabilitation measures, supervision and monitoring during and after sub-project implementation. Contractor should identify erosion prone areas, identify permanent erosion control measures (applicable for a particular site) and plan construction works and sites to limit quantity of material likely to be eroded and transported from the site.

Proposed management actions for PMT/PIU/ZUMC are to: procure and use Contractors with requisite experience of land management and soil erosion control; develop management plans for existing quarry sites, and new sources of construction materials

Degradation of receiving media by discharged wastes

The activity for improvement of solid management services aims to increase wastes collection efforts in all areas; to increase the load destined to municipal landfill and disposal sites; and improve management of disposal sites in an environmentally sound and socially acceptable manner.

Inadequacies in the waste management practices during construction and operation of infrastructure causing discharge of oil and lubricants from vehicle repairs and filling at car parking areas, discharges of eroded soils, seepages of leachate from the, partially treated effluents from wastewater treatment facilities, littering during waste collection, transportation and disposal, soils and wastes clogging drainage systems may lead to planned or accidental discharging of various types and quantities of solid and liquid wastes, spillage / leakages of materials directly into natural habitats and inhabited areas.

Haphazardly disposed waste may impair qualities of receiving medium thereby altering the physical, chemical and biological characteristics: i.e. changing the pH of the receiving media, increasing the organic matter content (BOD, COD) of surface water bodies and underground water sources and contaminate and reduce quality of land areas or soils. The effects will tend to be severe if discharged waste is hazardous and/or will contaminate water sources used for domestic purposes or arable land. Discharges in water habitat tend to reach further due to dispersion, but severity of contamination is reduced by dilution. The effects on land will tend to be concentrated and localized, not dispersed or diluted (unless by rain).

 Mitigation measures for the ESMP /Proposed management actions

Mitigation measures in this ESMF checklist hinge on development and implementation of subproject – specific Waste Management Procedure/Plan that (i) identify what type of solid or liquid wastes and categories of wastes the subproject will generate or handle (biodegradable/organic wastes; packaging materials; non-biodegradable (metallic, plastic), construction wastes, and hazardous wastes i.e. medical wastes, fuels, oils, lubricants, vehicle/machinery fluids etc);(ii) identify ways to reduce the volume of waste by reusing or recycling initiatives; (iii) use best available mechanisms, practices and technologies for waste collection, storage transportation, treatment and final disposal. The management measures are coupled with the implementation of monitoring plan which set targets based on standards to ensure that proposed mitigation measures are correctly implemented or that adjustments are made to accommodate changes.

Reduced Air Quality and Climate Change

Emissions emanate from fuel powered equipment i.e. vehicles engines and construction equipment etc. exhaust contain pollutants, notably carbon-dioxide (CO2) plus small quantities of noxious gases such as nitrogen oxides (NOx), sulphur dioxides (SOx), hydrocarbons and particulate matters (PM). These Green House Gases (GHGs) are known to interfere with temperature regime and cause climate change effects. Clearance of vegetation reduces vegetation cover thus reducing sink for carbon-dioxide and consequent climate change effects. Increase of air pollution from dust, noise, etc. cause modifications to air quality.

 Mitigation measures for the ESMP /Proposed management actions

Mitigation measures in this ESMF and later adopted in subprojects ESMP for managing air and noise pollution from transportation and working equipment hinge on avoidance strategies;

transportation and training requirement, equipment operations and maintenance measures that minimize emissions of substances into the atmosphere. Contractors and facility operators to institute procedures for preventive maintenance of equipment.

5.2.2 Resettlement

Change or modification of existing buildings, infrastructure, services and access

Taking land for linear developments (roads and drainage) will create new or extend existing Corridors of Impact (CoI). Infrastructure development, upgrade or rehabilitation aim at improving access and services during operation. However, construction work or infrastructure physical presence could cause physical damage or change of access to existing infrastructure & buildings/facilities. Damages or restricted access or delayed access to existing infrastructure (albeit temporarily) may affect existing roads, electrical installations (below ground and overhead lines), water intake and supply systems, homes, business and service institutions and other natural sites causing disturbances to residents and users. Infrastructure located in already developed areas invariably will operate using existing support facilities and associated services i.e. water supply system. Connection to existing utility facilities without consideration of available resource would increase pressure on the system depending on their carrying capacity.

The involuntary taking of land and other assets (permanent or temporary acquisition) owned and/or used by both individuals and by communities may result in direct social and economic impacts of varying severity and consequences.

- Modification on residential areas, modifications in the access to buildings, fragmentation of property
- Expropriation of buildings
- Damage of homes
- Disruption of social sensitive areas (burial sites etc.) and institutional areas
- Direct encroachment causing loss, partial replacement or damage of indigenous vegetation and contained biodiversity.
- Disruption of business and trade and local income generating activities. Because urban agriculture and livestock keeping are widely practiced affected land could also be agricultural land or grazing ground.

Four types of losses due to land acquisition are identified in this ESMF:

i Loss of shelter / relocation of shelter and consequent displacement or relocation of people, assets and property
ii Loss of Assets or Access to Assets including loss of Land Rights
iii Loss of income sources or means of livelihood of people using the land or assets iv Involuntary restrictions of / delayed access to resources, property or asset and consequent disturbance and nuisance and conflicts related to restricted access

On overall the project activities are expected to have moderate resettlement impacts–greenfield developments are limited, and most of the urban upgrading works will be in existing rights-of way or rehabilitating existing infrastructure. RPF provides details on potential resettlement impacts.

 Proposed management actions

Minimizing resettlement impact has been considered in the design of most of the subprojects. The design focuses on rehabilitation and upgrading infrastructure using existing land. The design Engineers will take further measures to minimize resettlement in accordance with best practices and recommendations from the ESIA process:

- Avoidance strategies such as circumventing settled areas, sensitive/important natural or social/cultural or economic features to avoid/minimize extensive resettlement
- Use of existing undeveloped areas available in the land-use plans
- Relax the required construction standards: in some cases, expansion of diameters or extension of lengths of existing roads and drainage channels etc.
- Undertaking construction/site clearance after harvest
- Add structures to design (e.g. walking slabs, culvert etc.) meant to facilitate access and crossing over linear infrastructures such as roads and drainage channels
- Signage, filling pits and restoration of hazardous and disturbed areas.

The Resettlement Policy Framework (RPF) will guide preparation of Resettlement Action Plans, where determined necessary during the ESIA screening process. Please refer to the RPF for details.

5.2.3 Social and Economic Impacts

Induced developments and settlements
*Indirect negative impacts relate to impr*ovements in infrastructure, i.e. roads and associated social and economic services are induced settlements (that habitually sprout along new or improved infrastructure) and increased illegal developments due to new or improved access. Improved urban conditions inevitably attract newcomers and/or new economic migrants (seeking employment, services provision, traders etc.) which may lead to impacts such as additional pressure and demands to local social services and resources (increase water users); and social/health hazards due to interactions among newcomers and with locals.
 Mitigation measures for the ESMP /Proposed management actions

Proposed management actions for ZUMC and Pemba town councils to minimize potential impacts are to establish and enforce land-use plans for all categories of land within the boundaries.

Public Health and Safety risks and hazards
Users of land abutting or neighboring the project site and public safety and road/facility users are exposed to and likely to be affected by sub-project activities specifically accidents during construction (open pits filled with water) and operation phases (speeding cars on improved roads) due to lack of appropriate /sufficient signage at construction sites and timely notification. Infrastructure located at public places or used by general or specific segments of population i.e. bus stands are associated with congregates of people. Several causes of hazards to the public relate to design of infrastructure such as toilets without / inadequate water supply are predisposed to poor sanitation and hygiene; buildings without provisions for fire prevention or enough ventilation are

risks to users. Lack of periodic maintenance of drains creates breeding grounds for water-borne vectors of diseases such as malaria mosquitoes and bilharzia snails and water-borne infections.

Furthermore, implementation of subprojects would result into worker-community interactions, immigration to the area, increased incomes of the community that may be misused for drugs, alcohol and prostitution. Consequently, may increase spread of HIV/AIDS, Sexual Transmitted Diseases (STDs), Gender Based Violence (GBV) and sexual harassment (SH).

✓ *Mitigation measures for the ESMP /Proposed management actions*

Mitigation measures: the design and implementation process take into consideration of public safety e.g. traffic management, best construction site and operation practices and institute prevention measures that curb health risks that are prevalent in the project area (e.g. guinea worm, malaria, meningitis, cholera etc.).

In addition, each subproject will implement HIV/AIDS awareness program including provision of free counseling and testing services, free condoms. Each subproject will develop grievance redress mechanism through construction environmental and social management plan (C-ESMP) which includes handling of GBV/SH. This will ensure every Gender Based Violence (GBV)related incident is reported and appropriate actions are taken. Each subproject will develop an induction program, including a Code of Conduct, for all workers directly related to the investment. A copy of the Code of Conduct is to be presented to all workers and signed by each person 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: prostitution; illegal sale or purchase of alcohol; sale, purchase or consumption of drugs; illegal gambling or fighting;
- description of disciplinary measures for infringement of the Code and company rules

Workers (Occupational) Health and Safety Risks and Hazards

Table 10 presents some potential risks for labourers caused by exposure or negligence during subproject implementation.

Table 10: Summary of potential risks to workers

Aspect / activity	**Potential Risk**
Exposure to dust, noise	Disturbances / nuisance and discomfort
Using sharp objects, falling objects, working in high structures	Serious injuries
Exposure to water-borne infections from food, drinking water	Poisoning, loss of life

Exposure to sun/heat	Sickness and ill-health (reduced manpower)
Negligence due to fatigue / loss of morale	Loss of production time
	Loss of property

✓ *Mitigation measures for the ESMP /Proposed management actions*

Mitigation measures in the ESMF and later adopted in subproject ESMP include measures for managing air and noise pollution; and safety measures and procedures are adequate and correctly implemented, particularly with regards to work procedures, supply of services, equipment, and materials and use of Personal Protective Equipment (PPE).

Landscape Degradation and Reduction/loss of Visual Amenity

Project aspects likely to affect landscape and visual quality are activities that cause modifications in the quality of the landscape features or erection of structures that do not blend with the natural setting of an area. These include land clearance that leaves bare areas or eroded areas in otherwise green surroundings. Haphazardly disposed wastes are an eye sore and result in loss of visual amenity of affected area. The effects will be more felt at areas designated as tourist destinations.

 Mitigation measures for the ESMP /Proposed management actions

Mitigation measures in this ESMF and later adopted in subproject ESMP for managing landscape and visual amenities include avoidance and minimizing strategies merged with design considerations, specifications and provisions. Proposed management actions for ZUMC establish standards on shapes, height, color etc. of buildings and structures erected at scenic areas especially of touristic values.

Road closure/ restriction of access/road traffic congestion

During the construction phase of different subprojects under BIG-Z, it is likely temporary closure of the road may happen. This can be to meet construction needs at that time or for safety reasons. Road closure can limit the public reaching certain areas which in turn can affect accessibility of certain services for that period. In addition, rerouting and access restrictions can cause congestion on some roads unless appropriate signs, and other traffic control measures are taken.

 Mitigation measures for the ESMP /Proposed management actions

Before road closure the contractor should inform (with details) the PMT and PIU and/or subproject proponent regarding that intention. Necessary approval/permit from relevant authority should be sought by the contractor before closure. However, no total closure of the road will be allowed, viable alternative(s) should be provided to the public and well communicated in advance. Furthermore, a person responsible for traffic safety should be available for each subproject likely to result into this impact.

5.2.4 Heritage Impact

The proponent will undertake specific impact assessment on physical cultural resources (PCR) to identify the extent each relevant subproject (based on the screening results) will impact on cultural resources. The PCR plan will be prepared, implemented and monitored during construction and/or operation phase. In addition, before commencement of the construction phase of the subproject the contractor will be required to prepare a Site-specific Cultural Heritage Management Plan. Essentially, activities within the heritage sites will be limited to light construction works i.e. resurfacing of streets and associated works. Further, the proponent will seek permits from STCDA for undertaking construction works in stone town world heritage site and its buffer zone.

Potential Changes to social fabric due to urban renewal

The current cultural landscape in Stone town, Ng'ambo, Sebleni and Meya areas 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 and Michenzani areas. This daily cultural life and activity have been unconsciously designed around the existing landscape. Changes to this landscape will potentially have a negative impact on the richness and quality of social fabric in this area.

 Mitigation measures for the ESMP /Proposed management actions

The project proponent should undertake a large-scale sensitization and awareness raising program 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.

Potential impacts on buried archaeological remains in construction phase

During construction phase of investments under BIG-Z there is possibility of impacting archeological remains in various area; this includes physical disturbance, degradation due to change of burial environment, displacement and loss of context for artefacts. From previous experience such occurrences were noted during the restoration of houses in Stone Town. Although, with regards to subproject sites, the likelihood of coming across archeological remains is rather low since most of the activities will involve moderate rehabilitation such as street resurfacing and associated works within the existing wayleave.

✓ *Mitigation measures for the ESMP /Proposed management actions*

Before commencement of any subproject with potential to affect buried archaeological remains, archeological test survey and recording should be done for the open portion of the project boundary. STDCA and DMA will be consulted before the start of actual civil works and will be involved during construction phase. In addition, the proponent will apply for permit from STCDA for undertaking construction works in areas with potential physical cultural resources, particularly within STWHS and its buffer zone.

Physical damage, removal, demolition, restricting access to physical cultural resources

In this ESMF the term "physical cultural resources" includes sites having archaeological (prehistoric), paleontological, historical, religious, and heritage buildings and unique natural values. Zanzibar is endowed with ruins, ancient/historical structures, archaeological sites and "sacred" forests and graveyards. Impacts of the construction activities on the cultural and natural heritage include physical damage, removal, demolition, restricting access by civil works.

✓ *Mitigation measures for the Heritage management plan /Proposed management actions*

During screening (ESMF checklist–**Annex A**) if it is determined that there is a possibility that subproject construction or other activities may result in damage to cultural resources; cultural heritage management plan as standalone or part of Cultural Heritage Impact Assessment (HIA) report will be prepared. In addition, to the mitigation measures outlined in the plan, the following procedures for avoiding damage will be followed:

- Consultations with the appropriate national and local authorities (Stone Town Conservation & Development Authority (STCDA), section at ZUMC dealing with culture and local inhabitants to identify known or possible sites during subproject planning;
- Siting of subprojects to avoid identified sites; and Construction contract procedures for dealing with "chance finds". These procedures should include cessation of work until the significance of a "find" has been determined by the appropriate authorities and local inhabitants, and until fitting treatment of the site has been determined and carried out.
- The proponent will apply for the permit from STCDA for undertaking construction works in areas with potential physical cultural resources such as Ng'ambo area and Stone Town world heritage site

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 during operation. This will have an immediate direct impact on the people in Stone Town and Ng'ambo area. 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 in those areas; elderly and the sick are likely to be more affected

 Mitigation measures for the ESMP /Proposed management actions

The project proponent will have to undertake awareness raising program and as well as implement broad stakeholders' engagement program as part of project preparation before commencement and during implementation of the project in conjunction with the civil society organizations.

Potential cultural dilution

At operation phase it is likely cultural expression will be threatened by the imminent influx of tourists that will be encouraged by the design of the Karume road. Such a wave of people into the area 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.

 Mitigation measures for the ESMP /Proposed management actions

Before commencement of operation phase of the project, comprehensive awareness program shall be prepared and implemented. The program shall also include anti-drug awareness education for the youths as well as tourism education to ensure respect of local customs.

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.

 Mitigation measures for the ESMP /Proposed management actions

The proponent shall undertake broad stakeholders' engagement to define an acceptable process to assign the changed bus, taxi and other public transport services to operators. Further, through consultation identify terminals and drop-off/pick-up facilities and transport regulations which will need modification in order to guarantee a high-level accessibility of Ng'ambo area.

5.2.5 Positive Economic impacts

Positive economic impacts of the project include reduction in expenditure on infrastructure investment, contribution to ZUMC incomes, potential impact on the tourism industry, reduction of road traffic accidents and savings on travel time. Other direct and indirect positive effects include increased employment opportunities at all levels, development of new services, improvement of public space, availability of basic services, reduction of flooding, widening social interaction, lower pollution, improvements that accrue from improved access and management of wastes.

5.3 Risks and Hazards

5.3.1 Damages/disruption from Physical Natural Factors and Processes

Natural factors and processes on site, in near vicinity or catchment areas could be external factors that pose risks on the developed infrastructure or sub-projects (Table 11).

Table 11: Summary of potential risks to project due to natural factors

Natural process / aspect	Potential risk
Extremes of climatic elements: winds, rains, storms, hurricanes, lightening	- Damage of project structures - Disruption of project operations and schedules - Injuries and fatalities to project personnel working on the site or visitors.
Topography of the area: steep terrain cause erosion, stone dislodging; low terrain cause flooding.	

Surface drainage (streams, rivers) close to or cutting across subproject	- Damage of project structures - Discharges into project site - Water stagnation / flooding of project site
Storm water drainage – causing flooding and overflows.	
Height of hydro-geological conditions: high water table causing floods	
Soil movements (soil erosion)	Damage to project structures
Geology: seismic activities (earthquakes etc.)	

 Mitigation measures for the ESMP /Proposed management actions

Mitigation measures in the ESMF and later adopted in subproject ESMP include risk assessment to determine conformity of sub-project in terms of compatibility and timing of construction works.

5.3.2 Damages/disruption from neighboring anthropogenic activities

These are anthropogenic activities and other external socio-economic factors on project site, in near vicinity that might affect the subproject (Table 12).

Table 12: Summary of potential risks to project due to neighboring socio-economic factors

Socio-economic aspect / activity	**Potential Risk to Project**
Land disturbances vibrations due to bulldozing during road construction	Destruction of infrastructure or subproject area Conflicts related to restricted access
Occupation, economic and social status of nearby residences	Theft of materials and portable items with ready-made market or for home use.
Unauthorized access to waste management facilities	Environmental health and safety hazards due to scavenging and/or unauthorized burning of waste
Security condition in neighborhood to the project site	Vandalism of structures / equipment, theft of materials and portable items with ready-made market or for home use.

 Mitigation measures for the ESMP /Proposed management actions

Mitigation actions in the ESMF and later adopted in subproject ESMP include risk assessment to determine conformity of sub-project in terms of: compatibility/co-existence of project within the neighboring community and general public.

5.3.4 Conclusion

Most of the subprojects appear to pose no significant problem of technical nature or regarding safeguards management. However, subprojects involving the relocation of the affected land-users or subproject causing degradation or pollution of receiving air, water or land such as development of wastewater treatment facilities, upgrading of roads and public spaces, new drainage systems cutting across settled areas will require more intensive preparations. Summary of potential impacts of subprojects and proposed mitigation measures are included in **Annex C**.

6. PUBLIC PARTICIPATION AND DISCLOSURE

6.1 Public Participation

Public participation is important aspect for successful implementation of subprojects and sustainability of BIG-Z benefits. According World Bank safeguards guideline (ESF), effective stakeholder engagement can improve the environmental and social sustainability of a project, enhance project acceptance, and make a significant contribution to successful project design and implementation. In view of this, stakeholders (refer table below) should be involved from initial stage of sub-project i.e. design, during construction, this includes during preparation of safeguards instruments and operation phase. Participation needs to be meaningful and inclusive of all stakeholders and communities, with emphasis on gender, ethnicity, income groups, minorities and vulnerable people

For the purpose of this project stakeholders shall be defined as all individuals or institutions that are affected or have interest in BIG-Z project. This includes those likely to be positively and negatively affected by the project.

6.1.1 Stakeholder engagement approach

To ensure systematic engagement in every stage, stakeholder engagement framework for overall project should be prepared. The framework will provide strategic approach to engagement of stakeholders which will form foundation for preparation specific stakeholders' engagement plan (SEP) for subprojects. SEP(s) should be prepared in participatory manner and its implementation monitored. The proponent will use different approaches outlined in stakeholders' engagement framework to adequate engage all stakeholders' groups. Stakeholders should also be engaged during disclosure of safeguards instruments such as ESIA, RAP, HIA and this ESMF.

6.1.2 Level of Engagement

Stakeholders (refer table below) should participate from initial stage of sub-projects to operation phase, this includes during preparation of safeguards instruments (table 12). The level of stakeholder engagement will depend with subproject phase, location, likelihood and magnitude of impacts. Inform will be the minimum level, while involve will be maximum level of engagement during implementation of this project (figure 5). Consult will be average level of engagement. All consultations for project related investments will be a two-way dialogue with provision of project related information and obtaining feedback from participants. Collected feedback will need be used to improve project design and mitigation plans. Consultations such as during preparation of ESIA will be document this includes list of stakeholders, issues raised, response provided and how those issues reflected in the design

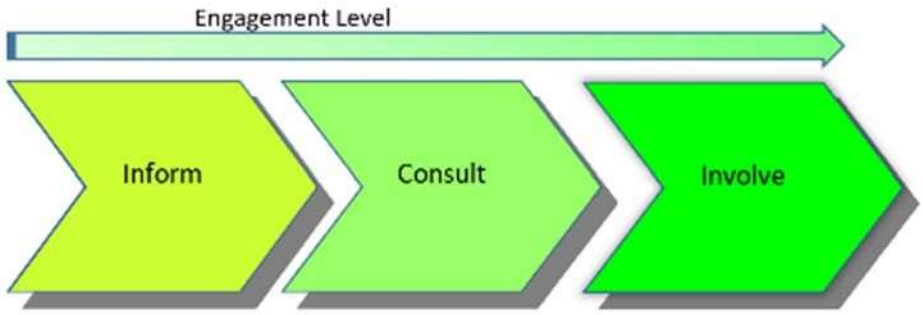

Figure 4: Stakeholder engagement level

Using this engagement spectrum, the PMT, PIU and project implementing partners will be able to clarify project objectives, identify stakeholder needs and concerns, identify feasible alternatives and identify critical environmental and social issues.

Table 12: Consultation at different project phases

Project Stage/phase	**Activities**
Initial	Feasibility study and design
	Preparation and disclosure of ESMF, RPF, ESIA, RAP, HIA
Implementation/construction	RAP implementation, Construction works, ESIA/ESMP implementation
Monitoring and Evaluation	Monitoring RAP and ESMP implementation, assessment of project performance
Operation	Changes of routes, business operation

6.1.3 Public Consultation during Preparation of ESIA, RAP and HIA

According to World Bank OP4.01 and international best practices public consultation is required as part of the ESIA and/or ESMP/RAP/HIA process specifically during the scoping and review stages. For this project stakeholder involvement will be initiated at an early stage of the subproject development process and will be an integral part of early subproject decisions and the assessment, management and monitoring of the project's environmental and social risks and impacts. The main aim for stakeholders' involvement in every subproject is to assess the level of stakeholders' interest and support for the subproject, solicit views and to enable stakeholders' views to be taken into account in project design and environmental and social performance.

Public consultation undertaken during ESIA and HIA studies also support the existing participatory planning process at ZUMC/PTCs that will be exercised during subprojects identification. Thus, public consultation shall be mandatory when conducting an environmental and social assessment

and heritage impact assessment as relevant for a subproject financed by BIG-Z project. At a minimum the subproject proponent must meet key stakeholders to solicit their views using standard participatory approaches and methodology (Box 1). Details on public consultation during development of RAP can be found in RPF for this project.

Box 1: ESIA requirements on public disclosure

Publicizing the proposed project and its anticipated effects and benefits by:

- Posting posters in strategic public places in the vicinity of the project site;
- Publishing a notice on the project in mass media i.e. newspaper, radio

Making announcement of the notices in both Kiswahili and English languages

- Hold (where appropriate) public meetings with affected parties and communities to explain the project and its effects, and to receive their oral or written comments;
- Ensure appropriate notices are sent out at least one week prior to the meetings
- Venue and times of the meetings are convenient for the affected communities and the other concerned parties

Below are generic guidelines to an acceptable public involvement process.

- The first step is to conduct consultations with the local communities and all other interested/affected parties during the screening process for identification of subproject components/ activities likely to cause impacts. These consultations should identify key issues and determine how the concerns of all parties will be addressed in the Terms of Reference for the environmental assessment exercise/ ESIA.
- To facilitate meaningful consultations, the ESIA consultants supported by PMT and PIU and ZUMC/PTCs Project Team will provide all relevant materials (e.g. draft ESIA, ESMP, HIA) and information concerning the subprojects in a timely manner prior to the consultation, in a form and language that are understandable and accessible to the groups being consulted. Depending on the public interest in the potential impacts of the subprojects, a public hearing will be done as part of project preparation to better convey concerns and seek inputs from stakeholders.

6.1.3 Consultation during Preparation of ESMF

Preparation process of this ESMF, involved different stakeholders from grassroot to senior government officials. Consultation for this ESMF was in the form of workshops and conducted as part of broader stakeholders' engagement for BIG-Z project from July 2018 to October 2019. Views and concerns of stakeholders were collected to inform the design of subprojects (table 14). Stakeholders which were consulted includes ZEMA, ZUMC, STCDA, the Forest Department, the Zanzibar Water Authority, Department of Roads, Department of Urban and Rural Development, Stone Town Conservation and Development Authority, Central District, local authorities, private

sector and the community (Annex F). The table below indicates key stakeholders for BIG-Z which the proponent will continue to engage with during undertaking various project activities.

Table 13: Key Stakeholders for BIG-Z project

Category	Stakeholder	Date consulted
Government (ministry and agency)	Ministry of finance and planning, ZUMC, local government authority, DoURP, ZEMA, STCDA, ZSSF	18-19 July 2018 and 13th August 2019
	Ministry of Infrastructure, Transport and Communication,	14th August 2019
Private Sector	Commercial sector (TCCIA, Tour operators, Solid waste collection companies, informal/small business people)	15th August 2019
	Transport sector (trucks owners, daladala operator, taxi operator, bajaji and bodaboda operators)	16th August 2019
Academic/research institutes	Universities, research institutes and groups	13 September 2019
Community	Direct project affected people, local leaders (Sheha), project beneficiaries (houses affected with floods, households accessing solid waste collection services), pedestrians, passengers	28 July 2018 and 16-25 September 2019
Non-government organizations	Local NGOs such as KUKUA	17 June 2019

Table 14: Key Issues raised by Stakeholders

Aspect	Concern/View	Proposed response
Road safety	Sidewalk space is scarce and available walkways are narrow and intruded by parked vehicles or petty traders. It is difficult for cyclist to ride in the town	Michenzani subproject should consider of including adequate pedestrians' walkways that consider people with disability and bicycle lanes
	Lack of adequate safety for school children when crossing the roads	Subprojects should implement road safety measures during construction and integrate pedestrians' safety in the design of the roads
Traffic congestion	Traffic congestion has been growing in recent years particular around city center causing delays and economic loss to people	Reinforce government plans to consider the widening of Nyerere (Airport) and Malawi Roads. This can be considered in

		Michenzani subproject
Parking	Stakeholders raised concern of few parking space in Zanzibar town, which has necessitated people to park vehicle along the roads. This has reduced the capacity for the some of the roads and increasing traffic congestion	Michezani subproject should consider alternative parking areas e.g. pocket park. Other mobility related subprojects should also consider provide parking space
Public transport	Lack of public transport connecting to Malindi port is another concern raised by stakeholders	BIG-Z should consider through its subprojects on addressing mobility issues from Ng'ambo to Malindi port
Business loss	Stakeholders were worried regarding	The project should consider of provide
	loss of business by both petty traders and formal business during construction phase of BIG-Z subprojects	alternative business areas and/or compensating people who will loss business
Tourism and Culture	Stakeholders expressed their fear of BIG-Z intervention may attract more tourists in Zanzibar which in-turn can affect their culture. This includes loss of identity, change in the dress code etc	PMT should collaborate with Ministry of Information, Tourism and Heritage during implementation of BIG-Z to avoid distortion of Zanzibaris culture
Environment	Most of the subprojects will have impact on the environment such as dust, pollution, accidents, loss of trees etc which will eventually affect locals. Stakeholders advised the project to take serious actions to prevent these impacts	Every subproject should have environmental, safety and social officers who will ensure its ESMP is adequately implemented and stakeholders involved in every stage during construction. All trees which will be affected should be replaced, at least, as twice as much
Public space	Stakeholders wanted to see the project also improves public space and be accessible to different community groups	Subprojects in urban areas should consider of improving public spaces

6.2 Disclosure

6.2.1 Environmental and Social Management Framework

Disclosure of this ESMF is planned to be in Zanzibar through MoFP and MoICT websites as well as BIG Z project and the World Bank website. The disclosure process will commence immediately after approval of this document by the World Bank.

6.2.2 Subproject Safeguards Documents

All other safeguards reports/documents for BIG-Z project (includes ESIA, ESMP, RAP, HIA and others), following approval by PMT, PIU and the World Bank, will be publicly disclosed and made available for information or to solicit feedback from the project affected groups, interested groups/individuals, and the general public. The Ministry of Finance and Planning, the Ministry of Infrastructure, Communication and Transportation and BIG Z websites will be used for in-country disclosure prior to disclosing the same on the World Bank website. Copies of the documents will be made accessible to the public and interested parties at various locations including: local government authorities, (e.g. local councils, district offices), government agencies (e.g. ZEMA) and implementing partners (e.g. DoURP).

7. PROCEDURE FOR SUB-PROJECT ENVIRONMENTAL AND SOCIAL SCREENING, APPRAISAL, REVIEW AND APPROVAL

The description of environmental and social assessment and approval process specific for BIGZ sub-projects are provided in this section. Since some of the subprojects and associated locations are not clearly identified at this stage, it is important to have the appropriate tools in place to assist the PMT, PIU and implementing partners in screening these activities for potential impacts and to provide guidelines for implementing measures to effectively address them. When PMT, PIU and/or implementing partners has identified the sub-projects and locations selected, this section will be used to provide guideline for screening sub-projects and implementing the appropriate measures. The PMT and PIU should ensure adherence to screening and ESIA requirements as stipulated in Zanzibar Environmental Management Act, 2015 and its subsequent regulations. The screening process provided in this section is based on a simple screening and approval procedure including linkages with national procedure/institutions.

In addition, the screening process and other procedures specified in the ESMF will apply to all subprojects financed under BIG-Z project. The procedures presented in this section are established as a framework to ensure compliance with safeguards throughout sub-project cycle i.e. identification, preparation and implementation. In case sub-project trigger OP 4.12 (Involuntary Resettlement), procedures presented in RPF should be followed.

7.1 Sub-Project Environmental and Social Appraisal and Approval Procedure

The purpose of this process is to enable implementers of identified subprojects:

- To determine whether the sub-project investments are likely to have potential negative environmental and social impacts;
- To determine the magnitude of the impacts and their significance;
- To determine appropriate mitigation measures for activities with adverse impacts;
- To incorporate mitigation measures into sub-project's design; and
- To review and approve proposed activities or sub-projects.

The extent of environmental and social work that might be required for sub-project prior to implementation will depend on the outcome of the screening process (Annex B). Generally main steps of the environmental and social assessment process including mandatory initial preparation leading towards approval of sub-projects under the BIG-Z are summarized in the box below and detailed description are provided in the next section.

Box 2: Incorporation of ESMF into sub-project cycle

At the proposal stage of subproject, the implementing partner will identify preliminary potential environmental and social issues, all proposals with high environmental and social risks will be considered for exclusion. Selected subprojects will undergo EA screening to determine scope of environmental assessment if required. Safeguards documents required for selected sub-projects e.g. SESA, ESIA, ESMP, RAP etc will be prepared during feasibility study and design. Environmental and social mitigation measures will be included in the subproject contract including penalties for non-compliance. ESMPs will be implemented during construction phase, implementing partners will be responsible to monitor implementation of *ESMPs* and report to PMT and PIU who will verify the reports and forward to the Bank.

The salient aspects of the process to be established at PMT and PIU and under each implementing partner/agency shall include 10 main steps:

Table 15: Steps for Subproject screening process

1. Preparation: subproject implementing partner will identify relevant activity to be funded under BIG-Z. The concept/proposal will be prepared and submitted to PMT and/or PIU. During selection of subproject initial consideration of environmental and social impacts will also be done by the implementing partner
2. Initial screening: upon receipt of the concept/proposal from implementing partner, PMT and/or PIU will review the proposal including review of initial environmental and social screening of the proposed activity.
3. Application of ESIA: subproject implementing partner assisted by PMT and/or PIU will fill ESIA certificate registration form to initiate ESIA process at ZEMA.
4. Screening by ZEMA: the environmental authority will use submitted subproject information including initial screening to determine extent of environmental and social assessment required. ZEMA will determine whether the subproject has low, medium or high risk. For subproject (with low risk) which will not require environmental and social impact assessment, direct clearance will be issued by ZEMA and PMT and PIU will develop generic mitigations and monitoring measures
5. Preparation of SEA/SESA: for subproject (including technical assistance) related to policy, program and plans will require to prepare Strategic Environmental and Social Assessment, to systematically examine associated environmental and social risks and impacts, and issues. SESA will be reviewed and cleared by ZEMA and the World Bank
6. ESMP/Scoping report: for subproject which will be considered by ZEMA to have lesser (medium) impacts on the environment and society will be required to prepare environmental report/ESMP. If subproject require ESIA (high risk), scoping study and will be conducted to determine critical issues which needs in-depth assessment in next stage

7. Review and approval of ESIA: upon submission of the final EIS by PMT and PIU, ZEMA will review the report and make decision to approve or disapprove the report. World Bank will also review the report independently to ensure that meets environmental and social safeguard standards and issue No-objection
8. Incorporating mitigation measures into sub-project proposals / designs: upon approval of EIS mitigation measures and recommendations should be incorporated into the proposals or designs of the sub-project
9. Disclosure of approved sub-project: approved SESA, ESIA report/ESMP should be disclosed to the public using easily accessible locations

As part of technical assistance to build capacity for safeguards management in the project activities, the PMT and PIU are preparing a set of technical guidelines specific to the project activities, which will be a resource for the PMT, PIU, ZUMC, PTCs, ZEMA and other actors beyond BIG-Z project. These guidelines will include:

- Subproject Screening guidelines
- Environmental and Social Impacts Assessment Checklist
- Consultation Guidelines and Good Practice
- Guide for Developing Mitigation Measures and Monitoring Plans
- Cultural Heritage Conservation Guidelines
- Taking of Land & Resettlement Management Guidelines and Good Practices Open Space/Greening Strategies

Step 1: Subproject Preparation

For the environmental and social assessment and management process to be effective, each Council Director of participating Councils (ZUMC and PTCs), and other implementing partners/agencies, shall ensure that key staff are included in the Project Team for any given subproject. Besides the infrastructure sector specialist i.e. Civil Engineer (for roads, drainage etc.) or Environmental Engineer (for sanitation facilities) minimally, the team will include [8] staff trained and with experience in environmental assessment and management, sanitation management, sociology/community development, economic planning, land and urban planning, etc.[9][10].

Coordination and day-to-day activities related to subproject environmental and social management aspects will be delegated to an official responsible for overall environmental management of the Council[12] henceforth referred to as Environmental Officer (EO). The EO shall remain as the main contact person for the national environmental management authorities (i.e. ZEMA& Department

[8] The number and type of team members will depend on the nature and scope of the sub-project under consideration.

[9] Other opted specialists appointed by the Council Executive Director on need basis depending on nature of project

[10] % of project funds are to be allocated to the EMO for environmental and social management activities and to cover monitoring, allowances, review costs, fuel and stationery (See capacity building chapter 7)

of Environment), the PMT and PIU and other stakeholders in all matters related to environmental and social management.

The Council Director of each council shall ensure team members are adequately qualified and registered as ESIA Experts at ZEMA. To become qualified for the tasks, the LGA officials and other actors will receive training (Chapter 9) specifically on the use of the ESMF checklist, tools, resource sheets and planning methods.

Identification and prioritization of sub-projects/selection of sites will be the function of recipient urban LGAs/MoICT, who have developed their own funding proposals on a demand–driven basis. Priority urban infrastructures were drawn from consultations along with residents and other urban stakeholders. In some cases, the selection was influenced by technical considerations provided by ZUSP and sector specialists.

Preliminary (and later detailed) designs shall be contracted to consulting firms. Procurement/contract awarding procedures shall include capability/experience in environmental and social impacts mitigation/integration into designs. The Council Director shall ensure the Infrastructure Sector Engineers and Specialists (e.g. roads, drainage, waste management etc.) work with the design consulting team to enable transfer of skills and knowledge.

Step 2: Initial Subproject Screening (Appraisal) By ZUMC/PTCs/DoURP
Screening is the classification stage to determine whether the sub-project investments is eligible for funding under BIG-Z, whether it conforms to RGoZ and World Bank requirements and determine the subproject components or activities that are likely to have potential negative environmental and social impacts that can be managed or not. While the determination of the level at which an impact assessment study will be carried out will remain the prerogative of ZEMA (see next Step 3) this initial screening will be undertaken by PMT and / or PIU and the Participating PTCs using the screening form found in Annex A of this ESMF.

Once the sub-project activity is defined and the location selected, a screening form (Annex B) will need to be filled out by subproject implementing partner. The form will allow for identification of the potential environmental and social impacts associated with the proposed activity. The qualified infrastructure sector specialists (e.g. Civil Engineer or Environmental Engineer) responsible for the design and/or implementation of the proposed subproject (assisted by Environmental Officers and members of the Project Team) shall use filled form to screen and prepare brief description of the proposed activity, defining its components. The screening takes consideration of key factors specifically nature, magnitude/scale of potential impacts and concerns of the public that might be realized during sub-project implementation. The Project Team shall carry out screening of the sub-project by using the checklist supplemented by field investigations as deemed necessary as well as screening criteria provided in the Zanzibar ESIA Regulations and other sources for specific subproject such as urban upgrading.

Activities under Contingent Emergence Response Component (CERC)
For project activities responding to natural or artificial crisis financed through the CERC will be subject to World Bank safeguards policies according to the Bank Guidance on Contingent Emergency Response Components (CERC). Screening of activities (Box 3) under CERC will be conducted by Safeguards/environmental specialist from PMT and / or PIU. All activities identified

in the Action Plan (EAP) for financing under the CERC will be subject to a review by the specialist to determine if they are eligible under the safeguard policies and compliance procedures used by the PMT/implementing partners for all activities financed under BIG-Z project. Screening procedures and environmental and social procedures other subprojects described in this ESMF will be utilized, which will allow the possibility to exclude certain activities if the environmental or social impacts are too great, or to include appropriate mitigation for proposed activities if possible.

The project proponent will prepare Emergency Action Plan (EAP) will require World Bank approval prior to commencement of project activities. The EAP will include procedures for consultation and disclosure (as described in chapter6), integration of mitigation measures into contracts, monitoring and report for providing performance feedback.

Box 3: Example of Activities Eligible under CERC Component

Rehabilitation of road infrastructure that may have been damaged during the event: Repair or reconstruct streets, roads, bridges, transportation and other infrastructure damaged by the event
Revegetation: Replant vegetation destroyed by the event using native species or repair/mitigate damage caused by the event to protected area or buffer zone, for instance mangroves
Removal of sediment/debris: Repair of drainage systems damaged by the event; cleaning and dispose of debris from roadways
Soil erosion: Stabilize serious coastal erosion
Rehabilitation of water infrastructure: repair of water infrastructure, deliver water in areas that are cutoff
Telecommunications infrastructure: Re-establish damaged telecommunication infrastructure damage by the event
Repair of damaged public buildings: including schools, hospitals and administrative buildings *Solid Waste Management (SWM) Services*: establishment of collection points, supply of waste collection receptacles, capacity building

Technical Assistance (TA)

Most technical assistance subprojects under BIG-Z project, which include support to establishment of:(i) a good SWM practice; (ii) integrated master plan for Pemba island and mobility plans for Unguja and Pemba; (iii) a Building Regulatory Framework for Zanzibar, including the development of a building code and regulatory compliance mechanisms, with a focus on climate resilience and energy efficiency; (iv) climate risk financing, own-source revenue (OSR) collection, as well as capacity building and training for local government officials in Unguja and Pemba; (v) basic spatial data infrastructure and institutional arrangements;(vi)new approaches and technologies for managing climate risks, urban growth and economic development are not likely to have direct adverse environmental or social impacts. However, the outcomes of the proposed TA activities may have potential environmental and social impacts. In order to mitigate likely impacts downstream, technical assistance support activities will be screened in the same way like (as detailed in this section i.e. step 1 to 10) other subprojects to determine environmental category and appropriate safeguards instrument to be prepared.

Determine Category and World Bank's Safeguards Policies triggered by sub-project
During initial screening the Project Team will determine which of the World Bank's safeguards policies may be triggered by the sub-project and what the requirements are to comply with the triggered policy. Further information on these policies is available on the Bank's website, www.worldbank.org. If any of the Bank safeguards policies are triggered by sub project, the ESIA will analyze these impacts in more detail and propose corresponding mitigation measures. Based on the results of the screening, the environmental category will be established and the level of environmental assessment determined according to OP 4.01 and ZEMA guidelines.

After reviewing the results of the initial environmental and social screening process, the Project Team at ZUMC/PTCs/DoURP will then write a brief screening report defining the subproject components/activities likely to cause adverse environmental and social impacts including resettlement, outlining activities likely to trigger the safeguard OP, describing the potential negative (and positive) impacts, the extent of environmental and social assessment and management work (Environmental Category) that might be required and submit to the PMT and PIU for guidance / approval.

Time frame: initial screening at ZUMC/PTCs/DoURP within 10 working days; approval by PMT and PIU within 5 working days.

The initial screening report will assist in the applications submitted to ZEMA (***Step 3***) and will be issued as part of the Terms of Reference to certified firm of experts commissioned by PMT and PIU to undertake the ESIA study (***Step 6***).

Step 3: Application for ESIA Certificate at ZEMA
For each subproject or clusters of subprojects, the Project Team at ZUMC/PTCs (assisted by PMT and PIU) will fill in ESIA registration Form issued by ZEMA – availing information on:

- Particulars of proponent
- Proposed subproject/activity
- Proposed site
- Infrastructure and utilities
- Environmental and social impacts
- Other environmental issues
- Mitigation of impact and environmental enhancement measures

The Project Team (assisted by ESIA Consultant if already commissioned) will prepare project brief or other background information as necessary to accompany the application documents. The application tasks may entail review of initial screening report and other available information as well as field reconnaissance to determine status of key ecological and social components and consultation with project recipient communities and their leaders and relevant stakeholders.

Box 4: Content of a Standard Project Brief/Background Information

Project Description: a description of the subproject pointing out the main components and activities with environmental and social impacts implications including clear definition of the location and areas of influence.

Prevailing Baseline Condition: a synopsis of the status of the subproject's operating conditions that will

be affected by the proposed sub-projects / activities (including an outline of key environmental, social and compliance issues).

Potential Environmental and Social Impacts and concerns: identification of sources, nature and extent

of key impacts, compliance and issues of concern covering but not limited to: pollution (changes to air

quality, water and soil quality including accidental spills and disturbances); effects to local natural habitats, biodiversity and species of concern; land use changes and resettlement; use of resources and management of wastes workers health and safety; and community wellbeing, health, safety, and security

Mitigation Measures: Recommendations to avoid, reduce, mitigate or compensate the impacts including

estimates of costs and responsibility for implementation of the mitigation measures. Show commitment of funds to implement the proposed mitigation measures. Environmental and Social Management Plan (ESMP) and Environmental and Social Monitoring Plan (ESMoP)

The applicant (ZMC and PTCs or the ESIA Consultant on behalf) will submit dully filled in and approved Application and support documents together with a prescribed fee for ZEMA to screen and determine the scope of environmental and social impacts assessment work required ***(Step 4***).

Step 4: Subproject Screening at ZEMA

At this stage, ZEMA determine scope of environmental and social impacts assessment work required. Upon submission to ZEMA of the proposed subproject, the environmental authority shall advise on the nature of information required for approval decision of the sub-project. Screening is based on screening criteria stipulated under ESIA Guidelines and Procedures of 2009 under the Zanzibar Environmental Management Act No.3 of. Two outcomes of screening at ZEMA are possible:

1. No Environmental and Social Impact Assessment required

If the environmental and social screening results by ZEMA indicate the potential impacts will be sufficiently managed by application of proposed mitigation measures in project design, and the project would not cause significant negative impacts per World Bank OP 4.01; the subproject will not require a full ESIA. ZEMA will recommend approval of the subproject – with conditions. The applicant will be issued a Letter of Approval with conditions (instead of EIA Certificate) by ZEMA.

This will apply automatically to any activity that pass the criteria stipulated under ESIA Guidelines and Procedures of 2009 and listed under Schedule 1 of the ZEMA and is in line with WB OP 4.01on Environmental Assessment for sub-projects with minor impacts (see Chapter 4 of this ESMF). Box 2 clarifies the type of activities that do not require an EIA certificate.

Box 5: Activities that do not require an EIA certificate (Zanzibar EIA guidelines and procedures, 2009)

Any domestic, private and noncommercial activity Operating a small-scale shop. Operating a small-scale business employing fewer than 10 people. Operating tours, other than dives, and travel agencies Engaging in rainfed agriculture over an area of less than 10 hectares	Operating a small-scale warehouse for storage of non-hazardous substances. Providing commercial clearing and forwarding services Providing office and professional services Operating an air charter service Maintaining roads if the work does not involve upgrading or expansion of road

2. Environmental and Social Impact Assessment required

In the event that a subproject is screened and found to have potential to cause adverse impacts and the management measures do not suffice; it will be categorized for detailed assessment, and a full ESIA (involving scoping and development of TOR followed by detailed impact assessment study) will be required. According to the Zanzibar ESIA procedure, scoping for all project registered at ZEMA is undertaken by the environmental authority. Thus, if the screening results require a full scale ESIA, then ZEMA will decide whether:

2(a) ZEMA conduct the scoping and the ToR: the Project Proponent (ZMC/PTCs/DoURP) will incur the costs involved in undertaking the scoping study

OR

2(b) The Project Proponent conduct the scoping and ToR: in this case ZMC/PTCs/DoURP through a qualified Consultant undertake the scoping study and associated costs.

ZEMA then submits the screening results/statement to the Proponent within 10 days of submission of registration form and project report and the process proceed to ***Step 5***

Approval of ESIA Experts by ZEMA

Upon receipt of the screening results/statement, ZMC/PTCs /DoURP will submits to ZEMA latest CVs of ESIA experts (individual or firms)[11] within 10 working days. ZEMA approves/disapproves the experts with reasons within 5 working days.

[11] Experts are required to register with ZEMA following a process similar to project registration and using the same registration form.

Between the screening done in Step 2 (which adheres to World Bank policy) and the screening done by ZEMA in Step 4, the more stringent of the two exercises will apply to ensure compliance on both ends.

Step 5: Scoping and Preparation of Terms of Reference

If the classification indicates that an ESIA is required, ZEMA determines scope of the ESIA in agreement with Proponent on specific issues, persons to be consulted, methodology to be used during ESIA study. ZEMA may decide to undertake scoping study and preparation of ToR or allow the proponent to undertake the exercise. Proponent should bear the cost of ESIA study. The ESIA report format is prescribed under ESIA Guidelines and Procedures of 2009 under the Zanzibar Environmental Management Act No.3 and should be outlined in the ToR.

ZEMA conduct the scoping and the Terms of Reference:

ZEMA conducts the scoping and approve the ToR and provide to the Proponent (ZMC/PTCs) with 10 working days from date of completion of scoping procedures. The process proceeds to ***Step 6***

The Project Proponent conducts the scoping and Terms of Reference:

- The approved ESIA consultant/experts will undertake scoping study to determine scope (spatial, temporal and technically) and identify main issues for consideration in the impact assessment;
- The lead agency assigns responsibilities among key personnel / other agencies for undertaking the ESIA study (ensuring integrated environmental, social and natural sciences); and work plan and schedules for the ESIA study.
- ESIA consultant/experts undertake scoping study this includes collection of baseline data, identification of stakeholders and consultation (refer section 7.1.3 for consultation guidelines), identification of potential environmental and social issues that needs detailed assessment
- The consultant/experts prepare scoping report and ToRto guide the impact assessment study according to Environmental Assessment Regulations, 2017
- The consultant/proponent submit scoping report and ToRto ZEMA for approval.
- ZEMA approve the ToR and provide to the proponent with *10* working days from date of submission of scoping report and ToR. The process proceeds to ***Step 6***

Step 6: Carrying Out Environmental and Social Assessment Work

The ESIA Consultant will initiate environmental work in accordance to the scoping report and TORs issued /approved by ZEMA. The Consultant shall follow the steps as per provisions in the Zanzibar ESIA procedure with PMT, PIU and project implementing partners input and participation. Upon completion of scoping procedures (whether scoping and ToR done by ZEMA or Proponent) the undertaking of ESIA study (by registered EIA experts or firms of experts) is expected to take 2 - 6 months following approval of ToR. The ToRs are subject to review after 6 months. The study identifies likely impacts assess and evaluate their severity and magnitude and

proposed mitigation measures to minimize potential negative impacts and enhance positive benefits.

Impacts identification and mitigation shall be based on this ESMF screening checklist (Annex A) and guides (to be developed) complimented by other measures applicable to the particular infrastructure sector/situation. The consultant will undertake assessment with involvement of certified staff at PMT/ZUMC/PTCs/DoURP (coordinated by the Environmental Officer). The study may include field investigations - a site visit conducted to determine status of ecological and social receptors and engage with project recipient communities and stakeholders. The work shall culminate in production of ESIA report, which follows the ESIA format provided by ZEMA (included in Annex C). For situations where OP 4.12 applies, the proponent will prepare a Resettlement Action Plan (RAP) consistent with the separately disclosed RPF.

The ESIA consultant shall complete the assessment work and submit the ESIA reports including an ESMP and ESMoP (Box 4) for review and approval by ZEMA (***Step 7***).

Box 6: ZEMA requirements on Environmental Impact Statement

An EIA report (prepared according to format prescribed under section 40 (a) – (f) of the Environmental Act, 2015) which includes two separate documents: Social Impact Assessment (SIA) prepared first and submitted to ZEMA for review; followed by Environmental Assessment document. The EIS shall be analytical, specific for project location, with high significant impacts given in detail, less significant mentioned briefly, concise, of necessary length (less than 100 pages), alternatives/ mitigations comply with legal requirements and facilitate decision on project. EIS include project decommissioning Proponent submits to ZEMA four original copies of the EIS and an electronic copy and pay prescribed fee to for review costs.

Step 7: ESIA Review and Approval

Upon proponent submitting the final EIS, ZEMA will undertake a review process of the ESIA report based on criteria stipulated criteria stipulated under ESIA Guidelines and Procedures of 2009 of the Zanzibar Environmental Management Act No.3 of 2015. The review includes ZEMA getting input from relevant stakeholders through:

- Circulation to relevant government bodies for comments;
- Public notification of time and place for review of EIS and submitting written comments;
- Soliciting comments (written) from people affected by project.
- Comment period from stakeholders is > 20 but < 30 days.

A preliminary hearing(s) will be organized by ZEMA to gather information for use in the statements as necessary. If more information is required (i.e. design plans, access to relevant sites etc.) proponent will be informed after 5 days after the review meeting of the need for more detailed information to adequately assess the EIS. Proponent will submit the required information within 20 days. Once the additional information has been submitted, a further review may be necessary.

ZEMA obtain final staff recommendations and makes decision within 14 working days on issuing ESIA Certificate or not. Time limit for review will be completed within 30 working days after comments period.

Environmental decision of the ZEMA

The outcome of the review could be:

(i) ***EIS approval:*** if the review of the ESIA Report by ZEMA indicate the potential impacts and application of mitigation measures in project design are sufficient, ZEMA will recommend to the Minister responsible for the environment to issue the ESIA Certificate for the subproject. OR

(ii) ***EIS approval (subject to specified conditions)*** and issued with ESIA Certificate; OR

(iii) ***More information is required*** (with reasons and within specified period); OR

(iv) ***EIS not approved*** based on criteria stipulated ESIA Guidelines and Procedures of 2009, no ESIA certificate issued and recommend to licensing institution to stop project from proceeding.

Appeals

Any party who is aggrieved: proponent or licensing institutions have the right to appeal within 7 working days to the Minister responsible for Environment. If there is dissatisfaction of any decision reached, the Proponent has the right to appeal to the Environmental Appeals Committee whose decision shall be final.

World Bank No Objection

ESIA and RAP prepared for each subproject should also be submitted to the World Bank for review and no objection prior to project implementation.

Step 8: Incorporating Mitigation Measures into Sub-Project Proposals/Designs

Upon receipt of the approval, the infrastructure sector specialists at PMT/PIU/ZUMC/PTCs Civil Engineer or Environmental Engineer (assisted by Design Consultant, ESIA Consultant as necessary) shall incorporate the mitigation measures into the proposals or designs of the sub-project development activities and update the approved ESMP. The sector specialist shall submit the revised designs to the Project Management Team as appropriate for review and approval (***step 9***).

Step 9: Final Approval of Revised Designs

The Environmental Officer (Project Teams and including community representatives) shall review and make recommendation on the revised designs. The review assesses to ensure considerations of land take/land acquisition and resettlement impacts, discharge of pollutants (i.e. sediments and oils

in storm water/wash-down waters) into sensitive habitats, additional modifications, alternatives routes etc. The Teams shall carry out review using the environmental and social screening Checklist as well as field investigations as deemed necessary. The generic mitigation measures provided in this ESMF provides guidance for all possible identified impacts that the Team will use to check if the ESMPs address the negative impacts or enhance positive ones. ESMPs should include mitigation measures specific to the subproject activities and the area of influence.

EO Recommendations

If the sub-project environmental assessment and project documentation have satisfactorily addressed all key issues and satisfied that the sub-project designs are environmentally and socially compliant, the EO will clear the sub-project through to the ZMC/PTCs Project Team, which will provide review results to design consultant for final incorporation into design and/or subproject ESMP and proceed through standard project authorization.

Any proposed infrastructure subproject that does not comply with the requirements of RGoZ environmental policies and legislation and World Bank Safeguard Policies will not be cleared for approval. This process is designed to ensure that the environmental and social assessment process is part of and conducted during the design process thereby ensuring that the infrastructure development activities are environmentally and socially sound and sustainable.

Step 10: Final Disclosure of Approved Sub-Project Instruments

Upon final clearance of the sub-project, ZUMC/PTCs/DoURT through Project Teams will disclose the approved sub-project information (ESIA, ESMP) to the public. More than one avenue can be used as most suitable to the project area however at the minimum the Team shall ensure that the key findings of the environmental and social impacts and mitigation process are:

- Presented and discussed at least one meeting of relevant Shehia and Ward Management Committees
- Presented and discussed at least one meeting of Council Environmental Committee and ZUMC Full Council
- Accessible in a public place i.e. notice board, public information point /center/ library, Shehia, Ward, District and Regional offices etc.
- Presented in an understandable form, manner and language by using the non-technical summaries of the ESMP that is in both Kiswahili and English.
- Review and approval by the World Bank and disclosure in World Bank InfoShop.

8. PROCEDURE FOR SUB-PROJECT IMPLEMENTATION, MONITORING AND REPORTING

Below is description of procedure for implementation of mitigation measures and management controls of environmental and social impacts identified during impacts assessment process for the proposed subproject. The process hinges on implementation of the ESMP and ESMoP by different actors including contractors and their supervisors; environmental management authorities at local and higher levels; and local management committees and communities at large.

8.1 Development of safeguard instruments (ESIA, ESMP, RAP, HIA)

According to Zanzibar Environmental Management Act, 2015 and its subsequent regulations and World Bank safeguards requirements on ESIA (highlighted in Chapter 7) in the event that a subproject is categorized for detailed assessment, a full ESIA and ESMP will be required (as determined in the Screening, **Annex B**); for subprojects with modest impacts a standalone ESMP will be prepared by project proponent and for sub-projects with minor impacts, environmental measures will suffice. The contractor will be required to prepared site specific/Construction ESMP before commencement of works.

Ministry of Finance through PMT and Ministry of Infrastructure, Communication and Transport through PIU will be responsible for ensuring that these requirements are met. Preparation and approval of environmental and social management reports and/or plans and subsequent implementation of the Plans will include participation of a number of actors highlighted in this ESMF notably, the necessary appraisals, approvals and implementation supervision which require by the law, involving the responsible government authorities and service providers (Contractors, Consultants), respective Municipal, Regional and District leaders, local authorized environmental, social and land management offices and committees and leaders in affected Wards and Shehias.

8.2 Sub-project Implementation Procedure

8.2.1 Purpose of the Sub-Project Implementation Procedure

The purpose of this process is to enable the various subprojects/ESMP implementing entities to:

- ensure that implementation of the sub-project ESMP prepared by the client and development of site specific ESMP (C-ESMP) by the contractor is part of the Contractor's contractual obligations
- ensure the ESMP is implemented and approval conditions are observed during the mobilization, construction and operation of the sub-project including preparation and execution of environmental and social decommissioning plan in case the project or its component reaches the end of its life.
- monitor compliance to laws, regulation and standards including local by-laws
- monitor performance and report on all aspects articulated in the ESMP including record of and responding to grievances.

Main steps of the environmental and social management and monitoring process including mandatory initial preparation and implementation supervision are described below. The salient

aspects of the process to be established at ZUMC, each participating PTC and other project implementing partners shall include 4 main steps with sub-steps:

1. Preparations
2. Implementation Supervision
   - RAP Implementation
   - Sub-project ESMP Implementation
3. Monitoring and Reporting
4. Subproject Review and Audit

Step 1: Preparation

Procurement of Contractors
The Project Teams will ensure that all relevant resources (human and financial) for proposed mitigations are completed before initiating subproject implementation. Execution of infrastructure development works and operation of some facilities (e.g. wastewater treatment, storm-water drainage) will be undertaken by ZUMC/PTCs/DoURP through Contractors. Working with the Procurement Section (responsible for supervising the tendering process) the Project Team will ensure environment and social issues are taken onboard and incorporated in the contracts.

Construction phase: PMT and PIU shall award the development of entire sub-project to contractor through one turnkey construction contract. PMT and PIU, through the ZUMC/DoURP Project Team and Design Consultants (with requisite capability/experience in environmental and social impacts mitigation/ integration) shall develop the Scope of Work (SoW) including choice of location, technology, layout etc.) while the Subproject Contractor shall execute the SoW including detailed engineering and implementation of ESMP components relevant to mobilization and construction/installation in accordance to international and Tanzania/Zanzibar specifications and standards.

Construction supervision consultancies experienced in environmental and social management will be procured to work with ZUMC/PTCs/DoURP Environmental Officers to supervise construction of subprojects and to transfer skills to technical staff.

Operation & maintenance: Infrastructure, once complete, will be maintained by respective LGAs (ZUMC/PTCs/DoURP), and other implementing agencies including implementation of operations aspects of the ESMPs linked to sub-projects. These tasks are long-term and will be done by infrastructure sector specialists. Depending on the nature of the subproject BIG-Z may award one contract for operations and maintenance of the facility such as wastewater treatment facility. Proponent Environmental Officers shall undertake monitoring of operations aspects of the ESMP while coordinating input and involvement of local management committees and communities.
ZMC/PTCs contributions: will continue to make in kind contributions in the form of staff time. PMT will continue to provide support to assist ZUMC in the implementation and monitoring of both the construction and operation aspects of sub-projects including organizing technical assistance and training.

Permits and Notifications

The sub-project implementation shall be carried out in accordance to international and Tanzania/Zanzibar environment, health, safety and security requirements, standards and best practices including all conventions ratified by the RGoZ. The equipment and materials used will have all necessary certification/registration and fully compliant with specific requirements for subproject size and purpose.

Proponents will seek and obtain the necessary permits and/or MOUs from relevant authorities and undertake notifications as per environmental management regulations (Table 16). The Project Teams will ensure that all relevant project approvals including ESIA Certificate, OSHA etc. are in place. PMT and PIU and implementing partners/agencies will carry further the consultations before commencement and during the implementation of individual subproject.

Table 16: Permit Requirements and Notification to Relevant Authorities

Type of Permit / Notification	**Relevant Authority / Stakeholder**
Use of existing Right of Ways (e.g. road way-leaves)	- Roads Department Road fund (main roads)
Other users of roads Right of Ways	- Electricity transmission lines (ZECO) - Water supply system Zanzibar Water Authority (ZAWA) - Transition cables (e.g. fibre optics) - Gas pipeline (future projects)
Notification to HSSE authorities	- Land transport regulatory authority (for ZNZ) - ZMA (Zanzibar Maritime Authority) - Lands and surveys - OSHA - Fire and rescue - Sources of construction materials
Notification of key stakeholders in Unguja and Pemba	- DoURP - ZEMA (Director General and Directors of EIA and Enforcement).
	- Ministry for Environment (Minister & PS) - Department of Environment) - Regional and Local Government Authorities (Regional - Commissioners, District Commissioner, Municipal /Town Directors; Chairpersons of Council Environment Committees. - District environmental officers, District health officers
Building permits	- Building permits – Stone town conservation development authority (STCDA) - ZUMC- Building permits department

Community/Public Mobilization and Sensitization
Community financial contributions (as condition of construction commencement) are not a requirement under BIG-Z because, in urban settings, it could lead to delays. Stakeholders should be directly involved in project implementation and monitoring. Public awareness and mobilization shall be mandatory before commencement and throughout implementation of a subprojects financed by BIG-Z. Affected people and stakeholders shall be informed about the outcome and decisions on the ESIA approval process, schedules of project implementation and who, how, where, when they will participate.

Step 2: Implementation Supervision

Implementation of RAP
Subprojects will be mostly sited on the current location of existing infrastructure. Where land is required, i.e. rerouting, expansion or extension, or establishment of new infrastructure, the subproject will utilize land designated by LGA or land acquired from individuals. Compensation procedures and payment of compensation costs by PMT/PIU/ZUMC/PTCs/ will be in accordance with RAPs prepared and approved for respective subprojects in accordance with the Resettlement Policy Framework (has been developed in parallel to this ESMF), as required by World Bank Op 4.12. Support will be provided to assist in implementation of the RAPs prior to commencement of construction contracts including payment of compensation costs.

Implementation of Subproject ESMP
The preparation of an Environmental and Social Management Plan (ESMP) is a requirement of the Zanzibar ESIA Regulations/Procedure and World Bank OP 4.01. The plan should provide guidance for implementation of the identified mitigation measures, and indicate costs[12], timeframe and assign responsibilities. PMT, PIU and the Partners (ZMC/PTCs) will be responsible for overall implementation of the ESMP.

Management Controls by PMT/PIU/Partners
Implementation of the ESMP is solely the responsibility of the sub-project proponent. PMT and PIU shall supervise and monitor all components implemented by the Contractor(s). The project shall provide the necessary supervisory oversight to ensure the mitigation measures are implemented. All aspects of the proposed subproject development and operation will be managed to comply with this ESMF and Zanzibar's environmental regulatory requirements and standards.

During the construction and operation of the subproject, PMT and PIU will apply a systematic approach to optimize the Health, Safety, Security and Environment (HSSE) performance for the project and ensure that its HSSE objectives and management standards are achieved. The project will continuously undergo a comprehensive planning process to ensure that the management requirements identified are implemented on site through clear designation of roles and

[12] The estimated costs for implementing the mitigation measures are usually indicative. Appropriate bills of quantities should provide actual figures. The ESIA consultant must use informed judgement to determine the figures.

responsibilities. The management requirements will be incorporated into implementation strategy for the project via the following key procedures and plans:

- Pre-tender HSSE qualification process including development of environmental specifications
- Contractual and procedural controls on the selected subproject Contractor (i.e. inclusion of environmental conditions in contractual documents)
- General Management Programs and subproject proponent management plans to guide the Contractors include:
  - Waste Management Plan
  - Health, Safety and Security Plan
  - Stakeholder Management Plan
  - Emergency Response Plan (ERP)
- Direct project supervision
- Review/auditing and reporting of environmental performance/improvement of implementation.

Management Controls by Sub-project Contractor

The Contractor shall ensure that those mitigation measures that are to be implemented during mobilization and construction and operation are attended to according to ESMP and specific work plans. The Contractor shall simultaneously undertake monitoring and reporting of environmental performance/improvement of implementation. Mitigation implementation shall specifically entail:

Development of sub-project specific work plans to include:

- Waste Management Plan
- Health and Safety Plan
- Stakeholders Engagement Plan
- Emergency Response Plan (ERP)

Basic environmental and social guidelines for contractors and the Project Teams are included in **Annex C.**

Environmental Induction

The purpose of the induction is to encourage environmental and social responsibility among all personnel and ensure that the personnel are made fully aware of the measures required to be implemented to minimize the potential impacts on the environment, prior to the commencement of the project. The personnel with responsibilities in specific environmental practices will be adequately trained to ensure effective implementation of the works instructions and procedures for which they have responsibilities. This induction should address the subproject Health Safety, Security and Environment Plan (use of PPE, firefighting facilities); good site practices and housekeeping; sound waste management (handling/cleanup of contaminating spills, storage, use and disposal of hazardous materials/wastes); and interactions with local community.

Participation and Involvement of Stakeholders

Taking cognizant of the fact that much of the sub-project activities will take place within urban local government authority sub-projects are likely to interact with a number of stakeholders currently known and unknown. It will be the responsibility of ZUMC/PTCs/DoURP EOs working with the sub-project Contractor's Environment Liaison Officer to coordinate the involvement of relevant government authorities and service providers and meet related costs.

Stakeholders Engagement Plans for Sub-project.

The Stakeholder Engagement Plan (SEP) developed during ESIA and RAP preparations identifies the roles of key stakeholders that should be further elaborated in the relevant sections of the ESMP. These would include government authorities at all levels responsible for Environmental and social impacts monitoring as well as community mobilization and awareness[13]; infrastructure and utilities authorities (for water supply, wastewater disposal services, electricity power supply services (if relevant), connection of access road to highway) as well as local communities and their leaders and committees in area of influence. Other stakeholders include private and public entities providing support and facilities for waste disposal, materials supply etc.

Environmental and Social sensitization and awareness

The awareness and sensitization programme should be developed using guidance from SEP; will be implemented with participation of the subproject Contractor to ensure continued project acceptance by the stakeholders' groups, manage expectations and minimize conflicts. The programme shall be developed mindful of type of communication information, awareness creation tools, communication channels and messages fit for specific targets/audience. The key aspects shall include but are not limited to:

- Sub-project development and operation schedules and activities
- Management of expectations – employment services provision; access to Project facilities and services (water supply, reusable items etc.)
- Defining issue of land take, user rights and access
- Project's health, safety, and security procedures and requirements concerning the communities (site hazards during construction; vehicle movements and traffic accident; interactions with project personnel; exposure to disease and transmissions (HIV/AIDS).

Grievances Redress Procedures

Grievance redress mechanism is essential tool for facilitating project affected people (PAPs) to voice their concerns about the resettlement, compensation and project implementation process as they arise and, if necessary, for corrective action to be taken promptly. Such mechanisms are fundamental to achieving transparency in the acquisition and resettlement processes, as well as provide a clear way for PAPs to voice concerns about overall project activities. Greater detail on grievance procedures specific to resettlement can be found in the RPF. This section outlines general grievance procedures applicable for any PAPs with concerns about broader project activities and

[13] RC's Office, Municipal and Town Councils office: Environment Management, Community Development, Health, Natural Resources, Human Resource, Land Management, Civil Works Engineers, Water Engineer

grievances related to other social issues such as gender-based violence and sexual harassment (GBV/SH). Grievance redress mechanism specific to subproject will be prepared before commencement of construction phase. First, three committees are being established to address grievances as detailed in the table below.

Table 17: Committees for grievance redress mechanisms

Resettlement Committee	Compensation Committee	Grievances Redress Committee (GRC)
• PMT- Coordinator or PIU Project Manager (Chair) • Representative of District Commissioner • Representative of subproject proponent e.g. ZUMC • Representative of Ministry of Lands • Consultant • Representative of a local Administrators/Shehia • Representative of PAPs	• Principal secretaries of Ministry of Finance or Infrastructure, Communication and Transportation (Chair) • Representative of District Commissioner • Representative of subproject proponent e.g. ZUMC • Representative of Ministry of Lands • Consultant • Representative from the PMT and/or PIU • Valuer • Representative of PAPs	• District Commissioner (Chair) • Representative of subproject proponent e.g. ZUMC • Representative of Ministry of Lands • Valuer • Representative from PMT and/or PIU • Representative of PAPs • Representative of a local NGO

Resettlement Related Grievances

All attempts would be made to settle grievances. Those seeking redress and wishing to state grievances would do so by notifying their Sheha who is the government representative at Shehia level. For resettlement issues, the Sheha will inform and consult with the Resettlement Committee for compensation issues, to determine claims validity. If valid, the local Sheha will notify the complainant and s/he will be settled. If the complainants' claim is rejected, then the matter will be brought before the Regional Administration for settlement. The decision of the Regional Administration would be final and all such decisions must be reached within a full growing season after the complaint is lodged.

If a complaint pattern emerges, the subproject proponent, regional administration and the department of lands will discuss possible remediation. The local leaders will be required to give advice concerning the need for revisions of procedures. Once they agree on necessary and appropriate changes, then a written description of the changed process will be made. The subproject proponent, the Regional Administration and Sheha will be responsible for communicating any changes to future potential PAPs when the consultation process with them begins.

General grievances

A Grievance Redress Committee (GRC) will be responsible to register and address the grievance raised by the PAPs or by the representative of PAPs. The Grievance Redress Committee will try as much as possible to arrive at a compromise for the complaints raised. This may be obtained through series of conciliations, mediations and negotiations exercises conducted with the PAPs.

If PAPs accept the recommendations made by the committee, the committee along with PAPs who are willing to take part in these proceedings may hold mediations at the appointed places. In situations where PAPs are not satisfied with the decision of Grievance Redress committee, the PAPs can approach the Tribunal/court of law. The response time for cases handled in the committee will depend on the issues addressed but it should be as short as it is possible.

GBV/SH related grievances

Grievances related to GBV/SH will be received using different approaches. The grievance redress Mechanism (GRM)for each subproject will include multiple channels through which complaints can be registered in a safe and confidential manner, specific to the nature of the investment. The complainant reporting GBV related grievance for subprojects financed under BIG-Z project will be asked, at most, the following information:

- type of complaint (explain of his/her own words without direct questioning),
- if the perpetrator was associated with the project,
- sex and age of the survivor

The grievance redress committee will ensure GBV survivors of access to service (psychological, health, security, shelter etc.), adopt survivor centered approach when resolving the grievance while maintaining confidentiality and treating survivors equally and fairly.

Step 3: Subproject Monitoring and Reporting

Objectives for Monitoring

The objectives for monitoring are: (i) to alert project implementing institutions and to provide timely information about the success or otherwise of the ESIA process as outlined in this ESMF in such a manner that changes to the system can be made, if required; (ii) to make a final evaluation in order to determine whether the mitigation measures designed into the infrastructure projects have been successful in such a way that the pre-infrastructure project environmental and social condition has been restored, improved upon or worse than before.

A number of indicators would be used in order to determine the status of infrastructure, affected people and their environment. The following three major socio-economic goals by which to evaluate its success:

- Project beneficiary institutions are able to maintain their pre-project capacity to plan, construct, and maintain their infrastructure and even improve on it;
- The pre-infrastructure development environmental state of physical and biological natural resources e.g. land, water, bio-diversity has been maintained or improved upon;

- The pre-infrastructure development social and economic state (livelihoods, heath status Subproject) of project affected people (PAP) has been maintained or improved upon.

Monitoring Indicators

In order to assess whether these goals are met, the infrastructure projects will indicate parameters to be monitored, institute monitoring milestones and provide resources necessary to carry out the monitoring activities. Monitoring indicators which should be included in the Project Monitoring Manual include:

- Environmental indicators
  - Efficiency of infrastructure projects maintenance and operating performance;
  - Water quality and soil quality at site and outlet (e.g. final exit of storm water drains) of infrastructure sub-project meets local standards
  - Compliance with the Environmental Guidelines for Contractors
  - Safe disposal of hazardous wastes
  - Adoption of the specific ESIA process by the PMT/PIU/ZUMC; evaluate the rate of adoption;
  - Number of environmental resource persons within the LGAs and other implementing agencies who have successfully received ESIA training e.g. screening methods, monitoring of ESMP implementation; evaluate the training content, methodology and trainee response to training through feedback;
- Social indicators
- Number of people provided with environmental training to implement the ESMF
- The number of local workers used during implementation of the works
  - Savings in costs for resources and services required to maintain the infrastructure (water, energy, management of liquid and solid waste etc.)
- Subproject performance o Level of construction standard of the roads and drainage;
  - current management of practices of waste – solid, waste water, storm water compared to baseline;
  - sanitation condition of the urban area compared to baseline;
  - level of capacity and knowledge on environment and social management issues compared to baseline;
  - level of participation of other stakeholders in project activities compared to before

Step 4: Subproject Review and Audit

After a period of implementation, the ESMPs of sub-project should be subject to annual reviews / audits. Annual Reviews of sub-projects will be carried out using external/independent reviewers/auditors as commissioned by PMT and PIU. These are to be Third Party audits (by independent Local Consultant, NGO or Service provider) which will review the implementation of environmental and social management in the project.

9. SUBPROJECT IMPLEMENTATION ARRANGEMENTS

9.1 Environmental and Social Management Plan

Implementation

Several stakeholders will come into play during implementation of the ESMP. It will be the responsibility of PMT and implementing Partners (ZUMC/PTCs/DoURP) to oversee the performance of the sub-project Contractor and service providers and coordinate the involvement of relevant third party: government authorities and communities and meet related costs. The Environmental Officer shall be designated to manage the ESMP and to make day-today follow-ups (supervision and liaising with stakeholders).

9.1.1 ZUMC/PTCs Roles and Responsibilities for Key Personnel

The roles and responsibilities for managing environmental and social issues associated with the proposed sub-project will rest principally with the Project proponent (beneficiary), PMT, PIU and implementing partners (and sub-project Contractor engaged) with certain aspects assisted by ZEMA.

Environmental Officer (EO) at ZUMC/PTCs/DoURP **-** overall responsible for oversight of environmental compliance and project environmental management, including overall responsibility for ESIA compliance and all project issues along the entire lifecycle. The EO shall provide day-to-day supervisory role during the entire construction period. The EO is the principal interface to the governmental regulatory bodies, local administration and other interested stakeholders. The EO will ensure that the mitigation measures that are to be incorporated in the designs are completed before the implementation of the project.

Communication and Citizen Engagement Specialist at PMT and PIU will be responsible to conduct direct project engagements with stakeholder as well as participate in engagements conducted by the project contractors. Under the assistance of ***Community Development Officer (CDO)*** from ZUMC/PTCs, the specialist will document all engagements which steward the engagement information. Actively involved in the assessment and closure of grievances.

Land Acquisition and Resettlement Officer at ZMC/PTCs/DoURP – overall responsible for ensuring that the subproject proponent complies with national requirements as relates to land acquisition and resettlement while attempting to influence, advise and support their efforts to comply to international best practice and requirements. The Land officer will also ensure that all relevant engagements and consultations are conducted with the affected households as relates to the subproject.

9.1.2 Contractor Roles and Responsibilities for Key Personnel

Environmental Liaison Officer (ELO)

The sub-project Contractor shall designate among its staff /appoint an officer to act as Environmental Liaison Officer (ELO) and he/she will be responsible to ensure the environmental and social management mitigation measures are implemented during the contract period. The ELO

will report to the EO at ZMC/PTCs/DoURP. The ELO after being provided with the required capacity shall be responsible for:

- Establishing contacts, procedures, memorandum of understanding (MOU), where applicable, for interaction with relevant authorities and communities
- Keeping record of materials and technologies used and actions performed and reporting on the same (environmental monitoring and reporting).
- Documenting all complaints/conflicts/disagreements with details of the persons involved and the subject matter.
- Coordinating necessary studies/inspections of environmental performance (self-audits).

9.2 Monitoring and Reporting

Environmental monitoring needs to be carried out during the mobilization, construction as well as operation and maintenance phases of the sub-project in order to measure the success of the mitigation measures implemented earlier, the responsibilities for monitoring and evaluation of the mitigation measures adopted would be assigned as follows:

- The sector specialists (Engineer) is responsible for the day-to-day monitoring of the subproject ESMP including supervising aspects implemented by the Contractors and resolving grievances specifically the monitoring of (i) the environmental and social assessment work to be carried out by service providers; (ii) overseeing the implementation of the Resettlement Action Plans; (iii) monitoring of environmental issues and the supervision of the civil works contractor during the construction process (iv) monitoring of environmental issues during operations and during maintenance of the infrastructure facility (iv) submission of monitoring reports to ZUMC/PTCs Environmental Offices/ZEMA. The monitoring and reporting will be done by the Municipal sector specialists who will be trained. He/She shall bear the overall responsibility of supervision of the infrastructure projects and shall report to PMT and PIU.

- The Environmental Officer (EO) at ZUMC/PTCs/DoURP will have a supervisory monitoring role to ensure that the mitigation measures indicated in the ESMP are actually being implemented and reporting on all environmental and social management issues within the LGA and to ZEMA throughout the project life-cycle as required. Specifically, EO will undertake compliance monitoring to check whether prescribed actions have been carried out. In close collaboration with the infrastructure project implementers (sector specialists/ Engineer) the EO will ensure that the monitoring plan as contained in the individual infrastructure project proposals is implemented as stated therein. EO will consolidate the project-specific monitoring report into one common report and submit the report to PMT, PIU and ZEMA.

- Members of the Community: Will undertake-after awareness raising - effects monitoring (which records the consequences of activities on the biophysical and social environment). This will be done throughout the infrastructure project cycle: (i) During planning phase - participate in the identification of indicators for monitoring the mitigating measures; (ii) During implementation (construction) phase, monitoring the execution of works with respect to environmental aspects, e.g. verify the compliances of the Contractors with their obligations; (iii) During operation and maintenance phase, the overall environmental monitoring and

alerting on any emerging environmental hazards in conjunction with the ongoing infrastructure project activities. The communities will be enabled to pass on their observations and concerns through the existing administrative structure of the local governments i.e. Shehia/Ward councils and environment committees to Municipal Environmental Officers who will have direct link with ZEMA/PMT/PIU.

- ZEMA will perform an enforcement monitoring role supported by PMT and PIU based on submissions and recommendations from the EIS/EO. The ZEMA will ensure that the monitoring plan for the overall monitoring of the entire BIG-Z requirements is implemented with particular focus on monitoring potential impacts of the infrastructure subprojects on a municipal level and to ensure that individual infrastructure subproject mitigation measures are effective municipal level. ZEMA would primarily achieve this objective through periodic field visits, coordinating and implementing the Training Program and through technical assistance and backup services to the BIG-Z.

- PMT and PIU will perform monitoring functions for the entire BIG-Z. Monitoring and Evaluation guidelines developed to monitor the entire project will include parameters for compliance to proposed measures to safeguard the environmental and social impacts. Monitoring activities by the Implementers, Environmental Officers/ZEMA will be performed periodically through performance surveys/audits.

9.3 Capacity Building for Implementation of ESMF

Capacity of PMT, PIU and implementing partners is critical for ensuring BIG-Z subprojects adhere to the principle of sustainable development through meeting the requirements of environmental and social safeguard standards of RGoZ and World Bank. Capacity building activities are included in the project to provide adequate training, strengthen the management and technical capacity of implementing partners, which will be responsible for ensuring that safeguard requirements are enforced during operation phase of subprojects.

Potential training would focus on environmental and social safeguard standards and practices of the World Bank and RGoZ, safeguards screening, different methods and tools used for environmental and social assessment and good practices (infrastructure and sanitation sectors), implementation, supervision and monitoring.

Institutional strengthening and innovation: this ESMF will apply the proposed technical assistance for capacity building related to institutional strengthening and innovation on governance particularly on applying innovative technologies for managing development under project subcomponent 2.2.

9.3.1 Training Needs Assessment (TNA)

Before selection of specific trainings that will be conducted, training need assessment will be conducted to identify gaps of knowledge, skills and abilities for employee who will be involved in implementation of safeguards related activities. The gap between existing capacity and required

one for successful implementation/supervision of environmental and social safeguards related actions will be used for identification of specific training. Training needs assessments will include PMT, PIU and all implementing partners i.e. ZUMC, PTC and DoURP.

9.3.2 Technical Training of Designated Staff in Environmental Management, ESIA and M&E

About 20 designated staff from the implementing institutions will be trained. This could include subproject sector specialists (i.e. Municipal Engineer), EO and staff from departments responsible social planning/Community Development, Economic Planning, Urban Planning, Land and Health. This training would be provided in the form of a 5-day course. Cost for the course would include; per diem, food, transport, accommodation, conference hall, incidentals for participants, trainers and support persons.

9.3.3 Workshop for Decision Makers

About 20 people from the Participating institutions will participate in two training workshops. Each workshop will last for one day; workshop costing include; per diem, food, transport, accommodation, conference hall, incidentals for participants, resource persons and support person).

9.4 Budget Estimates for ESMF Implementation

Indicative Budget for effectively implementation of environmental and social management measures suggested as part of this ESMF is presented below.

Table 18: Budget Estimates for ESMF Implementation

ACTIVITY	PARTICULARS		USD ('000)
Institutional Development	Policy Workshop (Decision Makers)		12
	Regulatory and Administrative changes		5
Training	Training Needs Assessment		50
	LGA Review and approval authorities	Training and sensitization	35
		ESMF review workshop	20
	Project Teams	Training and sensitization	60
		ESMF review workshop	60
	Community leaders' awareness raising and sensitization		30
Technical Assistance	General TA		45
	Specific TA		60
	Risk Assessment		25

Subproject ESIA, ESMPs, RAPS	ESIA/ESMPs		160
	RAPs		150
Annual Review			60
TOTAL			**772**

REFERENCES

Various reference materials were reviewed during preparation of this framework. ZUSP and BIG-Z projects documents such as ZUSP-AF Scoping and ESIA reports, RAPs, Environmental and Social Audit reports of subprojects, environmental and social management frameworks were reviewed. Furthermore, draft project appraisal document for BIG-Z project was reviewed. Other reference materials used for preparation of this document are as listed below.

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ANNEXES

ANNEX A: DETAILED BIODIVERSITY INVENTORY

Following is a detailed inventory of biodiversity in Zanzibar in order to determine any vulnerable, threatened or endangered species that might be present in the project area.

Floral Diversity

Zanzibar consists of a mosaic of vegetation ranging from short coral rag bushes and thickets to higher, closed forests. Like many tropical forests, closed forests of Zanzibar have a bottom layer of herbaceous species, a network of climbers and upper layer of perennial species. Key variety of dominant species includes Coconut (*Cocos nucifera*), *Areca catechu* (Mpopoo), *Elaeisguneensis* (Mchikichi), Raffia palm or *Raphia farinifera* (Muwale), *Phoenix reclinata* (Ukindu), and many more. There are also many species of medicinal significance, some with ornamental value, and others available for a multitude of uses.

In general, dominant exotic species in Zanzibar include pines or conifers such as *Pinus patula* (Misonobari), various species of Eucalyptus or Mikaratusi (e.g. *E. zanzibarica* and *E. modernii*, *Casuarina equisetofolia* (Mvinje), *Acacia ingusetefolia*, *Terminalia catappa* (Mkungu), *Terminalia everensis* (MkunguwaKihindi), Teak or Msaji (*Tectonagrandis*), and *Callophylluminophyllum* (Mtondoo). These tree species have been planted in most forests as well as in different places in Zanzibar such as along the roads and surrounding other building complexes.

Jozani Forest Reserve - located about 35 km south of Zanzibar town in the island of Unguja, Jozani is the largest forest reserve in Zanzibar. There are also isolated pockets of natural and established forest stands which are found in the following locations: *Masingini*– Located a few kilometers north-east of Zanzibar town, which is maintained by the forest sub-commission. *Masingini* and the adjoining *Mwanyanya* have both natural and established forests. A nursery located at *Mwanyanya* is instrumental in afforestation activities in Zanzibar. *Kichwele* - located in northern part of Unguja island is popular for its rubber plantation (about 600 ha) but the neighboring areas of *Pangeni*have a good stand of natural forest. *Kiwengwa* - north-east of Unguja Island has only recently been recognized as an area in need of a wellplanned conservation scheme.

Fauna Diversity

Mammals

Zanzibar's mammal population is very small with only 54 terrestrial species, out of which 23 species are bats. Most of the mammals are found on Unguja Island. Key mammals of conservation concern include: **Red Colobus Monkey (*Procolobuskirkii*) – IUCN Status – ENDANGERED**: This species is endemic to Zanzibar Island where it occurs at elevations of 0110 m. It is found mainly in the south-eastern part of the island in Jozani-Chwaka Bay National Park, the adjacent agricultural areas to the south, and the coral thickets and mangrove swamps of Uzi Island 10 km to the south-west. Also found at low densities in isolated populations in the coral thickets along Zanzibar's eastern coast from Kiwengwa in the north to Mnyambiji in the south, and on the west

coast there is a small isolated group in the mangrove swamps of *Maji Mekundu*. A small translocated population of ca. 56 individuals also occurs in *Masingini* Forest Reserve.

The remaining populations are severely threatened by habitat destruction resulting from timber felling, charcoal production, clearance for cultivation, and bush-burning. This species is occasionally shot for food, sport, or as a supposed crop pest, but habitat loss remains the most serious threat. In Jozani Chwaka Bay National Park, habitat degradation occurred in the past mainly from commercial logging, agriculture, tree-cutting for fuelwood, and charcoal production, but this has now stopped. There are occasional deaths due to road kills south of the park.

Bush Tailed Mongoose (*Bdeogalecrassicauda*) – IUCN Status – LEAST CONCERN: The nocturnal and shy mongoose inhabits the coral rag forest of the south-eastern area of Unguja Island but in Pemba it is found in the deep soil areas on the western side of the island. The local name in Pemba is "*Chonjwe*" and hobby hunters usually encounter this mongoose when hunting for the Small Indian civet.

Zanzibar Tree Hyrax (*Dendrohyraxvalidus*) - IUCN Status – NEAR THREATENED: also nocturnal, this tree hyrax is common in Jozani and its habitat comprises trees and caves in coral rag forest. It is believed to be the earliest hyrax species adapted to forest life and possesses the characteristic of having four digits on its front feet and three on its hind feet. The main threats to this species are severe forest loss, degradation, fragmentation (mainly due to logging and burning), and hunting, logging, including selective logging of large trees, removal of shelter trees, destruction of arboreal pathways.

Zanzibar Slender Mongoose (*Herpestessanguineus*) – IUCN Status – LEAST CONCERN: This is a common resident of coral rag forest. Present in a wide variety of habitats and occur on forest fringes, and may penetrate into forests along roads and are sometimes found around villages. Slender Mongooses are generally carnivores, their diet primarily comprising of small vertebrates and invertebrates

Zanzibar Suni or Dwarf antelope (Neotragusmoschatus) – IUCN Status – LEAST
CONCERN: This is also a coral rag animal and commonly found in Jozani forest especially among *Psiadia arabica* and Todaliaspp trees. Usually found near water sources. Lifelong pairs protect a territory of 3 ha in which they raise one fawn per year under favorable conditions.

Zanzibar Leopard (*Panthera pardus*) – IUCN Status – NEAR THREATENED. LIKELY EXTINCT in ZANZIBAR. Its existence is debatable but believed to inhabit some areas of Unguja Island. The population size is totally not known, however, it is associated with witchcraft and is believed to be employed by evil-doers who keep the animal to scare others off their homes.

Zanzibar Giant Rat (*Cricetomys gambianus*) – IUCN Status – LEAST CONCERN. This is a species inhabiting the coral rag forest, common in Jozani forest but rare in other areas of Zanzibar.

It reaches up to a meter in length, including the tail. The burrow sites are changed in two weeks to reduce the risk of predation.

Four-Toed Elephant Shrew (Petrodromus tetradactyla) – IUCN Status – DATA **DEFICIENT** – This is a species that inhabits primarily coral rag areas of Unguja Island in low canopy forests; under dry leaves, and non-flooding areas. It is rarely seen and survives because of its nocturnal lifestyle.

House Shrew or Indian Musk Shrew (Suncus murinus) – IUCN Status – LEAST **CONCERN**. This is abundant in Unguja Island. Its habitats are coral rag forest and non-flooding areas. It is an important food source for omnivores and carnivores. It is an exotic species from south Asia with a body length of 19 - 20 m.

Black and Rufous Elephant Shrew (Rhynchocyon petersi) – IUCN Status – VULNERABLE SPECIES – FOUND INSIDE THE KIBELE PROJECT SITE PERIMETERS. The project zone provides a sanctuary to *Rhynchocyonpetersi* (or Black and Rufous Sengi, Black and Rufous Elephantshrew, Zanj Sengi). According to the International Union for Conservation of Nature (IUCN), the species is considered as VULNERABLE. The local population density of the BlackRufous elephant shrew may be affected as the species is already under the IUCN list of vulnerable fauna. The Department of Forestry and Non-Renewable Natural Resources will provide environmental protection guidelines including compliance with the Zanzibar Forest Act[14].

Lesser Bushbaby (*Galago senegalensis zanzibaricus*) – IUCN Status – LEAST CONCERN. This is a common species of Zanzibar and Africa as a whole. Its habitats are ground water forest, coral rag forest possibly mangrove forest. The lesser bush baby is distinguished from greater bush baby by its noticeable white patch stretching from forehead to nose. It is nocturnal.

Greater bush baby (Otolemurgarnettigarnetti) – IUCN Status – DATA DEFICIENT. This is a common species in Zanzibar and Africa as a whole. In Zanzibar, its habitat includes the ground water forest, coral rag forest and possibly mangrove forest. It possesses a muscular body for its arboreal lifestyle. It is nocturnal.

Syke's monkey (Cercopithecus mitis albogularies) – IUCN Status – LEAST CONCERN - This is a common species in Zanzibar as well as in Africa. Its habitats are ground water forest, coral rag forest and mangrove forest. The species is seen daily foraging with Red colobus monkeys in plantation and ground water forests of Jozani forest.

African civet (*Civettictiscivetta*) – IUCN Status – LEAST CONCERN. African Civet is listed as Least Concern because the species has a wide distribution range, is present in a variety of habitats, is relatively common across its range, is present in numerous protected areas, and has a

[14] http://www.iucnredlist.org/details/19708/0

total population believed to be relatively stable. It may, however, be undergoing some localised declines through hunting, including the off-take of wild animals (males) for the production of civetone, which is used as a fixing agent in the perfume industry.

Small Indian civet (*Viverriculaindicarasse*) – IUCN Status – LEAST CONCERN. This is an exotic species and its secretions were used in perfume. Locally known as "ngawa", it is common throughout Zanzibar (i.e. Unguja and Pemba). Its habitat ranges from Ground water forest during the drought, coral rag forest and grassland. It is solitary except during breeding.

Zanzibar Duiker or Ader's Duiker (*Cephalophusadersi*) – IUCN Status – CRITICALLY ENDANGERED. Aders' Duiker occurs on the main island of Unguja, Zanzibar, as a near endemic. In Zanzibar, Aders' Duiker inhabits tall, undisturbed coral rag thicket known locally as msitumkubwa of the Zanzibar-Inhambane regional mosaic (XIII). It is usually found singly, sometimes in pairs or trios and often, when encountered, may be following a troop of Sykes (Cercopithecus mitis albogularis) or Kirk's Red Colobus (Procolobuskirkii) monkeys feeding on discards and dislodged edibles from the canopy above.

Aders' Duiker appears to be loosely diurnal with a very acute sense of hearing and possibly smell. Aders' is a browser selecting for dicotyledenous leaves, seeds, sprouts, buds and fruits. Territories are maintained by facial gland secretions on prominent twigs and faecal heaps. In Zanzibar there has been a substantial amount of deforestation and forest degradation over the last 30 years. This has led to loss of habitat for Aders' Duiker, but also severe habitat fragmentation. Firewood is the primary source of income for a significant proportion of people living near the forest. Habitat destruction is probably the most significant threat to Aders' Duiker survival on Zanzibar.

Red-Legged Sun Squirrel (Heliosciurusrufobrachiumdolosus) – IUCN Status – LEAST **CONCERN**. Its habitats range from coral rag forest to plantation forest. It differs from Red Bush Squirrel by possessing a black, ringed tail. It is absent in Pemba island

Red Bush Squirrel (*Paraxeruspalliatusfrerei*) – IUCN Status – LEAST Concern. It is a common species of Zanzibar and Africa at large, which in Zanzibar resides in coral rag forest and ground water forest. Its ecology is not well known. It is absent in Pemba island.

Birds[15]

Avi-base, the World Bird Database has listed a total number of 276 bird species found in Zanzibar. About 6 species are categorized as endangered while 9 are exotic or introduced species.

VULNERABLE species include:

Cape Gannet	(*Moruscapensis*)
Pemba Scops-Owl	(*Otuspembaensis*)
Southern Ground-Hornbill	(*Bucorvusleadbeateri*)

[15] http://avibase.bsc-eoc.org/checklist.jsp?region=TZznza

Java Sparrow (*Lonchuraoryzivora*)

NEAR THREATENED species include:
EurasianCurlew *Numeniusarquata*
Great Snipe *Gallinago media*
Fischer's Turaco *Tauracofischeri*
European Roller *Coracias garrulous*
Fischer's Lovebird *Agapornis fischeri*

ENDANGERED species include:
Madagascar Pond-Heron *Ardeola idea*
MoheliScops-Owl *Otusmoheliensis*

Amphibians
Zanzibar is not known to having diverse amphibian species. There are studies by Pakenham on Amphibians and Reptiles of the Zanzibar and Pemba[16] which show a total of 19 species or subspecies of amphibians found on Unguja. Lately, Amphibian species[17] that have been trapped and recorded in the project zone during surveys carried out by other ESIA studies include *Arthroleptisstenodactylus* and *Mertensorphrinemicranotis*. A new species of frog, KassinaJozani[18] was discovered in Zanzibar in 2006. This is an ENDANGERED species.

Reptiles
Historically, common reptiles found on Unguja Island include 10 species of lizards and 23 species of snakes (Pakenham:1983). However, since the publication of the study, not many detailed research works have been dedicated on reptiles in Zanzibar although there are some social media pages that attempt to document identified snakes. Sometimes it is hard to say whether the identified snakes are actually native to the geographical range of Zanzibar or they are somehow exotic and invasive. More studies specific to reptiles in Zanzibar are required to determine the current environmental and ecological status of the species. Common snakes found in Zanzibar as of recent records include the Green Tree Snakes, the Eastern Green Mamba, the Brown Snake, etc.

However, with respect to overall reptiles list for Zanzibar, a recent online database of reptiles whose range includes Zanzibar contains the following species:

Agama mossambica PETERS, 1854
Aldabrachelys gigantea (SCHWEIGGER, 1812)
Amblyodipsaspolylepis (BOCAGE, 1873)

[16] R.H.W. Pakenham (1983) THE Reptiles and Amphibians of Zanzibar and Pemba Islands (With a Note on Freshwater Fishes). The Journal of East Africa Natural History Society and National Museum. Issue No. 177. Pp 1 40.
[17] http://www.amphibiaweb.org:8000/cgi/amphib_query?where-genus=Kassina&where-species=jozani

[18] http://www.iucnredlist.org/details/136136/0

Aparallactusguentheri BOULENGER, 1895
Atractaspisbibronii SMITH, 1849
Broadleysaurus major (DUMÉRIL, 1851) *Cyclodermafrenatum* PETERS, 1854
Elapsoideanigra GÜNTHER, 1888
Gastropholisvittata FISCHER, 1886 Hemidactylus *angulatus* HALLOWELL, 1854
Hemidactylus platycephalus PETERS, 1854
Hemidactylus puccionii CALABRESI, 1927
Hemidactylus turcicus (LINNAEUS, 1758) *Indotyphlopsbraminus* (DAUDIN, 1803)
Lepidochelysolivacea (ESCHSCHOLTZ, 1829)
Letheobialumbriciformis (PETERS, 1874)
Letheobiapallida COPE, 1868
Letheobiaswahilica (BROADLEY & WALLACH, 2007)
Lycophidionacutirostre GÜNTHER, 1868
Lycophidioncapense (SMITH, 1831)
Lygodactylushowelli PASTEUR & BROADLEY, 1988 Lygodactylusluteopicturatus PASTEUR, 1964
Lygodactyluspicturatus (PETERS, 1870)
Mochlusafer (PETERS, 1854)
Phelsumadubia (BOETTGER, 1881)
Philothamnusmacrops (BOULENGER, 1895)
Philothamnus punctatus PETERS, 1867
Philothamnussemivariegatus (SMITH, 1840)
Sepsinatetradactyla PETERS, 1874
Uromastyx princeps O'SHAUGHNESSY, 1880

Marine and Coastal Ecology and Biodiversity

Sea Water Quality Molly Moynihan (2010) carried out a study on how a rapid increase in Zanzibar's population, as well as a lack of proper sewage treatment, water quality and eutrophication have become serious issues on Unguja[19]. These issues not only threatened public health, but also threatened the health of nearby coral reefs. When data from bacterial enumeration was compared with recommended levels of enterococci for safe recreational waters, values revealed that Stone Town's water is unsafe for public swimming. Moreover, measured concentrations of ammonium from Chapwani Island exceeded those tolerable by healthy coral

[19] Moynihan, Molly, "Water Quality and Eutrophication: The Effects of Sewage Outfalls on Waters and Reefs Surrounding Stone Town, Zanzibar" (2010). *Independent Study Project (ISP) Collection.* Paper 827. http://digitalcollections.sit.edu/isp_collection/827

ecosystems. These results indicate that sewage pollution is causing, and will continue to cause damage to Stone Town's waters unless a new method of sewage treatment is created.

As follow up to the above research in 2010, Socorro Lopez (2104) carried an extensive study on the environmental impact of fecal contamination on the Zanzibar Town's marine environment[20]. Zanzibar Town is struggling to deal with the large amount of waste generated by growing populations and increasing tourist industries. In 2010, the waters surrounding Stone Town, a subsection of Zanzibar Town, were found to be highly polluted by fecal waste. Socorro's study attempted to determine whether pollution has lessened or worsened in the past four years. Furthermore, environmental components of the coastal area, particularly tides, were tested in order to determine whether they had an impact on pollution in the waters. Results suggest that the pollution at both sites has worsened and continues to pose a serious risk to public health. Furthermore, spring and neap tides had a significant impact on enterococci concentrations, but how these environmental fluctuations influenced concentrations at the Port was not entirely clear. If measures are not taken in the future to improve the pollution in Stone Town's coastal waters, there could be serious consequences to the local economy and the community's health.

Seagrasses

Studied around Chwaka Bay Area show a rich marine diversity. Seagrasses can function as habitat for a variety of organisms, including epiphytes such as microalgae, macroalgae, bacteria and a number of invertebrates such as echinoderms, crustaceans, molluscs, nematodes and polychaetes. The associated organisms within seagrass beds can affect seagrass ecosystem productivity and structure. Sceintists have reported the presence of about 11 species of seagrass communities around the Bay area, of which Enhalusacoroides, Thalassiahemprichii, Cymodocearotundata, Cymodoceaserrulata, and Thalassodendronciliatum are dominant species. Others are Syringodiumisoetifolium, Haloduleuninervis, Halodulewrightii, Halophila ovalis, Halophila stipulacea, and Nanozosteracapensis.

Fish

Fish diversity around Zanzibar is high but the inshore banks have been deteriorating due to overfishing and destruction of coral reefs. A high density of small fish species also attracts concentrations of large predators making Zanzibar Channel as among best areas of game fishing. Fish are more abundant where there are healthy coral reefs.

Dolphins

Common Dolphin species observed around Zanzibar include Spinner Dolphin (*Stenellalongirostris*), the Indo-Pacific Bottlenose Dolphin (*Tursiopaduncus*), and Indo-Pacific Humpback Dolphins (*Sousa chinensis*) which is categorized under IUCN Red List data Book as a Near-Threatened Species. Sperm and Humpback whales are regularly observed between July and November.

[20] Lopez, Socorro, "Pollution in Stone Town's Coastal Waters: An Assessment of Environmental Infuences on Fecal Contamination" (2014). Independent Study Project (ISP) Collection. Paper 1767. http://digitalcollections.sit.edu/isp_collection/1767

Sea Turtles

The species of sea turtle most commonly found in the waters around Zanzibar are the green turtle (*Chelonia mydas*), the hawksbill turtle (*Eretmochelys imbricata*) and the loggerhead turtle (*Caretta caretta*). Sea turtles are now classified as 'endangered' worldwide and Zanzibar's population of nesting sea turtles appears to be declining. The sea turtle population of Zanzibar appears to contain two components: a small nesting population, and a migratory population that feeds in Zanzibar but nests in other areas. Fishermen's estimates of the numbers of turtles nesting annually suggest that the nesting population (which consists of green and hawksbill turtles) have declined significantly in the last few decades, with signs of nesting activity being seen less than 10 times per year in the majority of areas.

Coelacanths

Other marine species of IUCN importance in the geographical proximity include the Coelacanth (*latimerachalumnae*) listed as critically endangered. Coelacanths found around Zanzibar are thought to have originated from the Comoros, extending their range into the archipelago of Zanzibar.

Sea Birds

A wide variety of sea birds are found around the shallow lagoons of the Indian Ocean in Zanzibar. Birds such as Sooty Terns (*Sterna fuscata*), Noddy Terns (*Anoud stolidus*), Crested Tern (*Sterna begii*) and masked booby (*Sula dactylatra*) are found on the sand banks, on the beaches, around inter-tidal flats and in the mangroves. Around a hundred species of birds have been documented from the Menai Bay Consrevation Area. These birds include Little Egrets, Cattle Egrets, Tellow Billed Egrets, Squaco heron, Night Heron, Purple Heron, Black Headed Heron, and Goliath Heron.

ANNEX B: SCREENING CHECKLIST

The following checklist has been designed to assist in the evaluation of infrastructure subprojects under BIG-Z. The form is intended to assist with Step 2 of the "Procedure for sub-project environmental and social screening, appraisal, review and approval" found in Section 7 of the ESMF. This will inform the safeguards policies triggered by the subproject and drafting the application for ESIA certificate at ZEMA.

The ESSF contains information that will allow project planners to determine the characterization of the prevailing local bio-physical and social environment with the aim to assess the potential infrastructure and technical assistencesubprojectsimpacts on it. The ESSF will also identify potential socio-economic impacts that will require mitigation measures and/or resettlement and compensation.

Name of sub-project…….

Implementing Institution (subproject proponent) ……

Name of the area in which the sub-project is to be implemented (N/A for technical assistance)

…….……

Name of Executing Agent/Contractor/Consultant.……

Name of the Supervising Agent ……

Details of person responsible for filling out this ESSF:

Name: ……

Job title:……..

Telephone numbers:……; …….

E-mail address……

Signature:……...

Date: …….....

PART A: BRIEF DESCRIPTION OF SUB -PROJECT

Please provide information on the type and scale of the subproject (area, required land, approximate size of total building floor area, if it is technical assistance state).

Provide information about actions needed during implementation (construction phase) including support/ancillary structures and activities required to build it, e.g. need to quarry or excavate borrow materials, laying pipes/lines to connect to energy or water source, access road etc. (N/A for technical assistance subproject)

Describe how the sub-project will operate including support/activities and resources required to operate it e.g. roads, disposal site, water supply, energy requirement, human resource etc. (N/A for technical assutence subproject)

PART B: BRIEF DESCRIPTION OF THE ENVIRONMENTALSITUATION AND IDENTIFICATION OF ENVIRONMENTAL AND SOCIAL IMPACTS

Describe the subproject location, siting, surroundings (include a map, even a sketch map)

Describe the land formation, topography, vegetation in/adjacent to the sub-project area

Estimate and indicate where vegetation might need to be cleared (N/A for technical assistance subproject).

Environmentally sensitive areas or threatened species

Are there any environmentally sensitive areas or threatened species (specify below) that could be adversely affected by the project?

Intact natural forests: Yes _____No _____

Riverine forest: Yes _____ No _____

Surface water courses, natural springs Yes _____ No _____

Wetlands (lakes, rivers, swamp, seasonally inundated areas) Yes _____No _____

How far is the nearest wetland (lakes, rivers, seasonally inundated areas, sea)? _____km.

Area of high biodiversity: Yes _____ No _____

Habitats of endangered/ threatened, or rare species for which protection is required under Tanzania national law/local law and/or international agreements.

Yes _____ No _____

Others (describe)……. Yes _____ No _____

Rivers, Lakes and Marine Ecology

Is there a possibility that, due to construction and operation of the project, the river and lake ecology will be adversely affected? Attention should be paid to water quality and quantity; the nature, productivity and use of aquatic habitats, and variations of these over time. Yes _____ No _____

Protected areas

Does the project area (or components of the project) occur within/adjacent to any protected areas designated by government (national park, national reserve, world heritage site etc.)

Yes _____ No _____

If "YES", Natural Habitats (OP 4.04) is triggered and/or Physical Cultural Resources (OP 4.11). Include appropriate mitigation measure to be taken in ESIA and ESMP.

If the project is outside of, but close to, any protected area, is it likely to adversely affect the ecology within the protected area areas (e.g. interference with the migration routes of mammals or birds).

Yes _____ No _____

Geology and Soils

Based upon visual inspection or available literature, are there areas of possible geologic or soil instability (prone to: soil erosion, landslide, subsidence, earthquake etc.)?

Yes _____ No _____

Based upon visual inspection or available literature, are there areas that have risks of large-scale increase in soil salinity?

Yes _____ No _____

Based upon visual inspection or available literature, are there areas prone to floods, poorly drained, low-lying, or in a depression or block run-off water

Yes _____ No _____

Contamination and Pollution Hazards

Is there a possibility that the project will be at risk of contamination and pollution hazards (from latrines, dumpsite, industrial discharges etc.)

Yes _____ No _____

Would the project procure or use pesticides, poisons, or rodenticides to control pests (insects, rodents, invasive birds)?

Yes _____ No _____

If "YES" then the Pest Management (OP/BP 4.09) safeguard policy is triggered. Carry out ESIA for appropriate measures for safe handling, use, and disposal of chemicals.

Landscape/aesthetics

Is there a possibility that the project will adversely affect the aesthetic attractiveness of the local landscape?

Yes _____ No _____

Historical, archaeological or cultural heritage site

Based on available sources, consultation with local authorities, local knowledge and/or observations, could the project alter any historical, archaeological, cultural heritage traditional (sacred, ritual area) site or require excavation near same?
Yes _____ No _____

If "YES", Physical Cultural Resources (OP 4.11) is triggered. Carry out ESIA for appropriate mitigation measure to be taken.

Resettlement and/or land Acquisition

Will involuntary resettlement, land acquisition, relocation of property, or loss, denial or restriction of access to land and other economic resources be caused by project implementation?

Yes _____ No _____

If "Yes" Involuntary Resettlement OP 4.12 is triggered. Please refer to the Resettlement Policy Framework (RPF) for appropriate mitigation measures to be taken.

Loss of Crops, Fruit Trees and Household Infrastructure

Will the project result in the permanent or temporary loss of crops, fruit trees and household infra-structure (such as granaries, outside toilets and kitchens, livestock shed etc)? Yes _____ No _____

Block of access and routes or disrupt normal operations in the general area

Will the project interfere or block access, routes etc (for people, livestock) or traffic routing and flows?

Yes _____ No _____

Noise and Dust Pollution during Construction and Operations

Will the operating noise level exceed the allowable noise limits?

Yes _____ No _____

Will the operation result in emission of copious amounts of dust, hazardous fumes?

Yes _____ No _____

Degradation and/or depletion of resources during construction and operation

Will the operation involve use of considerable amounts of natural resources (construction materials, water spillage, land, energy from biomass etc.) or may lead to their depletion or degradation at points of source?

Yes _____ No _____

Solid or Liquid Wastes

Will the project generate solid or liquid wastes? (including human excreta/sewage, asbestos)

Yes _____ No _____

If "Yes", does the project include a plan for their adequate collection and disposal?

Yes _____ No _____

Occupational health hazards

Will the project require large number of staff and laborers; large/long-term construction camp?

Yes _____ No _____

Are the project activities prone to hazards, risks and could result in accidents and injuries to workers during construction or operation?

Yes _____ No _____

PART C: MITIGATION MEASURES

For all "Yes" responses, describe briefly the measures taken to this effect.

PART D: ENVIRONMENTAL CATEGORIZATION AND SCOPE OF ESIA

Categorization

Based on the results of the screening, would the project have potential to cause (check one):

Impact/nature of subproject	**Check (□) if yes**	**Description**
Does the subproject deals with policy, plan or program?		If checked, the subproject requires SEA/SESA and should proceed according to ZEMA, 2015 and World Bank safeguards requirements
Significant, diverse, unprecedented negative environmental and/or social impacts (consider also impact during construction and operation phases for TA subproject)?		If checked, the project is a Category A and should proceed according to the ESIA standards for content, consultation and disclosure included in World Bank OP/BP 4.01, and the format for a full ESIA according to ZEMA guidelines.
Moderate environmental and social impacts that are largely site-specific (consider also impact during		If checked, project is Category B and should proceed with the appropriate level of environmental assessment (i.e. full or partial assessment) and include mitigation measures
construction and operation phases for TA subproject).		based on the safeguards policies triggered. EA should be consistent with ZEMA guidelines for EA.
Minimal or no environmental and social impacts (consider also impact during construction and operation phases for TA subproject).		If checked, project is Category C and can utilize basic environmental guidelines to mitigate any impacts or no further action required if no impacts noted in the checklist.

Please explain rationale for environmental category selected

Please tick all World Bank safeguard policies triggered

Safeguard Policies	**Triggered?** (check (□) appropriate)
Environmental Assessment OP/BP 4.01	
Natural Habitats OP/BP 4.04	
Forests OP/BP 4.36	
Pest Management OP 4.09	
Physical Cultural Resources OP/BP 4.11	
Involuntary Resettlement OP/BP 4.12	

Please outline next steps for compliance with ZEMA requirements and World Bank safeguard policies, including dates as relevant:

ANNEX C: ZEMA FORMAT FOR ESIA

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

- Title of the Environmental & Social Impact Statement
- Location (s) of the proposed Project's activities
- Project Proponent
- Lead Consultant(s)
- Contact Addresses – post office box number, fax and phone numbers, and email
- Reviewing Authority
- Approving Authority
- Date of completion of the report

Table of Contents:
The page of contents should contain the following:

- List of major sections of the report
- List of Tables
- List of figures (including maps, graphs and plates) and illustrations
- List of appendices
- Page numbers of the report

List of Acronyms

Definitions of technical terms

Non-Technical Executive summary of the Environmental & Social Impact Statement in both English and Swahili

Chapter 1: Introduction

- Brief description of the project – name, nature, size, location of the project, its
- importance and justification, etc
- Land description - Project location, Shehia, District, etc.
- Profile of the project proponent, organization, project consultants, etc.
- Objectives, Scope, and Study Methodologies
- ToR

Chapter 2: Project Description

- Project Feasibility Study and references from Detailed Project Document
- Details 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.
- Quantity of raw materials involved during the construction phase along with their source of origin.
- 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. Cost and budget, financial projection, etc of each project component should be highlighted Details of land acquisition, compensation, resettlement, incentives.
- Resources, manpower and time frame involved, etc
- 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 3. Description of the Environment:

This section should include a detailed biophysical profile of the project location:
- Topography of the proposed site should be clearly stated.
- Geology of the proposed site including soil profile and quality;
- Meteorological Data of the study area;
- Hydrological and Ground water survey of the project sites.
- Water quality assessment of surface and ground water in the project zone.
- Soil quality and atmospheric pollution assessment in the zone.
- Drainage and watershed survey.
- Biological Environment (Baseline data of flora and fauna, whether there are endangered species in the surrounding areas)
- Socio-economic and occupational health hazards (socio-economic survey, demography of the surrounding human settlements, health status of the communities, existing infrastructural activities, employment status, etc.)

Chapter 2: Policy, Legislative and Regulatory Framework

This Chapter will cover all the relevant and existing policy, legislative, and the regulatory frameworks associated with the proposed project. The project proponent also will be required to show relevant legislative and administrative linkages with other sectorial plans and programs. And other relevant policies, acts, guidelines 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 3.0 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 the following: Zanzibar Environmental Management Authority (ZEMA)

- Department of Environment, Zanzibar.
- Department of Forestry and Non-Renewable Natural Resources, Zanzibar.
- Department of Lands and Registration
- Department of Rural and Urban Planning
- Department for Roads Construction, Zanzibar
- Department of Health and Health Education
- Zanzibar Water Authority (ZAWA)
- Zanzibar Electricity Corporation (ZECO)
- Zanzibar Municipal Council
- Central District Administrative Office
- Communities from Shehias forming boundaries with the proposed site.
- People whose lands, plots, crops, trees, etc. directly affected by the project

Chapter 4.0. Evaluation of Predicted Impacts

The following considerations 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 extent, 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 ZEMA scoping study.

Chapter 5.0 Analysis of the Project Alternatives

This chapter should include analysis of issues such as the design, location, cost-benefit analysis, or any other feasible alternative to the current arrangement.

Chapter 6.0. 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 7.0. 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 8.0 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 11.0 Conclusion and Recommendations

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

Other appendices
- Study methodology/work plan (2–4 pages).
- Consultants' Itinerary (1–2 pages).
- List of stakeholders consulted or engaged (1–2 pages).
- List of documentation consulted (1–2 pages).
- Curricula vitae of the lead consultants (1 page per person).
- ToR

ANNEX D: SUMMARY OF POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES

The following annex presents summary of mitigation measures that can be applied by contractors, PMT, PIU and implementing partners broadly to mitigate environment, health and safety impacts of subprojects activities. ESMPs will be tailored to each subproject, which can draw from the following mitigation measures. It should be noted that the sanitation investment(s) under the BIG-Z will require more specific mitigation measures for sewage treatment facilities.

Activities which are likely to have potential impacts identified below includes street and sidewalk improvements, infrastructure and service upgrading, as well as public space improvements, building/rehabilitating a safe and climate-resilient pedestrian network, implementing public transport facilities to improve accessibility to/from Stone Town, investments to alleviate access/egress to the Malindi Port and decrease the rampant congestion of the north of Stone Town, as well as uplifting of parking facilities. Other activities include rehabilitation and improvement of the structures/buildings, construction of drainage and retention ponds, installation of solar powered street lighting, rehabilitation of access roads, rehabilitation of markets and community facilities, building of incubators and crafts centers and activities related to emergency mitigation, response, recovery, and reconstruction.

Impact	Mitigation Measure	Time Frame	Responsible Institution	Relative Cost/ Source of Funds	Monitoring

Increased air pollution due to transportation of construction materials and stockpiling	• Implement dust suppression measures (e.g. use water spraying vehicles to water disturbed areas, covering of material stockpiles, etc.) as required • Avoid excavation, handling and transport of erodible materials under windy conditions. • Vehicles carrying fine construction materials must be covered during transportation. • Wet working areas without causing erosion or runoff. • Ensure regular cleaning of access roads and paved areas to avoid dust pollution due to wind or movement of vehicles and equipment. • Dust masks should be used by workers where dust levels are excessive	During Mobilization and Construction	Contractor	Under the Contract TOR	Construction Supervision Consultant and PMT and PIU

Impact	**Mitigation Measure**	**Time Frame**	**Responsible Institution**	**Relative Cost/ Source of Funds**	**Monitoring**

Increased noise pollution and vibrations	• Adopt and maintain moderate vehicle speed and traffic when crossing inhabited or sensitive areas. • Noise emissions shall comply with applicable national laws, standards and regulations. • Maintain construction equipment in good running condition, enforce vehicle/road restrictions and carry out routine inspection of construction equipment • Operate noise generating equipment for short periods or during the times they will cause less community disturbance i.e. daylight • Stationary noise generating equipment shall be placed as far away as possible from sensitive receptors and/or shall be housed inside a shed or covered to reduce the propagation of noise • Operations of mobile machines with significant noise levels in various sections shall be provided with noise protective gears • Ear plug should be used by workers where noise levels are excessive	During Mobilization and Construction	Contractor	Under Contract TOR	Construction Supervision Consultant and PMT and PIU
Surface and groundwater pollution	• Ensure appropriate handling of fuels, oils, cement and other materials to avoid spills including storing them in impermeable, bunded containers and undertaking fueling of machinery and vehicles in concrete floors previously identified within the site. • Ensure that all construction activities that could endanger water quality is avoided or controlled, through site planning and design of construction	During Mobilization and Construction	Contractor	Under Contract TOR	Construction Supervision Consultant and PMT and PIU

Impact	Mitigation Measure	Time Frame	Responsible Institution	Relative Cost/ Source of Funds	Monitoring
	activities and preparation of site procedural protocols. • No discharge of muddy water should be permitted from the work areas into the adjacent water courses and/or bodies. • Ensure that waste water containing pollutants like cement, concrete, lime, chemicals and fuels are discharged into temporal tank for subsequent removal from site. • Contaminated water should in no way be discharged into municipal sewer systems. • Avoid deliberate disposal of wastes (even temporarily), on the banks and beds of water drainage lines. • Undertake appropriate and regular cleaning and maintenance of channels to avoid water stagnation • Establish awareness raising programme for city dwellers to avoid disposing waste and contaminated effluents into the storm water drainage systems. • Maintenance of equipment and vehicles should be done on concrete ground/floor to avoid soil and surface and ground water pollution.				

Impact	Mitigation Measure	Time Frame	Responsible Institution	Relative Cost/ Source of Funds	Monitoring

Soil erosion and sedimentation	• Restored cleared areas such as disposal areas, site facilities, workers' camps, stockpiles areas, working platforms and any areas temporarily occupied • Stockpiling of soil overburden should be confined to areas previously disturbed or ploughed and clearly marked and accessible by vehicles. • Plant vegetation with properties to prevent soil erosion, like indigenous creepers and herbs where necessary. • Material stockpiles must be appropriately protected against wind and water erosion	During Mobilization and Construction	Contractor	Under Contact TOR	Construction Supervision Consultant and PMT and PIU
Traffic disruption and congestion	• Before commencement of works, carry out consultations with local government, community and with traffic police • Institute traffic management and safety programme including reorganization of road traffic, proper signage and training of heavy machine/vehicle operators and drivers, enforcement of speed limits, maximum loading restrictions and compliance with Tanzanian transportation laws and standards especially when crossing inhabited or sensitive areas. • Access to the construction site and work areas should be confined to existing roads. • Construction of physical barrier such as road humps should be undertaken where necessary to control speed • Make arrangements for traffic diversions via establishment of Traffic Management Plan.	During Mobilization and Construction	Contractor	Under Contract TOR	Construction Supervision Consultant and PMT and PIU

Impact	Mitigation Measure	Time Frame	Responsible Institution	Relative Cost/ Source of Funds	Monitoring
Waste generation and stockpiling	• Waste management will be based on the following hierarchy avoid, reduce, reuse and recycle • Small volumes of organic waste that can easily decompose must be disposed-off in environmental friendly manner such as the use of pits. • Large volumes of wastes produced, including construction and demolition debris, must be collected by licensed private/municipal service providers for appropriate disposal e.g. in land-fills. • Office wasteshould be sorted and storage in three different types of waste bins i.e. for paper materials; organic materials; and plastics • Construction sites, temporary warehouses and yards should be cleaned to prevent indiscriminate fires, burial or abandonment of waste. • Burning, burying and/or dumping of wastes by the contractor is prohibited	During Mobilization and Construction	Contractor	Under Contract TOR	Construction Supervision Consultant and PMT and PIU

Lack of/slow restoration of areas damaged by construction	• Restore cleared areas such as exhausted borrow pits, disposal areas, workers' camps immediately after completion of construction works followed by appropriate landscaping, adequate drainage and revegetation of open areas using indigenous species. • Spoil heaps and excavated slopes shall be reprofiled to stable batters, and grassed to prevent erosion. • Plant trees on exposed land and on slopes to prevent or reduce land slippage or collapse and keep slopes stable. • Remove any soil contaminated with chemicals or	During construction	Contractor	Under Contract TOR	Construction Supervision Consultant and PMT and PIU

Impact	**Mitigation Measure**	**Time Frame**	**Responsible Institution**	**Relative Cost/ Source of Funds**	**Monitoring**
	hazardous substances and dispose them appropriately.				

Workers' safety risk	• Contractor shall comply with all Zanzibar/Tanzania regulations regarding worker safety and World Bank safeguard standards on safety; • Train workers on occupational health and safety requirements; • Frequent toolbox talks and induction training should be conducted • Keep detailed incident reports in the case of accidents • Prepare and implement action plan to cope with risks and emergencies including having emergency first aid equipment available at construction sites • Ensure that workers wear/use appropriate personal protective equipment (PPE), such as safety glasses, face shields, hard hats, safety shoes, noise protection ear muffs etc. • Food vendors have to be checked for provision of healthier foods to workers on site • Provide adequate safety signs which meets international standards at construction sites and campsites • Provide clear procedures and work instructions for work tasks • All machines working on site must have adequate firefighting facilities such as fire extinguishers against fire outbreaks	During Mobilization and Construction	Contractor	Under Contract TOR	Construction Supervision Consultant and PMT and PIU

Impact	**Mitigation Measure**	**Time Frame**	**Responsible Institution**	**Relative Cost/ Source of Funds**	**Monitoring**

	• The machines must be provided with noise control devices • When working in confined spaces, such as deep excavation (trenches) use dewatering, adequate sidewall supports (shoring) and slope gradients that minimize the risks of collapse, entrapment or drowning.				
Community's health and safety risk	• Comply with Tanzanian and World Bank and other international standards and regulations on health and safety requirements • Develop and implement in-house manual/guidelines on health and safety • Implement community sensitization programs on the risk for public health and safety caused by project implementation. • Attach warning signs, barriers, and other precautionary signs on all areas of potential risk. • Provide separate passageways for pedestrians and vehicles within and outside construction areas. • Pedestrians walkway (at least 1.2m wide) should be free of any obstructions and hazards;	During Mobilization and Construction	Contractor	Under Contract TOR	Construction Supervision Consultant and PMT and PIU
Impacts to historical, archaeological or cultural resources	• Adhere to the UNESCO 2003 Convention for Safeguarding Living Heritage; International Council of Museum (ICOM); the International Centre for the Preservation and Restoration of Cultural Property (ICCROM) and the International Network on Cultural Policy (INCP).	During Construction	Contractor	Under Contract TOR	Construction Supervision Consultant and PMT and PIU

Impact	Mitigation Measure	Time Frame	Responsible Institution	Relative Cost/ Source of Funds	Monitoring
	• Adhere to the Stone Town Conservation Master Plan and relevant guidelines • In case any historical/cultural remains or artifacts are incidentally found, the workers shall be educated to stop works and notify Antiquities Department or Archaeologist and work will only resume when the conservation specialist (Archaeologist) has completed the work. • Should graveyards and any sacred places be found in the project area, the contractor shall take precaution to avoid disturbing or destroying them and the process for their relocation shall be in accordance with Graveyard Removal Act (No. 9 of 1969) and local customs. • Develop and implement cultural heritage management plan				
Vegetation clearance	• Prepare a clearance, re-vegetation and restoration management plan for works prior approval by the construction Supervision Engineer and ensure strict compliance. • Prohibit cutting of any tree unless explicitly authorized in above-referred plan. • When needed, erect temporary protective fencing to effectively protect all trees before commencement of any works within the site. • Confine overburden material to specifically designated sites away from sensitive locations.	During Construction	Contactor	Under Contract TOR	Construction Supervision Consultant and PMT and PIU

Impact	Mitigation Measure	Time Frame	Responsible Institution	Relative Cost/ Source of Funds	Monitoring
Soi/land pollution/ contamination	• Ensure that soil overburden removed before construction is stored and immediately re-used for replacement at the closure of opened trenches. • Undertake appropriate cleaning maintenance of ditches and channels. • Ensure immediate replacement of the soils removed during construction • Provide training of personnel on proper storage, handling and clean-up of contaminating materials into the environment. • Plant and machinery will be kept away from surface waters and will have drip trays installed beneath oil tanks / engines / gearboxes / hydraulics which will be checked and emptied regularly • Oils, hydrocarbons and other hazardous materials will be stored in designated locations with specific measures to prevent leakage and release of their contents such as the siting of the storage area away from storm water drains and on an impermeable base	During Mobilization and Construction	Contractor	Under Contract TOR	Construction Supervision Consultant and PMT and PIU
Change in scenic and aesthetic quality	• Minimize soil and landscape disturbance/change by replanting vegetation with indigenous species • Confine overburden material to specifically designated sites away from sensitive locations. • Ensure that soil overburden removed before construction is stored and immediately re-used for replacement at the end of construction.	During Mobilization and Construction	Contractor	Under Contract TOR	Construction Supervision Consultant and PMT and PIU

Impact	Mitigation Measure	Time Frame	Responsible Institution	Relative Cost/ Source of Funds	Monitoring
Increased risk of HIV/AIDS and STDs	• Prepare HIV/AIDS awareness and prevention program before commencement of works and implement the same during construction phase • Disseminate information on HIV/AIDS and STDs through education promotion materials such as leaflets, placards, shirts, arts, etc. • Enforce HIV/AIDS law and regulations • Provide free of charge communicable diseases related facilities and services to workers such latex condoms, HIV testing and counseling, Hepatitis B testing etc	During Mobilization and Construction	Contractor, TC/ZUMC, NGOs	PMORALG/District Authorities	Construction Supervision Consultant and PMT and PIU
Destruction/ disruption of utility services	• Undertake prior consultation and contingency planning with utility providers (TANESCO, DAWASCO and TTCL) and local authorities about the consequences of particular service failures and alternative service provision. • Coordinate with relevant utility providers to establish appropriate construction schedules; • Restore all disturbed public utilities such as water network, telephone lines and power cables; • Install lighting at night (where necessary), to ensure safe traffic movement	During Mobilization and Construction	Contractor	Under Contract TOR	Construction Supervision Consultant and PMT and PIU

Impact	Mitigation Measure	Time Frame	Responsible Institution	Relative Cost/ Source of Funds	Monitoring

Increased burden on local authorities	• Maintain open communication with the local government and concerned communities on agreed schedules of construction activities nearby sensitive places or at sensitive times. • Copies of the ESMPs and of other relevant environmental safeguard documents in Kiswahili be available to local communities and workers at the site. • Maintain early consultations on any loss of amenities such as playground space, car parking with those affected, providing opportunities for investigation and implementation of alternatives. • Disseminate project information to affected parties through community meetings before construction starts; • Monitor community concerns and information requirements as the project progresses; • Respond to telephone inquiries and written correspondence in a timely and accurate manner.	During Construction	Contractor	Under Contract TOR	Construction Supervision Consultant and Independent Supervision Consultant
Increased risks of accidents	• Impose speed limits at work sites and place appropriate traffic signs along access roads. • Comply with all applicable laws and regulations regarding road transport and safety. • Access to the construction site and work areas should as much as possible be confined to existing roads. • Construction of physical barrier such as road humps should be undertaken where necessary to control speed • Make arrangements for traffic diversions via	During Mobilization and Construction	Contractor	Under Contract TOR	Construction Supervision Consultant and PMT and PIU

Impact	Mitigation Measure	Time Frame	Responsible Institution	Relative Cost/ Source of Funds	Monitoring
	establishment of Traffic Management Plan. • Provide hard hats and industrial boots and enforce their proper use. • Install appropriate signs i.e. instructions, warning, prohibition and mandatory, that meets international standards • Develop, operationalize (including carrying out regular rehearsals) of contingency plans for dealing with incidents and hazards. • Train and enforce occupational health and safety practices (including PPE) to workers • Provide First Aid and evacuation facilities • Abide to national and international quality standards				
Disruption of local hydrology	• Ensure the drainage designs utilize as much as possible the existing channels and drains • Where possible, the designs shall leave some unpaved space alongside the road for water to seep into the ground • The design shall provide controlled and effective storm water dispersion by installation of appropriate drainage structures. • Natural ponds/swamps will not be drain completely to maintain recharge of aquifer	During Design and Construction	Contractor	Under Contract TOR	Construction Supervision Consultant and PMT and PIU

Impact	Mitigation Measure	Time Frame	Responsible Institution	Relative Cost/ Source of Funds	Monitoring
Excavation and depletion of construction materials	• Consult department of forestry on authorized borrow pits or quarry sites for exploitation of construction materials. • Under no circumstances would materials like sand be excavated and exploited from unauthorized sources • Permit for mining construction minerals (gravel, stone, sand) shall be secured and all materials be for project works • Explore and use alternative suitable materials	During mobilization and construction	Contractor	Under Contract TOR	Construction Supervision Consultant and PMT and PIU
Land acquisition	• Involuntary resettlement should be avoided during designing of the subprojects • If resettlement is unavoidable, compensation (full replacement) of affected structure should be paid to PAPs and income restoration support provided for business related impacts • Meaning participation of affected people should be conducted	During designing and construction	Designing consultant, PMT and PIU	From the project and RGoZ	PMT, PIU and independent firm/NGO

ANNEX E: LIST OF HISTORICAL SITES (GAZETTED AREAS AND MONUMENTS) ZANZIBAR

SITE/BUILDING	YEAR
1. Beit el Sahel - Palace Museum Forodhani Beitel Sahel / Palace Museum is located at historical town of Zanzibar which was started in 12th century as a fishing village. From then it developed as Swahili town with multicultural architectural motifs that have remained unique ever since. The town is nowadays as the world heritage site. The Palace was built by Seyyid Said bin Sultan, the Sultan of Oman and Zanzibar (1804-1856), after his first visit in 1828 where by Zanzibar ranked the head quarter of trade.	1941
2. Forodhani Garden Forodhani Gardens has been constructed in 1936 to celebrate the Silver Jubilee of Sultan Khalifa. Until the 1964 Revolution the gardens has been called *Jubilee Gardens*. In 1956 Princess Margaret, sister of Queen Elizabeth II, planted a tree in the gardens during her visit to Zanzibar. The tree is today fully grown and still stands in the gardens.	1987
3. Old Fort Built around 1700 by Seyyid Seif bin Sultan of Ya'aruba Dynasty who ruled Oman from 1692 to 1711 D. This site was once occupied by Portuguese chapel and small fortified houses before their total expulsion from East Africa in 1698. The Oman Arabs replaced the Portuguese remnants by construction of western side of the fort. Some of chapel remnants can be seen on north western corner wall of the fort until today. In 1836, Seyyid Said himself added eastern half of the fort for the purpose of keeping his garrison. The Omanis partially demolished the Portuguese chapel and a Portuguese merchant house and incorporated them in the construction of what was described in 1710 as a ridiculous little Fort. In the later years it was used as a prison. In 1905, the fort was used as a railway station and a deport. The front passage was constructed in 1946 to house ladies club. From 1964, it is used for cultural performances. Currently, it is a home for several festivals such as ZIFF, Sauti za Busara (Sound of Wisdom) etc.	1941
4. House of Wonders – Forodhani The House of Wonders was built as a ceremonial palace in the 1880s. It was so called because of its unique architecture and amenities, including electricity, the first in sub-Saharan Africa, exquisite carved doors and later a lift. The building was used as the residence of Sayyid Hamoud bin Mohaamed (1896-1902) who died in it and Sayyid Ali bin Hamoud in 1902- and Sayyid Khalifa bin Haroub in 1911.	1943
5. Royal Tombs – Forodhani The custom in old times was to have the burial sites close the homes. The Sultan's families are mainly buried in the vicinity of the palace.	1941

6. Chuini Ruin Palace	1986
Chuini Palace is said to have been built in 1872 for Sultan Seyyid Barghash (Sultan from 18701888).	
7. Persian Baths at Kidichi Kidichi is located about 12 miles north of the Island from Zanzibar Town, and is one of the highest point in the Island which is estimated to be about 120 meters from sea level and from the roof of the baths, can be obtained a magnificent view of Zanzibar Town. Kidichi Persian- style baths were built by Sayyid Said in the 19th Century. Kidichi was residential palace for his Persian wife Princess Sheharzade, the daughter of Irish Muhammad Shah of Persia, who has married as his second wife in 1847. Bath is comprised of four portions for different uses. The first portion being a room for toilet (5 toilets) which is built in traditional way by digging the hole in the ground, the second portion is a massage room and the third portion is a dressing room and the last room is a bathing room with both hot and cold-water bathing.	1944
8. Shirazi Ruins – Tumbatu The major archaeological site located on the Tumbatu Island is at Jongowe Makutani. This is on the southern tip of the Island facing Mkokotoni harbor on Zanzibar main Island. There appear to have been about 40 houses, usually built in open spaces, many of which have large courtyards. The town of Jongowe was probably abandoned c.1350, possibly as a result of the plague known as the Black Death which travelled from Europe via ships' rats to the Indian Ocean world. Tumbatu Island was no longer significant at the time of Portuguese.	1941
9. Remains of Great Mosque - Tumbatu The archaeological evidence suggests that Tumbatu was occupied c.1100-1350, which may indicate that the town took over as the capital of Zanzibar after the decline of Kizimkazi. A stone-carved Kufic inscription, apparently brought to Tumbatu and re-used there (at a mosque excavated in 1989; now in the Peace Memorial Museum, Zanzibar Town), is very similar to the one on the Kizimkazi Dimbani Mosque dated 1107 A.D. Tumbatu was mentioned in the early 13th century geographical dictionary of the Arab traveler Yaqut, who noted that the inhabitants were Muslim.	1941

10. Kizimkazi Shirazi Mosque The Kizimkazi is a mosque situated on the south tip of the Island of Zanzibar. Maybe the oldest Islamic building on the East Africa coast. This mosque is actually located three kilometers northwest of the town of Kizimkazi, which in the twelfth century was noted regarded as a substantial and walled city, in a small village known as Dimbani.	1941
11. Fukuchani Ruins Fukuchani ruin: was built in 16th century when Portuguese came to the Island, or perhaps a little earlier.	1941
12. Mvuleni - Portuguese houses Strong, local, oral traditions associate the house and another nearby at Fukuchani with the Portuguese. The buildings do most likely date from the 16th century when Portuguese settlers came to the island.	1941
13. Great Holder Palace-Dunga Dunga Palace was built for Muhammad bin Ahmed al Alawi (c.1785-1865), sometimes called Sultan Hamadi (Lyne, 1905), the last but one of a long line of traditional leaders of Unguja claiming Shirazian descent who were given the title of Mwinyi Mkuu (meaning the 'Great Holder' or 'Great Possessor'), from a line possibly going back as far as the 13th century	1941
14. Slave Chamber – Mangapwani This underground chamber was made by slave traders. It has unique structure. When slave trade stopped it changed original purpose to spiritual healing, an art that needed utmost silence. It is rectangular pit, 3 by 14m and 3.5depth.	1941
15. Remains of the Second World War. They consist of five bunkers. The British established several militaries detaches in Zanzibar Island and among all these, Mangapwani was the biggest. The purpose was to store weapons and hide soldiers but sometimes been used as hospital for war victims. Near them is a 40 meters tall watch tower with four – storey built of stones and mortar.	1941

16. Shirazi's Mosque – MkiawaNg'ombe MkiawaNg'ombe was the site of a large town during the 12th-14th centuries. It is situated in a well-protected bay that has easy access to the mainland coast through Njao Gap as well as a protected corridor to areas further south on Pemba, such as Mtambwe Mkuu and Ras Mkumbuu. At the time of Laurence Buchanan's visit in 1932, the site was considered to have one of the largest collections of ruins on Pemba (Buchanan, 1932). Mark Horton, who investigated the site in 1984, also reported widespread remains including a mosque, 13 tombs (at least 5 of them pillar tombs), and ruins of houses (Horton, 1985; Buchanan had identified 15 tombs and graves).	1943
17. Shirazi Mosque – Mduuni The mosque was described in detail by Buchanan in his writings of 1932. At that time parts of the *qibla* wall were still standing and he reported that the *mihrab* had a pointed arch with a rectangular niche on each side of it. Now three quarters of the *mihrab* has gone, with only a small section of the mouldings of the surround left to indicate the design.	1943
18. Shirazi House – Mduuni The site was excavated by Fleisher in 1999 (Fleisher, 2000) who concluded that there had been a large settlement in the area from about the mid 12th until the 15th century, which was afterwards abandoned. He selected a place about 120 metres southeast of the mosque for excavation and reported very rich and deep deposits in the area.	1943
19. Shirazi Mosque – Ndagoni, Ras Mkumbuu This site is located near the tip of a narrow headland projecting into the sea on the western coast of Pemba Island and it is cut off from the main Island of Pemba at high tide. Horton's work on the site confirmed the period of its property. He re-dated Kirkman's sequence to a century earlier	1943
(Clark & Horton) 1985, p.29) and subsequently discovered a phase comprising the remains of stone mosque that he considers dating as early as the 10th century AD (Horton 1999, p.260). Local oral traditions indicate that the sea has covered the northern part of Ras Mkumbuu.	
20. Mosque and Mazrui Ruin– Chwaka, Tumbe Chwaka and Old Tumbe sites are located in the northern part of Pemba facing the Micheweni peninsula. The latter site lies adjacent to the site of Chwaka, well known for the ruins of a 17th century local aristocratic family of Pemba.	1943
21. Houses of Persians – Ras Mkumbuu Ras Mkumbuu is located near the tip of western coast of Pemba Island and it is cut off from the main Island of Pemba at the high tide. It is believed to be 9th to 14th century. The site is of special interest as a possible candidate for Qambalu. The great mosque, tombs and stone buildings indicate the wealth and importance of the Principle citizens. Recent satellite picture has invented great part of sunken town.	1943

22. Shirazi Ruins – Pujini 1943

This site is situated close to the eastern coast and the central part of Pemba Island and contains the remains of a 15th century stone fortress built by a local Swahili aristocrat. Pearce (1920) did not discover any early evidence, but suspected that the site dates back to the 10th century AD. The 1984/5 surveys indicated the presence of remains dating not earlier than the 14th century AD. La Violette (1989), 1996, 1998) carries out further archaeological investigations of Pujini. She has demonstrated the complexity of the site and found later farming and Iron working community pottery harbor called "Bandari yaFaraja" located about 2 km away south of the fortress site, she also located a typical site of later farming communities perhaps dating from the 8th century AD (La Violette & Fleisher 1995).

23. Shirazi Mosque – Chwaka, Tumbe 1943

Although the Mazrui site is gazette and demarcated, the national listing Declaration specifies only "Shirazi and Mazrui mosques and tombs at Chwaka" and there is no mention of the old Tumbe site south west of the main road (though there is an Antiquities sign to identify it). There are no above-ground remains at the earlier 7th to 9th century site, but in the opinion of the archaeologist Jeff Fleisher, the sub-surface deposits have integrity and are extremely important to understanding the early history of Pemba

24. Livingstone House 1945

Livingstone house belonged to Sultan Majid but later on given to Dr Livingstone for his missionary activities. Wing was added, possibly in the 1880s, which was probably single-storey at first, with the first floor added later. Mission Station and hospital in the 1880s. 1890s-c.1940s, used as a rest-house, 1947- c.1961, used for scientific laboratories,1961 to the present, for Government offices, first for Tanzania Friendship Tourist Bureau, and later for the Zanzibar Tourist Corporation and now is using as a Zanzibar Chamber of Commerce Office.

25. Persian Well – Kwahani 1945

Well with ground level entrance leading down a stairway to the water level of the well, providing access for cleaning and maintenance. The well and mosque were built for residents of the large clove plantation originally situated in the surrounding area during the reigns of the Sultans Majid and Barghash (ruled 1856-1870 and 1870-1888 respectively. In the mid-20th century, the well was owned by Seyyid Seif bin Suleiman el-Busaidi, but it now belongs to the local Sunni community.

26. Maruhubi Palace 1957

Maruhubi Palace was built in 1881 by extravagant Sultan Barghash as pleasure house for his harem, the Palace was surrounded by an extensive wall enclosure with a garden planted with a great variety of mango trees imported by Sultan Barghash from India.

27. Mtoni Ruins 1957

Mtoni ruins palace site was the oldest among the Sayyid Said Palaces in 19th Century in the Island of Zanzibar. Beit –el Mtoni distance about five miles from the city of Zanzibar lies of the sea coast. This is the place where by Sayyida Selme born and stayed up to the seven years old.

28. Tomb and Stone Wall – Vitongoji 1957

The site was described by Major Pearce (1920), who referred to it as "The Lonely Tomb". He also reported a massive, low stone wall or rampart nearby, of about 100 yards in length, but in the 1980s Mark Horton was not able to trace this and it was not seen during the visit of the 2006 survey. Judging by the remains seen in 2006, the tomb does not appear to have been very old, possibly 18th or 19th century.

29. Anglican Church – Mkunazini 1979

The plot at Mkunazini, where the Cathedral stands, was purchased by the Anglican Universities Mission to Central Africa (UMCA) for its Headquarters from Sultan Seyyid Barghash in 1873. It was previously the location of the last slave market in Zanzibar which was closed the same year. The foundation stone was laid in 1873. Charles Forster Hayward, FRIBA, a London architect, designed the building in simple Basilican form, in a style which combined Arab and Gothic elements. The altar was positioned at the place where the slave whipping post had been located, symbolizing the triumph of Christianity over the slave trade. Behind the altar are the Bishop's throne and 14 locally-carved stalls, with copper repoussé panels above, the designs representing Old Testament figures.

30. Hamamni Persian Baths 1979

Hamamni was one of the most outstanding street in the Zanzibar Stone Town It is due the presence of Persian Baths in the area, about 400 meters behind Darajani central Market. Its presence gave birth to the name of the street.

31. Msikiti wa Bamnara – Malindi 1979

The north side of the mosque and its minaret are thought to be 17th century or earlier. The main prayer hall, to the south of the open courtyard, was built in 1834-35 by Mohammed Abdul-Qadir el-Mansabi (or Muhammad bin Abdulkadir al-Mansaby or Muhammad bin Abd al Kadir), an Arab from Benadir, Southern Somalia, who was the most prominent of the Arab merchants in Zanzibar from the 1820s to 1840s.

32. Anglican Church - Mbweni 1979

A parcel of land of about 30 acres was purchased at Mbweni on 8th September 1870 by Bishop Tozer (Bishop of Zanzibar 1863-73) of the Universities' Mission to Central Africa (UMCA) as an extension of the Mission's work in Shangani, Zanzibar Town. The UMCA was an Anglican mission based in England. A colony for freed slaves was founded at Mbweni in early 1874.

33. Remain of Sultan Said Palace – Beit-el- Ras Palace was begun in 1847 by Sultan Seyyid Said as additional space for his family. However, it was unfinished at his death in 1856. During a visit to Zanzibar in the late 1850s, Burton described the palace as "a large pile. The building was demolished in 1947 with the exception of the (surviving) immense, elevated porch at the north end, which comprises a grand, arched room approached by a flight of steps. The stone from the rest of the building was used in the construction of the Bububu railway, which passed through what are now the Training College's grounds. The remaining porch structure has recently been restored by the College.	1979
34. A large site - UngujaUkuu UngujaUkuu is a large site and was probably a major settlement of an African, iron-using, farming community from c. 500 AD. to c. 900 AD. It appears to have been a key urban centre built of mud and timber structures, with stone buildings covering only a small part of the site and mostly from the later periods	1986
35. Eneo la Mjiwa Kale, Shangani – Mkokotoni This site on the North-western coast of Unguja island indicates the distribution of the communities on the Island during the 9-10th centuries AD, judging from finds discovered in the lowest levels (Clark & Horton 1985). Mkokotoni has 2.5 m of the culture deposits and a range of pottery suggesting its occupation up to the 16th century AD.	1986
36. Ruins and old houses – Kizimkazi The site comprises the remains of an enclosing, 2.5 – 3 metres high, defensive wall and various structures within it which appear to have been residential. In Chittick's view, the ruins are of a fortified house of an important chief and his retinue, originally surrounded by mud and wattle buildings (Chittick, 1960). According to tradition, Bakiri, a son of Mwinyi Mkuu Yusuf, made his capital at Kizimkazi at end of the 17th century and the fortified residence may have been his. However, some experts believe the ruins are later, more likely to be of 18th century origin. Until recently, a tomb towards the north end of the site had inset 19th century export wares.	1986
37. Ruins of sugar factory – Chuini The ruins of sugar factory" are specified in the 1986 Declaration. This does not unambiguously include the structures to the south of the creek: amendment to clarify the Declaration is advisable. Without clarity on this issue and with no Bill of Title, the status of the ruins on this south side of the creek is very uncertain.	1986

38. Persian Baths – Kizimbani 1986

Kizimbani Persian- style baths were built by Sayyid Said in the 19th Century. Kizimbani was devoted to his fast large scale pilot project of clove plantation after his small-scale trial at Mtoni while Kidich was residential Palace for his Persian wife Princess Sheherazade, the granddaughter of Irish Muhaamed Shah of Persian, who had married as a second wife in 1847.

39. Chukwani Palace 1986

Built as a holiday resort by Seyyid Barghash on a promontory commanding a magnificent view of the sea. The Palace was built in 1875 and used by Sultans until the time of Seyyid Ali bin Hamoud (Sultan from 1902 – 1911).

The Palace compound included the beautiful house mass decorated in India, Arab and European styles, long bridge from the house to the sea, Persian bath and other to the wonderful lodging. To reach the palace from Zanzibar Town, Barghash decide to construct the first railway in East Africa 1879.

The Palace later was taken by British and converted it into quarters for Government offices.

40. Old Tombs and site at – Shakani 1986

The tombs are similar to the 18th century as tombs at Kunduchi. Decorative geometric panels relate to tombs at Kizimkazi Dimbani, which are probably of the same period. The mosque is associated with a small settlement nearby and there are other ruins and mounds of building materials in the area, said to be remains of the residences of various descendants of the mosque founder and others living in the village.

41. Gofu la MsikitiMkongwe – Kimeleani, Kisiwani Fundo 1986

The mosque was seen by Pearce around 1920, who considered it among the most important ruins of the Zanzibar Islands. Ingrams and Buchanan visited in the early 1930s: at this time the north door was still standing, though the east side of the *qibla* and the *mihrab* had already collapsed.

42. Mtambwe Mkuu Island – Old Town Site 1986

MTAMBWE MKUU: is delivered from the Swahili (Great peninsular) is a small islet in the west part of Wete town in Pemba which gives a clue to its significance in time gone to by Yakut who describing it as the second town in Pemba after Ras –Mkumbuu which was traded with middle East. During the excavation found a hoard of Silver and golden coins thought to be the only coins minted in sub- Sahara Africa in middle age, human remains from graves.

43. The Ruins of the Old Mosque and its surroundings – Kiungoni 1986

This Mosque ruins are located East of Pemba Island, leading to Gulf of Kojani Island. The Mosque was built in 17th Century AD by Persians; Excavation done by Professor Mark Harton had found some pieces of pottery (artifacts) such as Chinese blue and blue monochrome.

Its Qibla is round in shape that is very similar to that of the kichokoche - mchangamdogo mosque.

44. The Ruins of the Ancient Town - Ole Mandani 1986

In his book of 1931, W.H. Ingrams recorded oral traditions which assert that Ole was among the old towns in existence before the arrival of the Portuguese and that the mosque was built by a chief of the Magenge, who lived at the time of Mkame Ndume and disputed with him for mastery.

45. The Ruins of the Ancient Town - Jambangome 1986

Jambangome was one of the principal settlements of Pemba in the 19th century, when it was the central port on the island. Located on a ridge, it overlooks a long, shallow creek connected to an inlet which cuts into the west coast of the island.

46. The Ruins of the Old Mosque – Mtangani 1986

The mosque may have been the only stone building in a rural settlement as there are no other structures nearby. However, there is much scattered pottery in the surrounding area which indicates there was a settlement which is likely to have been composed of mud and *makuti* thatch buildings. No excavations have been carried out.

47. The Ruins of the Old Mosque and Graves – Chambani Mjini 1986

According to informants interviewed during the survey of 2006, the mosque was founded by their great grandfathers (probably in the 19th century). However, the building is likely to be much earlier. Buchanan, writing in 1932, interviewed an 80-year-old man who stated that he went to the mosque with his parents as a child when it was still in use, but that the site had long since ceased to be inhabited and it remained from an earlier time when the settlement was located there (the village has now moved some distance away).

48. Old Fort Building and Garrison - ChakeChake 1986

The Old Fort building in Chake Chake founded in 2005. It was built 19th century by the Omanis on the Former site of Portuguese garrison. It was used as a prison from 1905 until 1960 and then as a hospital from the 1960 s to 1984, during that time it became the offices of the Department of Museum and Antiquities.

49. The Old Mosque – Kiuyu 1986

Mosque still in use. According to tradition, Kiuyu was one of the ancient towns which existed before the coming of the Portuguese (Ingrams, 1931). Buchanan described a beautifully-carved wooden *qibla* and *minbar* (since lost) apparently from Mombasa (Buchanan, 1932).

50. The Ruins of the Old Mosque – Kiwani 1986

The mosque had four columns supporting the roof and a tank on the east side. It was built in the 13th or 14th century in the opinion of Major Pearce, who visited around 1920 (Pearce, 1920). In 1931, Laurence Buchanan noted that the *qibla* wall was already in complete ruin and the east wall had recently collapsed. He also noted the remains of a substantial landing stage at the nearby landing point.

51. The Ruins of the Miskiri Arabs' House – Finga 1986

The history of this small settlement except through oral traditions. According to the archaeologist Mark Horton, the building is associated with Miskri Arabs who originated from Muscat in Oman (Horton, 1985). Horton's informants believed the house and mosque to date from around the 1830s. Horton also reported that the doorways were "of Zanzibar Arab style with polygonal arches", that there was a courtyard to the north and that the house was entered from the east.

52. The Old Mosque – Kojani 1986

It was built by Shirazi in 18 century AD. The Mosque is still in use. The building is erected with nine polls. Its roof has been renovated later in its original style. The qibla of the mosque is round. The western wall of the mosque was dropped down and rebuilt. Behind the mosque are two old graves

53. The Old Mosque Micheweni – Shumba 1986

W.H. Ingrams, writing in 1931, recounted a legend which says that before the Portuguese controlled the region in the 16th century, Pemba was divided into five districts, each with seven towns, and that one of these towns was Shumba (another was the nearby Micheweni). The date of the mosque at Shumba is unknown, but it may have been built in the 19th century or earlier.

54. The Old Mosque – Wingwimjini. 1986

The mosque was built by Shirazi at the end of Wingwi village nearby the Micheweni forest. It was erected with six polls and its Qibla is round. Its member has only three steps. There is reservoir and a long well south of the mosque. Now the whole mosque has been demolished and changed its view except qibla, membar and its three steps which still in use.

55. The Old Mosque – Micheweni 1986

W.H. Ingrams (1931) records oral traditions which assert that Micheweni was among the old towns which existed before the arrival of the Portuguese and that the mosque was built by a chief of the Magenge who lived at the time of Mkame Ndume and disputed with him for mastery. The ancient *mihrab* was recently destroyed and replaced with the present one according to informants interviewed in the 2006 survey. Possibly the top of the *mihrab* was retained. The old parts of the mosque include a niche beside the *mihrab* which has been made into a window, with a seat made behind it.

56. The Mtule Site – Kengeja. 2002

The site is on the south-east of the present Kengeja village. The site was inhabited by Al-Bahassan Arabs in the 19th century. They came from Shamiani- Mwambe. In this area, there are the ruins of the mosque and the well behind the mosque.

57. Mwanampambe Cave 2002

It is found at Kajengwa in Makunduchi. This natural cave has wide space rooms used for offering by some indigenous people. Archaeological excavation found the old settlement in that cave since 20000 BC. Different people were using this shrine to solve their problems and offering the ancestors when they succeed.

58. Bikhole Ruin – Bungi 2002

Bi. Khole ruins and estate located at the seashore in South District at Bungi about 23km from the Zanzibar Town.BiKhole (Chole or Khwala) Binti Homoud bin Seif. Her father was aseyyid Said' uncle. Her mother was Zamzam the Said Sultan's daughter. Zamzam was sister to Salme and Barghash (later Sultan of Zanzibar, ruled 1870-1888). After the death of her father in1876, Bi Khole left her home residence Bububu to Bungi where she built her own new residence on a clove estate she inherited from her father sometime in the mid-19th century. Bi. Khole passed away in 1917.

59. Changuu Island 2002

House built c.1874. Public building constructed in 1893. Stone was quarried on the island for some of the first buildings in Dar es Salaam and the pits remain. Before the abolition of slavery in 1873 the island was owned by an Arab slave trader and was used as a place of detention for rebellious slaves. Sometime afterwards it was bought by General Sir Lloyd Mathews, who first came to Zanzibar in 1875.

In 1893 a prison was built for the Government, intended to be used as the Central Prison for Zanzibar.

However, due to an outbreak of Yellow Fever it was used instead as a Quarantine Station for the East Africa Region and later became an infectious diseases hospital for Zanzibar. During the British period the island was also used for leisure pursuits (with the permission of the Health Department) and was considered one of the favorite resorts of European residents in Zanzibar.

The island is now operated as a tourism centre for bathing, snorkeling and general relaxation through a private joint venture company.

60. Kisiwa cha Pwani 2002

Cha Pwani is the site of a British naval cemetery, the final resting place of sailors who perished while serving in Zanzibar. The Victims of World War I attack on the HMS Pegasus by the German warship Konigsberg are also buried here.

61. Kisiwa cha Chumbe 2002

Six kilometer south of stone Town, surrounded by pristine coral reef, Chumbe Island Coral Park is one of the World's most successful eco-tourism projects.

62. Machaga Cave – Pete 2002

It is found in the southern region in Unguja Island. Recent archaeology research by Prof F. Chami has invented ancient settlement of cave dwellers c30,000 years ago who domesticated animals like chicken. More amazing is the presence of giraffe bone.

63. The Coral Carvern at Mangapwani 2002

It is reputed that the carven was discovered in the early 19th century by a slave boy working on the plantation of Hamed bin Salim el Harthy who was a wealthy Arab land owner who possessed many slaves. The boy was searching for a lost goat, which had fallen into the carven. In the process to rescue it, he discovered water in it, conducive for domestic use including shrine regards.

64. Mbweni St. Mary's School 2002

A parcel of land of about 30 acres was purchased at Mbweni on 8th September 1870 by Bishop Tozer (Bishop of Zanzibar 1863-73) of the Universities' Mission to Central Africa (UMCA) as an extension of the Mission's work in Shangani, Zanzibar Town.

The old Arab house was renovated and extended to form a school for girls, which was opened on 1st September of the same year, for the education of the former slaves.

By 1911, most of the students had left for the mainland as teachers or wives of missionaries and for a while the school became a convent run by sisters of the UMCA until it was closed in 1920.

65. Peace Memorial Museum – Mnazi mmoja 2002

The museum as its name suggest, was built soon after World War 1 as a permanent peace memorials to those who lost their lives during the war. Building was Construction and designed by engineered Mr. J.H. Sinclar, British consul and Resident from 1895 – 1923, assisted by Mr. P.C Harris, Government Architect. This style was pure imitation of sanctuary of World famous building like Mosque of Sofia and Taj Mahal of India. The museum was opened on Armistice Day 1925 by his Highness Seyyid Khalifa bin Haroub Sultan of Zanzibar from 1911- 1960, who named it Beit-el Amaan (House of Peace).

66. Kuumbi Cave – Jambiani 2002

The Cave was habited long time ago. Researchers founded stones, wood and iron objects, animals and human remains lived 30,000 ago. This cave has pure water and high ceiling broken at two points which give light and ventilation. It is also used as shrine.

67. Misali Island– Misali No knowledge currently available of the history of the site's use. Some have connected the island with Captain Kidd who is said to have buried treasure there (Pearce, 1920), but who is traditionally associated with a great many islands, not always accurately**.**	2002
68. Old Tumbe The archaeological evidence found in this area suggests that the old site of Tumbe was occupied during the 8th to 10th centuries, A.D. At that time, a large town was situated on both sides of the main road of today.	2002
69. Mitondooni – Panza Horton considers the nearby Mitondooni Site on Panza may have been a very extensive early site. In view of this and the find on this site of a possibly 10th - 12th century Kufic inscription, the whole island merits in-depth archaeological research.	2002
70. Sultan Khalifa Bungalow – Chwaka Sultan Khalifa's bungalow (Sultan Khalifa bin Harub, ruled 1911-1960), the style of the building demonstrates a mix of Colonial and Arab influence. The houses listed in this inventory are fine examples of Colonial and Arab buildings and form a group which reflects the history of Chwaka's	2002
prosperity in the later 19th and early 20th centuries, giving character and identity to the town.	
71. The British Resident's House – Chwaka From about 1895, Chwaka became popular as a sea-bathing resort for European residents who wished to escape from the bustle of Zanzibar Town. In 1911-1960, the British Resident's House built in this period. The British Resident's House is especially fine in its woodwork and detailing. Open balconies are provided with shade by the deeply overhanging roof. The British Resident's House has been subject to recent vandalism (2006), and this and the others are similarly threatened, with several at risk of imminent collapse.	2002
72. The Ras Kigomasha Watching Tower. It was erected by the brothers and sons companies in 1900. The tower was used in in watching sea vessels for ensuring their safe travel in the Indian Ocean. It was much useful in the time of the Great Wars (WW1 1914-18 and WW2 1939-45). The tower is still in use in same manner.	2002

73. Matumbi Makubwa – Makoongwe 2002

Assumed to be a 19th century site, this house was probably the home of a wealthy plantation owner, possibly surrounded by a settlement. Little is known of the site other than the observations of 20th century visitors as the structures are now demolished and no excavations have been carried out. Pearce only mentions the house in his account of 1920.

74. Banani – Wesha 2002

There appears to have been a sugar factory on the site at Banani during the 19th century. At the end of the century the plot was owned by an Arab called Rashid bin Salim. The soil was fertile and the land well-planted with cloves, coconut palms and mango trees, and the shore was said to provide excellent access for boats at all stages of the tide.

In 1897 the land was purchased from Rashid bin Salim by Theodore Burtt and Herbert Armitage on behalf of the Quaker Mission. Quakers are Protestant Christians belonging to the Religious Society of Friends.

75. The Msuka Historical Site - MjiniMsuka 2002

According to a legend recounted by W.H. Ingrams, who visited the site c.1930, Pemba was divided into five districts before the Portuguese controlled the region in the 16th century, and each district had seven towns, one of which was Msuka (Ingrams, 1931).

76. Bandari Kuu – ChakeChake 2002

Bandari Kuu archaeological site was first discovered in August 1999 and described in a report by Jeffrey Fleisher (Fleisher, 2000). The site is spread over a large area and has multiple components that are adjacent rather than stratified, with 8th-10th deposits to the east and 11th- 14th century deposits in the west.

77. The Bohora Mosque - ChakeChake 2002

The environment of the mosque retains its 19th to early 20th century urban character. Potential for tourism is low because the community does not permit entry to non-Muslims or women.

78. ChakeChake Mosque Mjini 2002

According to tradition, a man named Bedouin bin Salem Al-Mauli of the Mauli tribe, from Muscat, of the Ibadhi sect, built the mosque. The same man is also said to have built a Sunni mosque in Pemba.

A date of 1279 A.H. (c.1901) is included in an inscription at the side of the *mihrab* in the prayer hall, though some parts of the mosque may be older.

2002

79. Makoongwe

Assumed to be a 19th century site, this house was probably the home of a wealthy plantation owner, possibly surrounded by a settlement. Little is known of the site other than the observations of 20th century visitors as the structures are now demolished and no excavations have been carried out.

80. DongoniMission -Wesha 2002

In September 1860 the French cleric, Abbé Favat secured permission from Sultan Majid to allow the removal of his headquarters from Reunion Island to Zanzibar. By December, his group of two secular priests and six nuns, members of the Holy Ghost Order (Spiritains), were living near Shangani point in Zanzibar Town. The mission purchased slaves from the Zanzibar market, then freed them and taught them Christianity, working for their conversion. They set up a mission in Bagamoyo on the mainland coast in 1868.

The mission in Pemba was established by Bishop Allgeyer in 1897. He entrusted the work to the Rev. Father Schmidtz. As soon as Schmidtz arrived in Pemba he began looking for a suitable location for a mission base and the same year found, and settled on, Dongoni.

81. Kaliwa – Tumbe 2002

The site of Kaliwa was located by Jeffrey Fleisher during the Pemba Archaeological Survey of 1999. He discovered layered, intact midden deposits, rich in local pottery and faunal materials in very high density. He concluded that the site was a single component village, occupied from the 14th to 16th centuries, one of several which developed near the larger and longer-established site of Chwaka, and dating to the final periods of that larger town. Fleisher's further research conducted in July 2006 may reveal more information about this site.

82. The Mosque and Graves– Kichokochwe 2002

Kichokochwe was among the old towns in existence before the arrival of the Portuguese and associate the site with the chief Mkame Ndume – saying that he either ruled over or built the town there (Ingrams, 1931). Tradition ascribes the building of the mosque to him also. According, to the archaeologist Mark Horton, the Kang Hsi bowl inset in the *mihrab* surround suggests the date of the mosque to be late 17th century, though he considers the surface pottery to indicate slightly earlier occupation (Horton 1985). Laurence Buchanan described the mosque in detail in 1932. The graveyard lies 7m due east and has several interesting graves. The mosque appears to have fallen out of use around 1920, after the village to the north of the islet moved to its present position inland due to inadequate water supply.

83. The Shamiani Site– Mwambe The Mosque has been dated to the 14th – 16th century by pottery finds on the site (Horton, 1985). These included stone wares, early monochromes, Chinese Blue on White and some celadon as well as red burnished local wares. Little is known of its early history, except through oral traditions. W.H. Ingrams, writing in 1931, recounted a legend which says that before the Portuguese controlled the region in the 16th century, Pemba was divided into five districts, each with seven towns, and that one of these towns was Kiweni.	2002
84. The Shamiani Site– Mwambe The Mosque has been dated to the 14th – 16th century by pottery finds on the site (Horton, 1985). These included stone wares, early monochromes, Chinese Blue on White and some celadon as well as red burnished local wares. Little is known of its early history, except through oral traditions. W.H. Ingrams, writing in 1931, recounted a legend which says that before the Portuguese controlled the region in the 16th century, Pemba was divided into five districts, each with seven towns, and that one of these towns was Kiweni.	2002
85. Kimimba – Kijichame The site is located about 4km south west of the site of Chwaka. It is reached by following a track that leads west from the main, tarmacked, ChakeChake – Konde road, and is about 800m along the track.	2002
86. Shirazi Mosque – Msuka According to a legend recounted by W.H. Ingrams, who visited the site c.1930, Pemba was divided into five districts before the Portuguese controlled the region in the 16th century, and each district had seven towns, one of which was Msuka (Ingrams, 1931). The Mosque appears to have been built in the 14th or 15th century. There is an invocation roughly inscribed on the *mihrab* arch: "In the name of God, He is All-Living. The Lord of those who have passed before and of those who are to come – and Peace, the year 816" (A.H. 816 is equivalent to 1414 A.D.).	1986

ANNEX F: LIST OF SOME OF THE STAKEHOLDERS CONSULTED