



THE UNITED REPUBLIC OF TANZANIA

PRESIDENT'S OFFICE REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT DAR RAPID TRANSIT AGENCY



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ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT FOR CONSTRUCTION AND OPERATION OF THE PROPOSED BRT DEPOT AT UBUNGO MAZIWA WARD, UBUNGO MUNICIPALITY IN DAR ES SALAAM CITY



FINAL REPORT

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EXECUTIVE SUMMARY

TITLE AND LOCATION OF THE PROJECT: The title of the project is “Environmental and Social Impact Assessment for Construction and Operation of The Proposed BRT Depot At Ubungo Maziwa Ward, Ubungo Municipality in Dar es salaam city.

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BRIEF OUTLINE AND JUSTIFICATION OF THE PROJECT

Brief project description

The Government of The United Republic of Tanzania (URT) is implementing the Bus Rapid Transit (BRT) system in Dar es Salaam city branded Dar Rapid Transit (DART) system. The aim is to provide enhanced transport facilities that are reliable and cost effective, with a view to improving urban mobility, connectivity and accessibility to commuters and businesses and thereby supporting economic and social development of the city and the Country as a whole. The operationalisation of BRT in the City of Dar es salaam is envisioned to evolve through six phases under DART. BRT Phase I which was completed in December 2015 and launched on 10th May, 2016 operates 20.9 km long bus line between Kimara, Ubungo, Morocco, Kivukoni, and Kariakoo (Gerezani) Bus Terminals.

Phase 1 of BRT has been facing service provision breakdown from now and then during rainy season due to flooding at Jangwani area in Msimbazi basin. The floods affect the Jangwani Bridge and the BRT Jangwani Depot, which is a main depot for Phase 1 operations. The genesis of floods is related to Msimbazi River Basin which has a catchment area of about 270 km². During high flood events, Morogoro Road and Jangwani Bridge get flooded, making the crossing of the valley impossible. As a result, the traffic comes to a still stand. Again, water and sediments enter the depot, damaging not only the depot’s structures and obstructing the drainage system, but also the parked busses inside.

Overtime, this problem has been proved to be a structural challenge to the functioning of BRT in Jangwani area and it has now been realized that the Jangwani Depot cannot be rescued and therefore must be relocated to another location. DART has thus identified the Ubungo Maziwa area as suitable site for construction of the depot alternative to the one at Jangwani area which experiences floods and thus rendered inoperable during rain

seasons in Dar es salaam city. It is against the above narrated background, that the Dar es Salaam Metropolitan Development Project (DMDP) whose Development Objective is to “Extend coverage and quality of urban services and enhance institutional capacity and the enabling environment for economic development and job creation”, has developed a consultancy assignment with the intention of developing a new BRT Depot at Ubungo Maziwa, and for which this ESIA report has been prepared.

Based on the client’s (DART) requirement, the components of the new BRT depot will comprise of the following structures, facilities and infrastructures: Administration Building, Depot/Workshop Building, Business Centre Block, CNG Filling Station, Buses Washing Bays, Buses Parking Yard, Fence Wall, Guard House, Pump and Compressor Block, Power House, Boreholes, Underground Water reservoir tanks, Water Harvesting System and Water Treatment Plant, Weight Bridge Facility and Access Roads connecting the Ubungo Maziwa Depot to Morogoro Road.

POLICY, ADMINISTRATIVE AND LEGAL FRAMEWORK

The project proponent is committed to implementation of the various relevant National policies and laws which are relevant to this project as detailed in the main report.

World Bank Guidelines

These include The World Bank Environmental and Social Framework (WB ESF), The Environmental and Social Standards, Environmental, Health, and Safety Guidelines (EHS) Guidelines.

INSTITUTIONAL FRAMEWORK FOR THE MANAGEMENT OF ENVIRONMENT IN TANZANIA

These includes: Overall Management Responsibility, National Environmental Advisory Committee, Minister Responsible for Environment, Director of Environment, National Environment Management Council (NEMC), Sector Ministries, Local Government Authorities

INSTITUTIONAL FRAMEWORK FOR IMPLEMENTATION OF RAP

The institutional framework for the implementation of the RAP includes National institutions such as Ministries and PO-RALG, DART, Ubungo Municipal Council and the World Bank as discussed in the following section.

PROJECT STAKEHOLDERS AND THEIR INVOLVEMENT IN THE ESIA PROCESS

Stakeholders engagement was guided by the WB ESMF that was prepared alongside other framework documents for MBDP including SEP. ESMF sets out the World Bank’s commitment to sustainable development, through a Bank Policy and a set of Environmental and Social Standards (ESS) that are designed to support Borrowers’ projects, with the aim of ending extreme poverty and promoting shared prosperity. For

example ESS10 recognizes the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation. The overall objective of public participation process in this study was thus to disseminate relevant project information and to consider the views of the stakeholders in the design of environmental and social mitigation measures for identified negative impacts related to the project implementation. The specific goals of the consultation process were to: Improve the preliminary design of the proposed project, thereby increasing acceptance and minimizing conflicts and delays at the time of final detailed design and implementation; Improve institutional coordination, Inform and disseminate relevant information about the project and to Gather information required for the conduct of the impact's assessment. The outcome of this consultation will feed into the planning and final design work by the consultant and into the effective implementation of the project by the parties to be involved in this project (i.e. contractors, consultant, DART and the local residents), as well as providing useful material across the wider policy development agenda. In relation to resettlement and identification of the PAPS, meetings were held at ward and sub ward levels as well as with the representatives of the PAPS, with a view to introducing the project and explaining the RAP process.

Results of public consultations

Findings from consultations indicate that all stakeholders are supportive of this project particularly because of its impacts on the transport system/sector in the city and its contribution to economic growth. Among the main issues and stakeholders' concerns include but not limited to: ensuring that all necessary permits for the project implementation are obtained so as to facilitate smooth project implementation, the need to ensure that the project's infrastructure does not affect the existing neighboring infrastructure, ensuring that the neighboring community is made aware of and participate in the project and ensuring that all PAPS are compensated and on time. Major recommendations by the stakeholders are related to income generation through recruitment of the local people to work in the project during its various phases of its implementations.

BASELINE ENVIRONMENTAL AND SOCIAL CONDITION SETTINGS

The baseline information presented in this report was captured and compiled to suit the ESIA study requirement. Baseline environmental and social condition setting represents the environmental profile for Dar es Salaam region including Ubungo municipality where the proposed project is to be executed. They are meant to provide baseline data and information and conditions before the project starts for later comparison.

DESCRIPTIONS OF MAJOR SIGNIFICANT IMPACTS

General

Two broad types of impacts are envisaged from this project; (i) Impacts associated with immediate area of project influence during construction and operation phases such as noise, dust, vibration, emissions etc. (ii) impacts that are beyond immediate marginal zones of influence area such as borrow pits, improved trade, improved social interactions, health issues etc. The impacts will occur at various project phases including mobilisation, construction, demobilisation and operation as detailed in the main report.

Key Environmental and social risks

Key environmental and social risks and impacts during different project phases. Some of the Environmental and social risks during mobilisation and construction phases include the following:

- ✚ Land acquisition and Displacement of the population in the project area
- ✚ Removal of vegetation
- ✚ Influx of job mongers and reduced security in the project area
- ✚ Soil Erosion and Change in local hydrology
- ✚ Damage or Disruption of utility lines and existing services
- ✚ Vibration and noise pollution
- ✚ Poor Air Quality due to emissions and dust
- ✚ Oil, Grease, Fuel spillage
- ✚ Risk to diseases transmission
- ✚ Risk to Health and Safety/ Occupational health and safety impact
- ✚ Land scarring at borrow sites
- ✚ Impacts on livelihood
- ✚ Construction and Demolition Waste / Wastewater from Camps

On the other hand impacts during Operation Phase include : Air quality, Hydrocarbon spillage, Noise, Fire Risks and explosion, Contamination of water by Oil Interceptor, Soil pollution and water pollution, Occupational safety and health impacts and Solid waste generation

MITIGATION OF THE IMPACTS

Various mitigation measures for the environmental and social risks during various phases of project implementation have been identified. For example, mitigation measures for Land acquisition and Displacement of the population in the project area include fair compensation and resettlement of the PAPs, mitigation for removal of vegetation include among others the need to avoid unnecessary cutting down of the vegetation. As for the Influx of job mongers and reduced security in the project area, the mitigation measures include effective security measures in the project area. Worth noting however that among the key mitigation measure for the identified environmental and social risks is the implementation of the appropriate occupational health and safety plan and procedures as

well as implementation and adherence to the ERP. Mitigation for impacts on livelihood will include capacity building for more profitable and sustainable use of livelihood assets; including Development of alternative livelihood resources and initiatives (security of Tenure) and Financial literacy on judicious use of compensation money. Details of the mitigation measures and discussed in the main body of this report.

Implementation of mitigation measures during construction phase is primarily the responsibility of the Contractor under the supervision of Resident Engineer/project manager. There should be a strong unambiguous statement in the Contract document to guide the Contractor on this. To ensure that the contractor carries out the proposed mitigation measures during construction phase, the design consultant should clearly set out in the tender document the contractor's obligation to undertake the respective environmental mitigation measures. The proponent will also see to it that the EMP is implemented as recommended.

IDENTIFICATION OF ALTERNATIVES

Most of the locations that meet the planning criteria and thus consideration as alternatives for the proposed project are within the already congested areas by residential and commercial facilities. Acquisition of such locations would have been far more expensive in term of compensations for relocation/resettlement of the inhabitants. This situation leaves no other alternatives for the project location. Avoiding or Minimizing land acquisition and resettlement is normally done through exploring project design alternatives especially during the feasibility study, and continues through final design stage. In the case of the proposed Ubungo Maziwa Depot, however, the design has been constrained by the limited available space with no manoeuvrings options to avoid.

Construction is envisaged to be developed from steel structures, concrete blocks and reinforced concrete whose materials will be sourced from common places used for other ongoing projects within Dar es Salaam city. The use of these materials for the proposed project is not envisaged to lead to scarcity due to steady production from various available sources within and outside Dar es Salaam city. The “No Project” is an economic alternative but is not worth considering, as it does not have any benefits. Under the No-Action Alternative, the proposed depot station at Ubungo Maziwa would not be constructed or operated, and socio-economic impacts described in this report would not occur. Accordingly, the consideration of do-nothing option can be justifiably dismissed.

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

For this study ESMP including the principal environmental and social cost as well cost for implementing the mitigation measures have been prepared and included in the main report. The ESMP includes identified impacts, implementer/responsible organization and cost for implementation.

PROPOSED MONITORING AND AUDITING

Monitoring the significant risk posed by the construction work to the surrounding commuters and pedestrians will be undertaken by the contractor. The ESMP will also be implemented to assess compliance and determine the impacts of the proposed project that were not predicted. Some of the parameters to be monitored during various project implementation phases include: Water resources and demand, Removal of vegetation, Influx of job mongers, Soil Erosion and Change in local hydrology, Damage or Disruption of utility lines and existing services, Increased level of noise due to operation of machines, vehicle movements, blasting and other construction activities, Air pollution due to emission of gases and dusts, Soil contamination from grease and spillage of hydrocarbons, toxic chemicals, Increased incidences of HIV and STDs, Occupational Health and Safety & Worker's Welfare, Construction and Demolition Waste, Fire risk,. Table 9.1 (in the main report) provides details of the attributes to be monitored, frequency, and institutional responsibility and estimated costs.

RESOURCES EVALUATION AND COSTS BENEFIT ANALYSIS

The aim of environmental and social costs benefits analysis (ECBA) is to present the lifetime costs and benefits of a project as a single number that can be compared to either interest rate prevailing or the costs and benefits of the environment. For the proposed project, the environmental and social costs are relatively lower in value and are thus far outweighed by the benefits to be realized from this project. The consideration of “No-Project” or “Do–Nothing” option has been dismissed as an alternative due to the need and desirability of the proposed depot station. Therefore, Dar es Salaam city and the country at large stands to benefit significantly in terms of easing transport within the city and the economic growth. It is on this basis that the consultant recommends that implementation of the project should proceed.

DECOMMISSIONING

Decommissioning is the final phase in the life cycle of the project. It is on very rare occasion that depot stations are decommissioned. The design life of the proposed project will be 30 years. Decommissioning implies that the depot is no longer used and is generally left to deteriorate. However, as the Dar es Salaam city grows and activities expands, there will always be a need for even a better depot station and other infrastructure including similar project. Therefore, decommissioning of the proposed project should be thought in terms of upgrading the system from the present/proposed status to the next higher stage depending on the demand at that time.

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LIST OF ABBREVIATIONS

BRT	Bus Rapid Transit
C&D	Construction and Demolition
CBA	Cost-Benefit Analysis
CNG	Compressed Natural Gas
DART	Dar Rapid Transit
DCC	Dar es Salaam City Council
DMDP	Dar es Salaam Metropolitan Development Project
ECBA	environmental and social costs benefits analysis
EHS	Environmental, Health, and Safety Guidelines
EMP	Environmental Management Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and social Management Plan
ESS	Environmental and Social Standards
FGD	Focus Group Discussion
GBV	Gender Based Violence
GDP	Gross Domestic Products
GMC	Grievance Management Committee
GRM	Grievance Redress Mechanism
HIV/AIDS	Human Immunodeficiency Virus/Acquired immunodeficiency syndrome
HSE	health, Safety and environmental
IDA	International Development Association
MBDP	Msimbazi Basin Development Project
MEO	Mtaa Executive Officer
NEMC	National Environmental Management Council

NGVs	Natural Gas vehicles
PAPs	Project Affected Persons
PIU	Project Implementing Unit
PO-RALG	Presidents 's Office, Regional Administration and Local Government
PPE	Personal Protective Equipment
RAP	Resettlement Action Plan
SP	Sampling Points
STDs	Sexually Transmitted diseases
TPDC	Tanzania Petroleum Development Corporation
URT	United Republic of Tanzania
WB	World Bank
WB ESF	World Bank Environmental and Social Framework
WEO	Ward Executive Officer

1.0 INTRODUCTION

1.1 BACKGROUND INFORMATION

The Government of Tanzania (GoT), through President's Office - Regional Administration and Local Government (PO-RALG) is preparing Dar es Salaam Metropolitan Development Project-Msimbazi Basin Development or Msimbazi Basin Development Project (MBDP). The proposed Project Development Objective (May, 2016) statement is to "To strengthen urban services and institutional capacity in the Dar es Salaam Metropolitan area in order to improve resilience, mobility, and liveability; and service delivery to low income areas". The project will invest in an integrated set of mitigation measures to resolve persistent flooding in the Msimbazi basin in Dar es Salaam, with a focus on the lower Msimbazi valley flood plain area. The Project will have five broad components namely:

- (i) Component 1: Msimbazi Basin Development Infrastructure;
- (ii) Component 2: Preventative resettlement of flood-prone communities;
- (iii) Component 3: Strengthening institutions for resilient urban development;
- (iv) Component 4: Project Management; and
- (v) Component 5: Contingent Emergency Response

In order to achieve the PDO the following project components were proposed for the Msimbazi Basin Development Infrastructure: River management, resilient transport infrastructure, erosion control, improved urban management, preventative resettlement, and restoration of ecosystem services designed to reduce flooding and its impacts and allow use of the area for recreation and residential development that will include *Flood Control Interventions*, *Resilient Transport Infrastructure and Erosion/Sedimentation/Litter Control and Urban Greening including labour intensive approaches, Redevelopment works, sites and services*. Another component is Urban Planning, Services and Management and Implementation Support and Monitoring and Evaluation. The key expected outcome of the project includes:

- (i) Improved services including drainage services, roads and public transport, solid waste and recreation and parks in the Msimbazi Area.
- (ii) Improved services and reduced vulnerability for flood prone communities currently living in the Msimbazi Area.
- (iii) Establishment of institutional structure for management and integrated urban planning for the Msimbazi Area.
- (iv) Increase in jobs in public services and
- (v) Provide an enabling environment for economic development through better services, improved mobility, reduced flood impacts, improved amenities through a public park and redevelopment of the area.

Direct beneficiaries of MBDP which will be implemented in the Lower Msimbazi Basin from Selander Bridge to Kawawa Bridge as well as the upstream of Msimbazi that covers the

Pugu Hills, include local communities within the project area and the Nation at large as well as businesses, and government institutions. Indirect project beneficiaries will involve Dar es Salaam residents, NGOs/CBOs, relevant Government institutions, private sector as well as local leaders. Figure 1.1 shows MBDP area as extracted from stakeholder's engagement plan for the MBDP draft report of February, 2022.

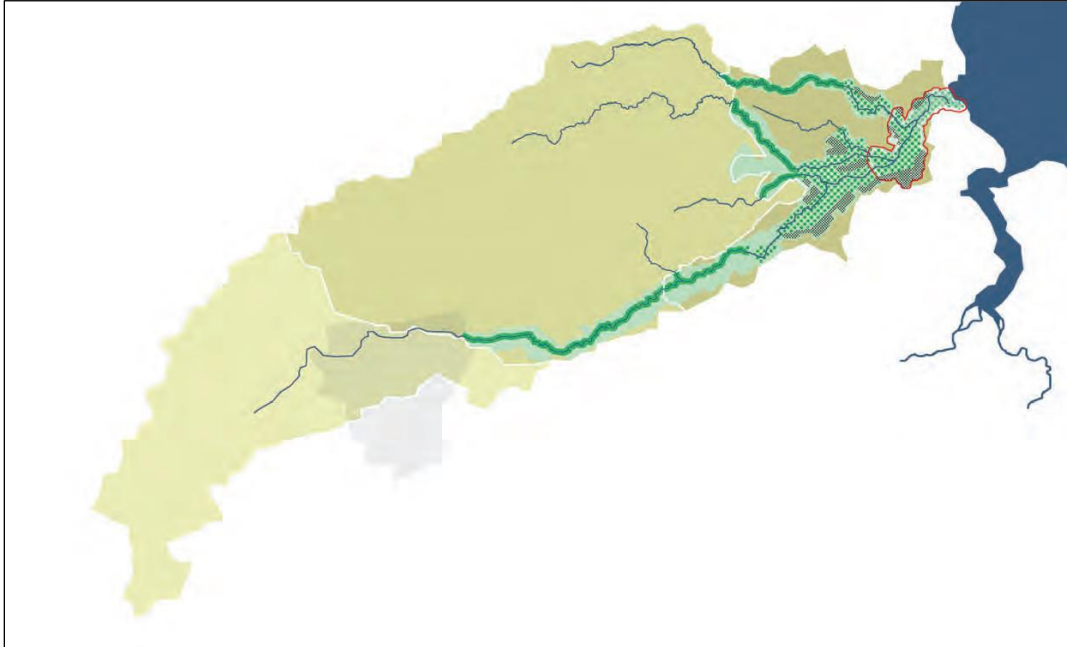


Figure 1.1: Msimbazi Basin Project Area (TARURA, 2020)

The first component priority infrastructure within DMDP is to finance improvements and constructions of priority roads-local and feeder roads in the urban core to alleviate congestion hotspots, and support public transit, mobility, and connectivity to low income communities, especially improving accessibility to the bus rapid transit (BRT) system. It is within this component that the government of Tanzania is implementing the Bus Rapid Transit (BRT) system in Dar es Salaam city branded Dar Rapid Transit (DART) system. The aim is to provide enhanced transport facilities that are reliable and cost effective, with a view to improving urban mobility, connectivity and accessibility to commuters and businesses and thereby supporting economic and social development of the city and the Country as a whole. The operationalisation of BRT in the City of Dar es salaam which fully came into force on 16th June 2008 through Government Notice (GN). No. 120 of 25th May 2007, under the Executive Agency Act, No. 30 of 1997. is envisioned to evolve through six phases under DART

Construction of BRT Phase I, which was financed by the World Bank and the government of Tanzania was completed in December 2015 and officially launched for use on additional bus traffic May, 2016. It operates 20.9 km long bus line between Kimara, Ubungo, Morocco, Kivukoni, and Kariakoo (Gerezani) Bus Terminals. The Phase 1 of the BRT has been facing service provision breakdown from now and then during rainy season due to

flooding at Jangwani area in Msimbazi basin. The floods affect the Jangwani Bridge and the BRT Jangwani Depot, which is a main depot for Phase 1 operations. The genesis of floods is related to Msimbazi River Basin which has a catchment area of about 270 km². On the other hand, Jangwani area is located around 2.5 km before the outfall of the river into the Indian Ocean. Jangwani Bridge forms a link between the city Centre and the north-western part of the city via Morogoro Road, crossing the river. It facilitates the BRT public transport system. Next to the Jangwani Bridge, the BRT depot is located in the Jangwani valley. During high flood events, Morogoro Road and Jangwani Bridge get flooded, making the crossing of the valley impossible. As a result, the traffic comes to a still stand. Again, water and sediments enter the depot, damaging not only the depot's structures and obstructing the drainage system, but also the parked busses inside.

Previous ESIA study largely considered the floods of Msimbazi river to be a localised problem. Overtime however, this problem has been proved to be a structural challenge to the functioning of BRT in Jangwani area. As such operation of BRT in Jangwani area has raised awareness of the challenge of flooding which has been exacerbated by the increasing land sealing as a result of high construction activities and less water seepage into the soil. Increased surface runoff then poses the threat of flooding, especially during heavy precipitation events. In addition, the lack of effective waste management and an increase in waste dumping in the Msimbazi river make it more difficult to dispose of excess water.

It has now been realized that the Jangwani Depot cannot be rescued and therefore must be relocated to another location. DART has thus identified the Ubungu Maziwa area as suitable site for construction of the depot alternative to the one at Jangwani area which experiences floods and thus rendered inoperable during rain seasons in Dar es salaam city. It is against the above narrated background, that the DMDP has developed a consultancy assignment with the intention of developing a new BRT Depot at Ubungo Maziwa.

The components of the new BRT depot will include the following structures, facilities and infrastructures: Administration Building, Depot/Workshop Building, Business Centre Block, CNG Filling Station, Buses Washing Bays, Buses Parking Yard, Fence Wall, Guard House, Pump and Compressor Block, Power House, Boreholes, Underground Water reservoir tanks, Water Harvesting System and Water Treatment Plant, Weight Bridge Facility and Access Roads connecting the Ubungo Maziwa Depot to Morogoro Road. Social facilities including for example schools, dispensaries, markets are not included in the current scope of the project. The location of the project site is however, linked with such facilities currently available within Ubungo municipality.

1.2 ENVIRONMENTAL SOCIAL MANAGEMENT FRAMEWORK (ESMF)

In the year 2022, the ESMF was prepared for MBDP. This ESMF is the one that guided the preparation of environmental instruments including this ESIA. The ESMF was meant to ensure that the project comply with The World Bank's Environmental and Social Policy for Investment Project Financing, which sets out the requirements that the Bank must follow regarding the projects it supports through Investment Project Financing. The Environmental and Social Standards (ESS) set out the requirements for Borrowers relating to the identification and assessment of environmental and social risks and impacts associated with projects supported by the Bank. The Bank believes that the application of these standards, will support Borrowers in their goal to reduce poverty and increase prosperity in a sustainable manner for the benefit of the environment and their citizens. The standards: (a) support Borrowers in achieving good international practice relating to environmental and social sustainability; (b) assist Borrowers in fulfilling their national and international environmental and social obligations; (c) enhance non-discrimination, transparency, participation, accountability and governance; and (d) enhance the sustainable development outcomes of projects through ongoing stakeholder engagement. The ten ESS establish the standards that the Borrower and the project will meet through the project life cycle. These include:

- (i) ESS1: Assessment and Management of Environmental and Social Risks and Impacts;
- (ii) ESS2: Labor and Working Conditions;
- (iii) ESS3: Resource Efficiency and Pollution Prevention and Management;
- (iv) ESS4: Community Health and Safety;
- (v) ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement;
- (vi) ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- (vii) ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities;
- (viii) ESS8: Cultural Heritage;
- (ix) ESS9: Financial Intermediaries; and
- (x) ESS10: Stakeholder Engagement and Information Disclosure.

1.3 THE NEED FOR ESIA STUDY

ESIA is the process which combines the evaluation of the social, economic and environmental aspects of a project. ESIA process identifies and assesses the significant environmental and social effects likely to arise from a project. The assessment requires consideration of the likely changes to the society and environment, which arises as a consequence of a project and is done through comparison of the existing and projected future baseline conditions. ESIA make sure that project decision makers think about the likely effects on the community and the environment at the earliest possible time and aims to avoid, reduce or offset those effects.

As such, prior to the implementation of this project, ESIA was required in order to ascertain some impacts likely to emanate from construction and operation of the proposed facility. This is in line with The Environmental Management Act, 2004 (Act No. 20 of 2004) and the subsequent Environmental and Social Impact Assessment and Audit Regulations, 2005, (which requires that projects of this nature must undergo ESIA study), as well as The Environmental Management (Environmental Impact Assessment and Audit) (Amendment) Regulations, 2018, which provides procedures and guidelines for carrying out Environmental Impact Assessment in Tanzania. ESIA is also important in order to comply with The WB Environmental and Social Framework which among others sets out the Bank's commitment to sustainable development through adherence to Environmental and Social Standards designed to support Borrowers' projects, with the aim of ending extreme poverty and promoting shared prosperity.

In order to comply with environmental regulations, DART Commissioned Inter-Consult limited of Dar es Salaam to among others carry out ESIA study for the proposed Project. The study was conducted between October and December, 2022. The team leader for undertaking this assignment was the Environmental Impact Assessment expert/consultant Eng. Prof. Mengiseny Kaseva. The obligation of the Consultants was to identify potential environmental and social impacts (positive and negative) associated with the proposed project and thereafter propose appropriate mitigation measures to minimize negative impacts and where possible to enhance the positive ones.

1.4 RATIONALE FOR ESIA STUDY

The Environmental Management Act, 2004 (Act No. 20 of 2004) and the subsequent Environmental and Social Impact Assessment (ESIA) and Audit Regulations, 2005, requires that projects of this nature must undergo ESIA. ESIA is also necessary for the proposed project in order to comply with The World Bank Environmental Social Framework (WB ESF) including among others the need for Assessment And Management Of Environmental And Social Risks And Impacts, The Need For Recognition Of The Importance Of Employment Creation And Income Generation In The Pursuit Of Poverty Reduction And Inclusive Economic Growth, Resource Efficiency And Pollution Prevention And Management, Assessment Of Health, Safety, And Security Risks And Impacts On Project-Affected Communities and Biodiversity Conservation and Sustainable Management of Living Natural Resources. As such DART will have to apply for Environmental Impact Assessment Certificates (Environmental permit) in the format given by National Environmental Management Council (NEMC) to allow it to implement the project. This requirement is also in line with the subsequent amendment of the basic Act including for example Written Laws (Miscellaneous Amendments) (No. 3) Act, 2016 and Environmental Management (Fee and Charges) (Amendment) Regulations, 2016 (G.N. No. 191 of 2016).

The purpose of this ESIA study was thus to foresee the cumulative environmental, social and economic effects of the proposed project before the project comes into the actual implementation. The study therefore has addressed the social, economic, and environmental impacts associated with the proposed project and has provided a relevant mitigation plan to prevent and/or minimize adverse impacts.

The ESIA was among others guided by the project ESMF that was prepared for MDBP. Also stakeholder's consultation was guided by the SEP prepared for MDBP. In undertaking the ESIA study, the consultants collected data on physical, biological and socio-cultural environment of the area. The key methodology used was through literature review, consultations and actual measurements in the field as further discussed in Chapter 4. The collected information was used to predict the potential impacts of the proposed activities as well as to develop appropriate mitigation measures and to plan programs to monitor any changes that may result after constructing and use of the proposed facilities.

1.5 OBJECTIVES OF THE ESIA STUDY

The objectives of this ESIA include the following:

- (i) To identify the anticipated environmental and social impacts of the project and the scale of the impacts;
- (ii) To identify and analyse alternatives to the proposed project
- (iii) To propose mitigation measures to be taken during and after the implementation of the project; and
- (iv) To develop an environmental and social management plan with mechanisms for monitoring and evaluating the compliance and environmental and social performance which shall include the cost of mitigation measures and the time frame of implementing the measures.

1.6 SCOPE OF THE ESIA STUDY

The scope of the assignment included but not limited to carrying out ESIA to ensure that the proposed project is implemented in a sustainable manner. ESIA has been prepared with a view to ensuring high-quality due diligence on environmental and social impacts, and compliance with GoT and the World Bank's Environmental and Social Framework (ESF) including ESS1, ESS2 and ESS10 which recognizes the importance of open and transparent engagement between the Borrower and project stakeholders. Consultation with stakeholders was done in line with the Stakeholders' Engagement Plan (SEP) for the Msimbazi basin development project prepared in February, 2022. The scope of the work thus entailed the following:

- Reviewing the country policies and laws which are relevant to this project
- Assessing the baseline environmental and social conditions to be affected by the project
- Consultation with stakeholders

- Delineation of potential environmental and social impacts that would result from the planned activities;
- Recommending appropriate solution to mitigate and manage any undesirable environmental and/or social effects resulting from the project
- Developing plans to manage and monitor the negative impacts (ESMP)

1.7 PROJECT RATIONALE

The proposed project (new depot station in Ubungo Maziwa) will be an alternative to the existing BRT station in Jangwani area which is normally overwhelmed by floods during rainy season. The BRT depot in Jangwani area normally submerges in flood waters during rainy season in the city making the crossing of Jangwani Valley impossible. Water and sediments enter the Jangwani BRT depot, damaging not only the depot's structures and obstructing the drainage system, but also the parked busses inside. Whenever this occurs BRT transportation within the city encounters disruptions due to a number of buses being unable to operate as they are normally stranded at Jangwani main depot. This is because the floods ravage the place with muddy mounds which fills the service bays.

The proposed alternative depot in Ubungo Maziwa is an attempt to mitigate and ensure that BRT Phase 1 operates efficiently and that the objectives for which it was developed are achieved. The depot will allow for optimisation of bus timetabling through a balance between passenger and transit efficiency. This will in turn reduce waiting time in bus stops and thus likely improved passenger transportation and movement within the city, which in turn will have impacts both on social and economic activities of the commuters. This in turn means improvement of people's lifestyles through improved movement around the city. Reduced traveling time also means improved, incomes and employment.

1.8 APPROACH AND METHODOLOGY

1.8.1 Background information

This Chapter describes the approach and methodology that were adopted for the preparation of ESIA for the proposed construction and operation of the new depot station/complex and the associated infrastructure in Ubungo area. The ESIA process has been conducted in accordance with the World Bank (WB) Operational Policy 4.01 Environment Assessment and Environment Management Act (EMA) 2004. The following sections discuss the various study tools and methods that are adopted for each element of ESIA study, like literature review, understanding prevalent environment of the study area, data collection and data analysis approach, socio-economic study among others.

1.8.2 Methodology

1.8.2.1 Data collection tools

Data collection methods/tools used in undertaking this ESIA study include filed survey and

assessments, structured interviews, physical observations, recording and documentation and well as Focus Group (FGD). The consultant also carried out public consultations including FGD. The team developed communication links with appropriate personnel at DART and other relevant key entities with the objective of undertaking the proposed ESIA assignment in a timely manner. The scope of the study was to describe the project and evaluate all possible positive and negative environmental impacts in order to propose mitigation measures necessary to reduce or minimize the effects of the identified negative impacts. Data was collected from different sources. These were then analyzed and synthesized to understand the prevalent environment, and identify impacts and thereby propose adequate management plans.

1.8.2.2 Literature Review

Literature review that was partially carried out during Scoping Report preparation continued through the entire ESIA study period. The prime objective was to review the existing studies, environmental legislations, environmental and social surveys, and technical documents relevant to the proposed project. The team collected required information from different government departments, public agencies (e.g. TANESCO, TRC, DAWASA etc.) The collected information (*policy documents, published books, journals, census data*) have been reviewed by the team. The data collection and review were conducted to: Collect documented data on all aspect of the project, Review in detail any existing studies, environmental legislation, and environmental and social surveys, Study the World Bank Environmental Policies, and Tanzania environmental laws and regulations and Collect any additional data needed to meet the requirements of the approving authorities. Figure 1.2 shows primary and secondary data collection procedure that was adopted during this ESIA study.

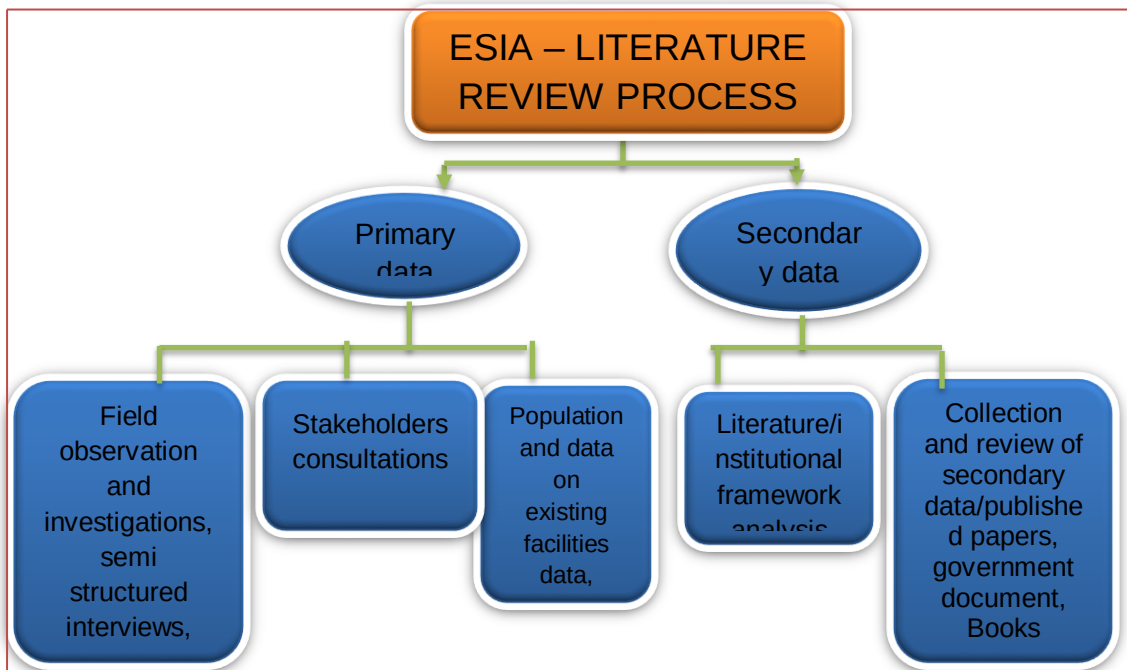


Figure 1.2: Procedures for Data Collection

1.8.2.3 Filed work data collection

The field visits were essentially meant to fully realize the scope of the project, the biophysical environment specific to the location and the socio-economic conditions in the project area which comprises residential, commercial and industrial land uses. Also, some small-scale businesses are currently conducted within the project area. Details discussion about the project area is provided in section 2.1. In the course of undertaking the field work, a number of visitations to the project area were made; that is before and during ESIA scoping and ESIA stages including at the detailed stakeholders interview stage. All the visits by the consultant were conducted during the months of October and December 2022. The ESIA team used the fieldwork to conduct interview with stakeholders and also to collect information on the state of the environment.

Thus information collected for the purpose of this study included data from primary sources (field observations and consultations) as well as secondary data. Primary data were collected by field observations and through semi-structured interviews, and key informants. Plate 1.1 shows some of the images as captured during field work data collection exercise.

Secondary data were drawn from various sources including reports and selected reference materials. Secondary data also included information on the existing social economic conditions in the project area. The compiled information covers all the thematic aspects that are required to establish the social economic baseline condition and to conduct the social impact assessment.



Plate 1.1: Some of the images as captured during field work in the project area (Photos were taken during field work for this ESIA study between October and December, 2022)

Methodology for Ambient Air Quality, Noise and Vibration Levels Measurement

Sampling locations

Figure 1.3 indicate sampling points (SP1 to SP12) in the project sites where various parameters were measured.

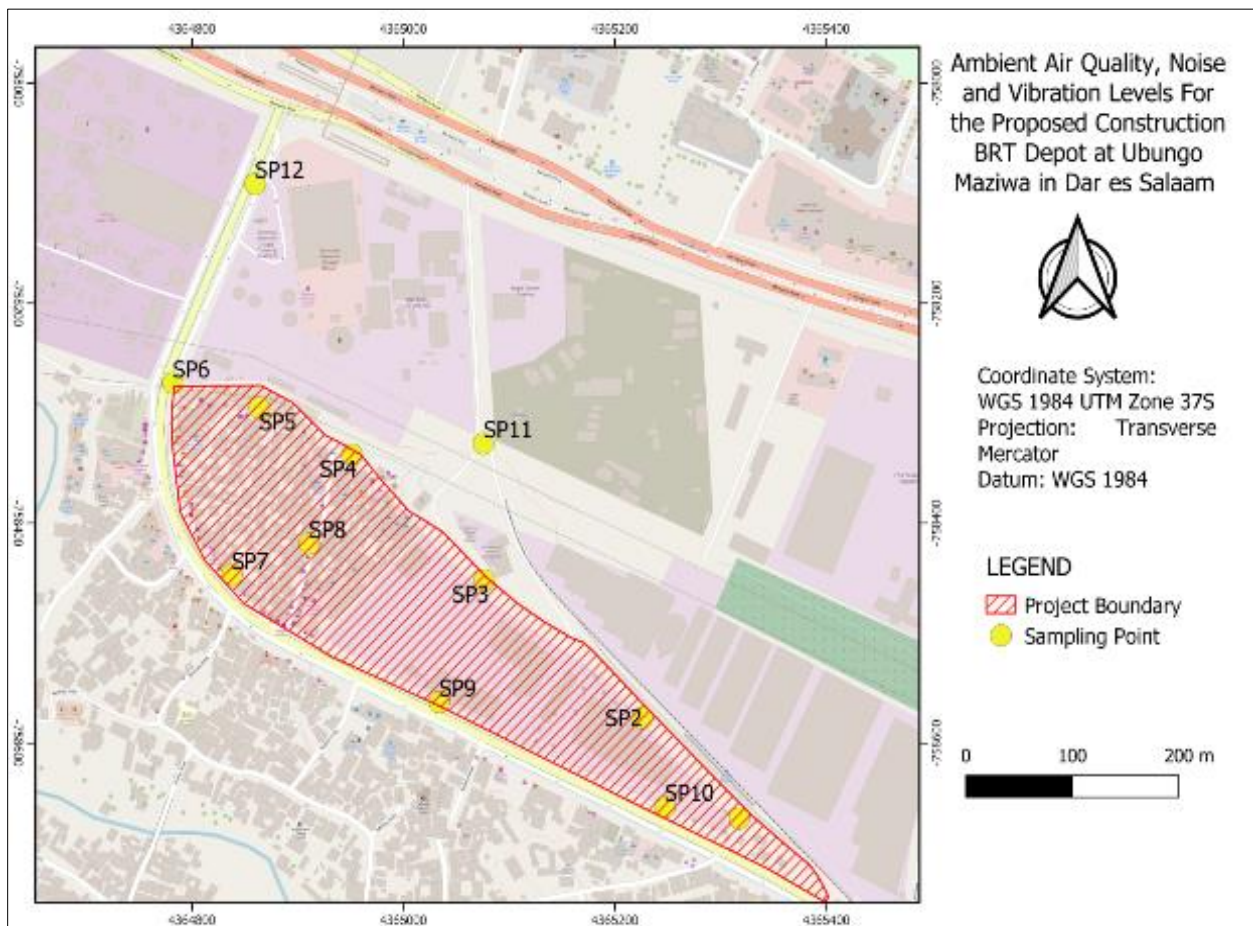


Figure 1.3: Ambient Air Quality and Noise Levels Sampling locations at site (all the measurements were done in the course of ESIA study for this project between October and December, 2022)

Noise level measurement

The measurements and assessment of environmental noise levels were determined in accordance with ISO standards using Quality Meter with Sound (model TA8151 (Class 1)). The noise survey was performed in accordance with the recommended method for evaluating the environmental noise impact on surrounding communities with respect to annoyance. Each individual measurement was taken over a representative period to ensure that all possible variations in noise generation in the area i.e. all possible noise sources are included in the measurement. Plate 1.2 shows images as captured during field work measurements, Plate 1.3 shows a noise level meter that was used in this study. This image was taken on site (at the project site in Ubungo Maziwa).



Plate 1.2: Field measurement and data collection at the proposed project site (Photos were taken during field work for this ESIA study between October and December, 2022)



Plate 1.3: Noise Level Meter that was used in this study (Photos were taken during field work for this ESIA study between October and December, 2022)

Dust Levels Measurements

Particulate Matter (PM10 and PM2.5) levels were determined by using an environmental kit instrument with a very fast response (Environment Air quality tester ECO-12 model). The used portable air sampler complies with Electromagnetic compatibility. Generic emissions standard, Residential, commercial and light industry (EN50081-1:1992 and EN 50081-2:1993), the manual determination of mass concentration of particulate matter (ISO 9096:2003) and meets the requirements of Air Quality General Considerations TZS 836-part 1:2004 and Manual determinations of mass concentration of particulate matter; TZS 837 parts 3:2004. During testing, the sampling equipment was fixed at a breathing height of approximately 1.5 meters above the ground for PM10 and PM2.5 at all selected sampling stations. Environmental Air Quality Tester used in this study is shown in Plate 1.4.



Plate 1.4: Environmental Air Quality Tester (Photos were taken during field work for this ESIA study between October and December, 2022)

Ambient Pollutant Gases

The aim of gas sampling in air was to get data on the variations of concentrations of different gases over time. Levels of ambient gases was done using a Portable Gas Detectors and/or with detector sensors for the targeted gases in accordance to ISO 8760:1990; ISO 8761:1989; ISO 4219:1979 and TJS 837. Parameters measured include Carbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen dioxide (NO₂), Sulphur dioxide (SO₂) and Hydrogen Sulphide (H₂S). The equipment used are presented in Plates 1.5.

Meteorological Conditions (Temperature and Relative Humidity)

The Digital Environmental meter was used to determine ambient temperature and relative humidity of the site surroundings.



▪ **Plate 1.5 (a): Gas Detector for O₂, H₂S, CO, Combustible Gas**



▪ **Plate 1.5 (b): Gas Detector for SO₂, NO₂, O₃**

Ground Vibration

Ground vibrations measured at five points in the project area that represented onsite and offsite receptors. The detached probe type vibration meter model TA8663 utilized to quantify the ground vibration at the study area. The meter has an accuracy of $\pm 5\% \pm 2$ digits, acceleration of $1-199.9 \text{ m/s}^2$, a wide frequency range of 1 Hz to 15 kHz for capturing almost all possible vibrations for workplace assessments. This meter adopts piezoelectric effect of artificial polarized ceramic for design. It is suitable for monitoring of all kinds of vibrating mechanical facility, specially the vibration measurement of rotating and reciprocating machinery as well as ground vibrations. Plate 1.6 shows the vibration meter that was used in this study.



Plate 1.6: Vibration Meter used in this study (Photos were taken during field work for this ESIA study between October and December, 2022)

1.8.2.4 Socio-Economic data

During baseline surveys data on socio-economic aspects of impacted communities were collected. WEOs and MEOs were consulted to gather social and economic or political information of their respective wards. Additional social economic data were also collected during meetings and discussions with community members and the project stakeholders. Data collected among others included information on population, employment, social services and infrastructure, educational facilities and health care facilities.

1.8.3 Public participation

Public participation was considered as an important element for the purpose of the project sustainability. In this ESIA study, various stakeholders participated. Consultations with different institutions including local government officials in the projects area (Ubungo Municipality) were held. Details of public participation in the process of undertaking this assignment are discussed in Chapter 6 of this report (Public consultation and participation process).

1.8.4 Scoping phase

Scoping described the scope and methodology of the technical studies that were undertaken to provide an assessment of any likely significant effects including preliminary

suitable mitigation measures for the construction and operational phases of the proposed Project. It also described those topics or sub-topics which are proposed to be scoped out of the ESIA process as well as justification as to why the Project would not have the potential to give rise to significant environmental effects in these areas. Scoping also identified and initiated involvement of all interested and affected parties (IAP) such as the proponent and the community members in the project area.

ESIA study team visited the project sites several times and interacted with various stakeholders such as local authorities, project affected persons (PAPs), ward/district level communities, project neighbouring facilities, etc. for conducting the preliminary investigations to define the scope and formulating Terms of Reference (ToR) for a detailed ESIA. The results of scoping study thus, determined the scope, depth and terms of reference (TOR) for this study. The scoping report and the ToR were approved by NEMC through a letter attached in this report as **Appendix 4**. Figure 1.4 provide highlights on some of the key inputs to the project scoping process.



Figure 1.4: Overview of project scoping process

1.8.5 Project Impacts Assessment

1.8.5.1 Impacts identification and mitigation measures

Superimposing project elements onto the existing social and environmental natural conditions made it possible to identify the potential impacts of the proposed project. The

checklist method was used to identify the impacts and mitigation measures. Further, environmental impact matrix method was adopted in identifying impacts of major concerns. Impacts as identified from environmental and socio-economic baseline as affecting the receptors air, water, land, biodiversity, resources and community were further categorized into pre-construction, construction, operational and decommissioning impacts. After the identification of impacts, suitable and viable mitigation measures are proposed for each potential negative impact during the construction, operation and decommissioning phases of the project. The implementation schedule of the mitigation measures is summarized in the Environmental and Social Management Plan (ESMP).

A key guiding assumption in this study was that the project will be designed, constructed and operated with due care for safety and environmental and social matters using current and practical engineering practices and/or Best Available Technology Not Entailing Excess Cost (BATNEEC).

1.8.5.2 Environmental and social Management and Monitoring Plans

Environmental and Social Management Plan (ESMP) is the key to ensure sustainable development. It comprises of all the mitigation measures that have been proposed for the identified potential impacts. The budget required for the implementation of the proposed ESMP is also provided.

2.0 PROJECT DESCRIPTION

2.1 BACKGROUND

This Chapter discusses the project location, its design details, including construction, operation and decommissioning phases, along with descriptions of associated wastes generated and their disposal techniques.

2.2 PROJECT LOCATION

The location of the project including physical area that may be affected by the project activities is in Ubungu municipality in Dar es salaam city (Figure 2.1). The project site is not within or near the sensitive ecosystem/areas (e.g., water bodies, protected areas, schools, public utilities). Ubungu Municipality is bordered by the Kibaha District to the North, Kinondoni District to the South-East, and Kisarawe District to the West.



Figure 2.1: Location of the project area in Mabibo, Ubungu Municipality

Specifically, the proposed project is planned to be located at Ubungu Maziwa in Ubungu sub ward. Ubungu sub ward is one of the sub wards in Ubungu ward. The site has approximately 15.15 Acres. It is located about 10 km from Dar es Salaam city. The adjacent land use includes commercial as well as residential areas and industrial facilities. Adjacent to the site there is also a powerline, railway line and tarmac road. There is an advantage of the selected site in that it is close to the existing Compressed Natural Gas (CNG) mother station in Ubungu. The proposed project has taken advantage of this and has accordingly included a CNG station as one among the facilities that will be hosted within the proposed new depot station at Ubungu Maziwa.

The proposed CNG station will be supplied with natural gas through a pipeline that will be connected from the CNG mother station. The CNG mother station is located within the allowable proximity distance from the proposed depot station. Figure 2.2 shows the proposed project site. Detailed site plan is presented in **Appendix 5**.



Figure 2.2: The proposed site for the BRT station at Ubungu Kisiwani area in Ubungu Municipality

The site is comprised of 4 Nos. of plots namely plot No. 15; 14; 13 which shows that the land use is for light, medium and heavy industries and service. Plot No. 12 is for residential settlements. Currently the government is in the process of acquiring this site (15.15 Acres) for construction of the proposed depot. 218 Project Affected Persons (PAPS) have been identified. Evaluation of assets and properties have also been done and are presented in a separate Resettlement Action Plan (RAP) report. The Government through DART

(proponent) is committed to ensuring that all the necessary compensations are made in line with the existing regulations, before commencement of the construction works. The expectation is that PAPs livelihoods will be maintained or improved further as compared to their current situation.

2.3 PROJECT BOUNDARIES

Determination of the boundaries within which the present study has been undertaken was an important step in the identification of impacts, since it will also determine the extent to which the impacts will be experienced. In the following section the two types of boundaries (spatial and temporal) are discussed.

2.3.1 Spatial Boundary

Spatial boundaries are crucial for restricting the impact area. In this study, the area where the project is located, and which will bear the most impacts is considered as the Direct Impact Area, whereas the surroundings of the direct influence area (Mabibo ward in Ubungo municipality) are considered as Indirect Impact Area, from where different services like labour, food, goods etc. would be obtained during various project implementation phases for. The proposed site's boundary coordinates for the area that will the direct impacts are indicated in Table 2.1.

Table 2.1: Proposed site boundary coordinates

BOUNDARY COORDINATES			BOUNDARY COORDINATES		
Vertex	X	Y	Vertex	X	Y
1	5233340.070	9245817.330	9	523236.092	9249000.413
2	523330.415	9245817.966	10	523227.227	9249014.723
3	523554.404	9245735.624	11	523248314	9249037.108
4	523565.243	9245749.192	12	523215.713	9249072.586
5	523437.926	9245875.257	13	523043.270	92499121.451
6	523442.749	9245881.327	14	523065.433	9249000.741
7	523407.471	9245902.608	15	523117.653	9245941.711
8	523344.409	9249000.413			

Figure 2.3 indicate some of the images around the project area as captured during field work and data collection for this assignment in November, 2022. The existing environmental condition within and around the project is likely to be affected by the proposed project. Details of the impacts and mitigation measures are discussed in chapter 8.



Figure 2.3: Images of some selected facilities around the project area (photographs taken during filed work for this study)

2.3.2 Temporal Boundary

Temporal boundaries refer to the lifespan and reversibility of impacts. The impacts of construction work of the proposed depot station may be short-lived, but its presence in the area may have implications that stretch far into the future. The impacts on air, environment, ground water etc., would occur throughout the project operation phase.

2.4 PROJECT DESIGN OVERVIEW

2.4.1 Description and components of the project

This ESIA study is for the proposed depot station in Ubungo Maziwa. The facilities included in the proposed depot station including the corresponding space for each of the facility are as detailed in the Table 2.2.

Table 2.2: Space allocation for the various facilities

S/N	Facility	Area (m²)/Volume (m³)
1	BRT Administration Centre	8,671 m ²
2	Depot/Workshop Building	2,350 m ²
3	CNG Filling Station,	270 m ²

S/N	Facility	Area (m ²)/Volume (m ³)
4	Buses Washing Bays	470 m ²
5	Buses Parking Yard,	34,000 m ²
6	Fence Wall,	490 m ²
7	Guard House,	20 m ²
8	Pump and Compressor Block,	70 m ²
9	Power House	70 m ²
10	Boreholes,	2.25m ² /100m deep
11	Underground Water reservoir tanks,	31.5m ² /(60m ³)
12	Water Harvesting System and Water Treatment Plant,	36m ² /(80m ³)
13	Weight Bridge Facility	230 ²

Figure 2.4 shows Commercial block and weighing bridge as well as the Business center, which are some of the components of the proposed depot station prepared by the ICL design team.



Figure 2.4: Commercial block and weighing bridge (above) and Business center (below) (source ICL, 2022)

The BRT buses shall be powered using CNG as the primary fuel. This is the move from traditional diesel-powered engines which are noted to be operationally expensive and environmentally unfriendly. To facilitate this, the proposed depot station shall have on-site (CNG) refill facilities that shall utilize gas from the nearby TPDC pipeline and compress it to 200 bar for the onboard CNG cylinder on the buses. Figure 2.5 indicates the equipment requirements of a typical fast-fill CNG station.

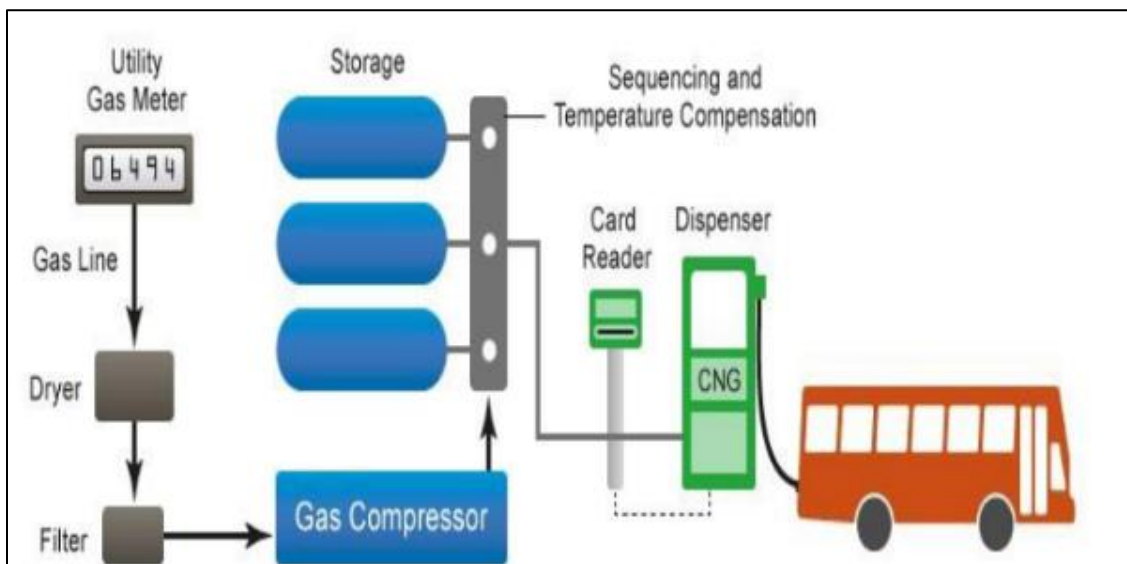


Figure 2.5: Fast Fill CNG Facility (source U.S. National Blueprint for Transportation Decarbonization: <https://www.energy.gov/eere/office-energy-efficiency-renewable-energy>, Dec, 2022)

2.4.2 Design methodology

2.4.2.1 Architectural design

The key professional requirement/input included Architectural and engineering designs. The architectural designs have considered all the specific design parameters such as space arrangement, circulation, room heights, lighting, ventilation etc. Other factors that have been considered include but not limited to: flexibility, accessibility, aesthetics, buildings orientation, landscaping and external works as well as technological innovation and sustainable building design.

2.4.2.2 Engineering

Engineering design input for the proposed new depot include: Structural Engineering, Mechanical Engineering, Plumbing engineering design, Fire Fighting System, Electrical Engineering Design and ICT.

Figure 2.4 shows 3D presentation of commercial block and weighing bridge and business center. The following section provides a discussion on the project activities during various implementation phases.

2.4.2.3 CNG stations

CNG design facilities have been based on the following key assumptions:

- The buses shall run with 100% CNG
- A typical bus shall have on-board cylinder gas storage capacity of 70kg at 200bar
- The CNG station is operational 24 hours
- Typical on-board Cylinder Nozzle type - NGV Type II
- On average each day a bus is in a parking position for about 5-7 hours (The buses operate in reshuffle mode, typically not all buses are on the road)
- CNG will have 9,000 water litter (WL) capacity

2.4.3 Safety and Risk assessment for CNG station

2.4.3.1 General

The proposed CNG station at Ubungo depot will house the following equipment:

- Dyer–To remove water or water vapour from the natural gas supply before compression
- Compressor (S) - compresses natural gas to the appropriate pressure required to deliver an ambient temperature-compensated fill to the vehicle
- Priority valve panel–To manage the sequence of flow of natural gas from the compressor into the storage
- Sequential valves panel–To manage the sequence of flow of natural gas from storage into the vehicle on-board cylinder
- Cascade storage–For storing compressed gas for fast-filling dispensers
- CNG Dispenser–To dispense natural gas into vehicles (Fast filling)
- Multiple single hose fuelling posts–To dispense natural gas into vehicles (Time filling)

2.4.3.2 Safety and risk assessment

Proper safety precautions and maintenance practices are vital when operating CNG vehicles and stations. This is because risks that can be caused by CNG fires for example, varies, ranging from minor damage to the destruction of the installations and injuries to deaths in humans. Mitigation actions should thus be taken to reduce the impact of an unwanted event before the event occurs. Safe risk value changes can be achieved after applying appropriate mitigation techniques. In the case of the proposed CNG stations, safety and risks assessment have been captured in the assessment for the key design factors including location of the station, design and construction, equipment to be installed, fire safety, Leak Detection and Emergency Response, Training and Procedures, Environmental as well as regulatory compliance. A summary of the assessment and safety

risks measures for CNG station are provided in Table 2.3. General safety rules and guidelines as well as safety instructions for CNG are discussed in section 2.4.3.3. On the other hand, details of the risk assessment and mitigation measures are discussed in sections 7.4.5 and 7.4.9 as well as in the Emergence response plan (appendix 5).

Table 2.3: CNG safety risks assessment and compliance requirement measures

Considered Factors	Key consideration	Requirement
Location	Proximity to the populated area (residential areas, hospitals, schools, and commercial centres.	Compliance with minimum distance requirements prescribed by National and international standards
Design and Construction	Materials used, structural integrity, and compliance with safety standards	Compliance with factors including fire resistance, explosion prevention, and ventilation systems.
Equipment and Maintenance	Condition and maintenance of CNG storage tanks, pipelines, dispensers, and safety devices	Regular inspections, testing, and maintenance to be conducted by qualified staff to ensure operational safety
Fire Safety	Provision of appropriate fire safety measures, including fire detection and suppression systems, fire extinguishers, and emergency shutdown procedures.	Provision of adequate fire safety equipment, also training of employees in fire response and evacuation procedures.
Leak Detection and Emergency Response	Instalment of gas leak detection systems to identify leaks promptly.	Emergency response plan, also all staff members should be trained in emergency response and first aid.
Training and Procedures	Comprehensive training to employees on safe handling procedures, emergency protocols, and maintenance practices.	Regular review and update of safety procedures to address new risks and changes in regulations.
Environmental Considerations	Potential environmental impacts have been assessed	Implementation of appropriate measures to mitigate any adverse effects
Regulatory Compliance	Familiarization with local regulations and standards pertaining to CNG stations.	Ensuring that the station complies with all applicable regulations, permits, and licenses.

On the other hand, the inter distances between various facilities of natural gas handling at installation are indicated in the Table below. These are as Petroleum and Natural Gas Regulatory Board (Procedure for Development of Technical Standards and Specifications including Safety Standards) Regulations, 2009

S/N	Distance from (in m)			
	CNG Compressor	CNG Dispenser	Storage Cascade	Outer boundary wall or Chain-link fencing
CNG Compressor	-	3	2	3
CNG Dispensing unit	3	-	2	4
Storage Cascade	2	2	-	4
Outer Boundary or Fencing	3	4	4	-
MS or HSD dispenser	6	6	6	6
Vent of MS or HSD u/g storage tank	6	4	4	4

MS=Motor Spirit/Petrol, HSD = High Speed Diesel

On the other hand, the applicable Code and Standards for CNG Stations include but not limited to:

- International Building Code 2006
- International Fire Code 2006
- International Mechanical Code 2006
- National Electric Code 2011
- International Fuel Gas Code 2006
- NFPA Standards referenced from 2006
- IBC Chapter 35 and IFC Chapter 45
- NFPA 52 Vehicular Systems Code 2010, 2013
- NFPA 59A Storage of LNG 2009, 2013
- NFPA 70 National Electric Code (NEC) 2010
- NFPA 79 Electrical standard for mechanical equipment 2010

These are also discussed in appendix 5 (ERP)

The following section provides a discussion on the proposed safety measures including General Safety Rules & Guidelines, General Safety Rules for CNG Stations, Safety Instructions for CNG Customers.

2.4.3.3 Proposed Safety Measures in CNG Stations

(i) General Safety Rules & Guidelines

- ✚ Smoking will be strictly prohibited at the CNG station as the station will be handling flammable materials
- ✚ Employees will not be allowed to leave their jobs until the persons to relieve them are properly advised of all operating conditions
- ✚ Personal protective equipment must be worn by employees while handling hazardous substances
- ✚ Only authorized personnel should be allowed to operate or stop the equipment and can change the status of valves etc. Other personnel are strictly prohibited from operating any of the equipment except during emergency.
- ✚ Before starting any repair or maintenance work on the equipment/system, necessary permits will have to be sought and obtained
- ✚ Use of flash type camera or any other non-flame proof instruments, mobile phones or machines will not be permitted in hazardous area
- ✚ When any dangerous/unsafe condition is observed, it should be immediately reported to the supervisor and/or safety department
- ✚ All firefighting equipment will be kept free from all obstructions
- ✚ Any injury, no matter how minor will have to be reported to the supervisor and safety department.

(ii) General Safety Rules for CNG Stations

- ✚ All the mobile phones should be switched off while entering the CNG station
- ✚ Passengers & visitors will have to be asked to stay away from the dispenser

- ✚ Vehicle will not be started when there is any leakage in the CNG station
- ✚ No unauthorised person should be allowed inside the restricted entry area
- ✚ PPE will always be used while moving around the compressor & high-pressure area
- ✚ Doors of the running compressor & generator will not be opened
- ✚ In case of any leakage of gas inside the CNG station refilling will be stopped
- ✚ The operators will ensure that there is no leakage of gas from cascade or from any fittings.
- ✚ Fire Extinguishers will be placed at safe distance and easily accessible place for use in case of emergency.
- ✚ In case of emergency the emergency action plan will have to be followed
- ✚ Refilling of the CNG while passengers are inside the vehicle will not be allowed
- ✚ Use of match box, open flame & smoking will be prohibited inside the CNG station

(iii) Safety Instructions for CNG Customers

- ✚ Stopping the engine and removing the key from the vehicle will be done during refilling of the vehicle
- ✚ All the passengers including the driver must get down from the vehicle prior to filling of CNG
- ✚ Battery terminal must be covered prior to filling of CNG.
- ✚ It will be prohibited to smoke in the CNG station area
- ✚ Use of mobile phones in the CNG station area will be prohibited

2.5 PROJECT ACTIVITIES DURING VARIOUS IMPLEMENTATION PHASES

2.5.1 General

The project activities have been divided into four phases namely: mobilisation, construction, operation and decommissioning. Details of the activities involved in each of the phases are discussed hereunder.

2.5.2 Mobilization/pre-construction phase

Following completion of detailed architectural and engineering designs and compensation of the PAPS, the project, mobilization phase will start. Mobilization refers to the initial stage of a construction project where preparations occur onsite prior to the commencement of any work. At this point in a project, the contractor would have been selected and the designs for the proposed depot including the associated facilities have been approved for construction. The duration of project mobilisation phase is expected to be one month. Total number of people to be engaged during mobilisation phase has been estimated to be 15.

Upon hiring the contractor and finalisation of contract formalities and site handing over to the contractor, preparation of the proposed site for the construction of the proposed project will follow. Mobilization phase activities will also involve establishment of related works and all support infrastructures that are significant for the construction work including

setting up of the main construction yard near/within the site. As part of mobilisation the contractor will also notify the neighbours, and develop necessary documents prior to the project execution. Among the documents to be prepared by the contractor include HIV/AIDS management plan, Health and Safety Management Plan, Construction Environmental and Social Management Plan (C-ESMP). C-ESMP will include a labourer's recruitment policy which among others will comprise sensitisation and awareness creation on the employment opportunities for women and other vulnerable groups. Recruitment of labourers from the local areas will involve local (sub-ward) leadership in the project area. During mobilisation phase the contractor will also map out the location for construction materials including sand and aggregates stockpiles onsite.

Mobilisation phase which will also involve demolitions will entail removal of all existing structures from within the project area. Typically the excavators and bulldozers will be used to remove all unwanted structures. The contractor under the guidance of the project manager will prepare a waste management plan to handle among others the construction debris and demolition waste that cannot be sent to municipal solid waste dumpsite. Some of this will be sorted and either recycled or sent to the municipal disposal site. The contractor will strive to ensure that management of demolition waste complies with The WB Environmental and Social Standards (ESS) requirements, specifically ESS3 (Resource Efficiency and Pollution Prevention and Management), which recognizes that economic activities and urbanization often generate pollution to air, water, and land, and consume finite resources that may threaten people, ecosystem services and the environment at the local, regional, and global levels.

After the demolition of existing structures, site clearing to remove the generated wastes will commence. Site clearance will be carried out under relevant supervision. Supervision will also be done to ensure that all works are implemented within the designated area, and to prevent any damage to the surrounding environment. The unwanted recyclable materials will be given to the local population and unusable part will be disposed of at the nearby authorised waste disposal site in Ubungu or Kinondoni municipality based on the advice from the relevant local authorities or the project manager.

Mobilisation will also comprise of transportation of machinery and deployment of the workers to the construction site. Most of the construction equipment is to be hired or obtained from within the country. Some construction equipment and materials will be mobilised to the site as the need arises. The contractor will hire unskilled workforce from within the project neighbourhood. All project activities will be carried out within the boundaries of the identified project site without disturbing or interfering with the activities in the neighbouring areas. In order to ensure this, the contractor will be required to isolate and fence off the entire site perimeter.

2.5.3 Construction Phase

Upon completion of preliminary/mobilisation activities involving erection of offices, storage facilities and services (water, wastewater and electricity) as required, the actual construction works of the proposed depot station will start at Ubungu Maziwa. Construction phase is expected to last for 18 months. The expected workforce in the project during construction is 60 people . It is expected that about 15 will be skilled and the rest (45) will be semiskilled and unskilled labourers. Many of the unskilled labourers will be recruited from within the project area, while others will come from outside the project area, but within Dar es Salaam city. Among the preliminary works will be erecting a suitable and soundly constructed hoarding within the boundaries of the site in line with laid down specifications. This will be followed by the necessary surveys and setting out works that will be checked and approved by the project manager. The two major components of the proposed project include (i) all the civil works and the associated facilities and (ii) Mechanical component including CNG station. The proposed depot station/terminal is thus a complex facility and its construction will involve various undertakings. These will involve; i) Setting out, ii) Excavation for foundations, iii) Concreting foundations/basement and ground floor and iv) Backfilling and disposal of overburden materials.

Among the equipment to be used include Tipper truck (under 7 tons), Concrete mixer, Concrete vibrator, Self-propelling vibrating roller, Excavators, Chipping spreader Pressure Bitumen distributor, Water bowsers, Motor grader and Wheel Loaders

The physical area that will be affected by the project activities includes the area that has been fenced and cleared for the construction activities of the proposed project. Once the substructure is completed, works for the superstructure will start with columns and subsequent cover slab ready to receive other floors up in line with the engineering and architectural design. Some of the overburden/top soil to be generated from excavation works will be used for backfilling and resurfacing when constructing foundations of different facilities at the site. Project construction phase will also include installation of firefighting equipment (carbon dioxide, dry powder, foam and bucket of sand) to the proposed station as per the engineering designs.

Construction of CNG station will involve installation of the underground fuel storage tanks and fuel pumps as per the project design. As discussed in section 2.4.2, CNG will have 9,000 water liter (WL) capacity. Necessary plumbing for connection of fuel tanks and dispensers will be done. In addition, reinforced concrete beams, fuel dispenser shed, site lighting and other necessary fittings will be provided. The installed equipment will then be tested for functionality and commissioned to the satisfaction of the presiding engineer.

2.5.4 Demobilization Phase

Demobilization is the process of moving project staff, supplies and equipment from the project work site to another location (for another contract or assignment) after the

completion of the construction phase. Demobilization phase which will last for one month and will involve dismantling and removal of equipment, unused material and other facilities including temporary structures. The process will also involve removal of surface installations, and re-contouring the land and planting vegetation around the station. During demobilization, the landscape will be restored to its original state. At this phase the contractor will also be required to close all temporary roads and paths and dispose of all unwanted materials.

2.5.5 Operation phase

Once construction is completed, the actual purpose for construction of the depot station which is to serve as a transport system's operating base facility for BRT phase 1 will start. An important function of the proposed depot will be to provide parking and accommodation of buses which will not be immediately required for operation or maintenance. It will also provide servicing and maintenance facilities for vehicles, fuel/CNG filling station, administrative function and facilities for staff. During operation phase the depot station will provide parking accommodation, servicing and maintenance facilities for vehicles, an administrative function, and facilities for staff. The expected total number of staff to be directly involved during operation phase is 50. The principal operational tasks to be carried out at a bus depot will thus be:

- (i) Operating base facility for BRT phase 1
- (ii) Allocating buses and crews to each duty
- (iii) Filling of fuel/CNG to the buses
- (iv) Dispatching buses according to schedule
- (v) Maintenance of workshop services including washing of the buses
- (vi) Parking for the vehicles that are not in use

An Operations Environmental and social Officer will be appointed to manage all environmental and social monitoring requirements during operation phase of the depot station.

2.5.6 Decommissioning Phase

This is simply the stoppage of the operation phase in which case, the future use of the infrastructure is determined; if the facility cannot be put to any other use, then demolition will be undertaken after which site clean-up will follow. Thus, decommissioning involves dismantling, demolition & disposal of control room/buildings and infrastructure and dealing with the potential liabilities associated with the closure and cessation of the depot station activities including remediation of the surrounding area. During this phase a total number of 30 staff will be required.

The nature of this project is such that it is a long-term project lasting for more than 30 years. Thus, closure is not expected. However, should the closure be necessary, consultation with relevant authorities and stakeholders should be made to decide if it can be repaired, re-modified for another utility or if it must be dismantled. Should the dismantle and closure be the option, fresh ESIA study will be inevitable.

2.6 MATERIALS TO BE USED AND WASTE GENERATION AND DISPOSAL

2.6.1 General

Various materials will be used during different project phases. The use of these materials will also result in generation of different types of wastes as discussed in the following section.

2.6.2 Mobilization phase

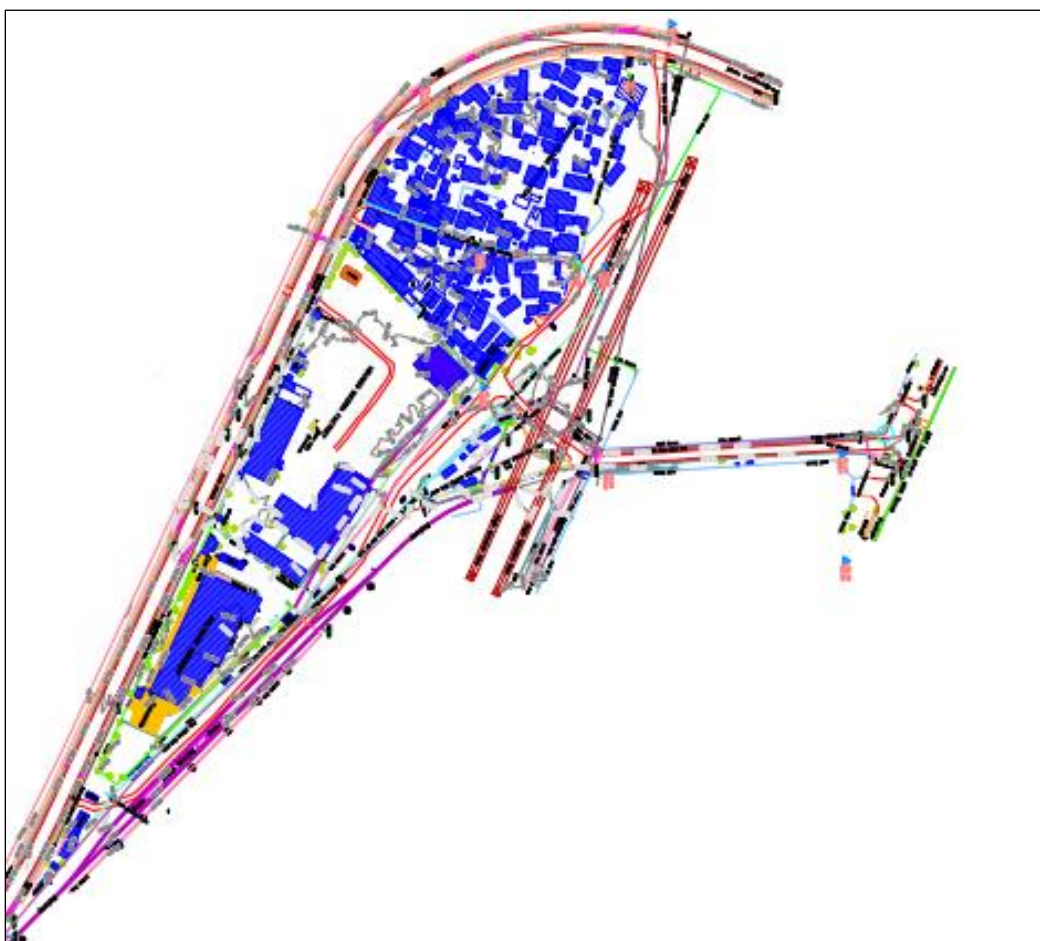
During this stage of the project, there will be minimal use of materials as the focus will be on camping construction preparation and preparatory activities before commencement of the actual construction works. The estimated labour requirement at this phase will be 15 people. Among the equipment to be used include Tipper truck (under 7 tons), Excavators and Wheel Loaders. Pre-construction phase will result in generation of various types of wastes including for example, packaging materials, sacks, papers, cardboard boxes, plastics, wood crates, bottles, glass, metal cans, grass and the like. This waste will largely be of recyclable nature, and will be segregated for recycling especially by local people including unskilled laborers employed in the project.

Key wastes to be generated during mobilization phase are Construction and Demolition (C&D) materials/wastes from the existing structures in the project site. C&D materials are generated when new building and civil-engineering structures are built and when existing buildings and civil-engineering structures are renovated or demolished (as is the case for this study). In this particular case C&D materials that will be generated will contain bulky, heavy materials including; concrete, wood (from buildings), asphalt (from roads and roofing shingles), gypsum (the main component of drywall), metals, broken concrete blocks bricks, glass, salvaged building components (doors, windows, and plumbing fixtures), trees, stumps, earth, and rock from site clearance. Overall a total of 90 structures in the project area will be affected (Figure 2.7). All these structures will be demolished as part of the project mobilisation process. A total of about 103690m² of the existing structure and 700 linear meters of the existing boundary wall within the project area will be demolished and thus form part of C&W waste that will need to be handled/managed. Details are presented in Table 2.4. Table 2.5 presents solid waste characteristics during Mobilisation phase.

Table 2.4: Extent of demolishing of the existing structures at the project site

S/N	Item	Unit	Quantity
1	Demolishing of the existing residential building	m ²	95000
2	Demolishing of industrial building and cart away debris	m ²	8690
3	Demolishing of the Existing boundary wall	Lm	700

Demolishing existing buildings and disposing of the debris is not a resource efficient practice. Recovering used, but still-valuable C&D materials for further use is an effective way to save money while protecting natural resources. As such waste to be generated will largely be of recyclable nature. They will be segregated for recycling especially by local people including unskilled laborers employed in the project. The contractor will be guided to ensure that waste handling complies with the WB ESS3 which emphasises the need for Resource Efficiency and Pollution Prevention and Management to prevent air, water, and land pollution.

**Figure 2.7: Structures at the project site that will be demolished to pave way for the proposed project (ICL, 2022)****Table 2.5: Solid waste characteristics during Project mobilisation phase**

S/N	Project phase/activity	Type of waste to be generated	Waste characteristics	Frequency of generation	Estimated No. of staff	Estimated amount of waste to be generated
1	Camping construction preparation and preparatory activities	packaging materials, papers, wood.	sacks, papers, cardboard boxes, plastics, wood crates, bottles, glass, metal cans, grass	Small quantities are to be generated during project pre-construction phase	15	20kg/day (based on estimated 0.5kg/p/day)
2	Demolishing of the existing residential building	bulky, heavy materials	concrete, wood asphalt gypsum metals, broken concrete blocks bricks, glass, salvaged building components plumbing fixtures, trees, stumps, earth, and rock	Large quantities to be generated as result of demolishing if the existing structures		Waste will be generated from demolishing of 95000 m ² of residential buildings
3	Demolishing of industrial building and cart away debris					Waste will be generated from demolishing of 8690 m ² of the industrial buildings in the project area
4	Demolishing of the Existing boundary wall					Waste will be generated from demolishing of 700 metre of the exiting walls in the project area

2.6.3 Construction phase

Construction Materials and Equipment

The materials that shall be used include building sand, aggregates, natural stones; hand cut construction stones, Iron sheets, cement, reinforcements. Others include hard core, concrete block, water tanks and steel gutters. The major machineries that would be used include: mixers, welding machines, transmission machines, Tipper truck (under 7 tons), Concrete mixer, Concrete vibrator, Self-propelling vibrating roller, Pressure Bitumen distributor, Water bowzers, Motor grader and Wheel Loaders. Details of the construction materials are presented in the Project Bills of Quantities (BOQ) that will be issued to contractors for bidding. Construction materials in the BOQ documents (not in this report) are presented in 13 sections including: (i) Preliminary and General Works, (ii) BRT Administration Centre, (iii) Workshop and Office Block, (iv) Visual Inspection Shed, (v) Weighbridge office, (vi) Warehouse Block, (vii) Filling Station, (viii) Power House (ix) Entrance Gate House, (x) Site Works (xi) External Works (xii) PC and Provisional Works (xiii) Dayworks.

Solid Wastes generation and management

Solid waste will be generated from project activities during mobilization and construction phases. The technologies for the management of the solid waste will incorporate the collection of the waste from the source, waste storage, transportation of the waste to the

processing, treatment and final disposal. During the mobilization phase the key waste to be generated will constitute C&D waste. On the other hand, construction phase will generate largely broken glasses, pieces of broken tiles, nails, pieces of broken wood and pieces of roofing materials, broken concrete blocks. These wastes are largely of recyclable nature. They will be segregated for recycling especially by local people including unskilled laborers employed in the project.

To ensure effective management of solid waste generated, the proponent shall emphasize proper waste management system that will follow the approved solid waste management functional elements from generation to disposal. During all project phase hazardous waste such as paints, oils, grease and fuel will be disposed of according to the safety methods of disposing hazardous waste. The proponent will prohibit burning of any type of waste on the project site during all phases of the project. All non-recyclable waste is expected to be disposed of at existing municipal solid waste dump site. The expected waste characteristics for the project during construction phase are as presented in Table 2.6.

Table 2.6: Solid waste characteristics during construction

S/N	Project phase/activity	Type of waste to be generated	Waste characteristics	Frequency of generation	Estimated No. of staff	Estimated amount of waste to be generated
1	Earth working and construction	Construction waste	Earth, used sand, stones, used concrete, lumber, pieces of pipes, pieces of metal, debris, papers	Large quantities are to be generated during construction phase	60	49.5 kg/m ²
2	Staff canteen	Food/vegetables waste, plastic bottles, papers, glass	Mainly biodegradable including food remains and glass	Temporary-during construction phase		30 kg/day (based on estimated waste generation rate of 0.5kg/p/day)

For waste handling purposes, the project manager will emphasize the adherence and compliance to WB ESS3. The contractor will also work hand in hand with private refuse handlers and the Ubungu municipal Council to facilitate waste handling and disposal from the site. The contractor will be responsible for the final disposal of solid waste into the approved dumpsites as per the approval by Ubungu municipal Environmental officer. Express condition shall be put in the contract that before the contractor is issued with a completion certificate; he will clear the site of all debris and restore it to a state acceptable by the supervising engineer/architect and environmental engineering consultant.

Wastewater management

During the construction phase wastewater will be generated from human activities at the site. Human activities include food preparation and handling in the canteen. This also includes human excreta also commonly referred to as sanitary sewage from the wastewater collection system within the site. For this particular project mobile toilets will be used. The wastewater will eventually be disposed of in the wastewater treatment

facilities including waste stabilisation ponds in Dar es Salaam city or as will be approved by the project manager.

Storm water management

Stormwater is water that comes from precipitation/rain. It either soaks into exposed soil or remains on top of impervious surfaces. Some of the stormwater will eventually evaporate, but most often it will flow as runoff to another location. During the construction phase the contractor will prepare a management plan that will ensure that the storm water is diverted from the construction site. The design of the proposed station includes stormwater drains which will be used for collection and draining the storm water from the site into the main storm drains along the main road. The storm water will eventually end up in Msimbazi river.

2.6.4 Demobilization phase

Materials to be used are those related to project closure, including demolishing of temporary structures and moving of the equipment. Upon completion of construction activities, all construction waste materials such as plastics, glass and metal plates ideal for recycling will be collected for recycling and re-use. Unused aggregates with concrete debris, chippings and sand will be sieved and the contractor will separate the good one for possible reuse at other sites. Details of Solid waste characteristics during demobilisation phase are indicated in Table 2.7.

Table 2.7: Solid waste characteristics during demobilisation phase

S/N Project phase/activity	Type of waste to be generated	Waste characteristics	Frequency of generation	Estimate d No. of staff	Estimated waste to be generated
Dismantling of unwanted facilities and structures and cleaning up the depot station	Unused materials, construction wastes	Packaging materials, wood and steel crates, cardboard, wrapping materials, boxes, sacks, drums, cans and chemical containers, aggregates with concrete debris, chippings, sand, tiles and any other unused materials.	Daily	30	45kg/day (based on estimated waste generation rate of 1.5kg/p/day)

2.6.5 Operation phase

Main materials to be used at this phase include water, gas and electricity. The estimated amount of solid waste to be generated is about 120 kg per day. During operation phase the proponent will ensure that waste is segregated using designated dustbins. Used papers shall be thrown in designated dustbins labelled 'paper only'. The paper waste shall then be collected and kept in a central place pending disposal through a contractor or recycling. Empty cans and plastic containers will be collected and stored in a designated area pending disposal after recovery of recyclables. Domestic solid waste that will be

generated from the canteen will be collected in skips that will be appropriately located on site. Waste from the skips will be collected by private solid waste collection contractors for final disposal in the municipal dump site.

On the other hand, the use of the station will result in generation of sweepings including sediment, rubbish, metals, petroleum products and green waste. When large amounts of debris build up on the station, it can make them more hazardous for drivers and other staff deployed at the station. Regular sweeping of the station including monitoring will be instituted and supervised by the environmental officer.

Wastewater from the toilets will be collected and disposed of into a septic tank, which shall be constructed for this purpose. Oil and greases which will be released from the filling stations will be disposed and treated by the engineered Fuel and oil interceptors. This is a common system used for protecting leaking of fuel and oil onto the ground and is applicable in such facilities as depot station, fuel filling station, car parks, garages, factories and car or truck washes. A wastewater collection and management system will be established in line with the provisions in the detail engineering design. Table 2.8 shows waste characteristics during operation phase.

Table 2.8: Solid waste characteristics during project operation phase

S/N	Project phase/activity	Type of waste to be generated	Waste characteristics	Frequency of generation	Estimated No. of staff	Estimated amount of waste to be generated
1	All office and commercial areas	Institutional and commercial	Combustibles (papers, cardboards, rags, packaging materials, plastic bottles etc.)	Daily	30	30 kg/day (based on estimated waste generation rate of 1kg/p/day)
2	Utilities including buses and CNG station	Waste from oils, grease, lubricants	Oil wastes	Occasionally during oil changing, during greasing and during repair		45 kg/day (based on estimated waste generation rate of 1.5kg/p/day)
3	Parking area	Sand, oils (leakage from vehicles)	Sand, oil wastes	Wastes will be noticeable occasionally as some of it will be collected during cleaning (of the parking spaces)		45 kg/day (based on estimated waste generation rate of 1.5kg/p/day)

2.6.6 Decommissioning

Decommissioning is a normal part of the lifecycle of many projects and facilities. When the facility no longer serves a useful purpose for which it was meant, it needs to be dismantled and the site made available for other uses. The nature of the proposed project is such that it is a long-term one with a life time of 30 years. This suggests that this project might not require decommissioning soon. In any case, should the closure be necessary,

consultation with relevant authorities and stakeholders should be made to decide if the site can be re-modified, re-used for another utility or if it has to be dismantled. In case a decision to dismantle is reached, a fresh ESIA study will be inevitable. The ESIA study for decommissioning of this project will among others include the decommissioning plan, required equipment and all the necessary decommissioning resources.

3.0 EXISTING REGULATORY AND INSTITUTIONAL FRAMEWORK

3.1 INTRODUCTION

There are various legislations that are applicable to the proposed project and for which the project proponent (DART) will have to adhere to and comply with. In this Chapter, the National laws, policies and regulations as well as International Obligations and Treaties that are relevant to the proposed project have been identified and are discussed. The objective is to provide the understanding of the key provisions of regulatory framework related to the environmental and social aspects of the proposed project activities. The ESIA and EMSP report have been prepared in line with World Bank guidelines (WB SF) and Tanzania's national legislative requirements and other applicable international standards. Also, the conventions and protocols ratified by Tanzania and directives of International Organizations have been considered. Details and applicability of each legislation are discussed in Table 3.1. Tanzania has entered in and signed a number of international and regional agreements. Some of the international obligation and treaties in which Tanzania is a part and as such relevant to this project are discussed in Table 3.2.

Table 3.1: National Policies, legal and administrative frameworks and relevant international treaties and conventions

RELEVANT NATIONAL POLICIES/LEGAL FRAMEWORK/REGULATIONS/INTERNATIONAL CONVENTION	DESCRIPTION	RELEVANCE TO THE PROPOSED PROJECT
RELEVANT NATIONAL POLICIES		
National Environmental Action plan (1994)	The Action plan encompasses all development sectors with the focus on the conservation of environment and sustainable development.	Being related to the multiple economic, social and environmental issues, the contractor and proponent (DART) will ensure that the identified project impacts mitigation measures in ESIA are implemented in order to conserve the environment as per the requirement of this National policy. Impact mitigation measures are presented in chapter 8
The New National Environmental Policy, NEP (2021)	The national Environmental Policy (NEP) 2021, has come in force after the review and repeal of the 1997 NEP. Overall Objective of NEP (2021) is to provide a national framework for guiding harmonized and coordinated environmental management for the improvement of the welfare of present and future generations. The specific objectives are: i) To strengthen coordination of environmental management in sectors at all levels; ii) To enhance environmentally sound management of land resource for socioeconomic development; iii) To promote environmental management of water sources; iv) To strengthen conservation of wildlife habitats and biodiversity; v) To enhance conservation of forest ecosystems for sustainable provision of environmental goods and services; vi) To manage pollution for safe and healthy environment; vii) To strengthen the national capacity for addressing climate change impacts; viii) To enhance conservation of aquatic system for sustained natural ecosystem; ix) To ensure safety at all levels of application of modern biotechnology; x) To promote gender consideration in environmental management; xi) To promote good governance in environmental management at all levels; and xii) To ensure predictable, accessible, adequate and sustainable financial resources for environmental management. As such the New (2021), aimed to addresses environmental challenges for sustainable development. It has among others; incorporated control of electronic wastes, climate change matters and control use of modern biotechnology. NEP (2021) also it seeks to control use chemicals, invasive species like weeds as well as control of pollution at oil and gas extraction activities in the country. Thus NEP (2021) provides a broad range of measures and actions responding to key environmental issues and challenges. It also provides the framework for an integrated approach to planning and sustainable management of environment in the country. It also recommends strong institutional and governance measures to support the achievement of the desired objectives and goals.	The environmental impact mitigation measures detailed in this ESIA responds to a number of environmental issues discussed in the policy. Environmental impacts and mitigation measures are discussed in chapter 8 and are meant to ensure that environmental challenges arising from the implementation of this project complies with the New (2021), for environmental sustainability of the proposed development

RELEVANT NATIONAL POLICIES/LEGAL FRAMEWORK/REGULATIONS/INTERNATIONAL CONVENTION	DESCRIPTION	RELEVANCE TO THE PROPOSED PROJECT
The National Water Policy (2002)	The National Water Policy (NAWAPO 2002) addresses adequately all relevant issues on integrated water resources management and adopts comprehensive policy framework and the treatment of water as both a social and economic good. The policy issues particularly in water resources management underscore the disaster management from accidental pollution of water sources (Clause 4.8.4). The policy states that there are disasters associated with accidental spills of poisonous and hazardous materials into surface and groundwater resources. Such accidents could occur from spillage from transportation vehicles and vessels. This could lead to serious pollution of water sources and thus ecosystems and biodiversity, and may seriously affect health of people and animals.	The main objective of the policy is to protect against hazards associated with pollution of water sources. In order to protect against and mitigate the effect of hazards associated with accidental pollution of water resources a quick and emergency assessment of extent, and possible impact will have to be implemented and information made available to concerned authorities. Management and operation of the proposed depot station will be such that waste that may be regarded as hazardous materials, as specified in the policy, will follow established rules and guidelines. Similarly, during implementation of the project, procedures will have to be put in place to observe the requirements of the National Water Policy in order to mitigate or minimize pollution of water sources.
The Transport Policy (2002)	The Transport Policy (2002) aims at enhancing transport safety and environmental protection, through taking steps to review and update national legislation in transport operations and safety requirements. The policy also aims at ensuring safety and causing minimum environmental degradation.	This policy is relevant to the proposed project since it aims at enhancing transportation sector, particularly in Dar es salaam city. The ESIA has been conducted to ensure that the environment is protected from implementation of this project. The proponent (DART) will ensure that all environment and health related provisions in the policy are adhered to.
Construction Industry Policy (2003)	Among the major objectives of the policy, which supports a sustainable project development, include the promotion and application of cost effective and innovative technologies and practices to support socio-economic development activities such as buildings, road-works, water supply, sanitation, shelter delivery and income generating activities and to ensure application of practices, technologies and products which are not harmful to either the environment or human health.	To ensure efficient, transparent and effective implementation and management of construction projects and application of practices, technologies and products which are not harmful to both the environment and human health, the project design team as well as the project proponent will see to it that implementation of this project is in line with this policy both during construction and operation. Inclusion of CNG station in the new depot station is part of innovative

RELEVANT NATIONAL POLICIES/LEGAL FRAMEWORK/REGULATIONS/INTERNATIONAL CONVENTION	DESCRIPTION	RELEVANCE TO THE PROPOSED PROJECT
		initiatives stipulated in the construction policy.
National Policy on HIV/AIDS (2001)	The policy identifies HIV/AIDS as a global disaster, hence requiring concerted and unprecedented initiative at national and global levels. It recognizes HIV/AIDS as an impediment to development in all sectors, in terms of social and economic development with serious and direct implication on social services and welfare. Thus, the policy recognizes the linkage between poverty and HIV/AIDS, as the poor section of the society is the most vulnerable.	Cure for HIV/AIDS is yet to be obtained. Issues of HIV/AIDS will thus have to be considered in this project during various phases of its implementation. Mitigation measures have been discussed in this ESIA report
The National employment policy (URT, 1997)	The major aim of this policy is to promote employment mainly for Tanzanian Nationals. Relevant sections of this policy are: (i) 10, which lays down strategies for promoting employment and section 10.1 is particularly focusing on industry and trade sectors (ii) 10.6 which deals with employment of special groups i.e. women, youths, person with disabilities and (iii) 10.8 which deals with the tendency of private industries to employ expatriates even where there are equally competent nationals	This policy is also relevant to this project. The contractor and the proponent will abide to it by ensuring that local residences especially the youths, women and other vulnerable groups are given priority in the employment. The proposed project will also provide long term employment to 50 people. This will have a spinoff positive impacts and improvement of social economic condition in the city.
The Tanzania Development Vision 2025	This is a national strategy for growth and reduction of poverty. It foresees the alleviation of poverty through improved socio-economic opportunities, good governance, transparency and improved public sector performance. These objectives not only deal with economic issues, but also include social issues such as education, health, the environment and increasing involvement of the people in working for their own development. The thrust of these objectives is to attain a sustainable development of the people. The Vision 2025 seeks to mobilize the people; the private sector and public resources towards achieving shared goals and achieving sustainable semi-industrialized middle-income economy by year 2025.	The proposed project is relevant to this policy as it is expected to contribute to national development and improvement of livelihoods of its population through efficient means of transport in the city. Shifting of the existing depot from Jangwani to Ubungo Maziwa also means that economic and environmental impacts that are associated with the flooding in Jangwani area during rainy seasons will be mitigated as also discussed in this ESIA report.
National Women and Gender Development Policy (2000)	The policy: Calls for equal opportunity for all to participate and implement development activities without gender bias, including sex. Identifies environmental degradation as one of the major factors that increase burden to women, especially in rural areas, where women walk long distances to fetch water and fuel wood.	The project addresses among others issues related to transport and transportation which in many cases affects women's efficiency in participating in development projects. Use of the new depot station in Ubungo Maziwa will also reduce the burden of women related to transport and movement in the city. Thus, women will have more time to participate in development projects.

RELEVANT NATIONAL POLICIES/LEGAL FRAMEWORK/REGULATIONS/INTERNATIONAL CONVENTION	DESCRIPTION	RELEVANCE TO THE PROPOSED PROJECT
National Policy for Growth and Reduction of Poverty (2003)	The National Poverty Reduction Strategy (NPRS) is a national organizing framework for putting the focus on poverty reduction on the country's development agenda. The strategy emphasis is on the growth momentum to fast track the targets of vision 2025 for high and shared growth, high quality livelihood, piece, stability and unity, good governance, high quality education, and international competitiveness.	Among the issues which the strategy aims at, which are relevant to this project are: Development of infrastructure including efficient transport. Efficient and non-interrupted transport system in the city is likely to spur the economic growth and thus poverty reduction in in the country.
The National Investment Promotion Policy, 1996.	This policy stresses on the need for modernization of equipment and technology upgradation to enable the optimal use of available resources.	The policy is relevant in that this project is an investment by the government aimed at improving the efficiency of transport operations in the city. Implementation of the project also means promotion of investment in small and medium business around the project area.
National Energy Policy, 2003.	The National Energy Policy ensures the availability of reliable and affordable energy supplies and their use in a rational and sustainable manner in order to support national development goals.	The project is relevant to the policy as it is going to facilitate availability of efficient energy (CNG) to end-user (DART). Use of less expensive energy will in many ways support various national development goals.
National Strategy for Growth and Reduction of Poverty (NSGRP/MKUKUTA)- II,2010.	The National Strategy for Growth and Reduction of Poverty is a framework that focuses on poverty reduction. The NSGRP is guided and encouraged by the aspirations of Tanzania's Development Vision (Vision 2025) for high and shared growth, high quality livelihood, peace, stability and unity, good governance, high quality education and international competitiveness.	The strategy is committed to the Millennium Development Goals (MDGs), that are internationally agreed targets for reducing poverty, hunger, diseases, illiteracy, environmental degradation and discrimination against women. The proposed project is strategically designed to spur the economic growth and in the process poverty reduction.
The National land Policy, 1995 (revised 1997)	The Policy acknowledges dual system of tenure. It recognizes both customary and statutory rights of occupancy as being equal in law be established. The policy further establishes that land has value and that land rights including interests of citizens owning land shall not be taken without due process of law and with full, fair and prompt compensation once land is acquired. The land policy stipulates that all land is public land, vested in the president as a trustee and that this should be entrenched in the constitution. According to the policy, administration of village land is vested in the village councils. Village councils have to consent before any alienation of village land is affected.	In the course of undertaking this project, the PAPS have been identified and will be compensated. This is recognition and in line with this National Policy that land has value and cannot be taken or acquired without full, fair and prompt compensation.

RELEVANT NATIONAL POLICIES/LEGAL FRAMEWORK/REGULATIONS/INTERNATIONAL CONVENTION	DESCRIPTION	RELEVANCE TO THE PROPOSED PROJECT
The national human settlement policy (2000)	The overall goal of the policy is to promote development of sustainable human settlements and to facilitate provision of adequate affordable shelter to all people, including the poor. The policy outlines a number of objectives including environmental protection within human settlements and protect natural ecosystem against pollution, degradation as well as destruction with the aim of attaining sustainable development. The policy recognizes provision and improvement of service delivery infrastructures like roads for improvement of livelihoods and human settlements. Inadequacy of shelter delivery system to cater for urban population has led to an extensive development of squatters and unplanned settlements.	This ESIA study has been carried out to ensure that the proposed project complies with this National Policy especially in relation to protection of the environment against various forms of pollution and degradation. This in turn will also ensure the sustainability of the proposed project as advocated by The National Human Settlement Policy (2000)
LEGAL FRAMEWORK		
Environmental Management Act (EMA) NO. 20 Cap. 191, 2004	The Environmental Management Act Cap 191 (EMA) is a piece of legislation that forms an umbrella law on environmental management in Tanzania. Its enactment has repealed the National Environment Management Council Act. 19 of (1983) while providing for the continued existence of the National Environment Management Council (NEMC). It provides legal and institutional framework for sustainable management of environment. It outlines principles for management, impact and risk assessments, prevention and control of pollution, waste management, environmental quality standards, public participation, compliance and enforcement.	The Act provides the basis for implementation of international instruments on environment. It also empowers NEMC to formulate strategies for environmental management. This ESIA report is part of the requirement and thus alignment to the EMA
The Occupational Health and Safety Act No.5 of 2003	The Act sets provisions for the safety, health and welfare of persons at work in factories and other places of work. It is also meant to provide for the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with activities of persons at work; and to provide for connected matters.	The project will eventually be a place of work to be registered and comply with OSHA regulations that govern the places of work and observe all safety and health practices at work sites by its consultants, contractors and sub-contractors.
The Urban Planning Act (2007)	The law provides for the orderly and sustainable development of land in urban areas, to preserve and improve amenities; to provide for the grant of consent to develop land and powers of control over the use of land and to provide for other related matters. Under Section 3, among others the law seeks to improve level of the provision of infrastructure and social services for sustainable human settlement development.	This project will have to abide by the entire necessary urban planning requirement. The necessary approvals will have to be sought prior to implementation. In this respect the project implementation is in line with the requirements by this Act.
The Mining Act (2019)	This Act aims at ensuring that minerals are well controlled. Section 6(1) states that no person shall, on or in any land to which this act refers, prospect for minerals or carry on mining operations except under the authority of Mineral Right granted, or deemed to have been granted under this Act.	In the implementation of this project both the contractor and the proponent will have to abide by this requirement especially in relation to construction materials that will be used in this project.

RELEVANT NATIONAL POLICIES/LEGAL FRAMEWORK/REGULATIONS/INTERNATIONAL CONVENTION	DESCRIPTION	RELEVANCE TO THE PROPOSED PROJECT
Employment and Labour Relations Act 2019	The Act makes provisions for core labour rights; establishes basic employment standards, provides a framework for collective bargaining; and provides for the prevention and settlement of disputes.	DART as well as the project execution supervision staff shall see to it that the contractor adheres to employment standards as provided for by this Act.
Engineers Registration Act (2007)	The Act regulates the engineering practice in Tanzania by registering engineers and monitoring their conduct. It establishes the Engineering Registration Board (ERB). The law requires any local and foreign-based engineers to register with ERB before practicing in the country.	The project proponent (DART) shall ensure that all engineers working with this project shall abide to the law requirements.
The Contractors Registration Act (1997)	The Contractor's Registration Act requires contractors to be registered by the Contractors Registration Board (CRB) before engaging in any contracting practice in Tanzania. It requires foreign contractors to be registered by the Board before gaining contracts in Tanzania.	The project proponent shall comply with the law requirement during the recruitment and engagement of contractors for implementation of this project.
The HIV and AIDS (Prevention and Control) Act of 2008	The law provides for public education and programmes on HIV and AIDS. Section 8(1) of the law states that "The Ministry (Health), health practitioners, workers in the public and private sectors and NGOs shall for the purpose of providing HIV and AIDS education to the public, disseminate information regarding HIV and AIDS to the public". Furthermore, Section 9 states, "Every employer in consultation with the Ministry of Health shall establish and coordinate a workplace programme on HIV and AIDS for employees under his control and such programs shall include provision of gender responsive HIV and AIDS education...."	This project shall have to abide by HIV/AIDS Act in the fight against HIV and AIDS epidemic.
The Environmental Management (Water Quality Standards) Regulations, 2007	Among others; this legal document aims at setting minimum quality standards for water, sewerage, etc., Protection of water sources and ground water as well as prohibition of unregulated discharge of hazardous substances, chemicals and materials or oil.	As can be noted this regulation is relevant to this project. The proponent is expected to commit to ensuring that it is adhered to during all phases of implementation of this project.
The Workers Compensation Act, 2008	This Act provides for compensation to workers for injuries suffered in the course of their employment, which result in disablement or death.	This Act needs to be complied with by the project proponent and the contractor. This is because project staff including casual labourers will be exposed to various harmful and hazardous environments during various project implementation phases.
The Land Management Act 2019	This law declares all land in Tanzania to be "Public land" to be held by the state for public purposes. The Acts empower the President of the United Republic of Tanzania, to revoke the "Right of Occupancy" of any landholder for the "public/national interest" should the need arise. The law also declares the value attached to land.	The project proponent will have to obtain all the necessary approvals and requirements as directed and in line with this policy.
The Roads Act 2007	Section 29: Specifies that the road reserve is exclusive for the use of the road, development and expansion or any related activities. According to the Act, the road authority may permit any person or authority to temporarily place public	Implementation of the project will not interfere with the road reserve. TARURA has been consulted and consented with

RELEVANT NATIONAL POLICIES/LEGAL FRAMEWORK/REGULATIONS/INTERNATIONAL CONVENTION	DESCRIPTION	RELEVANCE TO THE PROPOSED PROJECT
	utilities such as lighting, telegraph, adverts, telephone, electric supplies and posts, drains, sewers, and mains only in such cases where such use do not hinder any future use of the road reserve by the road authority.	project as it is not located within the road reserve. Approval by TARURA is one of the prerequisites for UWURA to issue a business license to the project proponent to operate CNG station with the new depot.
The Water Resources Management Act No. 11 of 2009	Water legislation has been updated to bring it in line with the National Water Policy 2002. This current Water Resources Management Act No. 11 of 2009 provides for institutional and legal framework for sustainable management and development of water resources; outlines principles for water resources management; provides for the preventions and control of water pollution; provides for participation of stakeholders and the general public in implementation of the National Water Policy; repeals the Water Utilization (Control and Regulation) Act, 1974 and vests all water in the country to the Government of United Republic of Tanzania and sets procedures and Regulations for the extraction of water resources. The Act also sets standards for receiving waters and effluent. It is anticipated that the proposed project will use water possibly drawn from existing public water supply system within the project area.	The contractor and the proponent will observe all the requirements including use of the abstracted water for construction activities and ensure that no pollution or mismanagement of the existing water resources and thus respect and maintain the existing system of water rights
The Water Supply and Sanitation Act 2019	This legislation provides for sustainable management and adequate operation and transparent regulation of water supply and sanitation services; provides for establishment of water supply and sanitation authorities as well as community owned water supply organizations; and provides for appointment for service providers. Under this law, the Minister responsible for water affairs shall establish water authority and cluster water authorities in order to achieve commercial viability.	In relation to the proposed project, the contractor will be guided to ensure that wastewater generated from the activities of this project is disposed of safely.
The public health Act of 2009	Part (IV) of solid and liquid waste management, it recommends management of solid waste and liquid waste generated in accordance with sustainable plans by respective Authority; and ensure appropriate sorting of waste is made at the source, and that it is in accordance with standards or specifications prescribed by the authority. It further explains that one should ensure that solid waste and liquid wastes are classified as appropriately stored depending on whether they are organic, plastic, glass or metal wastes; and prescribe appropriate methods for storage of different categories of solid and liquid waste.	The proponent (DART) commits to ensuring that the provision of this Act is adhered to during various project implementation phases.
Fire and rescue services Act. No. 14/2007	The Act provides for the better organisation, administration, discipline and operation of fire and rescue brigade services.	In respect to this Act, the proponent will make sure that fire and rescue service department is consulted during installations of firefighting equipment in the proposed plant; also, the company responsible for installation of fire appliances must be recognised and certified by the fire rescue

RELEVANT NATIONAL POLICIES/LEGAL FRAMEWORK/REGULATIONS/INTERNATIONAL CONVENTION	DESCRIPTION	RELEVANCE TO THE PROPOSED PROJECT
		department. Worthy noting that firefighting installation facilities is among key component for the proposed project
The Architects and Quantity Surveyors Act (1997)	This law requires architects and quantity surveyors (QS) to be registered with the Board before practicing	The project proponent (DART) shall ensure that all foreign and /or local architects and QS involved in this project abide by this law.
Disaster Management Act, 2015	This Act sets out a comprehensive legal framework for disaster risk management. It provides for the establishment of Tanzania Disaster Management Agency (TDMA), which is the national focal point for coordination of disaster risk reduction and management in the country. The Agency shall act as the central planning, coordinating and monitoring institution for the prevention, mitigation, preparedness, response and post disaster recovery, considering all potential disaster risks.	In relation to Disaster management, the project proponent will apart from the provision of the necessary facilities, train the staff on the management of the disaster.
The Urban Planning Act, 2007	This law provides for the orderly and sustainable development of land in urban areas, to preserve and improve amenities; to provide for the grant of consent to develop land and powers of control over the use of land and to provide for other related matters. Under Section 3, among others the law seeks to improve level of the provision of infrastructure and social services for sustainable human settlement development	This project has abided by the necessary urban planning requirement. The necessary approvals have been sought through Ubungu municipal council prior to implementation. In this respect the project implementation is in line with the requirements by this Act.
The Standards Act, 2009	This Act provides for the promotion of the standardization of specifications of commodities and services, re-establishment the Tanzania Bureau of Standards and to provide better provisions for the functions, management and control of the Bureau, to repeal the Standards Act, Cap. 130 and to provide for other related matters. The Act establishes the Tanzania Bureau of Standards as a body corporate and makes provision with respect to the publication and enforcement of standards in Tanzania. The Bureau among other things, undertake measures for quality control of commodities and services; promote standardization in industry and trade; assist industries in setting up and enforcing quality assurance and environmental management systems procedures	The design of the proposed project has followed all the standards requirement both local and international. Even the natural gas that will be sold in this depot will have to abide by the standards in accordance with the requirement of this law. Accordingly, TBS is obliged to inspect and certify that the installation of the plant as well as its operation are abiding by the requirement of this Act. Thus, this Act is very relevant to the proposed project, especially given the sensitive nature of the CNG which involves handing of the natural gas fuels. Because of the nature of the project, TBS is also among important stakeholders which was consulted in the process of undertaking this ESIA study. TBS views are presented in Table 5.1.

RELEVANT NATIONAL POLICIES/LEGAL FRAMEWORK/REGULATIONS/INTERNATIONAL CONVENTION	DESCRIPTION	RELEVANCE TO THE PROPOSED PROJECT
The Workers Compensation Act R.E 2015	This is An Act to provide for compensation to employees for disablement or death caused by or resulting from injuries or diseases sustained or contracted in the course of employment; to establish the Fund for administration and regulation of workers' compensation and to provide for related matter. Among others, the objective of the Act, include to provide for adequate and equitable compensation for employees who suffer occupational injuries or contract occupational diseases arising out of, and in the course of their employment, and in the case of death, for their dependents and to provide for the rehabilitation of employees who have suffered occupational injuries or contracted occupational diseases in order to assist in restoring their health, independence and participation in society	This Act is relevant to the proposed project as it provides guidance on handling of matters related to compensation and injuries to the would-be staff of the proposed depot station in Ubungu. The proponent commits to abiding to this requirement in handling the staff matters.
The Water Supply and Sanitation Act No. 12 of 2009	This legislation provides for sustainable management and adequate operation and transparent regulation of water supply and sanitation services; provides for establishment of water supply and sanitation authorities as well as community owned water supply organizations; and provides for appointment for service providers. The main aim of this law is to ensure the right of every Tanzanian to have access to efficient, effective and sustainable water supply and sanitation services for all purposes by considering among others protection and conservation of water resources and development and promotion of public health and sanitation; and protection of the interest of customers.	The proposed depot station is not expected to result in pollution of water supply sources as this will infringe citizens' health and safety which are protected by this law. This law is also a safeguard against environmental pollution which may result from improper design and operation of the proposed depot station. This Act is thus relevant to the project and the proponent has committed to abiding by it.
The Land Use Planning Act (2007)	Under the provisions of the Town and Country Planning Ordinance The President is empowered to acquire any land for project of public interest. The 1956 ordinance after its revision in 1961, states: Section 52, on compensation for injury caused by scheme, allows that any person whose land is affected by any scheme and suffers loss thereof, or whose mining rights or forestry rights are rendered abortive by operation of a scheme shall upon proper claim be entitled to recover as compensation from the local government authority the amount by which his land is decreased in value in so far as it was reasonably incurred, the amount of abortive expenditure or the loss or injury suffered. Under Section 56 (1), a claim for compensation shall be made by serving upon the local government authority a notice stating the grounds of claim and amount thereof, within six months from date of emergence of such scheme provision or as it may be specified in the scheme.	The proponent already took into consideration the need to minimise land take that would have impacts related to compensations. A number of PAPs have however, been identified. The proponent commits to ensuring that all the PAPs are paid prior to execution of the project.
The Income Tax Act R.E 2019	This is an Act to make provisions for the charge, assessment and collection of Income Tax, for the ascertainment of the income to be charged and for matters incidental thereto. The objective of the Act is to achieve higher yields with reduction in inequalities, to accelerate economic growth and development of the country and to maintain economic stability in the face of long run inflationary pressure and short run international price movements.	The proposed project is relevant as it will generate various revenues through the sale of tickets. There are also other businesses within the proposed station which will be managed by DART. The project will also employ staff. The income to be generated

RELEVANT NATIONAL POLICIES/LEGAL FRAMEWORK/REGULATIONS/INTERNATIONAL CONVENTION	DESCRIPTION	RELEVANCE TO THE PROPOSED PROJECT
		as well as the staff will be subject to various taxes the collection of which will be guided by this Act.
The Social Security Regulatory Authority Act, 2015	This Act provides for regulation of the Social Security Sector and other related matters in Tanzania. The functions of the Social security Regulatory Authority include among others: to issue guidelines for the efficient and effective operation of the social security sector, protect and safeguard the interests of members and advise the government on policy and operational matters relating to social security sector and facilitate extension of social security coverage to non-covered areas including informal groups	The relevance of this Act on the proposed project is based on the fact that all staff to be hired/employed in the project will have to be registered by the Social Security Regulatory Authority. The proponent commits to abiding the requirement of this ACT.
Local Government (Urban Authorities) Act, 1982.	This Law seeks to provide a legal framework for the establishment of urban authorities for the purposes of local governance. Part II of this document gives the relevant Ministerial head the powers to establish urban authorities. Also, the Minister could divide the area of jurisdiction of an urban authority into wards which are governed by ward committees that are required to formulate, and submit to the urban authority, proposals for the making of by-laws in relation to affairs of the ward. Part III of this Law contains the membership and composition of town, municipal and city councils while Part IV provides the procedural rules for these councils in relation to the conduct of meetings. Part V of this Act contains the basic functions of urban authorities which promotes the social welfare and economic well-being of all persons within its area of jurisdiction	The proposed project is located in Ubungo sub ward which is part if the local government in Ubungo municipal council. Local Government (Urban Authorities) Act, 1982 is relevant in the operation of the proposed station will have to abide by this law. This include employment of staff from the local area which in turn will promote economic growth and well-being of the communities around the project area.
The EWURA Act, 2019	The Energy and Water Utilities Regulatory Authority (EWURA) is an autonomous multi-sectoral regulatory authority established by the EWURA Act Cap 414-2006 of the laws of Tanzania and its amendments EWURA Act (Amendments No.6 of 2019). It is responsible for technical and economic regulation of the electricity, petroleum, natural gas and water sectors in Tanzania pursuant to Cap 414 and sector legislation. The functions of EWURA include among others, licensing, tariff review, monitoring performance and standards with regards to quality, safety, health and environment. EWURA is also responsible for promoting effective competition and economic efficiency, protecting the interests of consumers and promoting the availability of regulated services to all consumers including low income, rural and disadvantaged consumers in the regulated sectors.	This Act is relevant to this project in that, operation of CNG in the proposed project (purchase and selling of natural) will be regulated by this Act. EWURA as an important stakeholder was consulted in the process of undertaking this study and views are expressed in Table 5.1
The Land Acquisition Act Number 47 of 1967	The Act stipulates power and procedures for acquiring land and the required level of compensation. Sections 3 and 4 of the Act provide that the president may acquire any land for any estate or term provided such land is required for public purposes such as for exclusive government use, general public use, any government scheme, development of social services or commercial development of any kind including declamation. According to Section 5, if the President	The acquisition of the land for the proposed project has followed the provisions of this policy in that the land has been acquired for public use. The examination of the proposed land for acquisition including identification of PAPS for compensation and

RELEVANT NATIONAL POLICIES/LEGAL FRAMEWORK/REGULATIONS/INTERNATIONAL CONVENTION	DESCRIPTION	RELEVANCE TO THE PROPOSED PROJECT
	considers land in a certain locality to be appropriate, it should be examined for possible acquisition by any persons authorized by the Minister, who may enter upon and survey any land in such locality; dig or drill under the subsoil; and clearly set and mark boundaries of land proposed to be required. Section 11 (1) provides for compensation by the government to the person, whose land is acquired.	resettlement has been done in line with this legislation. The proponent will see to it that all compensations are executed prior to the commencement of the project
The Land Disputes Courts Act No. 2 of 2002	According to this Act, Every dispute or complaint concerning land shall be instituted in the Court having jurisdiction to determine land disputes in the given area provided under Section 3 of the Act. The Courts of jurisdiction comprise of: (a) The Village Land Council (b) The Ward Tribunal, (c) District Land and Housing Tribunal, (d) The High Court (Land Division) and (e) The Court of Appeal of Tanzania. The Act gives the Village Land Councils powers to resolve land disputes involving village lands (Section 7). For this project court of law will be used only if the PAPs are not satisfied with the decision of DGM.	In this ESIA report it is stipulated that grievances will be settled by Mtaa GMC (level 1) and District GMC (level 2). This Act is however relevant, since the court of law is to be used by the PAPs who will not be satisfied by the decision made by the two committees.
The Valuation and Valuers Registration Act, 2016 (No. 7 of 2016).	This Act provides with respect to the process in which the value of an interest in real property is assessed by a valuer. It also requires a Chief Valuer to be appointed within the Ministry responsible for lands and provides for the registration of valuers. The Chief Valuer is appointed by the President and shall be responsible for advising the Government on all matters relating to valuation practice and activities and be head of the Valuation Department within the Ministry. The Act also provides for the appointment of government valuers and the establishment of a Valuers Registration Board. Every registered valuer or person practising valuation shall comply with guidance on valuation practice set out under this Act and Regulations made under this Act. The carrying out of valuation shall be for the specified purposes including, among other things: (a) rating; (b) compensation; (c) land rent assessment; (d) probate and administration; (e) capital gains tax; (f) sale or purchase; (g) mortgage; (h) rental value assessment.	The project proponent has ensured that, the valuation process for the land to be used for this project in Ubungu Maziwa has been carried out in line with the requirement of this Act. The project valuer is registered and that the valuation process has complied with the guidance on valuation practice set out under this Act as well as the Regulations made under this Act
RELEVANT REGULATIONS AND GUIDELINES		
Environmental Impact Assessment and Audit Regulation G.N. 349 of 2005	These regulations were prepared under EMA 2004 and require developers to conduct an Environmental Impact Assessment for any project likely to have negative impacts on the environment. Application for an Environmental Impact Assessment certificate is necessary for such project.	These regulations set procedures for conducting EIA and environmental audit in the country. The regulations also require registration of EIA experts. In line with the requirement of the regulation, ESIA study for this project has been undertaken
The Environmental Management (Air Quality Standards) Regulations, 2007.	These Regulations set baseline parameters on air quality and emissions based on acceptable limits and enforces minimum air quality standards prescribed by the National Environmental Standards Committee.	Baseline parameters on air quality and emissions have been determined and are presented in this ESIA report. Monitoring of the same will also have to be done during various project phases as also provided for in this ESIA report. The contractor will be

RELEVANT NATIONAL POLICIES/LEGAL FRAMEWORK/REGULATIONS/INTERNATIONAL CONVENTION	DESCRIPTION	RELEVANCE TO THE PROPOSED PROJECT
		guided on this during different project implementation phases.
The Environmental Management (Registration of Experts) Regulations, 2021.	These Regulations establish a system for registration of environmental experts. They provide a system of professional conduct for carrying out environmental impact studies and environmental audits ensuring that the environmental impact assessments and audits are carried out in independent, professional and impartial manner.	This regulation provides for a code of conduct for environmental experts. These rules are needed to maintain discipline and exercise some degree of control over the environmental experts. In this respect this ESIA report has been carried out by NEMC ESIA registered.
The Environmental Management (Water Quality Standards) Regulations, 2007.	The objective of these regulations is to enforce minimum water quality standards prescribed by the National Environmental Standards Committee. The regulation is also meant to enable the National Environmental Standards Committee to determine water usages for purposes of establishing environmental quality standards and values for each usage as well as to ensure that all discharges of pollutants consider the ability of the receiving waters to accommodate contaminants.	This regulation is meant to protect the environment against pollution from water sources. The regulation is relevant to this project since various project activities are expected to generate pollution that can end up in water sources. The project proponent commits to ensuring that project implementation in all phases will abide by this regulation. In this ESIA report mitigation measures and regular monitoring have been described.
The Environmental Management (Quality Standards for Control of Noise and Vibration Pollution) Regulations, 2014	These Regulations prescribe the maximum permissible noise and vibration levels from a facility or activity to which a person can be exposed.	To take controlling and mitigating measures for the reduction of noise and vibration
The Environmental Management (Soil Quality Standards) Regulations, 2007.	The objectives of these Regulations include: • Setting limits for soil contaminants in agriculture and other habitats, • Enforcing and prescribing minimum soil quality standards prescribed by the National Environmental Standards Committee (NESC), • Ensuring implementation of criteria and procedures prescribed by the NESC for the measurement and determination of soil quality, • To prescribe measures and guidelines for soil management and ensure their compliance.	To enforce and prescribe minimum soil quality standards prescribed by the National Environmental Standards Committee (NESC)
The Environmental Management (Hazardous Waste Control and Management) Regulations, 2021	These Regulations ensure the safe storage and disposal of hazardous waste of all categories and their movement into and out of Mainland Tanzania.	• To ensure that the standards prescribed for the hazardous waste management are followed and remain operational all the time and the waste effluents are treated or modified to comply with the prescribed standards before final disposal. • The hazardous liquid waste generated from any filling station or on-site works will be

RELEVANT NATIONAL POLICIES/LEGAL FRAMEWORK/REGULATIONS/INTERNATIONAL CONVENTION	DESCRIPTION	RELEVANCE TO THE PROPOSED PROJECT
		treated to meet the environmental standards before their discharge into public sewers, municipal oxidation ponds, open land or into receiving water bodies.
The Environmental Management (Solid Waste) Regulations, 2009	The Regulations: (i) detail the requirements and responsibilities for managing solid waste in Tanzania (ii) highlight waste minimization and cleaner production principles alongside the duty to safeguard public health and the environment from adverse effects of solid waste detail permitting requirements (Part III), notably that any person dealing with solid waste as collector, transporter, waste depositor or manager of a transfer station will apply to the LGA for a permit. The local authority will also issue licenses to individuals or companies qualified to operate solid waste disposal sites, i.e., a permit is required to operate at LGA waste disposal site.	This law related to this project in that, operation of the proposed project in relation to management of solid waste will have to be done in accordance with this law. This includes for instance the requirement of waste minimization and the safety of the public and environment from the adverse impacts of solid wastes. TP limited will also have to abide by for example obtaining the necessary permits and clearance from the local government in Bagamoyo on any matters related to solid waste handling
The Urban Planning (Planning Space Standards) Regulations, 2018.	The Act creates various urban planning standards including standards for residential areas, unplanned settlements, building height, building lines and setbacks, floor area, plot coverage and plot ratio, health facilities, education facilities, recreation facilities, beach facilities, golf course, passive and active recreation, public facilities by planning levels, public facilities by population size, parking and road width and agricultural show grounds.	The proposed project in Ubungu will have to abide by this regulation. This includes for example in terms of building height, building lines and setbacks and plot coverage and plot ratio. All these requirements have been considered during the design of the proposed project.
The Urban Planning (Use Group and Use Classes) Regulations, 2018.	These regulations for the purpose of planning and control of development provides for categorization of land use and buildings in use groups use classes. It also provides for change of use provided that in making any change of use, a building or premises shall not be sub-divided into two or more separate premises or the sub-divisions devoted to two or more separate uses and also that no external structural alterations affecting the outward appearance of the building are made. Criteria for change of use will include: to maximize use of land and the existing infrastructure; to control urban sprawl; to allow for new investment; to create employment and income opportunities; to increase the number of good shelters; and to improve the environment.	The proposed project is to be constructed in area earmarked for specific use (commercial land use- specifically construction of a fuel station). The proponent is obliged to abide by the regulations. In case of future land use changes, appropriate permits should be sought and obtained
The Environmental Management (Fees and Charges) Regulations, 2021	This regulation requires that any person intending to carry out business related to: Environmental Impact Assessment; environmental compliance monitoring and audit; registration of environmental experts; environmental quality standards; ozone depleting substances; management of waste; biosafety; noise and vibrations; or other activities related to the environment, shall pay fees and charges prescribed by NEMC. This regulation also requires that: The annual fees	The regulation is relevant to this project, and as part of compliance the proponent has paid all the necessary fees as outlined in the regulations. The environmental expert for this ESIA study has also complied with the

RELEVANT NATIONAL POLICIES/LEGAL FRAMEWORK/REGULATIONS/INTERNATIONAL CONVENTION	DESCRIPTION	RELEVANCE TO THE PROPOSED PROJECT
	for environmental compliance monitoring and audit shall be payable on 1st day of July of each financial year, the annual fees for environmental compliance monitoring and audit paid after 31st day of December of every financial year shall attract a penalty of five per centum per month and that the fees and charges shall be payable in Tanzania shillings or in its equivalent in convertible currency. The rates of the various fees related to various activities are also presented in these regulations.	requirement of fees for registration by NEMC.
The Environmental Management (Control of Ozone Depleting Substances) Regulations, 2007	The Regulations implement the Montreal Protocol in respect of the production, import and export and use of ozone depleting substances. Noncompliance is unlikely, as the phased-out chemicals (chlorofluorocarbons and hydrochlorofluorocarbons) are not being manufactured or marketed any longer by reputable suppliers.	The ESIA study has provided for pollution prevention plan including monitoring of air pollution during various project phases. This is among others meant to comply with this regulation.
The Valuation And Valuers (General) Regulations, 2018	Among others this regulation provide guidance on the functions of authorized valuers and approval fees charges, assessment of value for land for compensation, registration and enlistment of valuers, management of complaints and appeals, verification of valuation etc.	Evidently, this regulation is meant facilitate the execution of The Valuation And Valuers Registration Act (Act No.7 of 2016). The proponent will ensure that all provisions of the Main Act and the related regulations are implemented in the course of execution of the proposed project
The Land (Assessment of the Value of Land for Compensation) Regulations, 2001	The Land (Assessment of the Value of Land for Compensation) Regulations, 2001 and the Village Land Regulations, 2001, provide for the amount of compensation to include the value of un-exhausted improvements, disturbance The Regulation applies to any claim or application for compensation by any person occupying land allowance, transport allowance, accommodation allowance and loss of profits.	The valuation undertaken by the proponent in the project area has considered and thus complies with this regulation

In Table 3.1, The regulations with regards to the construction, operation/maintenance and decommissioning of compressed natural gas station include for example: Environmental Impact Assessment and Audit Regulation G.N. 349 of 2005, The Environmental Management (Air Quality Standards) Regulations, 2007, The Environmental Management (Registration of Experts) Regulations, 2021, The Environmental Management (Water Quality Standards) Regulations, 200, The Environmental Management (Quality Standards for Control of Noise and Vibration Pollution) Regulations, 2014 and The Environmental Management (Soil Quality Standards) Regulations, 2007. Also the general safety rules for CNG station are discussed in the ERP presented in the appendix to this report

Table 3.2: International Obligations and Treaties

INTERNATIONAL OBLIGATIONS AND TREATIES	DESCRIPTION	COMPLIANCE BY THE PROPOSED PROJECT
Working Environment (Air Pollution, Noise and Vibration) Convention (No. 148)	The convention establishes and states the criteria for determining the hazards of exposure to air pollution, noise and vibration in the working environment and specifies exposure limits based on these criteria.	The proposed project complies with this obligation. Air Pollution, Noise and Vibration impacts have been assessed in this study. Mitigation measures for the identified minor impacts have been proposed.
1996 Convention on Biological Diversity	The Convention recognized for the first time in international law that the conservation of biodiversity is "a common concern of humankind" and is an integral part of the development process	The location of the project area is not a new/virgin land with a variety of animals, plants, fungi etc. that make up the natural land. Findings of the ESIA study indicate that this project will comply with this obligation.
ILO Minimum Age Convention (C138), 1973.	The convention concerns the minimum age for employment to ensure the abolition of child labour. In Tanzania, according to the Employment and Labour Relations Act, 2004, the minimum age for employment is 14 years, and they shall only be employed for light works which won't harm the child's health and development.	The proposed project will comply both ILO Minimum Age Convention (C138), 1973 and Tanzania's Employment and Labour Relations Act, 2004
The United Nations Convention on Biological Diversity (Bonn Convention)	Calls for identification and monitoring of biodiversity components and for establishment of protected areas and emergency response plans	The location of the proposed project is in an already developed urban area and thus no biodiversity component will be affected
Vienna Convention for the Protection of the Ozone Layer (The Ozone Convention)	Regulates domestic production and consumption of greenhouse gases.	The proposed project will enhance and encourage use of public transport in the city, which will significantly reduce greenhouse gas emission (GHGE) than when private transport is used. This project thus complies with this obligation.
Africa Convention on the Conservation and of Natural Resources 1968	The African Convention on the conservation of nature and natural resources was adopted in 1968 in Algiers. Considered the most forward-looking regional agreement of the time, it influenced significantly the development of environmental law in Africa. The key objective of this convention is to undertake and adopt the measures necessary to ensure conservation, utilization and development of soil, water, flora and faunal resources in accordance with scientific principles and with due regard to the best interests of the people. Based on the convention soil "water" or "forest" reserve shall denote areas set aside to protect such resources in the countries that are signatory to this convention.	This convention has relevance to this project as it advocates for the protection of soil, water and forest reserve. The undertaking of ESIA for this project is part of commitment and requirement of this convention. The design for the proposed project has also included measures for the protection of water resources, soil and land cover.

3.2 INSTITUTIONAL FRAMEWORK FOR THE MANAGEMENT OF ENVIRONMENT IN TANZANIA

3.2.1 Overall Management Responsibility

The institutional arrangement for environmental management in Tanzania is well spelt out in the EMA (2004). There are seven (7) institutions mentioned by the act, of which the Minister Responsible for the Environment is the overall in-charge for administration of all matters relating to the environment.

Part III, Section 13(1) of EMA (2004) states that the Minister responsible for environment shall be the overall in-charge of all matters relating to the environment and shall in that respect be responsible for articulation of policy guidelines necessary for the promotion, protection and sustainable management of the environment in Tanzania.

The legal institutions for environmental management in the country include;

- National Environmental Advisory Committee;
- Minister responsible for Environment;
- Director of Environment;
- National Environment Management Council (NEMC);
- Sector Ministries;
- Regional Secretariat;
- Local Government Authorities (City, municipalities, District, Township, Ward, Village, sub-village “Mtaa and Kitongoji”)

3.2.2 National Environmental Advisory Committee

The National Advisory Environmental Committee is comprised of members with experience in various fields of environmental management in the public and private sector and in civil society. The committee advises the Minister on any matter related to environmental management. Other functions include:

- Examine any matter that may be referred to it by the Minister or any sector Ministry relating to the protection and management of the environment;
- Review and advise the Minister on any environmental plans, environmental impact assessment of major projects and activities for which an environmental impact review is necessary;
- Review the achievement of objectives, goals and targets set by NEMC and advise the Minister accordingly;
- Review and advise the Minister on any environmental standards, guidelines and regulations;
- Receive and deliberate on the reports from Sector Ministries regarding the protection and management of the environment;
- Perform other environmental advisory services to the Minister as may be necessary.

The National Environmental Advisory Committee shall advise the minister pertaining to the issuance of the Environmental Certificate upon the review of this ESIA.

3.2.3 Minister Responsible for Environment

The Minister is responsible for matters relating to environment, including giving policy guidelines necessary for the promotion, protection and sustainable management of the environment in Tanzania. The Minister approves EIA studies and may also delegate the power of approval for an EIA to the DoE, Local Government Authorities or Sector Ministries. The Minister also:

- Prescribes (in the regulations) the qualifications of persons who may conduct an EIA;
- Reviews NEMC reports on the approval of an EIA;
- Issues an EIA certificate for projects subject to an EIA;
- Suspends an EIA certificate in case of non-compliance.

Regarding this project the minister shall review NEMC reports before the approval of this EIS and issuance of the certificate.

3.2.4 Director of Environment

The Director of Environment heads the Office of the Director of Environment and is appointed by the President of the United Republic of Tanzania. The functions of the Director of Environment include:

- Coordination of various environmental management activities undertaken by other agencies;
- Promotion of the integration of environmental considerations into development policies, plans, programmes, strategies, projects;
- Undertaking strategic environmental risk assessments with a view to ensuring the proper management and rational utilization of environmental resources on a sustainable basis for the improvement of quality of human life in Tanzania;
- Advise the Government on legislative and other measures for the management of the environment or the implementation of the relevant international environmental agreements in the field of environment;
- Monitoring and assessing activities undertaken by relevant Sector Ministries and agencies;
- Preparation and issuing of reports on the state of the environment in Tanzania through relevant agencies;
- Coordination of issues relating to articulation and implementation of environmental management aspects of other sector policies and the National Environment Policy

3.2.5 National Environment Management Council (NEMC)

The NEMC's purpose and objective is to undertake enforcement, compliance, review and monitoring of EIA's and to facilitate public participation in environmental decision-making. According to the Environmental Management Act Cap the NEMC has the following responsibility pertaining to EIA in Tanzania:

- Registers experts and firms authorized to conduct EIA;
- Registers projects subject to EIA;

- Determines the scope of the EIA;
- Set-ups cross-sectoral TAC to advise on EIA reviews;
- Requests additional information to complete the EIA review;
- Assesses and comments on EIA, in collaboration with other stakeholders;
- Convenes public hearings to obtain comments on the proposed project;
- Recommends to the Minister to approve, reject, or approve with conditions specific EIS;
- Monitors the effects of activities on the environment;
- Controls the implementation of the Environmental Management Plan (EMP);
- Makes recommendations on whether to revoke EIA Certificates in case of non-compliance;
- Promotes public environmental awareness;
- Conducts Environmental Audits

Concerning this project NEMC was responsible for its Registration. NEMC also determines the scope of the EIA to be conducted, Set-up cross-sectoral TAC to advise on EIA reviews, recommends to the Minister to approve, reject, or approve with conditions. NEMC is also responsible for Controlling and foreseen the implementation of the Environmental Management Plan (EMP).

3.2.6 Sector Ministries

In the existing institutional and legal framework, the Sector Ministries are required to establish Sector Environmental Sections headed by the Sector Environmental Coordinator. The Sector Ministries' Environmental Sections;

- Ensure environmental compliance by the Sector Ministry;
- Ensure all environmental matters falling under the sector ministry are implemented and report of their implementation is submitted to the DoE;
- Liaise with the DoE and the NEMC on matters involving the environment and all matters with respect to which cooperation or shared responsibility is desirable or required;
- Ensure that environmental concerns are integrated into the ministry or departmental development planning and project implementation in a way which protects the environment;
- Evaluate existing and proposed policies and legislation and recommend measures to ensure that those policies and legislation take adequate account of effect on the environment;
- Prepare and coordinate the implementation of environmental action plans at national and local levels;
- Promote public awareness of environmental issues through educational programmes and dissemination of information;
- Refer to the NEMC any matter related to the environment;
- Undertake analysis of the environmental impact of sectoral legislation, regulation, policies, plans, strategies and programmes through strategic environmental assessment (SEA);
- Ensure that sectoral standards are environmentally sound;
- Oversee the preparation of and implementation of all EIA's required for investments in the sector;
- Ensure compliance with the various regulations, guidelines and procedures issued by the

Minister responsible for the environment and;

- Work closely with the ministry responsible for local government to provide environmental advice and technical support to district level staff working in the sector.

3.2.7 Local Government Authorities

Under the Local Government Act of 1982 (Urban and District Authorities), Local Government Authorities include the City Councils, Municipal Councils, District Councils, Town Councils, Township, Ward, Mtaa, Village and Kitongoji. Among others, the LGA will also be responsible for the oversight of the contractors during construction period. Discussion on the administrative setting for the Ubungo municipal council where the project areas is located is discussed in section 4.5.1.

The Environmental Management Committee of each jurisdiction:

- Initiates inquiries and investigations regarding any allegation related to the environment and implementation of or violation of provisions of the Environmental Management Act;
- Requests any person to provide information or explanation about any matter related to the environment;
- Resolves conflicts among individual persons, companies, agencies non-governmental organizations, government departments or institutions about their respective functions, duties, mandates, obligations or activities;
- Inspects and examines any premises, street, vehicle, aircraft or any other place or article which it believes, or has reasonable cause to believe, that pollutant or other articles or substances believed to be pollutant are kept or transported;
- Requires any person to remove such pollutants at their own cost without causing harm to health and;
- Initiates proceedings of civil or criminal nature against any person, company, agency, department or institution that fails or refuses to comply with any directive issued by any such Committee.

Under the Environmental Management Act Cap. 191, the City, Municipal, District and Town Councils are headed by Environmental Inspectors who are responsible for environmental matters. The functions of the inspectors are to:

- Ensure enforcement of the Environmental Management Act in their respective areas;
- Advise the Environmental Management Committee on all environmental matters;
- Promote awareness in their areas on the protection of the environment and conservation of natural resources;
- Collect and manage information on the environment and the utilization of natural resources;
- Prepare periodic reports on the state of the local environment;
- Monitor the preparation, review and approval of EIA's for local investors;
- Review by-laws on environmental management and on sector specific activities related to the environment;
- Report to the DoE and the Director General of the NEMC on the implementation of the Environmental Management Act and;

- Perform other functions as may be assigned by the local government authority from time to time.

Summary of Roles and responsibilities in addressing Grievances

Sub ward/Ward/Municipal officials	Responsibility
PO- RALG	• The PO-RALG-DART is holding a custodianship of the project. PO-RALG is responsible for control and approval of all studies and implementation of construction works under the project through DART-World Bank Coordinating Unit (WBCU) established at the national level to coordinate and implement the project including RAP.
The DART - Project World Bank Coordinating Unit (WBCU)	• Responsibilities of WBCU include issues related to the preparation of the project, including the development of the ESMF, SEP and the procurement strategy plan. The WBCU will also oversee overall coordination of RAP implementation, reporting to the WB regarding safeguards issues, as well as of integrating safeguards requirements into bidding and contracting documents. The WBCU-DART will, also, be responsible for identifying training needs of all parties involved in RAP implementation.
Dar es Salaam City Council (PIU)	• This unit (project implementation unit-PIU) which is under DCC will be responsible for smooth and timely implementation of the RAP. This team will also supervise, manage and support the tasks of the community and compensation teams. The coordinating unit will also resolve any problems related to coordination of the other units.
Community liaison officer and Grievances redress officer	• To work under Project implementation Unit (PIU). The key objective of this officer will be to ensure good project relations with both the PAPs and local residents in the areas. The officer will also be responsible for informing the PAPs and local residents about the resettlement and compensation process.
Mtaa leader/chairperson	• Provision of the overall leadership of the sub ward • Member and Chairperson of Mtaa GRC
Ward Chairman	• Provision of the overall leadership of the ward level • Member and Chairperson of Ward GRC
Ward /community Development officer	• Overall in charger and responsible for spearheading ward development projects • will arrange to forward the unresolved complaints to Municipal GRC.
Municipal community development officer	• Responsible for spearheading municipal development projects • Preparation and arrangement of Municipal GRC meetings
Municipal Director	• Chairperson of the Municipal GRC

3.3 INSTITUTIONAL FRAMEWORK FOR IMPLEMENTATION OF RAP

The institutional framework for the implementation of the RAP includes National institutions such as Ministries and PO-RALG, DART, Ubungo Municipal Council and the World Bank as discussed in the following section.

3.3.1 President's Office - Regional Administration and Local Government (PO-RALG)

The overall responsibility for the resettlement lies in the hands of the government of Tanzania (through PO-RALG- DART). DART will approve all payment upon finalization of the RAP and compensation agreements. DART will also work with the Ubungo Municipal Council in order to make sure that all PAPs receive compensation as described in the compensation schedule.

3.3.2 Ministry of Lands, Housing and Human Settlement Development (MLHSD)

The Ministry of Lands, Housing and Human Settlement Development is responsible for policy, regulation and coordination of matters pertaining to land in Tanzania and administers the land Acts. The Ministry is also responsible for land use planning, management and land delivery activities, specifically, surveying and demarcating land/parcel/farms, and provision of land ownership and tenancy in both rural and urban areas. In relation to the proposed project. The Ministry of Land and Human settlement will be responsible in making sure that the amount of money paid to the PAPs is equivalent to the value of affected properties and signing of valuation reports.

3.3.3 Ubungo Municipal Council

The role of the Council is to support the compensation process by providing supervision, monitoring and administration including facilitation of the valuation process. Ubungo municipal council will also coordinate disclosure of RAP to PAPs and the local communities in the project area. It will also assist vulnerable PAPs and work closely with the Grievance Committee to ensure that all PAP complains are handled on time without further impact to PAPs. At the municipal level there will be Municipal GMC which will handles PAPS appeal cases from Mtaa/ward GMC.

3.3.4 Wards and Mtaa

In this project there will be three levels of redress process. The first level of Redress procedure will be at Mtaa level where record/register of all complaints/grievances received will be kept and maintained. Thus logging and Recording of Grievance will be done at Mtaa level. At this level there will also be Mtaa GMC to handle cases of complaints or any grievance from the PAPs. For transparency purposes, all complaint meetings will be conducted in places specifically designated for this purpose. The PAPs will sign the grievance form to show agreement and the grievance will be closed. PAPS who will not be satisfied by the decision of Mtaa GMC will appeal to the next level (municipal GMC). On the other hand, if the complainant (PAP) is not satisfied with the response at Mtaa level, the issue will be appealed to the

Municipal-Grievance Management Committee (Municipal GMC) (level 2). The civil court option will be the next stage of appeal (level 3), if the affected person is not satisfied with the decision of the Municipal–GMC.

3.4 WORLD BANK GUIDELINES

3.4.1 World Bank Environmental and Social Framework (WB ESF)

The proposed project will also comply with the WB ESF. The framework sets out the World Bank's commitment to sustainable development, through a Bank Policy and a set of Environmental and Social Standards that are designed to support Borrowers' projects, with the aim of ending extreme poverty and promoting shared prosperity. The Framework comprises: (i) A Vision for Sustainable Development, which sets out the Bank's aspirations regarding environmental and social sustainability; (ii) The World Bank Environmental and Social Policy for Investment Project Financing, which sets out the mandatory requirements that apply to the Bank; and (iii) The Environmental and Social Standards, including Annexes, which set out the mandatory requirements that apply to the Borrower and projects.

3.4.2 The Environmental and Social Standards

The Environmental and Social Standards (ESS)_ set out project requirements relating to the identification and assessment of environmental and social risks and impacts associated with projects. Among others, the ESS set out the obligations of the project proponent in identifying and addressing environmental and social risks and impacts that may require attention during various project phases. These Standards establish objectives and requirements to avoid, minimize, reduce and mitigate risks and impacts, and where significant residual impacts remain, to compensate for or offset such impacts. An analysis of the compliance of the proposed project with ESS is summarised in Table 3.3.

Table 3.3: A summary of requirement of the ESS and compliancy by the proposed project

ESS	Objective/essence	Applicability to the proposed project
ESS1: Assessment and Management of Environmental and Social Risks and Impacts;	ESS1 establishes the importance of: (a) the Borrower's existing environmental and social framework in addressing the risks and impacts of the project; (b) an integrated environmental and social assessment to identify the risks and impacts of a project; (c) effective community engagement through disclosure of project-related information, consultation and effective feedback; and (d) management of environmental and social risks and impacts by the Borrower throughout the project life cycle.	This ESS1 is applicable to this project since it is the requirement of the Bank that all environmental and social risks and impacts of the project must be addressed. Thus, the project Environmental and social impacts have been identified and mitigation measures proposed for the different project phases (project life cycle). Also monitoring program (ESMP) has been included in the ESIA report
ESS2: Labour and Working Conditions	Among others ESS2 for example aims at promoting fair treatment, non-discrimination and equal	The contractor under the guidance of the project manager will ensure non-discrimination of women and other

ESS	Objective/essence	Applicability to the proposed project
	opportunities for project staff as well as protecting workers including vulnerable groups. Other important ESS2 objectives include e.g., the prevention of all forms of forced labour and child labour and the provision of an accessible grievance mechanism for workers	vulnerable groups in the employment opportunities in the during various project implementation phases. This is also in line with the ESS2 requirement. This suggest that ESS2 is relevant and applicable to the proposed project
ESS3: Resource Efficiency and Pollution Prevention and Management;	This ESS sets out the requirements to address resource efficiency and pollution prevention and management throughout the project life cycle. Among the objectives include: to promote the sustainable use of resources, including energy, water and raw materials, to avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities and to avoid or minimize project-related emissions of short and long-lived climate pollutants.	The proposed project has recommended as much as possible re-use and recycling of waste material especially the anticipated demolishing waste that will be generated from the existing structures that are to be demolished. Where possible local communities will be allowed to collect for recycling and reusable waste from the construction site. This imply the ESS3 is relevant and applicable to this.
ESS4: Community Health and Safety	This ESS addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of Borrowers to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable.	Health, safety and security against risks is of core importance in the implementation of the project. That is why ESS4 is relevant and applicable to the proposed project. As such, in the ESIA for the proposed project evaluation of the risks and impacts on the health and safety of the affected communities during the project life cycle, has been carried out. Risks and impacts have been analysed and mitigation measures recommended.
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement;	ESS5 recognizes that acquisition for the project use can have adverse impacts on communities and persons. The objective of this ESS thus among others to avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring project design alternatives. Other key objectives include avoidance of forced evictions, mitigation of adverse socio-economic impacts and timely compensation	Land acquisition for the proposed project has been determined to be inevitable. ESS5 is applicable to this project. As such all the necessary valuation including preparation of RAP have been undertaken and that all the PAPS will be compensated prior to the commencement of the project execution
ESS8: Cultural Heritage	This ESS sets out general provisions on risks and impacts to cultural heritage from project activities.	This ESS is necessary and applicable, for its provisions can provide guidelines to handle mitigation impacts in case of encounters with cultural heritage site in the proposed project
ESS10: Stakeholder Engagement and Information Disclosure	This ESS recognizes the importance of open and transparent engagement between the proponent and project stakeholders as an essential element of good international	ESS10 is applicable for this project as the stakeholder's engagement is expected to improve the environmental and social sustainability of proposed projects, enhance project acceptance, and make a significant

ESS	Objective/essence	Applicability to the proposed project
	practice. It also recognises the importance of disclosing E&S risks and impacts to stakeholders in a timely and accessible manner and to provide PAPs with access to a project grievance mechanism	contribution to successful project design and implementation

3.4.3 Environmental, Health, and Safety Guidelines (EHS) Guidelines

The EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). The EHS Guidelines contain the performance levels and measures that are normally acceptable to the World Bank Group, and that are generally considered to be achievable in new facilities at reasonable costs by existing technology. The World Bank Group requires project proponent to apply the relevant levels or measures of the EHS Guidelines. When host country regulations differ from the levels and measures presented in the EHS Guidelines, projects will be required to achieve whichever is more stringent.

The General EHS Guidelines contain information on cross-cutting environmental, health, and safety issues potentially applicable to all industry sectors and is to be used together with the relevant Industry Sector Guideline(s). Details are as follows:

1. Environmental

- 1.1 Air Emissions and Ambient Air Quality
- 1.2 Energy Conservation
- 1.3 Wastewater and Ambient Water Quality
- 1.4 Water Conservation
- 1.5 Hazardous Materials Management
- 1.6 Waste Management
- 1.7 Noise
- 1.8 Contaminated Land

2. Occupational Health and Safety

- 2.1 General Facility Design and Operation
- 2.2 Communication and Training
- 2.3 Physical Hazards
- 2.4 Chemical Hazards
- 2.5 Biological Hazards
- 2.6 Radiological Hazards
- 2.7 Personal Protective Equipment (PPE)
- 2.8 Special Hazard Environments
- 2.9 Monitoring

3. Community Health and Safety

- 3.1 Water Quality and Availability
- 3.2 Structural Safety of Project Infrastructure
- 3.3 Life and Fire Safety (L&FS)

- 3.4 Traffic Safety
- 3.5 Transport of Hazardous Materials
- 3.6 Disease Prevention
- 3.7 Emergency Preparedness and Response

4. Construction and Decommissioning

- 4.1 Environment
- 4.2 Occupational Health and Safety
- 4.3 Community Health and Safety

4.0 BASELINE ENVIRONMENTAL AND SOCIAL CONDITION SETTINGS

4.1 INTRODUCTION

This chapter describes the existing environmental and social setting within the project area with a special focus on those conditions that may be impacted by, or have direct impact on the proposed construction and its operation. The baseline information presented in this section was captured and compiled to suit the ESIA study requirement. It largely represents the environmental profile for Dar es Salaam region including Ubungu municipality where the proposed project is to be executed. Data for physical and biological environment were gathered by employing various methodologies including; review of various existing relevant documents and reports in Ubungu municipality and regional levels (secondary data), primary data, consultation with stakeholders as well as the project site visits and inspections.

4.2 IMPORTANCE OF BASELINE ENVIRONMENTAL CONDITIONS

Baseline data and information is data that measures conditions before the project starts for later comparison. In other words baseline example for climate, seismic condition, geology etc provides the historical point of reference for the next steps of project monitoring and evaluation. It helps to understand the current conditions of the project area, and how the project needs to be implemented considering these conditions. Details of the environmental and social baseline condition in the project area are discussed in the following sections

4.3 PROJECT LOCATION AND POPULATION

As discussed in chapter 2, the project area is located in Dar es Salaam city. The city is the major commercial, cultural and administrative Centre in the country. It accounts for 83% of the national government domestic revenue (70% of all taxes). Available information also indicate that the city hosts a much higher concentration of trade, services and manufacturing than elsewhere in Tanzania, contributing 17% to the national GDP (Nyyssölä M., Tim Kelsall T and Tim Ndezi T, 2021). Currently the city is divided into 5 municipalities which are Kigamboni, Temeke, Ilala, Kinondoni and Ubungu. Administratively the city is headed by the mayor of the city council who is elected among the councillors. Municipal councils are headed by mayor of the respective councils. Administrative structure is characterized by 4-tier level with City Council at the top; second tier is the Municipal Council and third level is the ward and sub-ward at the bottom. The municipal councils provide the basic services including waste management, district roads, primary and secondary education, health and monitoring of the informal sector. Until 2016, Dar es Salaam city was divided into three municipalities (Kinondoni, Ilala and Temeke). From 2016, Kigamboni and Ubungu municipalities were established from Temeke and Kinondoni municipalities, respectively. Administratively, the proposed project is located in Dar es Salaam city. Recently (2022) conducted national census indicate that Dar es Salaam with 5.38 million people is the most populous city in Tanzania (NBS, 2022).

4.4 BIOPHYSICAL ENVIRONMENT

4.4.1 Topography of the area

The Dar es Salaam city is located between latitudes 6.36 degrees and 7.0 degrees to the South of the Equator and longitudes 39.0 and 33.33 to the east of Greenwich. It is bounded by the Indian Ocean on the east and by the Coast Region on the other sides. The city lies in the flood plain and/or near flood plains and thus flooding is one characteristic of the city, particularly when there are heavy rains. Topography in the project area is characterized by the beach and shoreline comprising of sand dunes and tidal swamps. Coastal plains composed of limestone extending 2-8 km to the north, inland, alluvial plains comprise a series of steep-sided U-shaped valleys.

The topography in the city is also characterized by mixed residential, commercial and industrial buildings as well as infrastructure and high concentration of trade and other services and manufacturing activities. The lowland areas in Ilala starts where the municipality borders with Indian Ocean (Kivukoni ward) and extends up to Segerea, Ukonga and Kitunda wards. Beyond these wards, the small upland areas emerge as small hills of plateaus of Pugu, Kinyerezi, Chanika and Msongola wards. Most of the lowland areas constitute the urban part of the city. The upland areas are predominantly agricultural and rural in nature.

4.4.2 Climate

Temperature

Ubungu municipality where the project is located experiences similar climatic condition as that of Dar es Salaam city. It experiences a modified type of equatorial climate. It is generally hot and humid throughout the year with an average temperature of 29°C. The hottest season is from October to March during which temperatures can raise up to 35°C. It is relatively cool between May and August, with temperature around 25°C. The average monthly temperatures are shown below in Figure 4.1.

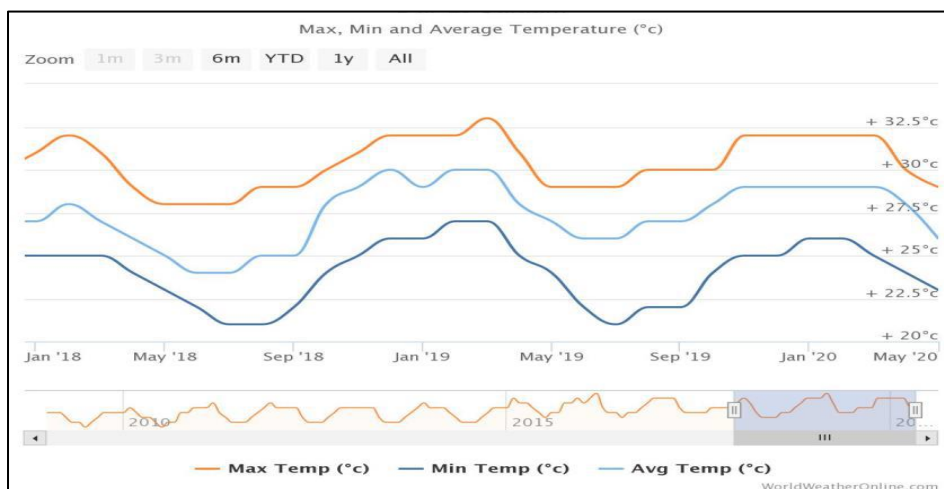


Figure 4.1: Average Temperatures in Dar es Salaam (climate data, 2022)

Rainfall

The climate condition of the project area is considered to be tropical, typified by hot and humid weather throughout much of the year. The wet season lasts for six months: long and heavy rains occurring in March to May, while short and light rains occur in October to December. Dry seasons occur between these two periods, and are characterized by little rainfall. The area is under the influence of the SE monsoon during April to September, and the NE monsoon during October to March.

It is characterized by rainfall under these two monsoons. The long-term average annual precipitation is about 1100 mm with maximum rainfall in April. The major precipitation (78.6%) is received from northeast monsoons occurring during the long and short rains. The long rains have a monthly average peak of 253 mm whereas the short rains give an average peak of 117 mm. The average monthly rainfall for the Dar es Salaam region is shown in Figure 4.2. The number of rain days experienced in Dar es salaam city is shown in Figure 4.3.

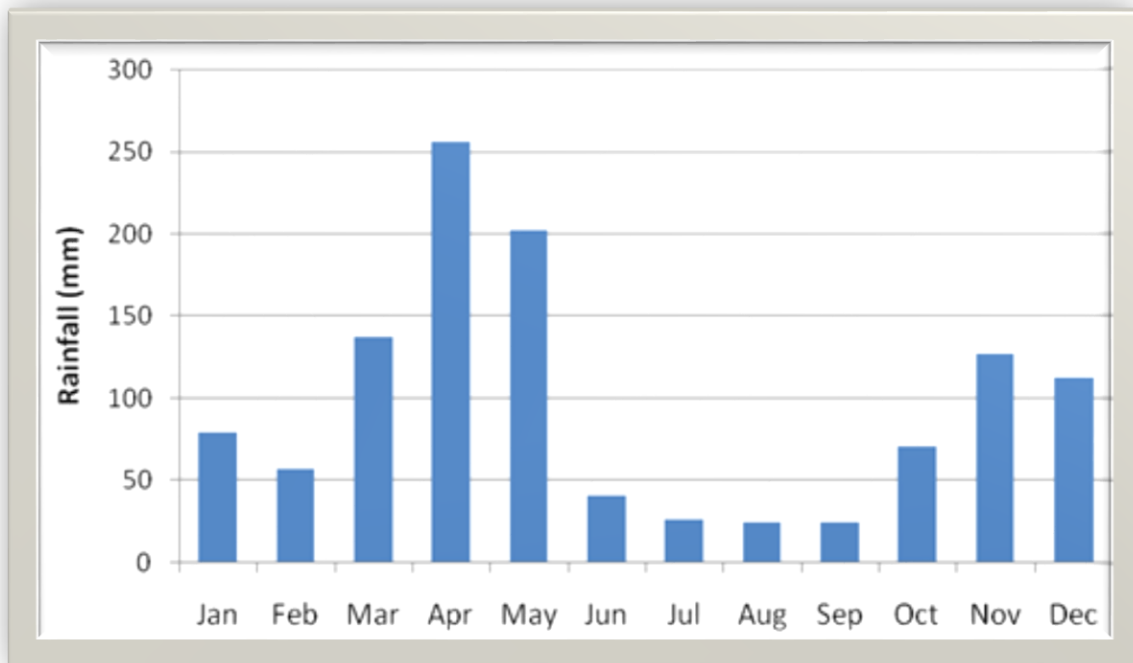


Figure 4.2: Long-term average monthly rainfall at Dar es Salaam (climate data, 2022)

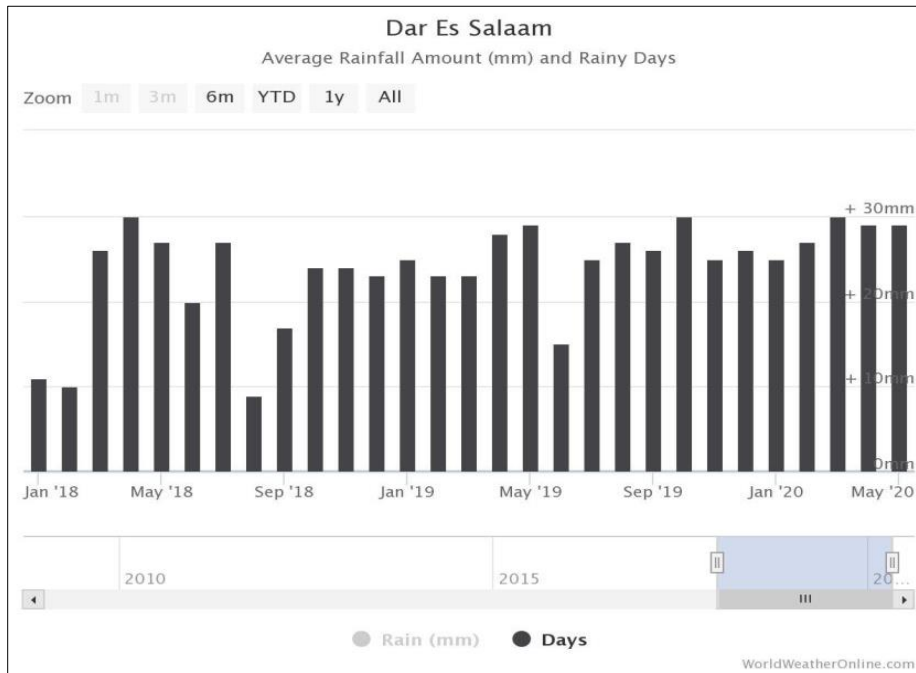


Figure 4.3: Average rainy days in Dar es Salaam

4.4.3 Seismic Activity

Tanzania is classified as a medium hazard seismic area. This means there is a 10% chance of potentially damaging earthquakes in the next 50 years. Because of the seismic classification being medium, the impact of an earthquake should be considered in all phases of the project. The proposed project will be located in the Ubungu municipality, a medium seismic hazard zone of 0.8–2.4 m/s². The available data is however not the latest information and should be confirmed during the built and design phase to include recent seismic activities.

4.4.4 Wind Parameters

Dar es Salaam experiences a range of wind speeds from 1–38 km/hr in mostly the South East directions. The frequency of wind gusts reaching a speed of more than 38km/hr is 1hr/year. A wind rose of Dar es Salaam is shown below in Figure 4.4 for normal conditions. Figure 4.5 Average and Max Wind Speed and Gust of Dar es Salaam

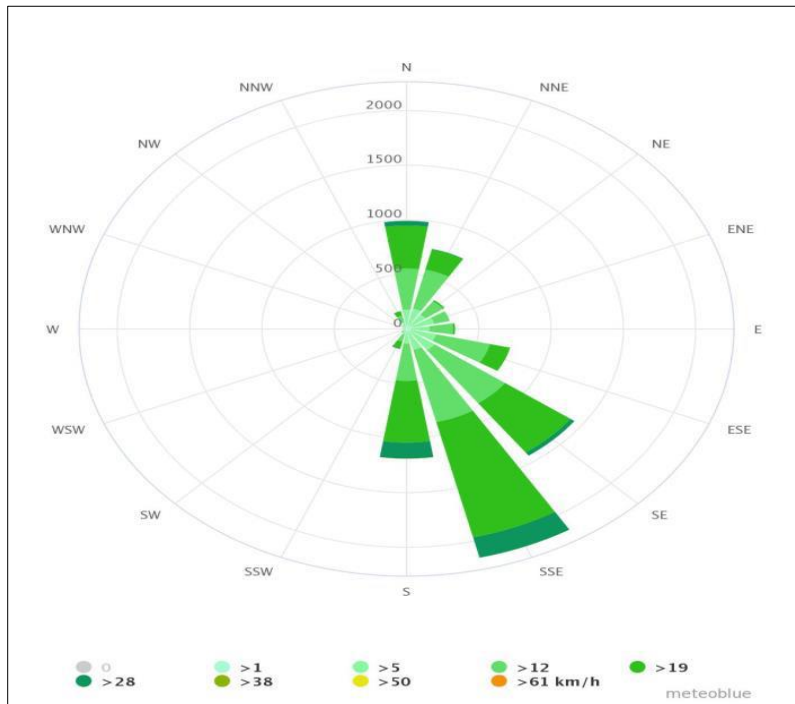


Figure 4.4: Wind rose for Dar es Salaam

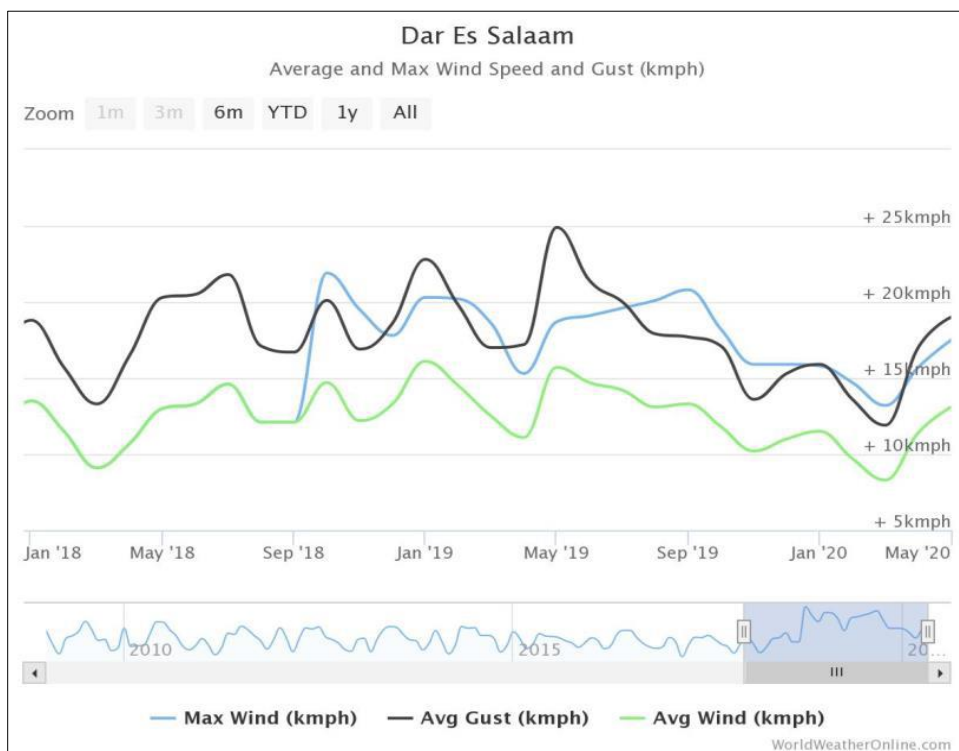


Figure 4.5 Average and Max Wind Speed and Gust of Dar es Salaam (climate data, 2022)

4.4.5 Humidity

Dar es Salaam experiences very high humidity levels throughout the year. The average annual humidity varies between 70% to 85% as shown below in Figure 4.6.

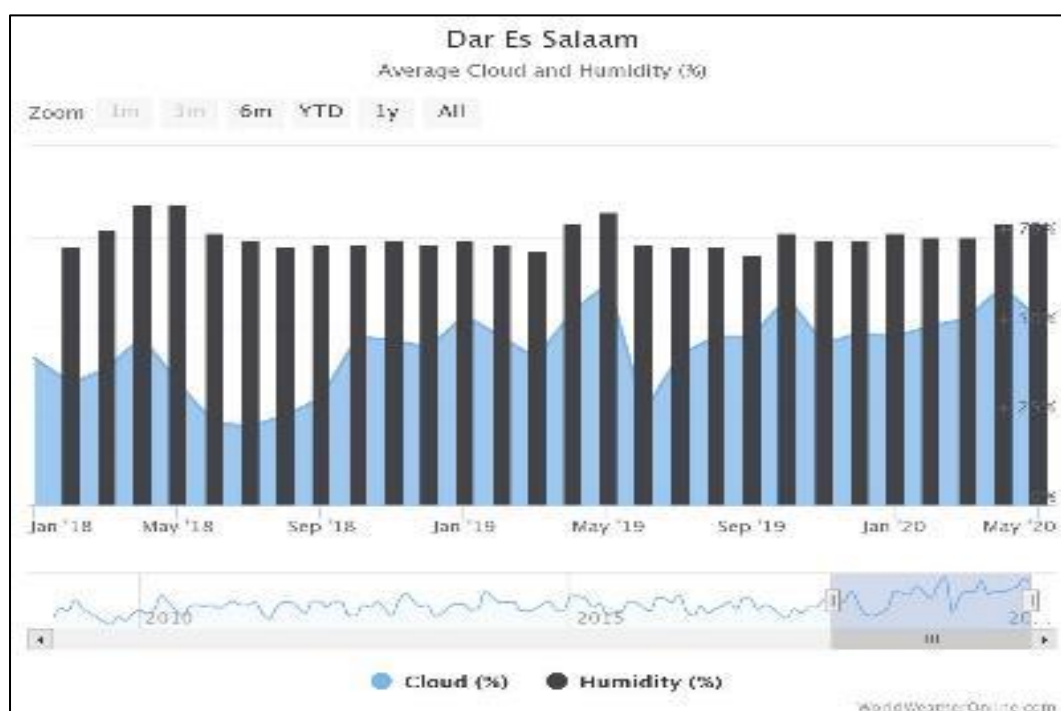


Figure 4.6: Humidity range for Dar es Salaam (hikersbay.com/climate/Tanzania/daressalaam, 2022)

4.4.6 Geology and soil

Geology

In the project area (Ubungu), there are two main superficial geological deposits that make up the soils. These include the sandy loam soils in high places, well-drained heavy clay waterlogged soils, and sandy loam and sandy clay soils. The sandy loam, well-drained, heavily weathered and leached sandy clay soils make up the uplands zone's soils. As such the two major geological units in the project area are: the underlying substratum of semi-consolidated formations and outcropping rocks, and superficial mainly loose sediments. The underlying (semi-) consolidated formations and outcropping rocks consist of Neogene clay-bound sands to hard sandstones. These features are also typical of the Dar es Salaam Regions.

Soil

Soil in the project area is dominated by limestones, sandy clays, coarse sands and mixed alluvial deposits. Soil pollution which may result into reduction of the number and variety of beneficial microorganisms in the soil through chemical toxicity and chemical pollutants in soil and thus, also become a source of pollution for groundwater through leaching of contaminants has not been reported in the project area. For example, a previous study by Joseph Alexander Saria, (2020), on assessment of Minerals, Heavy Metals in Soil and Vegetables Cultivated in Ubungu area, indicated heavy metals concentration in the soil was 24.41 mg/kg for Pb and 9.60 mg/kg. Both of these are lower than WHO/FAO permissible limit of 50 mg/kg and 300 mg/kg respectively. Also, the mean concentration of zinc (Zn) in the soil was 9.60 mg/kg. This is about 31 times lower than WHO/FAO (2001) permissible limit of 300.00 mg/kg for soils.

4.4.7 Hydrology

Resting within the Wami/Ruvu Basin, the project area (Ubungo municipality) and Dar es salaam city in general rest within the Wami/Ruvu Basin with watersheds of 4 major rivers. Mpiji river forms the northern boundary of Dar es Salaam. On the other hand, Msimbazi river flows to the north of the city centre and Kizinga and Mzinga rivers flow into the harbour area of the city. In any case the hydrology of the project area in Ubungo is dominated by Msimbazi river which is a major river in the city with a very large flood plain. Flooding is a chronic problem in many parts of the city and generally occurs in lower lying areas especially in Msimbazi valley. Apart from Msimbazi the other key river in the project area is Luhanga.

4.4.8 Air Quality, Noise Level and Dust data in the project area Sampling Locations

Environmental measurement parameters (Air Quality, Noise Level and Dust) were measured in the project area. Details of the sampling points (SP1 to SP12) also indicated in Table 4.1. As can be noted the project area is relatively flat as its elevation only varied from 24.0–52.0 metres.

Table 4.1: Sampling Location along the Project Site (field work data November 2022)

Sampling location	Geographical Location		Elevation (m)	Notes and Comments
	Latitude	Longitude		
SP1	-6.799220	39.214314	31	The point is located 20m near the Ubungo Maziwa Mtaa office. Measurements were affected by the wind speed, human and industrial activities, vehicles movements, etc.
SP2	-6.798407	39.213490	32	The point is located within the proposed site and 20m near by the Hifadhi Processing zone warehouses. Measurements were affected by the wind speed, human and industrial activities, vehicles movements, etc.
SP3	-6.797289	39.212150	34	The point is located within the proposed site and 15m away from the CNG filling station at Ubungo. Measurements were affected by the human and industrial activities, vehicles movements, etc.
SP4	-6.796272	39.211024	24	The point is located nearby the TANESCO Pole storage area at Ubungo maziwa. Measurements were affected by the wind speed, human and industrial activities, vehicles movements, etc.
SP5	-6.795891	39.210236	37	The point is located within the existing households and within the proposed area. Measurements were affected by human activities, vehicles movements, etc.
SP6	-6.795692	39.209501	46	The point is located nearby the Kigogo road within the proposed site. Measurements were affected by garage activities and vehicles movements, etc.
SP7	-6.797248	39.210001	44	The point is located within the proposed project site and nearby the Ubungo Maziwa CCM existing office along Kigogo road. Measurements were affected by

Sampling location	Geographical Location		Elevation (m)	Notes and Comments
	Latitude	Longitude		
				vehicles and motorcycles movements, human activities, etc.
SP8	-6.796993	39.210660	35	The point is located within the proposed site and existing households. Measurements were affected by human activities and motorcycles movements
SP9	-6.798278	39.211765	52	The point is located along Kigogo road on the western site of the proposed site. Measurements were affected by vehicles and trucks movements, human activities, etc.
SP10	-6.799127	39.213684	38	The point is located along Kigogo road on the western site of the proposed site. Measurements were affected by vehicles and trucks movements, human activities, etc.
SP11	-6.794894	39.209845	33	The point is located outside the proposed site at the CNG filling station entrance road. Measurements were affected by vehicles movements, human activities, etc.
SP12	-6.796181	39.212142	32	The point is located nearby TBL depot outside the proposed site. Measurements were affected by vehicle and motorcycles movements, industrial activities, etc.

4.4.9 Ambient Air quality results in and around the project

Measured baseline data in SP1 through to SP 12 are presented in Table 4.2 along with the WHO and Tanzania ambient air quality standard. As can be noted both CO, H₂S, SO₂ and NO₂ which are considered to be important ambient air pollutants were not detected in any of the sampling points (SP1- SP12). Ambient NO₂ exposure may increase the risk of respiratory tract infections through the pollutant's interaction with the immune system. Sulphur dioxide (SO₂) contributes to respiratory symptoms in both healthy patients and those with underlying pulmonary disease. Zero concentration levels of these parameters agree with both WHO as well as The Environmental Management (Air Quality Standards) Regulations, 2007 and TBS Standards.

PM_{2.5} varied from a minimum value of 5 µg/m³ at SP4 to a maximum value of 15 µg/m³ at SP11 and from 6 µg/m³ (at SP4) to 19 µg/m³ (SP3 and SP 11), respectively. Constant O₂ Concentration level of 20.9(%) was observed in all sampling points. On the other hand concentration of CO₂ in the project area was observed to range from 376 ppm (in SP5) to the highest values of 426 PPM in SP6. Worth noting however, that concentration of all the measured parameters are within The Environmental Management (Air Quality Standards) Regulations, 2007 and TBS as well as the WHO Standards. The proposed project is likely to have impacts and thus affect the observed background concentrations, suggesting a need for monitoring concentration of these parameters during various project implementation phases.

Table 4.2: Measured Ambient Air Quality at Site (Source: Site Measurements, November 2022)

Sampling Location	Weather Condition	Ambient air pollution concentrations							
		PM2.5 (µg/m3)	PM10 (µg/m3)	O2 (%)	CO (ppm)	H2S (ppm)	CO2 (ppm)	SO2 (mg/m3)	NO2 (mg/m3)
SP1	Sunny	10	11	20.9	0	0	381	0	0
SP2	Sunny	10	15	20.9	0	0	406	0	0
SP3	Sunny	12	19	20.9	0	0	420	0	0
SP4	Sunny	5	6	20.9	0	0	390	0	0
SP5	Sunny	8	14	20.9	0	0	376	0	0
SP6	Sunny	12	17	20.9	0	0	424	0	0
SP7	Sunny	13	18	20.9	0	0	388	0	0
SP8	Sunny	7	10	20.9	0	0	378	0	0
SP9	Sunny	9	11	20.9	0	0	421	0	0
SP10	Sunny	10	12	20.9	0	0	415	0	0
SP11	Sunny	15	19	20.9	0	0	412	0	0
SP12	Sunny	12	17	20.9	0	0	406	0	0
Duration	8 hours								
The Environmental Management Quality Regulations, 2007 and TBS Standards		-	90	19.5-23.5	87 ppm for 15 minutes of exposure	-	-	0.2 ppm for 10 minutes exposure	0.1 ppm for 8 hours of exposure
WHO Standards		40-60	60-90	21	90 ppm for 15 minutes of exposure	-	1000	0.175 ppm for 10 minutes of exposure	0.05 ppm for 8 hour mean of exposure

4.4.10 Ambient Noise level Results

Table 4.3 shows maximum, minimum and average noise measurements/levels as observed during the daytime (07:00 AM–18:00PM) at twelve sampling points in the project area (Ubungu Maziwa). The minimum levels varied from 45.7dBA at SP12 to 64.8dBA at SP6, while the maximum levels were in the range of 53.3dBA at SP2 to 73.2dBA at SP6. It was noted that the main contributor to the recorded noise levels are vehicles, motorcycles, processing machines, wind currents and birds sounds passing through the project site.

The recorded noise levels in all sampling points in the project were found to be below the established TBS and WHO standards. The SP6 and SP7 levels were high due to the vehicles passing along Kigogo road. However, the background noise levels show that the noise level within and outside the vicinity of the project area in the most of the sampling location are below

the Environmental Management (Standards for the Control of Noise and Vibrations Pollution) Regulations, 2014 for proposed Construction Project Sites as also indicated in Figure 4.7.

Table 4.3 Ambient Noise Level Measurement Locations in the Study Area – Daytime

Sampling Location	Measured Level, dBA			Category of Area	Environmental Management (Standards for the Control of Noise and Vibrations Pollution) Regulations, 2014 for Maximum Permissible Noise Levels for Construction Site	
	Max	Min	Avg		Day	Night
SP1	60.6	46.7	53.7	Construction	75	65
SP2	53.1	50.4	51.8	Construction	75	65
SP3	54.7	45.9	50.3	Construction	75	65
SP4	58.8	51.4	55.1	Construction	75	65
SP5	59.8	49.3	54.6	Construction	75	65
SP6	73.2	64.8	69.0	Construction	75	65
SP7	70.2	63.3	66.8	Construction	75	65
SP8	56.0	47.1	51.6	Construction	75	65
SP9	55.1	49.8	52.5	Construction	75	65
SP10	54.7	50.7	52.7	Construction	75	65
SP11	56.8	46.2	51.5	Construction	75	65
SP12	54.6	45.7	50.2	Construction	75	65

Source: Field measurements, November 2022

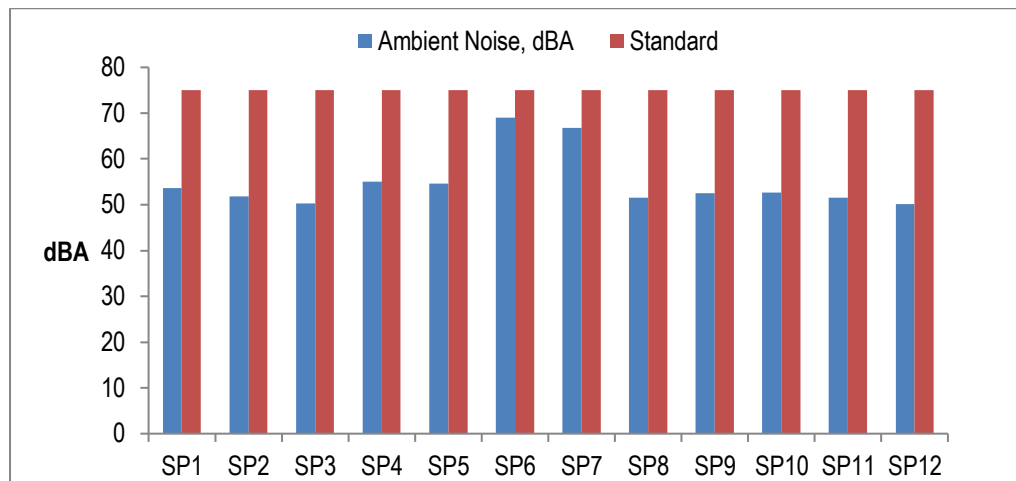


Figure 7.7: Ambient Noise Levels at Site

4.4.11 Vibration

Details of the methodology used in vibration measurements in the project site are discussed in chapter 4. Results presented in Table 4.4 shows nonexistence of ground vibration in all the sampled locations in the project area.

Table 4.4: Average measured ground vibrations at the proposed site

Sampling Point	Ground vibrations (mm/s)
SP4	0
SP7	0
SP10	0
SP11	0
SP12	0
Environmental Management (Standards for the Control of Noise and Vibrations Pollution) Regulations, 2014	5 mm/s PPV at all times

Key: PPV–Peak Particle Velocity

On the other hand, however, the proposed project has a potential to increase the ground vibration levels from its construction and operations activities like movements of heavy equipment, trucks, etc. The Environmental Management (Standards for the Control of Noise and Vibrations Pollution) Regulations, 2014 allows up 5 mm/s PPV at all times.

4.4.12 Meteorological Conditions (Temperature and Relative Humidity)

During field measurements, the weather condition was general sunny (Table 4.5). Average daytime temperatures ranging from 31 to 33°C and average relative humidity that ranged from 56 to 67% were observed. This condition generally, will favour environmental and occupational safety of the workers during the construction, operations and daily activities of the proposed project.

Table 4.5: Meteorological Conditions

Sampling Point	Weather Condition	Temperature (o C)	Relative humidity (%)
SP1	Sunny	31	67
SP2	Sunny	33	60
SP3	Sunny	33	59
SP4	Sunny	31	61
SP5	Sunny	31	62
SP6	Sunny	33	56
SP7	Sunny	32	59
SP8	Sunny	31	60
SP9	Sunny	33	56
SP10	Sunny	31	62
SP11	Sunny	31	59
SP12	Sunny	31	58

Source: Field work, November 2022

4.4.13 Biological Environment

Vegetation

In the project area, natural vegetation cover is dominant in the areas previously used as industrial sites, which are currently unoccupied. Concentration of vegetation is largely around the defunct industrial areas and is largely attributed to the fact that these areas are isolated

by fencing. Vegetation cover is limited in residential areas largely because of the unplanned nature of the settlement. On the other hand, most of the vegetation in the project area is along the road (Ubungo Maziwa road) as well as around small business/commercial areas within the site. The main land uses around the project area include residential, commercial and industrial as also indicated in Figure 2.2.



Plate 4.2: Vegetation cover within the proposed site for construction of depot (photo taken during field work for this assignment)

Suffice it to say that, the proposed site for construction of the new depot at Ubungo Maziwa comprises vegetation cover like naturally grown shrubs and grasses. The dominant trees include largely neem trees (mwarobaini). Plate 4.2 shows images of different vegetations around and within the project site as captured during field work in November, 2022

Flora and Fauna

As the project is located in urban area, there are no existing wild animals. On the contrary, the existing animal species include domesticated terrestrial creatures (livestock) such as pigs, cattle, chicken (poultry) and other types of birds around the project. Invasive bird species in the project area are the Indian house crow (*Corvus splendens*). Some of the birds observed during the field visit were bittern, hens and crows near the project site. There are several types of trees and grass that are found at the proposed project site. There are few fruit trees and shade tree types that are found at site. These include mango trees, coconut trees, Indian or tropical almond tree, neem trees, river tamarind trees, madras thorny trees, palm trees and ashoka/ ashok tree plants. Some of these are presented in Plate 4.3.

		
Mango tree	Indian/ Tropical/ Bastard Almond (Terminalia catappa) - Mkungu	Coconut trees
		
Madras Thony tree (mchongoma)	Neem Trees (Miarobaini)	Ashoka/ Ashok Tree plant

Plate 4.3: Different types of vegetation found in the project area

4.4.14 Unique and endangered species

It is worth noting that during general searches it was observed that there are no species of the amphibians and reptiles that are included in the IUCN Red list of threatened species in the project area. As such there are neither unique nor endangered species of concern that were observed in the project area during site visits and observation.

4.5 SOCIAL BASELINE CONDITION

4.5.1 Administrative setting and population

Administrative setting

Administratively Ubungo Municipal Council is divided into twenty (14) wards, which in turn are sub divided into sub wards. There are 91 sub wards in the municipality. The municipality executes its administrative duties through: (i) The Municipal Council, (ii) Ward Development Committees under the Chairmanship of the Councillors and (iii) Sub-Ward (Mitaa) Development Committees. The proposed project is in Ubungo ward

Area and Population

Ubungo Municipality has a total area of 260.40 km². Its population in 2016 was 1,031,349, out of which males were 499,161 and females were 532,188. The population growth rate is about 5.0% per annum and a population density 4,911 people per km². The municipality is estimated to have 257,837 households with an average of 4 persons per household.

The age characteristics of the PAP indicate that most PAPs are elderly with more than 60 years (88.4%). 33.1% of PAPS are aged between 19 and 59. Table 4.6 shows PAPs population distribution by age. 71% of households in the sub-project area are married, 6% are single, and 19% are widowed as indicated in Table 4.7.

Table 4.6: Population Distribution by Age Group

	Age						Total
	≤18		≥19≤59		≥ 60		
	Frequency	Percent %	Frequency	%	Frequency	Percent %	
Owner	0	0.0%	52	33.1	38	88.4	90
Tenant	0	0.0%	105	66.9	5	11.6	110
Total	0	0.0%	157	100.0	43	100.0	200

Table 4.7: Summary Marital Status of PAPs

Marital status	Owner					
	Male		Female		Total	
	Frequency	Percent %	Frequency	Percent %	Frequency	Percent %
Married	39	86.7	25	55.6	64	71.1
Widowed	1	2.2	16	35.6	17	18.9
Divorced	0	0.0	2	4.4	2	2.2
Single	4	8.9	1	2.2	5	5.6
Separated	1	2.2	1	2.2	2	2.2
Cohabitation	0	0.0	0	0.0	0	0.0
Total	45	100.0	45	100.0	90	100.0

4.5.2 Language

Swahili is the commonly spoken language in the project area. The other native languages spoken within the project area are Sukuma, Zaramo, Haya, Nyakyusa, Hehe, Nyamwezi, Wamatembo, Wagogo, Ruo, Iraq, Wazigua, Chaga, Maasai, Zanaki Kurya, Wajita, Wanyambo, Waha, Ndengereko, Wanyaturu, Wajita, Nyiha, Sonjo, Pare, Iramba, Digo, Wamakua, and Ngasa. Minority languages are not used in public areas and their usage is discouraged in education, political gatherings, religious meetings, and broadcasting media or digital media.

4.5.3 Ethnic Groups

The project area was originally dominated by Zaramo. However, due to a rapid growth in population, there are also other tribal groups which are dominating within the project area. These groups include Haya, Nyakyusa, Pare, Sukuma Nyamwezi and Chagas tribal groups.

4.5.4 Literacy Rate

Literacy Rate is the percentage of a population that can read and write in both Swahili and English or in any other language. Most of the people in the project area have completed primary education. Some of them have completed secondary education and few have graduated from colleges.

4.5.5 Education Facilities

The project area comprises of primary and secondary schools as well as universities. There are many primary schools which are either owned by the Government or by the private sector. Similarly, there are community registered secondary schools and privately-owned secondary schools.

Primary Education Services

Ubungo Municipal Council has 113 Pre-Primary Schools out of which 60 belongs to Government and 53 are owned by private sector. Also, the Council has 118 Primary schools, whereby 64 are owned by Government and 54 primary Schools are owned by Private Sector. All 64 Primary Schools have a total number of 76,346 pupils from STD I to STD VII. On the other hand, Ubungo District Council has a total number of 65 secondary schools, out of which 26 are registered community secondary schools and 39 are privately owned. In addition to that, 7 out of 50 private Secondary Schools are Advanced Level. All 27 Community Secondary Schools have a total number of 22,930 students from form I - IV. Private schools have the total number 10,849 students from I-VI.

Universities

Within Ubungo municipality there are three universities including The University of Dar es Salaam which is the oldest and 2nd largest public university in Tanzania after University of Dodoma (Plate 4.4).

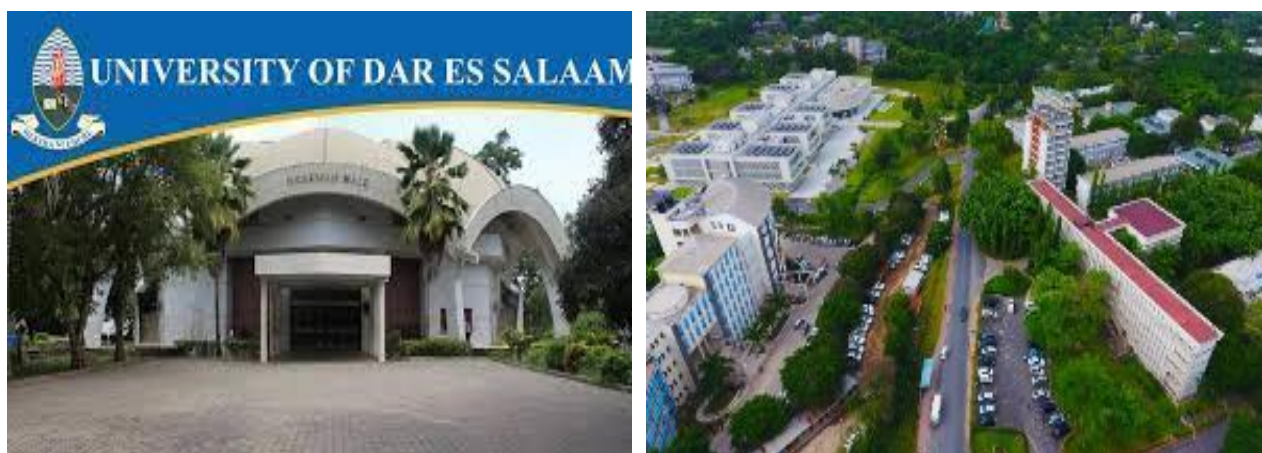


Plate 7.4: The university of Dar es Salaam

Other universities located within the municipality include: The EASTC which is the Government owned institute of higher education, located at changanyikeni and St. Joseph University which is a privately-owned institute of higher learning located at Kwembe off Morogoro road.

Overall education level in the project area

Details obtained in the project area indicated that 42.2% of household heads have attained primary school education, while 30% attained secondary school education. Those with college and university education accounts for 18.9% as further detailed in Table 4.8. This information generally indicates that Majority of the Household heads in the project area are fairly well educated.

Table 4.8: Education of the Head of Household (HHH)

Education level	Household Heads					
	Male		Female		Total	
	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)
No Education	1	2.2	0	0.0	1	1.1
Drop-out Primary school	1	2.2	3	6.7	4	4.4
Primary	21	46.7	17	37.8	38	42.2
Secondary	14	31.1	13	28.9	27	30.0
Drop-out Secondary school	0	0.0	1	2.2	1	1.1
College	2	4.4	7	15.6	9	10.0
Technical/ Vocation	0	0.0	2	4.4	2	2.2
University	6	13.3	2	4.4	8	8.9
Total	45	100.0	45	100.0	90	100.0

Data obtained during field work for this assignment is similar to those reported in a study on the opportunities of urban horticulture for poverty alleviation in Dar es Salaam city, which was carried out in Municipality (Bishoge O. and Suntu S. 2018). This study indicated that majority of the residents in Ubungo municipality (44%) have attained primary school education

compared to 31.5% and 11.7% who have attained secondary and higher education respectively (Table 4.9).

Table 4.9: Education level in the project area (Bishoge O. and Suntu S. 2018)

Level of education	Frequency	Percentage (%)
Informal education	30	12.5
Primary education	107	44.5
Secondary education	75	31.3
Higher education/college	28	11.7
	240	100

4.5.6 Health Services

Information obtained from Ubungu Municipal council indicate that the municipality currently has a total of 68 health facilities out of which 18 are government owned, while the remaining 51 are owned by Private Organizations. Sinza and Mlonganzira hospitals are the only hospitals owned by the government providing health services within the Municipality. This hospital provides services to between 1,000 and 1,500 in and out patients per day. Table 4.10 shows a list of health facilities available in Ubungu Municipality . The most prevalent disease affecting the majority of residents include Diarrhoea, Pneumonia and Malaria which are people.

Table 4.10: Health facilities in Ubungu municipality (source: Ubungu Municipal profile, 2016)

Health Facility	Government	Private	Total
Hospital	2	4	5
Health Canfers	0	6	6
Dispensaries	16	41	57
Total	18	51	69

Mlonganzira hospital (Plate 4.5) which is located in Kibamba ward is part of Muhimbili National Hospital. It is a teaching hospital providing largely referral facilities. Available services include: internal emergency paediatrics, psychiatry and mental health, rehabilitation medicine, obstetrics and gynaecology, ophthalmology, laboratory as well as diet and nutrition



Plate 4.5: Mlonganzira hospital in Ubungo municipality

4.5.7 Road Network

Ubungo municipal Council has a total of 386.3 km of roads which are maintained by the Council. Out of which 23.0 km are tarmac roads, 245.25 km are gravel roads and 118.05 km are earth roads and 78 bridges/box culverts. Within Ubungo municipality there are also recently constructed road infrastructure which includes Simu 2000 bus terminal, Magufuli Bus terminal and John Kijazi Flyover/interchange (Plate 4.6).



Simu 2000



Magufuli Bus terminal



Kijazi Flyover/interchange



Plate 4.6: Important road infrastructure located within Ubungo municipality

4.5.8 Water supply and sanitation

Residents in the project area primarily use water supplied by DAWASA or purchase water with trucks or bucket as observed during field surveys. In few areas in Ubungo Maziwa residents have dug wells although most of them have salt water which is unsuitable for domestic uses. A study titled assessment of the challenges of water distribution to households at Kimara ward, Ubungo district (Samson, 2018) indicated that 57% of the residents in the project area receive water supply services from DAWASA. The remaining 43% obtained water from other sources, including Water vendors, Boreholes, Rainwater and Water Kiosks as indicated in Table 7.11.

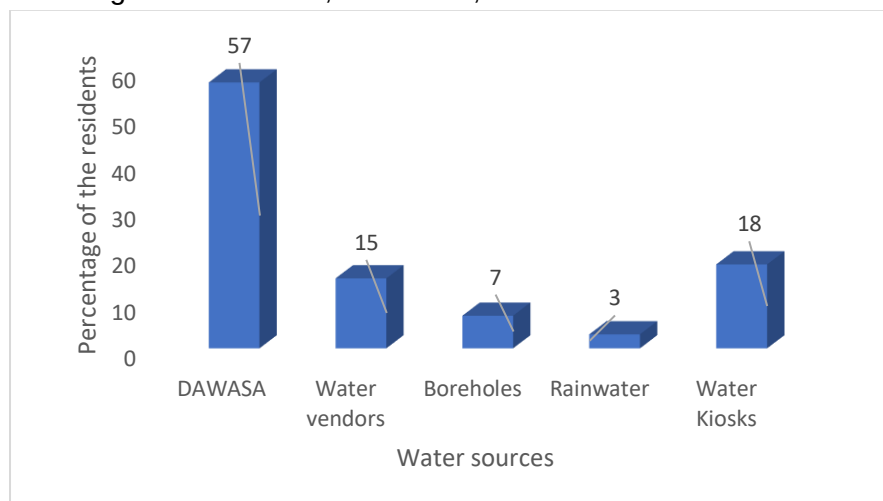


Figure 4.8: Sources of water supply in the project area (Samson, 2018)

Residents in the project area use onsite sanitation services which include Pit latrines (that are emptied when full), septic tanks with soak away pits. Besides, few business units along Mabibo road have access to central Sewerage systems. These includes for example Maziwa guest house and Kv bar.

4.5.9 Employment

Out of the total number of people in Ubungo municipality, the workforce is estimated to be 701,317, while the remainders are elderly and children. These constitute 20,626 and 309,404, respectively, whereby 61% of the manpower are engaged in private sector, 35% are self-employed and 4% are employed in public sector.



Plate 4.7: Some of the petty trading business in the project area (Photo taken during field work data collection exercise)

The activities engaged in are private companies, business, petty traders, fishing, livestock keeping and agricultural activities. Discussion and observation in the project area indicated that the main sources of livelihoods are engagement in agricultural self-employed activities, Masonry, fishing, small business, Petty trading and working as Casual labourer. Some of the petty businesses as observed during field work include solid waste (plastic bottles) recycling, hair care solons, selling and buying aggregates, small garages etc. Plate 4.7 presents images of a hair care solon and aggregates selling businesses in the project site.

Information obtained during field work indicate that majority (26%) of the Household heads in the project area are engaged in petty trading followed by small businesses (commerce) (19%). Those earning monthly salaries and casual labourers constitute 18%. Majority of the casual laborers are male. On the other hand masonry and fishing activities are undertaken by males only. Petty trading activities are dominated by females. Details are presented in Table 4.11

Table 4.11: Occupation/livelihood for the Head of Household (HHH) in the project area

	Total					
	Male		Female		Total	
	Count	Percent (%)	Count	Percent (%)	Count	Percent (%)
Agricultural self-employed	6	5.5	4	4.4	10	5.0
Masonry	3	2.7	0	0.0	3	1.5
Fishing	1	0.9	0	0.0	1	0.5
Salaried	13	11.8	5	5.6	18	9.0
Commerce	21	19.1	17	18.9	38	19.0
Petty trading	26	23.6	26	28.9	52	26.0
Casual labourer	13	11.8	5	5.6	18	9.0
Student	8	7.3	9	10.0	17	8.5
Other	17	15.5	7	7.8	24	12.0
None	2	1.8	17	18.9	19	9.5
Total	110	100.0	90	100.0	200	100.0

4.5.10 Urban Agriculture

Available Information (Ubungo municipal profile, 2016), indicate that about 1,850 (Ha) of land in Ubungo municipality have potential for agricultural practices especially crop cultivation. This figure is however changing rapidly due to expansion of urban related activities. Land estimated under use for both cash crops and food crops in 2015 was 174.94(Ha). Approximately 9.45% of land is potential for agriculture. Farmers engage in small and large-scale farming, mostly tilling land using hand equipment.

Agriculture provides the Municipality with 1,007.54 tons of food crops, which is only 0.65% of the total annual food requirement for the population. The major obstacles to agricultural productivity include: Poor farming methods and implements, Non-existence of data about farmers and crop yields, population growth especially youths, high rate of urban expansion leading to decrease of agricultural land inadequate knowledge on improved farming techniques, Outbreak of crop pests and diseases and Shortage of inputs including better quality seeds/fertilizers.

4.6 RESETTLEMENT ACTION PLAN (RAP)

4.6.1 Introduction

The proposed project will lead into impacts on people living in the project areas as well as their assets including land, trees and crops and structure/houses. In the surveys carried out in the area, revealed that most affected structures are residential and few commercial properties. The affected assets were evaluated for compensation. The following sections present numerical impacts as per the findings of the surveys.

4.6.2 Affected Population

The project is estimated to affect 90 Project Affected Households. A total of 391 people will be physically displaced in which 90 are HH owners with 191 HH members and 110 are tenants who will lose accommodation and business units. Details are presented in Table 4.12.

Table 4.12: Status of the Affected Population in the project area

Ubungo Maziwa	Male	Female	Total
Owner - Head of HH	45	45	90
Members of HH	91	100	191
Tenants	65	45	110
Total	201	190	391

4.6.3 Impact on Land

The total area size or land to be affected by project implementation is approximated to 68,000sqm out of which 28,328sqm are used for residents and 39,672sqm occupied by

institutions [National Health Insurance Fund (NHIF) and Ministry of Industry and Trade (MIT)]. Each PAP is expected to lose an average of 315sqm

4.6.4 Impacts of Trees and Crops

The project will likely impact about 41 trees. The owners of the impacted trees will be compensated accordingly during RAP implementation.

4.6.5 Impacts on Structures

Overall structures that would be affected by the project are 90 of which 83 are residential and 7 are both residential with commercial units (small businesses - stationery, shops) and 36 substructures (fence, septic tanks, toilets). All structures are occupied with no abandoned structures.

4.6.6 Impacts on Livelihoods

There are anticipated and unavoidable adverse impacts on livelihoods for some affected households due to permanent land acquisition. Some affected households have lost their sources of earning, around 7 business units comprise of shops and/or small business units have been potentially impacted by the project.

4.6.7 Need for the RAP

The Resettlement Action Plan (RAP) has been prepared to address project impacts especially those associated with displacement of people and or economic activities. This provides a Site-specific Resettlement action Plan through which the identified project adverse socioeconomic impacts including involuntary acquisition of land and the subsequent resettlement of affected families are addressed.

Site-specific RAP has been prepared in accordance with the Resettlement Policy Framework (RPF) and other corresponding safeguards documents such as Environmental and Social Management Framework (ESMF), and SEP to address other project impacts that are not related to land acquisition and restrictions on land use by the community. Detailed RAP report has been submitted as separate document.

4.6.8 Legal Frameworks

This RAP is prepared in line with relevant National laws as well as the World Bank Environmental and Social Standards. (Land acquisition, Restrictions on Land Use and Involuntary Resettlement-ESS5). The RAP applies to all economically and/or physically displaced persons regardless of their total number and whether or not they have legal title to the land. Moreover, equal attention will be given to special needs among vulnerable groups (Vulnerability: elderly with no support; seriously ill; households headed by women and physically challenged people; and low- income households. Other ES standards that are

relevant to this report include Assessment and Management of Environmental and Social Risks and Impacts (ESS1) and Stakeholder Engagement and Information Disclosure (ESS10).

4.6.9 Valuation of the Assets

This RAP has adopted the 'Replacement Cost' method to establish value of affected land and properties cost. This is in line with requirements of the Borrower (WB-ESS5) which states that "when land acquisition or restrictions on land use (whether permanent or temporary) cannot be avoided, the Borrower will offer affected persons compensation at replacement cost, and other assistance as may be necessary to help them improve or at least restore their standards of living or livelihoods". In addition, the valuation exercise had adhered to both GOT and WB legal frameworks whereby the plan that covers, at a minimum, the applicable requirements in ESS 5 regardless of the number of people affected.

4.6.10 Entitlement Matrix (EM)

Each subproject needs to be screened for social impacts based on the given designs for the proposed improvements to determine if there are any impacts that require the preparation of the RAP as mitigation plan against any adverse impact to project affected persons. Based on the harmonization efforts and the impacts likely to occur, an Entitlement Matrix (EM) has been developed, that summarizes the type of loss and the corresponding nature and scope of entitlements. Compensation and rehabilitation assistance for various categories of losses based on the tenure and magnitude of impact has been provided. Additional assistance to vulnerable households (opening bank accounts), reimbursement of transaction costs in relation to those who receive land for land compensation are some of the provisions contained in the EM.

4.6.11 A Cut-off Date

The cut-off date is basically a legal procedure which is defined as the date of commencement of census and asset inventory of PAPs who will be affected by the land acquisition process. This date was communicated to all potential PAPs in the affected project area on 15 November 2021.

4.6.12 Community Engagement

The involvement of affected communities (PAPs) in RAP process prior to resettlement of communities is critical. The RAP team organized sensitization meetings with relevant Stakeholders in Ubungo sub wards during RAP preparation. Consultations with PAPs were conducted through meetings. The concerns of PAPs are taken into account and reflected in implementation plans. The stakeholder's engagement and consultations were conducted in accordance to the World Bank ESS specifically ESS10.

5.0 STAKEHOLDER'S CONSULTATION & PUBLIC PARTICIPATION

5.1 INTRODUCTION

This chapter describes stakeholders' involvement in this ESIA study for the proposed project in Ubungo Maziwa. This is because participation of stakeholders in any development project is a crucial element in achieving sustainability and success in project planning and eventual implementation. On the other hand, public participation was considered to be an important element of the proposed project. This is also in line with Section 89 of the Environmental Management Act (EMA, 2004) which provides directives on public participation issues and its importance in the EIA. EIA and Audit Regulation 17 (URT, 2005) provides further details and procedures for public participation in the EIA process.

Worth noting that an open discussion with the stakeholders minimizes the perceived potential environmental impacts. In return, public feedback becomes a useful input in improving the project design and environmental management. As such stakeholder identification and consultation process in the study was meant to provide more ideas and varied perspectives on the location and use of the proposed new depot station as well as the elements of the communities affected, and fair, ethical and transparent common vision on socio economic environment.

5.2 OBJECTIVES OF PUBLIC CONSULTATIONS

Stakeholders play a crucial role in project planning and management as well as in the success of the project. Stakeholders are those who can affect or may be affected by the project. Along with project- affected communities, it may include people from regulatory and planning authorities, businesses and strong interest academicians. Thus, the overall objective of public participation process in this study was to disseminate relevant project information and to consider the views of the stakeholders in the design of environmental and social mitigation measures for identified negative impacts related to the project implementation. The specific goals of the consultation process were to:

- i) Improve the preliminary design of the proposed project, thereby increasing acceptance and minimizing conflicts and delays at the time of final detailed design and implementation;
- ii) Improve institutional coordination.
- iii) Inform and disseminate relevant information about the project

The outcome of this consultation fed into the planning and design work by the consultant and into the effective implementation of the project by the involved parties (contractors, consultant, client and the local residents), as well as providing useful information across the wider policy development agenda.

5.3 STAKEHOLDER IDENTIFICATION AND CONSULTATION

Identification of stakeholders and stakeholder consultations are important to ensure that all their

concerns and expectations are taken into consideration in the decision-making process for equitable and sustainable development of the proposed project in Ubungo Maziwa Area. The World Bank Environmental and Social Framework (WB ESF) sets out the World Bank's commitment to sustainable development, through a Bank Policy and a set of Environmental and Social Standards (ESS) that are designed to support Borrowers' projects, with the aim of ending extreme poverty and promoting shared prosperity. For example ESS1 sets out the Borrower's responsibilities for assessing, managing and monitoring environmental and social risks and impacts associated with each stage of a project supported by the Bank. On the other hand, ESS5 recognizes that project-related land acquisition and restrictions on land use can have adverse impacts on communities and persons. In relation to stakeholder's engagement, ESS10 recognizes the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation.

The methodology for stakeholder's engagement is described in Table 5.1. In the preliminary phase, it was important to review secondary data and information on the proposed activity and those it may affect. The literature review helped to familiarize with the proposed project and the possible stakeholders.

Table 5.1: Methodology for Stakeholder Identification

Method	Description
Identify Stakeholders	This involves the process of identifying the people, groups, or organizations that could impact or be impacted by a decision, an activity, or an outcome of the project. It also involves analyzing and documenting relevant information regarding their interests, involvement, interdependencies, influence, and their potential impacts on project success.
Plan Stakeholder Management	This is the process of developing appropriate management strategies to effectively engage stakeholders throughout the project life cycle, based on the analysis of their needs, interests, and potential impacts on project success.
Manage Stakeholder Engagement	The process involves communicating and working with the stakeholders to meet their needs / expectations, address issues as they occur, and foster appropriate stakeholders' engagement in project activities throughout the project life cycle.
Control Stakeholder Engagement	The process is of monitoring the overall project stakeholder relationships and adjusting strategies and plans for engaging the stakeholders.

In this study various stakeholders participated. The consultation was carried out in November and December, 2022 as well as in January, 2023. The consultations involved various officials at Ubungo Municipal Council, Government agencies/ institutions, users of the proposed depot station and neighbours close to the proposed project location. The concerns of each stakeholder consulted have been addressed in this report. The following is a list of both institutional and individual identified and consulted stakeholders including the date of consultation.

STAKEHOLDERS	CONSULTATION DATE
Ubungo Municipal Council	23 rd November, 2022

Ubungo Ward	8 th November, 2022
Ward Executive Officer (WEO)	15 th November, 2022
Community Development Officer (CDO)	15 th November, 2022
Ubungo Kisiwani Mtaa	15 th November, 2022
Mtaa Executive Officer (MEO)	15 th November, 2022
Mtaa Chairperson	15 th November, 2022
Ten cell leaders	15 th November, 2022
Neighbours	15 th November, 2022
OSHA	16 th November, 2022
TANROADS	22 nd November, 2022
TANESCO	22 nd November, 2022
Traffic Police	24 th November, 2022
TARURA	3 rd January, 2023
Fire and Rescue Force	4 th January, 2023
EWURA	13 th December, 2022
TRC	16 th December, 2-22
TBS	20 th January, 2022
LATRA	3 rd January, 2023
Association of Traders at Ubungo Maziwa	25 th January, 2023
Drivers and Conductors Association of Shekilango – Ubungo	23 rd January 2023
Association of People with Disabilities (PwDs)	27 th January, 2023

The Stakeholders Engagement team (SET) was organized at two levels of consultation for purpose of preparing the Resettlement Action Plan. The first level was with respective Ward Executive Officers (WEO), Mitaa Executive Officer (MEO), Mitaa Chairperson and some public institutions that are situated within the project affected area. These meetings aimed at introducing the project and the census and inventory of assets surveys. The second level was with representative PAPs at community level to introduce the project and explain the RAP preparation process.

The identification of PAPs was done in line with following process:

- Mitaa leaders were informed about the study in advance before commencement of survey 15th November 2021;
- The SET worked with Mitaa leadership/committees to inform the PAPs that data collection will be carried out in their area.
- Survey Team requested Mitaa leaders to nominate members to help them in identification of land, properties and owners;
- The Mitaa members committee assisted to identify land and asset owners. This was followed by interviews, firstly for the asset valuers followed by the enumerators with a Census form and/or a Socio-Economic questionnaire.
- Mitaa leaders were also used to identify Vulnerable families including those under TASAF programs.

5.4 CONSULTATION PROCESS

Public/Stakeholders' consultations are imperative to understand the different dimensions of their

concerns, interests and advice pertaining to the project. Stakeholders were involved through consultations and interview meetings. This was to ensure that issues and concerns with regard to the proposed project and the potential contribution to cumulative and overall impacts are identified and included in the assessment process. The consultations included personal interviews, one to one meeting, and focused group discussions (FGDs), all of which helped in determining the issues of the participants and their appropriate possible solutions. Figure 5.1 is the flowchart diagram showing consultation plan.

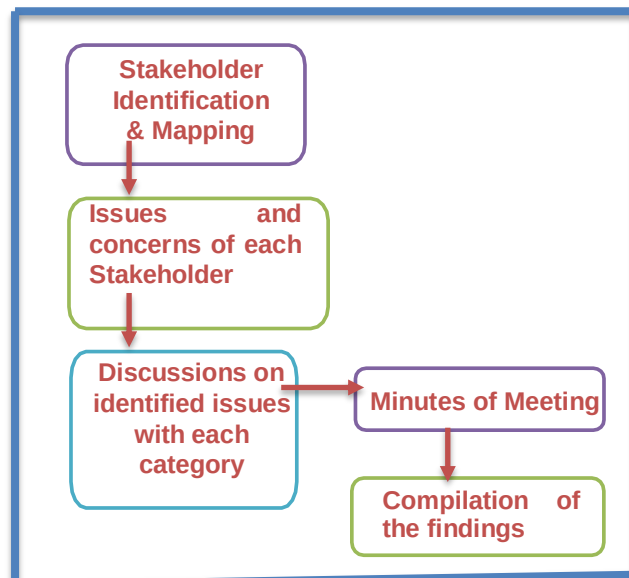


Figure 5.1: Flowchart of Consultation Plan

As per the scope of work, several one to one meetings were conducted in order to interact with government bodies and other project affected entities between November and December 2022. Consultation were also made in January, 2023. Information and concerns gathered through participation process are summarized in Table 5.2, while details of the stakeholders contacted including names and contacts are presented in this report as **Appendix 1**. Plate 5.1 indicate selected images as captured during a consultation meetings. Additional photos are presented in **Appendix 2**. On the other hand, minutes of consultation meetings are attached in this report as **Appendix 3**.



Plate 5.1: Consultation meeting with the local government leaders and community members (photo taken in December 2022 during field work for this assignment)

5.5 ISSUES GATHERED FROM CONSULTATIONS WITH THE STAKEHOLDERS

The main issues and concerns identified and gathered during scoping include the following:

- The proposed project will benefit the community by bringing employment opportunities, improvement of infrastructure and businesses around the areas.
- All necessary permits should be obtained for the project implementation to ensure smooth project implementation.
- The project's infrastructure should not affect the existing neighboring infrastructure (such as drainage system, transmission lines and water pipes) unnecessarily and if they would be affected and may require shifting, responsible authorities should be contacted.
- The neighboring community should be made aware of and participate in the project. This will help create employment and also increase security for project facilities.
- The project may result in air pollution from dust and exhaust emissions during project implementation phases.
- The PAPs will be fairly compensated and on time.
- The project may result in increased number of pregnancies to young women and fatherless children during and after the project's construction phase.
- Increased road accidents.
- Employment opportunities should be prioritized for youths especially non-skilled labor in the project area.
- The project shall help reduce crime resulting from unemployment.
- There should be enough toilets to serve the depot users to avoid open urination and defecation.
- The project should be undertaken on schedule.
- Noise pollution from the project activities should be managed.
- There will be disturbance due to frequent movement of vehicles especially during construction and operation phases. These vehicles can cause congestion and traffic jam.
- During operation there is a likelihood of additional bus traffic
- Waste especially wastewater should be managed properly in all project stages.
- The proponent should make sure that the project designs are brought to TANROADS for Review so that he can be advised accordingly. This will ensure traffic flow is not interrupted.
- The proposed project does not affect the high-tension lines that are close by. This is for both double and single circuits of 132kV overhead lines. There are no underground cables in the proposed project site.
- During the pre-construction phase, the proponent should communicate with the manager to request for demobilization of meters and poles. This will also make sure the PAPs are not in debt with TANESCO. If they are, they will have to pay immediately before relocation.
- The proponent should consult PAET to check if there are any gas pipes belonging to them that can be affected.
- The current entrance and exit of the CNG should not be blocked by the ongoing project activities.
- The project may not cause any traffic issues if all the road rules are followed.
- There needs to be posts/signage showing traffic movement. This should be done by the right personnel.

- The interaction of the roads between BRT road and other roads at Ubungo (the area where the BRT buses come from the depot along the Simu 2000 road) is one of the causes of accidents, hence precautions should be taken in order to reduce these accidents.
- The proponent should communicate with TARURA to request use of roads during construction and later the upgrade of the road to be used by BRT. This is because there will be heavy duty vehicles that will be using the road to transport construction material.
- Liaise with TARURA for advice on the right of way and the capacity of roads. This will involve bringing the road designs to be checked for further discussions and approval.
- Ensure the project is registered through www.wims.osha.go.tz as per OHS Act.
- The proponent should ensure adherence to all the safety precautions before, during and after construction.
- Ensure there is a first aid kit on construction site as per Section 58 of OHS Act.
- Allocate and mark all safety signs and emergency assembly point at the workplace. Posting the emergency escape layout drawings on conspicuous points as per Section 95 of OHS Act.
- Establish OSHA file to keep all documents and must be mobile all the time at the workplace as per Section 90 of OHS Act.
- Oil separators should be used in order for Hydrocarbons not to pollute water (underground and receiving bodies) downstream.
- Concerns from the community members of Ubungo Kisiwani should be taken into consideration and implemented.
- The area where the natural gas pipeline will be affected by this project, the proponent should reallocate the pipeline. This must be included in the design stage. Ubungo - Mikocheni natural gas pipeline supplies gas to 6 industries located at Mikocheni, institutions and households at UDSM, Sinza, Mlalakuwa and Mikocheni. Therefore, early discussions and consultations need to be done between DART, the contractor and TPDC to ensure effects are minimized. Costs for reallocation of natural gas pipeline will have to be incurred by DART.
- The proponent should apply for construction approval and license as stated in section 126 and 131 of the Petroleum Act, 2015 respectively.
- The existing road is along railway reserve according to railway proposed zone. The project will infringe the alignment of Ubungo side that is planned to be extended towards BRT alignment so as to serve more customers from that area. Therefore, the draft design of the project should be shared with TRC before the commencement of the project construction.
- There should be a proper fire protection plan for the proposed project.
- Architectural drawings should be brought for fire safety and security compliance assessment to protect against fire accidents hence be approved for fire equipment and safety of users. A full report shall be provided to the client concerning the proposed project.
- The proponent is requested to put shop frames on the side of the Ubungo Maziwa road so that the current traders may be able to rent and continue with their business to reduce the impact of relocation and loss of customers.
- The proponent should ensure the traders who have the right to be compensated are rightfully compensated to avoid unnecessary grievances.
- The proponent should ensure that the gas that will be supplied has an acceptable quality for use by vehicles and that it is handled properly to avoid explosions/emissions that may

lead to environmental pollution and effect on the surrounding community. This should also apply for all other materials which will be used in all project phases.

- Any emissions (air and noise) during all project phases should be within the acceptable standards and proper mitigation measure should be in place in case they exceed limits.
- Daladallas will be reduced hence many drivers, conductors and owners will be affected by the project.
- The infrastructure in the proposed depot should suit the nature of the area. Avoid copying from other countries.
- There is a need for proper planning to ensure that the project is completed on time.
- The proponent should consider hiring PwDs in different phases of the project

5.6 SUMMARY OF THE KEY ISSUES AS CAPTURED FROM STAKEHOLDERS AND FGD

The key areas for which views and concern were given by the stakeholders include: (i) anticipated project benefits and perception, (ii) Necessity of obtaining construction permits and consultation with relevant authorities as well as need for necessary approvals prior to commencement of the project, (iii) concerns on the PAPs compensations, (iv) the need to creating awareness on the neighboring community and participation in the project, (v) Social Impacts on community including increased number of pregnancies and single mother, (vii) Environmental pollution from dust/air/noise/vibration and exhaust emissions during project implementation phases, (vi) Traffic jam and Possible Road accidents and Traffic jam and Possible Road accidents and Impacts and disturbances due to movement of vehicles and machines. Table 5.2, presents a summary of a broad issues as presented by the key project stakeholders, while Table 5.3 present issues from individual stakeholders and response to comments in the ESIA report. The proponent commits to ensuring that all the views will be taken into consideration in the process of execution of this assignment.

Table 5.2: Consolidation of the key issues and response by stakeholders

Broad Issues/areas of concern	Association of People with Disabilities	Drivers and Conductors Association of Shekilango (DCAS)	Association of Traders and Business Owners – Ubungu	Land Transport Regulatory Authority (LATRA)	Tanzania Petroleum Development Corporation (TPDC)	Energy and Water Utility Regulatory Authority (EWURA)	Fire and Rescue Force	Tanzania Railways Company (TRC)
Project Benefits and perception	- The proposed project is beneficial since it will greatly contribute to the transport sector by expanding its and hence infrastructure hence improve services. - The proponent should consider hiring PwDs in different phases of the project where they see may fit so that they are not left out in the country's development activities and be able earn a living.	The proposed project is beneficial since it will create employment opportunities.	- The proposed project is good since it contributes to the city's as well as country's development. - The proponent is requested to put shop frames on the side of the Ubungu Maziwa road so that the current traders may be able to rent and continue with their business to reduce the impact of relocation and loss of customers.	The proposed project is beneficial since the buses will have a proper modern depot and hence upgrading the transport sector.		The project is beneficial since it will increase and make it easy for gas supply and usage by the buses.		
Necessity of the construction permits and consultation with relevant authorities as well as need for necessary approvals prior to commencement of the project				The proposed road to be used as entry and exit seems narrow, hence consider expansion. Since this will make it hard for PAET CNG Station customers to access the station and their number will keep on increasing with time. TRC and DART should look into the possibility of working together	Since there will be a CNG station in the depot, TPDC must be consulted before the completion of the designs and project commencement. The area where the natural gas pipeline will be affected by this, project, DART should reallocate the pipeline. This must be included in the design stage. Ubungu - Mikocheni natural	- The proponent should apply for construction approval and license as stated in section 126 and 131 of the Petroleum Act, 2015 respectively. - The proponent should apply for construction approval and license as stated in section 126 and 131 of the Petroleum Act, 2015 respectively	- The contractor must have a certificate of fire compliance which is current. - Consult the Fire and Rescue Force on the required firefighting equipment. - Architectural drawings should be brought for fire safety and security compliance assessment to protect against fire accidents hence be approved for fire equipment and safety of users. A full report shall be provided to the client concerning the proposed project. - The hired contractor for installation of fire equipment shall consult Fire and Rescue	- There is no reserved land that belongs to TRC other than the project being adjacent to railway line. Therefore, the railway line should not be affected during project implementation. - The existing road is along railway reserve according to railway proposed zone. The project will infringe the alignment of Ubungu siding that is planned to be extended towards BRT alignment so as to serve more customers from that area. Therefore, the draft

Broad Issues/areas of concern	Association of People with Disabilities	Drivers and Conductors Association of Shekilango (DCAS)	Association of Traders and Business Owners – Ubungu	Land Transport Regulatory Authority (LATRA)	Tanzania Petroleum Development Corporation (TPDC)	Energy and Water Utility Regulatory Authority (EWURA)	Fire and Rescue Force	Tanzania Railways Company (TRC)
				and synergize about the co-existence since both projects are beneficial especially for the transport sector.	gas pipeline supplies gas to 6 industries located at Mikocheni, institutions and households at UDSM, Sinza, Mlalakuwa and Mikocheni. Therefore, early discussions and consultations need to be done between DART, the contractor and TPDC to ensure effects are minimized. ▪ DART should ensure that TPDC is consulted where necessary at any project stage to ensure its smooth undertaking just like other stakeholders will be.		Force from beginning of the installation process to the commissioning stage. ▪ Fire and rescue force demanded that the proponent should consult the Force on the required firefighting equipment. and that fire and rescue deigns should be brought to the force for fire safety and security compliance assessment before implementation ▪ After installation, depot inspection has to be done by force to check if it is well installed and complies with their safety.	design of the project should be shared with TRC before the commencement of the project construction. ▪ The existing road from Morogoro road towards platform is also used by natural gas filling station and warehouse as their main access. The proponent should ensure proper design of stormwater drainage system in the proposed project area.
PAPs Compensation	Business owners that are currently in the proposed project site will be affected since they will have to relocate and find new customers.	▪ The PAPs should be well compensated and at the right time.	The proponent should ensure the traders who have the right to be compensated are rightfully done so to avoid unnecessary grievances					
Awareness of the neighboring community and		▪ The proposed project should ensure that the	During consultations, traders asked that					

Broad Issues/areas of concern	Association of People with Disabilities	Drivers and Conductors Association of Shekilango (DCAS)	Association of Traders and Business Owners – Ubungu	Land Transport Regulatory Authority (LATRA)	Tanzania Petroleum Development Corporation (TPDC)	Energy and Water Regulatory Authority (EWURA)	Fire and Rescue Force	Tanzania Railways Company (TRC)
participation in the project		community nearby is aware of the proposed project activities and education on and proper protective measures against impacts such as noise and dust possible impacts from natural gas are provided. There needs to be transparency in all project phase.	the proponent should ensure everyone who is affected either directly and indirectly is aware of the proposed project and know how they can be involved. Also, they need to know how they will be compensated due to the losses they will incur both owners and their tenants. A number of consultative, awareness creation and sensitization meetings have been conducted with the local leaders and the community members in the project area have been carried out both during ESIA and RAP preparation process					
Social Impacts on community including increased number	Business owners that are currently in the proposed project site will be affected since they will have to relocate and find new customers.		The traders in the proposed project area will be affected since they will have to relocate and find					

Broad Issues/areas of concern	Association of People with Disabilities	Drivers and Conductors Association of Shekilango (DCAS)	Association of Traders and Business Owners – Ubungu	Land Transport Regulatory Authority (LATRA)	Tanzania Petroleum Development Corporation (TPDC)	Energy and Water Utility Regulatory Authority (EWURA)	Fire and Rescue Force	Tanzania Railways Company (TRC)
of pregnancies and single mother			new customers where they go. - During consultations the traders asked that the proponent should put shop frames on the side of the Ubungu Maziwa road so that the current traders may be able to rent and continue with their business to reduce the impact of relocation and loss of customers. - The traders also asked that the proponent should ensure the traders who have the right to be compensated are rightfully done so to avoid unnecessary grievances. .Also the proponent should ensure everyone who is affected either directly and indirectly is aware of the proposed project and know how they can be involved.					

Broad Issues/areas of concern	Association of People with Disabilities	Drivers and Conductors Association of Shekilango (DCAS)	Association of Traders and Business Owners – Ubungu	Land Transport Regulatory Authority (LATRA)	Tanzania Petroleum Development Corporation (TPDC)	Energy and Water Utility Regulatory Authority (EWURA)	Fire and Rescue Force	Tanzania Railways Company (TRC)
Environmental pollution from dust/air/noise/vibration and exhaust emissions during project implementation phases	The proposed project may result to noise and dust during construction though it is temporary, but there needs to be proper mitigation measures to minimize their impacts to the community.				All safety issues should be considered so as to avoid any hazards/risks during all project phases especially when handling gas and its infrastructure, that may lead to accidents causing harm to people and property.			Environmental aspects i.e., air pollution, noise and vibrations should adhere to permissible standards.
Traffic jam and Possible Road accidents and Impacts and disturbances due to movement of vehicles and machines				The proposed road to be used as entry and exit seems narrow, hence consider expansion. Since this will make it hard for PAN AFRICAN CNG Station customers to access the station and their number will keep on increasing with time.				The proponent should write a letter to TARURA to request use of roads during construction and later the upgrade of the road to be used by BRT. This is because there will be heavy duty vehicles that will be using the road to transport construction material.

Table 5.2: Consolidation of the key issues and response by stakeholders (continued)

Focus group Area	UMC and the local communities	OSHA	Traffic Police - Urafiki	TARURA	TANROADS-
Necessity of the construction permits and consultation with relevant authorities		- Ensure the project is registered through www.wims.osha.go.tz as per OHS Act.	The proponent should write a letter to TARURA to request use of roads during construction and later the upgrade of the road to be used by BRT.		The proponent should make sure that the project designs are brought to TANROADS for Review and be advised accordingly.

Focus group Area	UMC and the local communities	OSHA	Traffic Police - Urafiki	TARURA	TANROADS-
Traffic jam and Possible Road accidents and Impacts and disturbances due to movement of vehicles and machines			▪ The project may not cause any traffic issues if all the road rules are followed. ▪ There needs to be posts/signs showing the directions on the floor of the road and it should be done by the right personnel. ▪ The interaction of the roads between BRT road and other roads at Ubungo (the area where the BRT buses come from their depot along the Simu 2000 road) is one of the causes of accidents, hence precautions should be taken in order to reduce these accidents. ▪ The project will not cause any traffic issues if all the road rules are followed. ▪ There needs to be posts/signs showing the directions on the floor of the road and it should be done by the right personnel. ▪ The intersection of the roads between BRT road and other roads at Ubungo (the area where the BRT buses come from their depot along the Simu 2000 road) is one of the causes of accidents, hence precautions should be taken in order to reduce these accidents.	▪ The proponent should write a letter to TARURA to request use of roads during construction and later the upgrade of the road to be used by BRT. This is because there will be heavy duty vehicles that will be using the road to transport construction material.	
Need for necessary approvals prior to commencement of the project		▪ Ensure the project is registered through www.wims.osha.go.tz as per OHS Act.		▪ The proponent should write a letter to TARURA to request use of roads during construction and later the upgrade of the road to be used by BRT. This is because there will be heavy duty vehicles that will be using the road to transport construction material. ▪ Liaise with TARURA for advice on the right of way and the capacity of roads	

Focus group Area	UMC and the local communities	OSHA	Traffic Police - Urafiki	TARURA	TANROADS-
				and this will involve bringing the road designs to checked for further discussions and approval	
Environmental pollution from dust/air/noise/vibration and exhaust emissions during project implementation phases	▪ The project may result in air pollution from dust and exhaust emissions produced in all project phases. ▪ Noise pollution from the project activities should be properly managed.	▪ The proponent should conduct OHS Risk assessment and present its report to OSHA as per Section 62 of OHS Act. ▪ The proponent should conduct periodic medical examination for employees as per Section 24 of OHS Act. ▪ Prepare and display Occupational Health and Safety Policy and display it to the conspicuous area as per Section 96 of OHS Act. ▪ Ensure the workers are provided with proper personal protective equipment in all project phases as per Section 60 of OHS Act. ▪ Report at OSHA any incident, accident or any occupational diseases that will be raised at the workplace as per Section 101 of OHS Act.			
Project Benefits and perception	▪ The proposed project is beneficial for the society and the government ▪ It will help to create employment and also increase security for project facilities ▪ The project shall benefit the community by bringing employment opportunities, improvement of infrastructure, scenery and businesses around the areas. ▪ Employment opportunities should be prioritized for youths especially non-skilled labor in the area (Ubungu). ▪ The project shall help reduce crime resulting from unemployment. ▪ The project should be undertaken on schedule.				

Focus group Area	UMC and the local communities	OSHA	Traffic Police - Urafiki	TARURA	TANROADS-
Awareness of the neighboring community and participation in the project	The project's infrastructure should not affect the existing neighboring infrastructure (such as drainage system, transmission lines and water pipes) unnecessarily and if they would be affected and may require shifting, responsible authorities should be contacted. The neighboring community has been made aware of and possibly to participate in the project. This will help create employment and also increase security for project facilities. Details of community consultation meetings are presented in appendices, 1,2,3. Concerns from the community members in Ubungo Kisiwani will be taken into consideration and implemented.				
PAPs Compensation	People who are occupying the proposed project site should be well compensated on time.				
Social Impacts on community including increased number of pregnancies and single mother	Increased number of pregnancies to young women and fatherless children during and after the project's construction phase.				

Table 5.3: Issues Response from the Stakeholders' Consultation Interviews and Group meetings

NAME	ORGANIZATION/INSTITUTION	POSITION	ISSUES/COMMENTS RAISED BY STAKEHOLDERS	RESPONSE ON THE RAISED NEGATIVE	Date/location/number of participants
Eng. Alex Masatu	Ubungo Municipal Council	Acting Municipal Engineer	- The proposed project is beneficial. - All necessary permits should be obtained for the project implementation to ensure smooth undertaking. - The project's infrastructure should not affect the existing neighboring infrastructure (such as drainage system, transmission lines and water pipes) unnecessarily and if they would be affected and may require shifting, responsible authorities should be contacted. - The neighboring community should be made aware of and possibly participate in the project. This will help create employment and also increase security for project facilities.	Project negative impacts have been identified and are presented in this ESIA report. The necessary mitigation measures including environmental monitoring have also been recommended. The need for recruitment of labors from the project area as well as emphasis on equal opportunity for all including vulnerable groups is key consideration for which the proponent commits to adhered to	Location: Ubungo municipal council Date: 23.11.2022 Number of participants:1

NAME	ORGANIZATION/INSTITUTION	POSITION	ISSUES/COMMENTS RAISED BY STAKEHOLDERS	RESPONSE ON THE RAISED NEGATIVE	Date/location/number of participants
- Anna Laurent Kitutu - Elizabeth Albini - Faraja Sika - Zainabu M. Shizi - Jovin M. Ndimbo - Maida Aboud - Aisha B. Msuya - Vitus Ngairo - Shani Hassan Chekwa - Happiness Michaeli Lyimo - Sarah Kamanga - Elasto John - Joseph Ng'ombe - Andrew Chipite - Josephat M. Mwingira	Ubungo Municipal Council Ubungo Ward Ubungo Kisiwani Mtaa	- EMO - WEO - CDO - MEO - Chairperson - Ten-cell leader - Ten-cell leader - Assistant ten cell leader - Ten-cell leader, - Resident and Neighbors	- The project shall benefit the community by bringing employment opportunities, improvement of infrastructure, scenery and businesses around the areas. - The project may result in air pollution from dust and exhaust emissions produced in all project phases. - People who are occupying the proposed project site should be well compensated on time. - Increased number of pregnancies to young women and fatherless children during and after the project's construction phase. - Increased road accidents. - Employment opportunities should be prioritized for youths especially non-skilled labor in the area (Ubungo). - The project shall help reduce crime resulting from unemployment. - There should be enough toilets to serve the depot users to avoid open urination and defecation. - The project should be undertaken on schedule. - Noise pollution from the project activities should be well managed. - Concerns from the community members of Ubungo Kisiwani should be taken into consideration and implemented.	- The recommendations presented in this ESIA report include the fact that water will be sprayed to suppress dust during project construction phase. - Covering of spoil materials at site to reduce dust/air pollution and protect the surrounding community has also been recommended in this ESIA report as part of mitigation measures for the identified project negative impacts. Valuable groups including youths and women will be given priority in the employment in the project area as also stipulated in this report. - Redocumentation on both solid and liquid waste management have been made and will be implemented during all project phase.	Location: Ubungo municipal council Date: 15.11.2022 Number of participants:16
Doris S. Senkondo	GIMCO Africa Ltd	Property Manager/ Neighbour	- The project is beneficial since it will bring development in the transport sector. - The project activities will result in dust and noise pollution. - There will be disturbance due to frequent movement of vehicles especially during construction and operation phases. These vehicles can cause congestion and jam.	- Proper and adequate air pollution mitigation measures as recommended in this ESIA report shall be put in place. - The proponent will make sure vehicles are well directed and traffic is managed through deployment of adequate signage. This recommendation is part of the mitigation measures presented in this ESIA report.	Location: GIMCO office premises Date: Number of participants:1
John Samwel	Pan-African Energy Tanzania (PAET)	Public Relations Manager/Neighbour	- The proponent should consult PAET to check if there are any gas pipes belonging to them that can be affected. - The current entrance and exit of the CNG should not be blocked by the ongoing project activities	- PAET is one of the key stakeholders and has been consulted in the course of undertaking this ESIA study. - Proper Design of the CGN station has been done, considering all operational safety procedures. The design of the CGN station is also discussed in this ESIA report	Location: PAET office premises Date: 16-01-2023 Number of participants:1

NAME	ORGANIZATION/INSTITUTION	POSITION	ISSUES/COMMENTS RAISED BY STAKEHOLDERS	RESPONSE ON THE RAISED NEGATIVE	Date/location/number of participants
Eng. Harun R. Senkuku	TANROADS-Dar es Salaam	Regional Manager	The proponent should make sure that the project designs are brought to TANROADS for Review and be advised accordingly. This will ensure traffic flow is not interrupted and if there are no issues the project will be allowed to go on.	The proponent commits to adopt all the necessary procedure in line with the regulations.	Location: TANROADS Regional office Date: 22-11-2022 Number of participants:1
Eng. Yared P. Ngalaba	TANESCO – Dar es Salaam	Regional Transmission lines Engineer (RTE)	- The proposed project does not affect the high-tension lines that are close by. This is for both double and single circuits of 132kV overhead lines. - There are no underground cables in the proposed project site. - During the pre-construction phase, the proponent should communicate with the TANESCO to plan for demobilization of meters and electric poles and to also make sure the PAPs have cleared debt with TANESCO.		Location: TANESCO regional office Date: 22-11-2022 Number of participants:1
Inspector Amina H. Said	Traffic Police - Urafiki	In charge	- The project may not cause any traffic issues if all the road rules are followed. - There needs to be posts/signs showing the directions on the floor of the road and it should be done by the right personnel. - The interaction of the roads between BRT road and other roads at Ubungu (the area where the BRT buses come from their depot along the Simu 2000 road) is one of the causes of accidents, hence precautions should be taken in order to reduce these accidents.	All necessary signs and posts will be adequately erected to ensure road safety.	Location: Traffic police office, Urafiki Date: 27-11-2022 Number of participants:1
Eng. Emmanuel Mwandumba	TARURA	Road Engineer	- The proponent should write a letter to TARURA to request use of roads during construction and later the upgrade of the road to be used by BRT. This is because there will be heavy duty vehicles that will be using the road to transport construction material. - All costs for the road upgrade should be covered by DART. - Liaise with TARURA for advice on the right of way and the capacity of roads and this will involve bringing the road designs to checked for further discussions and approval.		Location: TARURA Regional Office Date: 22.11.2022 Number of participants:1
Eng. Richard Mgambwa	OSHA	Inspector	- The proponent should ensure adherence to all the safety precautions before, during and after construction. - Ensure safe and clean drinking water is provided to the workers during all project phases as per Section 54 of OHS Act. - Ensure there is a first aid kit in the site as per Section 58 of OHS Act. - Ensure the project is registered through www.wims.osha.go.tz as per OHS Act. - The proponent should conduct OHS Risk assessment and present its report to OSHA as per Section 62 of OHS Act. - The proponent should conduct periodic medical examination for employees as per Section 24 of OHS Act.	- Safety is at the top of the proponent's priorities. Mitigation measure have been indicated in this ESIA report - Recommendations for proper water and wastewater management have been included in this report - Requirement for the adherence to all OSHA requirement are included the mitigation measures proposed for this project	Location: OSHA office premises Date: 16.11.2022 Number of participants:1

NAME	ORGANIZATION/INSTITUTION	POSITION	ISSUES/COMMENTS RAISED BY STAKEHOLDERS	RESPONSE ON THE RAISED NEGATIVE	Date/location/number of participants
			- Prepare and display Occupational Health and Safety Policy and display it to the conspicuous area as per Section 96 of OHS Act. - Ensure there is a proper changing room for workers with lockers as per Section 57 of OHS Act. - Ensure the workers are provided with proper personal protective equipment in all project phases as per Section 60 of OHS Act. - Prepare toilets of both sex and label them and provide with sanitary service facilities and make sure they are clean Section 55 of OHS Act. - Appoint and facilitate statutory training for IFAT (Industrial First Aid Training) and SHREP (Safety and Health Representative) conducted by OSHA as per Section 58 (3) of OSHS Act. - Allocate and mark all safety signs and emergency assembly point at the workplace. Posting the emergency escape layout drawings on conspicuous points as per Section 95 of OHS Act. - Report at OSHA any incident, accident or any occupational diseases that will be raised at your workplace as per Section 101 of OHS Act. - Establish OSHA file to keep all documents and must be mobile all the time at the workplace as per Section 90 of OHS Act. - Oil separators should be used in order for Hydrocarbons not to pollute water (underground and receiving bodies)		
Eng. James Mologosho	Energy and Water Utilities Regulatory Authority (EWURA)	P.E. Natural Gas Distribution and Supply	- The project is beneficial since it will increase and make it easy for gas supply for the buses. - The proponent should apply for construction approval and license as stated in section 126 and 131 of the Petroleum Act, 2015 respectively. - The proponent should have details on the link or tidging point of the existing infrastructure for accessing gas. - The compressors to be used in the CNG station must be compatible with the pressure of the transmission pipeline (high or low). - Dispensers which will be used should be appropriate for the either low of fast filling depending on the bus needs.	- All the recommendations have been discussed and mitigation measures for the native impacts are discussed in this report. - The proponent commits to ensuring that mitigation measures are implemented as recommended	Location::EWURA office premises Date: 13-12-2022 Number of participants;7
- Anna Maria Simon	Tanzania Petroleum Development Corporation (TPDC)	- Senior Environmental Management Officer - Engineer - Engineer - Engineer	- The proposed project's drawings must indicate the TPDC infrastructure (Pipelines and PRS station) that are located around the project area. - The project may affect the natural gas pipeline which is installed in a depth of 1.5m around the proposed project area. - Since there will be a CNG station in the depot, TPDC must be consulted before the completion of the designs and project commencement. This is to check if gas is available or not thus	The proponent will liaise with TPDC and make sure that this matter is handled appropriately. The proponent will ensure the safety matters are addressed as also discussed in the mitigation measures for the identified impacts in the ESIA study.	Location: TPDC office premises Date: 14-12-2022 Number of participants; 7

NAME	ORGANIZATION/INSTITUTION	POSITION	ISSUES/COMMENTS RAISED BY STAKEHOLDERS	RESPONSE ON THE RAISED NEGATIVE	Date/location/number of participants
- Eng. Aristides Katto - Eng. Dora Ernest - Eng. Angelindile Marandu - Eng. Denice Byarushengo			drawings must be brought to TPDC for scrutinization and synchronization. ▪ All safety issues should be considered so as to avoid any hazards/risks during all project phases especially when handling gas and its infrastructure, that may lead to accidents causing harm to people and property. ▪ The area where the natural gas pipeline will be affected by this, project, DART should reallocate the pipeline. This must be included in the design stage. Ubungo -Mikocheni natural gas pipeline supplies gas to 6 industries located at Mikocheni, institutions and households at UDSM, Sinza, Malakuwa and Mikocheni. Therefore, early discussions and consultations need to be done between DART, the contractor and TPDC to ensure effects are minimized. ▪ Costs for reallocation if natural gas pipeline will be incurred by DART. ▪ DART should ensure that TPDC is consulted where necessary at any project stage to ensure its smooth undertaking just like other stakeholders will be.	▪ The proponent will incur all the necessary costs for the affected infrastructure as a result of implementation of this project.	
Masanja K. Kadogosa	Tanzania Railways corporation (TRC)	Director General	▪ There is no reserved land that belongs to TRC other than the project being adjacent to railway line. Therefore, the railway line should not be affected during project implementation. ▪ The existing road is along railway reserve according to railway proposed zone. The project will infringe the alignment of Ubungo siding that is planned to be extended towards BRT alignment so as to serve more customers from that area. Therefore, the draft design of the project should be shared with TRC before the commencement of the project construction. ▪ The existing road from Morogoro road towards platform is also used by natural gas filling station and warehouse as their main access. ▪ The proponent should ensure proper design of stormwater drainage system in the proposed project area. ▪ Traffic management plan should be provided during construction phase and other alternative routes be sought. ▪ Environmental aspects i.e., air pollution, noise and vibrations should adhere to permissible standards. ▪ There should be counterpart personnel who will work on all crosscutting issues that may link TRC and DART. ▪ The existing road is located between plot number 7 and 8. The proponent is advised to buy/compensate a part of one plot either number 6 or 7 in order to fulfil project requirements.	▪ This has been considered during the design stage of the proposed Depot station. During consultations TRC also visited the site. The recommendations have been taken on board during the design ▪ The proponent will liaise with TRC and share project's final draft design to ensure the railway proposed zone is not affected and discuss co-existence. ▪ The proponent will make sure the effects from project activities are minimized to within the acceptable standards/permissible standards.	Location: TRC office premises Date: 16-12-2022 Number of participants; 1

NAME	ORGANIZATION/INSTITUTION	POSITION	ISSUES/COMMENTS RAISED BY STAKEHOLDERS	RESPONSE ON THE RAISED NEGATIVE	Date/location/number of participants
			For the purpose of defining the exact railway reserve boundary, there will be a need to conduct a cadastral survey whereby RTK instrument will be used.		
Geoffrey L. Silanda	Land Transport Regulatory Authority (LATRA)	Manager for Security, Coordination and Environment	- The proposed project is beneficial since the buses will have a proper modern depot and hence upgrading the transport sector. - The proposed road to be used as entry and exit seems narrow, hence consider expansion. Since this will make it hard for PAN AFRICAN CNG Station customers to access the station and their number will keep on increasing with time. - TRC and DART should look into the possibility of working together and synergize about the co-existence since both projects are beneficial especially for the transport sector.	- Positive - The proponent will take it into consideration. - The proponent will liaise with TRC to discuss on the possibility of co-existence.	Location: LATRA office premises Date: 03-01-2023 Number of participants; 1
Inspector Peter Mtui	Fire and Rescue Force	Compliance Officer	- There should be a proper fire protection plan for the proposed project. - The contractor must have a certificate of fire compliance which is current. - Consult the Fire and Rescue Force on the required firefighting equipment. - Architectural drawings should be brought for fire safety and security compliance assessment to protect against fire accidents hence be approved for fire equipment and safety of users. A full report shall be provided to the client concerning the proposed project. - The hired contractor for installation of fire equipment shall consult Fire and Rescue Force from beginning of the installation process to the commissioning stage. - After installation, depot inspection (includes tests) has to be done by fire to check if it is well installed and complies with their safety. - The depot should have enough number fire extinguishers which must be changed after they are expired.	Recommendation by the stakeholders on matters related to safety are upheld. The proponent shall make sure that proper procedures on fire safety and security will be followed. The same has also been stipulated in the impact mitigation section of this ESIA report	Location: Fire and rescue office premises Date: 04-01.2023 Number of participants;1
Jamilla Zaarh	TBS	Standards Officer	- The proponent should ensure that the gas that will be supplied has an acceptable quality for use by vehicles and that it is handles properly to avoid explosions/emissions that may lead to environmental pollution and affect the surrounding community. This should also apply for all other materials which will be used in all project phases. - Any emissions (air and noise) during all project phases should be within the acceptable standards and proper mitigation measure should be in place in case they exceed limits. - The proponent should ensure that the project adhere to the following standards to ensure that the environment and people are safe from hazards and pollution (i) TZS 845 – Air quality	TBS has been consulted in the course of undertaking this ESIA assignment. The proponent will make sure quality gas is supplied and other TBS and or internationally certified materials are used and all safety measures are taken into consideration to avoid any impacts as stipulated in this ESIA report.	Location: TBS office premises Date: 26-01-2023 Number of participants; 1

NAME	ORGANIZATION/INSTITUTION	POSITION	ISSUES/COMMENTS RAISED BY STAKEHOLDERS	RESPONSE ON THE RAISED NEGATIVE	Date/location/number of participants
			specification (2019), ii) TZS 750 – Tolerance limits for noxious gases and fumes (2015), iii) TZS 932 – General tolerance limits for environmental and occupational noise (2017), iv) TZS 1511 – Occupational health and safety management systems requirements v) TZS 1304 – Fire protection safety signs (2011), vi) TZS 860 – General tolerance limits for municipal and industrial wastewaters.		
- Alex Wingia Kimaro - Mary Abraham Sengoma - Paul Modest Mtey - Nyandwi Antony - Tadey F. Tairo - Jafar Aly - Hemed M. Bendera - Erick Yohana Mahimbo - Gift James - Adam Ally - Mwangasho Sudi	Association of Traders and Business Owners – Ubungo Maziwa at Kisiwani Mtaa	- Welder and mechanic - Hardware store owner - Welder - Tailor - Welder - Vehicle mechanic - Welder and mechanic - Welding machine repairer - Mechanic - Mechanic - Motor winder	▪ The proposed project is good since it contributes to the city's as well as country's development. ▪ Although, the traders in the proposed project area will be greatly affected since they will have to relocate and find new customers where they go. ▪ The proponent is requested to put shop frames on the side of the Ubungo Maziwa road so that the current traders may be able to rent and continue with their business to reduce the impact of relocation and loss of customers. ▪ The proponent should ensure the traders who have the right to be compensated are rightfully done so to avoid unnecessary grievances. ▪ The proponent should ensure everyone who is affected either directly and indirectly is aware of the proposed project and know how they can be involved. Also, they need to know how they will be compensated due to the losses they will incur both owners and their tenants.	▪ Identification of the PAPs has been made. The proponent is committed to ensuring that they are all compensated before resettlement ▪ Awareness campaigns have been recommended and will be carried out by the contractor under the project manager. ▪ The PAPs Have been identified are to be compensated prior to the commencement of the project	Location: ATBO office premises at Ubungo Kisiwani Date: 25.01.2023 Number of participants: 13
- Magulu Ally Selemani - Mohamedi Hamis Salumu - Kelvin John Seng'enge - Mharami Athuman Uhenga - Yusuph Saidi Chapa	Drivers and Conductors Association of Shekilango (DCAS) in Ubungo Ward	- Secretary, Deputy Secretary, Treasurer and other Members	▪ The proposed project is beneficial since it will create employment opportunities. ▪ The proposed project should ensure that the community nearby is aware of the proposed project activities and education on and proper protective measures against impacts such as noise and dust possible impacts from natural gas are provided. ▪ There needs to be transparency in all project phases. ▪ Daladala will be reduced hence many drivers, conductors and owners will be affected by the project. ▪ The infrastructure in the proposed depot should suit the nature of the area and not copy from other countries. ▪ The PAPs should be well compensated and at the right time. ▪ There needs to be a proper plan to ensure construction is completed on time.	Transparency: the proponent will ensure that all project documents are accessible in the project manager's office and that recruitment of staff will be open and transparent. The proponent will also make sure that the community is aware and protected against the identified project negative impacts. Mitigation measures for the identified negative impacts have also been presented in this ESIA document. These include for example water springing to suppress the dust as well minimizing noise to within the acceptable standards. The government through DART is also committed to ensuring that all PAPs are compensated before the commencement of works	Location: DCAS office premises in Ubungo ward Date: 27.01.2023 Number of participants: 9

NAME	ORGANIZATION/INSTITUTION	POSITION	ISSUES/COMMENTS RAISED BY STAKEHOLDERS	RESPONSE ON THE RAISED NEGATIVE	Date/location/number of participants
Neema Ibrahim Chizenga	Association of People with Disabilities (PwDs) – AKUHAMAWATA	Chairperson	▪ The proposed project is beneficial since it will greatly contribute to the transport sector by increasing its infrastructure hence improve services. ▪ The proponent should consider hiring PwDs in different phases of the project where they see may fit so that they are not left out in the country's development activities and be able earn a living. ▪ The proposed project may result to noise and dust during construction though it is temporary, but there needs to be proper mitigation measures to minimize their impacts to the community. ▪ Business owners that are currently in the proposed project site will be affected since they will have to relocate and find new customers.	▪ Hiring of local people in the project area including disadvantaged ground as well as emphasis on equal opportunities has been recommend in this ESIA report. The proponent is committed to adhering to this Proposed mitigation measures for air pollution including environmental monitoring during all project implementation phases has been recommended in this ESIA report	Location: AKUHAMATA office premise in Ubungo Date: 26-01-2023 Number of participants: 2

5.7 GENERAL COMMENTS ON STAKEHOLDERS' ISSUES AND CONCERNS

Information provided in Tables 5.2 and 5.3 and sections 5.5 and 5.6 indicate that many stakeholders are supportive of this project as it will improve transport and communication in Dar es Salaam city. The proposed project/depot will also open up business opportunities within and outside the project area. Moreover, the project will provide employment to the local people. Consultation with the stakeholders especially the local communities indicated the needs for awareness creation and fair compensation to all PAPS (section 5.4). Views expressed by the PAPS as presented in the RAP report include among others a request that the rates applied on valuation exercise should not be lower than market rates to enable PAPS purchase alternative land. PAPS also requested that payment should not be delayed. Generally, findings indicate that overall this project will have more positive than negative impacts. However, there shall be a need to enhance the identified positive impacts and minimize or mitigate the negative impacts as also detailed in this ESIA report.

6.0 IDENTIFICATION, ASSESSMENT OF IMPACTS AND ANALYSIS OF PROJECT ALTERNATIVES

6.1 INTRODUCTION

Two broad types of impacts are envisaged from this project; (1) Impacts associated with immediate area of project influence during construction and operation phases such as noise, dust, vibration, emissions etc. (2) impacts that are beyond immediate marginal zones of influence area such as borrow pits, improved trade, improved social interactions, health issues etc. The impacts will occur at various project phases including mobilisation, construction, demobilisation and operation.

6.2 IMPACT ASSESSMENT METHODOLOGY

The objective of impact assessment and mitigation measures is to identify and evaluate the significance of potential impacts on various environmental and social receptors according to a defined assessment criterion. This assessment helps in developing adequate measures so as to avoid or minimise any potential adverse effect, and thereby enhance the potential project benefits. The methodology for impact evaluation is depicted in Figure 6.1.

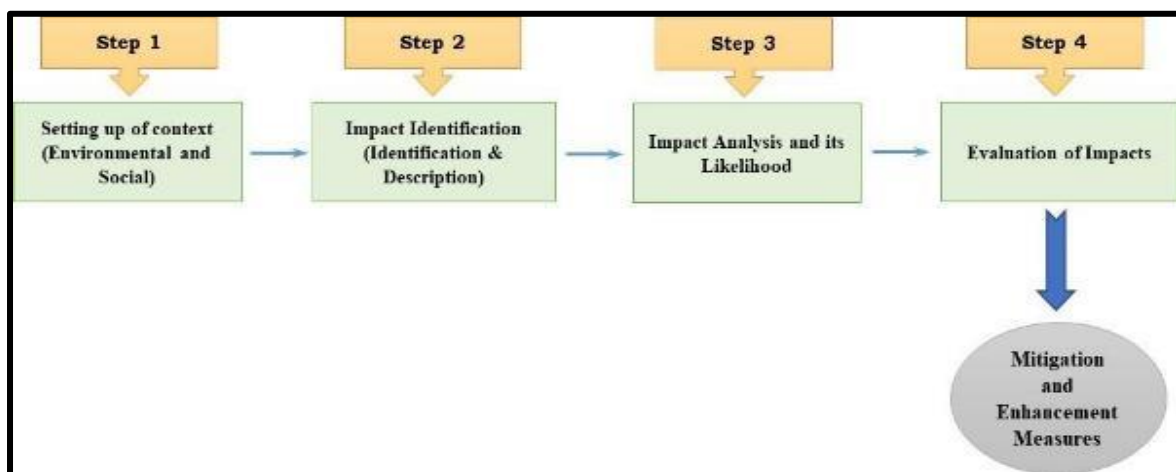


Figure 6.1 Methodology for Impact Evaluation

A number of 'tools' are available to assist in development projects impact identification. The most frequently used are checklists of impacts, although matrices, network diagrams and map overlays are also commonly used. In this ESIA study, a checklist and matrix methods were used. The checklists provide lists of potential impacts associated with specific activities. They provide a quick method of identifying the impacts and as such help also practitioners to avoid overlooking some of potential impacts associated with a particular activity.

6.3 ENVIRONMENTAL AND SOCIAL IMPACTS

6.3.1 Pre-construction/Mobilisation Phase Impacts

Environmental impacts

- ✚ Change in Original Land Use, Scenic and Visual Quality
- ✚ Solid waste generation
- ✚ Demolishing of existing residential and commercial/small business structures
- ✚ Potential soil contamination

Social Impacts

- ✚ Creation of Employment Opportunities
- ✚ Change in Original Land Use, Scenic and Visual Quality
- ✚ Anticipated and unavoidable adverse impacts on livelihoods for some affected households due to permanent land acquisition
- ✚ Demolishing of existing residential and commercial/small business structures

6.3.2 Impacts during Construction Phase

Environmental impacts

- ✚ Removal of vegetation
- ✚ Soil disturbance
- ✚ Vibration and noise pollution
- ✚ Poor Air Quality due to emissions and dust
- ✚ Solid and Liquid Waste Generation including hazardous waste
- ✚ Oil, Grease, Fuel spillage
- ✚ Risk to Health and Safety/ Occupational health and safety impacts
- ✚ Land scarring at borrow sites
- ✚ Increased Water Demand
- ✚ Construction and demolition waste
- ✚ Vehicles and equipment movement
- ✚ Traffic and transportation

Social Impacts

- ✚ Loss of business opportunities and petty trading within the project site
- ✚ Employment during Construction
- ✚ Improved Local Socio-economy
- ✚ Improved Government Revenue through collected Taxes
- ✚ Influx of work mongers
- ✚ Risk to diseases transmission
- ✚ Risk to Health and Safety/ Occupational health and safety impacts

6.3.3 Impacts during demobilization Phase

Environmental impacts

- ✚ Abandoned infrastructure

Social Impacts

- ✚ Loss of jobs and effects business opportunities in the project areas
- ✚ Loss of revenue to both the government and project proponent

6.3.4 Impacts during Operation Phase

Environmental impacts

- ✚ Traffic volume increase
- ✚ Hydrocarbon spillage
- ✚ Fire Risks
- ✚ Compressor explosion

- ✚ Contamination of water by Oil Interceptor
- ✚ Soil pollution
- ✚ Occupational safety and health impacts
- ✚ Solid waste generation

Social Impacts

- ✚ Employment creation
- ✚ Improved Local Socio-economy
- ✚ Land take and resettlement of the PAPs
- ✚ Improved Government Revenue through collected Taxes

6.3.5 Mitigation measures

Details of the mitigation measures are discussed in sections 6.5 to 6.8 as well as in the Emergency response plan which is attached in this report as appendix 5 which also indicate specific measures in relation to the following:

- (i) Procedure in case of odorant (ethyl mercaptan) spillage
- (ii) Actions to be taken in case of fire to ethyl mercaptan
- (iii) Actions to be taken in case of escape of gas or fire on depot facility
- (iv) Actions to be taken in case of escape of gas or fire on the gas connection installation
- (v) Actions to be taken in case of fire on the pipeline connection installation
- (vi) Actions to be taken in case of huge used oil spillage
- (vii) Pipeline ng emergency procedures in case of pe leakage
- (viii) Procedure in case of steel line leakage
- (ix) Actions to be taken in case of fire within the station

6.4 IMPACTS EVALUATION

Identification of impacts was followed by prediction or estimation of the magnitude, extent and duration of the impact in comparison with the situation without that project. The matrix method was used (Table 6.1). To be able to predict whether or not impacts are likely to occur as well as their scale, the initial reference or baseline data prior to the project was determined, and the future changes forecasted with or without the proposed project. The impact evaluation was based on experts' knowledge as well as checklists. The significance of impacts was tested using the following criteria:

- The magnitude and likelihood of the impact and its spatial and temporal extent;
- The likely degree of recovery of the affected environment;
- The value of the affected environment;
- The level of public concern;
- Are extensive over space and time (magnitude)
- Are they intensive in concentration or in proportion to assimilative capacity;
- Exceed environmental standards or thresholds
- Do not comply with environmental policies, land use plans, sustainability strategy;
- Adversely and seriously affect ecologically sensitive areas;

The impacts were further rated at a scale of “-3” to “+3” through “0” in the following manner;

+3	High positive impact
+2	Moderate positive impact
+1	Minor positive impact
0	No impacts
-1	Minor negative impact
-2	Moderate negative impact
-3	High negative impacts

The environmental impact assessment team focused on significant positive and negative impacts that were rated -2, -3, +2, +3 and proposed mitigation measures for the negative impacts are in ESMP section of the report.

Table 6.1 presents impact correlation matrix for the proposed project during different Phases of its implementation. Details related to the evaluation of the impacts are discussed in the next section.

Table 6.1: Impact Correlation Matrix For The Proposed Project In Different Phases

PARAMETER/ACTIVITIES	MOBILIZATION AND CONSTRUCTION PHASE											DEMOMOBILIZATION PHASE			OPERATION PHASE			
	Land acquisition and Resettlement	Procuring the contractor and construction supervision staff	Putting up a site office and other temporary structures	Site clearance and removal of vegetation around the project site	Demolishing of existing structures and removal of debris (solid wastes)	Vehicle movement and other Equipment mobilization and operation	Transportation of materials to the site	Setting out of the proposed buildings and other structures	Excavation and concreting of foundation	Backfilling and disposal of overburden materials	Construction of the sub and superstructure	Disposal of any remaining unwanted materials	Termination of Temporary employment	Worksite restoration	Operation of the proposed facilities	Facilities Maintenance works	Solid and Liquid waste handling and management	Removal of temporary Structure
Benefits to communities resulting from employment and other economic activities linked to the project	0	+1	+2	+2	+2	+1	+1	+2	+3	+1	+3	+1	0	+1	+3	+1	+1	+1
Change in original land use, scenic and visual quality	+2	0	0	+1	+2	0	0	+1	+1	0	+1	0	0	+1	+2	0	0	0
Loss of business and livelihood opportunities	-2	0	-1	-1	-2	0	0	0	0	0	-1	0	0	0	0	0	0	0
Improved local social economic	+1	0	+1	+1	0	0	+1	+1	+1	+1	+2	+1	-1	0	+3	+1	0	0
Influx of job mongers	0	-1	-1	-2	-1	-1	-1	-2	-2	-1	-2	0	0	0	0	0	0	-1
Improved government revenue through collection of taxes	0	0	0	0	0	0	0	0	+1	0	+2	0	0	0	+3	0	0	0
Vibration and noise pollution	0	-1	-2	-1	-3	0	-2	-1	-2	0	-2	0	0	-1	-1	0	0	-1
Poor air quality due to emission of dust	0	0	-2	-2	-2	-1	-2	-2	-2	-1	-2	-1	0	-1	-1	0	0	-1
Solid waste generation	0	0	-1	-1	-2	0	-1	0	-1	0	-2	0	0	0	-2	-1	0	-1
Liquid waste generation	0	0	-1	0	0	0	0	0	0	0	-2	0	0	0	-2	-1	0	0
Soil Erosion and Change in Local Hydrology	0	0	-1	-1	-1	0	0	0	-1	0	-1	0	0	0	0	0	0	0
Oil, grease and fuel spillage	0	0	-1	-1	-2	0	-1	0	-2	0	-2	0	0	0	-2	0	-1	-1
Risks to diseases transmission including HIV/AIDS	0	0	-1	-1	0	0	0	-1	-2	-1	-2	0	0	0	0	0	0	0
Risk to health and safety	0	0	0	0	-1	0	0	0	-1	-1	-1	0	0	-1	-2	0	0	0
Land scaring at Borrow pit sits	0	0	0	0	0	0	0	0	0	-1	-2	0	0	0	-1	0	0	0
Soil and water pollution	0	0	0	-1	-1	0	0	0	-1	-1	-1	-1	0	0	0	0	-1	0
Construction related risks and accidents	0	0	0	0	0	0	0	0	-1	0	-1	0	0	0	0	0	0	0

PARAMETER/ACTIVITIES	MOBILIZATION AND CONSTRUCTION PHASE											DEMOBILIZATION PHASE			OPERATION PHASE			
	Land acquisition and Resettlement	Procuring the contractor and construction supervision staff	Putting up a site office and other temporary structures	Site clearance and removal of vegetation around the project site	Demolishing of existing structures and removal of debris (solid wastes)	Vehicle movement and other Equipment mobilization and operation	Transportation of materials to the site	Setting out of the proposed buildings and other structures	Excavation and concreting of foundation	Backfilling and disposal of overburden materials	Construction of the sub and superstructure	Disposal of any remaining unwanted materials	Termination of Temporary employment	Worksite restoration	Operation of the proposed facilities	Facilities Maintenance works	Solid and Liquid waste handling and management	Removal of temporary Structure
Traffic volume increase	0	0	0	0	0	-1	-1	0	0	0	0	0	0	0	-1	0	0	0
Demolition and construction waste	0	0	-1	-2	-3	0	0	-1	-1	0	-1	0	0	0	0	0	0	-1
Increased pressure on utilities	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	0
Increased water Demand	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	-1	0	0	0
Loss of jobs and revenue to government	0	0	0	0	0	0	0	0	0	0	0	-1	-1	0	0	0	0	0
Contamination of water by Oil Interceptor	0	0	0	0	-1	-1	-1	0	0	0	-1	0	0	0	-1	-1	0	0
Hydrocarbon spillage	0	0	0	0	-1	-1	-1	0	-1	0	-2	0	0	-1	-2	-1	0	0
Possible Fire accidents	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	-1	0	0	0
Damage or Disruption of Utility Lines and Existing Services	0	0	-1	0	-1	0	0	-1	-1	0	-1	0	0	0	0	0	0	0

6.4.1 Assessing the Significance of Impacts

Impacts can also be described in terms of their 'significance', which depends upon the magnitude or the likelihood of the impact occurring. Each of these terminologies are explained in section below.

- **Intensity:** Impact intensity shows the relative significance of consequences attributable to the observed alteration of a component. It complies with the social and ecological values of the component along with an anticipated disturbance degree of it. Accordingly, intensity is expressed as:
 - ✚ *Negligible* - An impact is negligible when it is not detectable in the environment. In case of social environment, it can be understood that no perceptible change to people's livelihood would occur with the impact.
 - ✚ *Low*: When the impact affects environment in such a way that natural functions and processes are not affected, it is expressed as low. In a socio-economic environment, people/communities can adapt with relative ease and maintain pre-impact livelihoods.
 - ✚ *Medium*: When the affected environment is altered, but natural functions and processes continue in a modified manner, the impact is said to be 'medium' In terms of social receptors, people/ communities can adapt with some difficulty and maintain pre-impact livelihoods but only with a degree of support.
 - ✚ *High*: When natural functions or processes are altered to an extent that they will temporarily or permanently cease, then the impact is called as 'high' For social component, this means the affected people/communities will not be able to adapt to changes, or continue to maintain pre-impact livelihoods.
- **Extent:** Impact extent describes the range or spatial coverage of the effects generated by implementation of intervention on-site. This concept refers either to a distance or surface over which the observed modifications may be felt by a component or else by the proportion of population being touched by these modifications. It is determined by the below expressions:
 - ✚ *On-site*: Impacts that are limited to the boundaries of the development site.
 - ✚ *Local*: Impacts that affect an area in a radius of 2 – 3 km around the development site.
 - ✚ *Regional*: Impacts that affect regionally important environmental resources or are experienced at a regional scale, in a radius of 4 -6 km around project site, as determined by administrative boundaries, habitat type/ecosystem.
 - ✚ *National*: Impacts that affect nationally important environmental resources or affect an area that is nationally important, and/ or have macro-economic consequences.
- **Duration:** The impact duration indicates its time extent, defined as being a period of time during which the imposed modifications will be felt by a component. This can be expressed through below attributes:
 - ✚ *Temporary*: Impacts are predicted to be of short duration and intermittent/ occasional.
 - ✚ *Short-term*: Impacts that are predicted to last only for the duration of the construction period.
 - ✚ *Long-term*: Impacts that will continue for life of the Project but cease when the project stops operating.
 - ✚ *Permanent*: Impacts that cause a permanent change in the affected receptor or resource (e.g. removal or destruction of ecological habitat) that endures substantially beyond the project lifetime.

The significance of environmental and social impacts of various activities involved in the proposed project is evaluated based on the criteria outlined in **Table 6.2**.

Table 6.2: Impact Significance Criteria and Color Coding

Impact Significance	Criteria
Major Significance	An impact of major significance occurs when an accepted limit or standard is exceeded. In other words, it is of a large magnitude for highly valued/sensitive resources/receptors.
Moderate Significance	An impact of moderate significance is one within accepted limits and standards. The emphasis for moderate impacts is on demonstrating that the impact has been reduced to a level that is as low as reasonably practicable (ALARP). This does not necessarily mean that 'moderate' impacts have to be reduced to 'minor' impacts, but that moderate impacts are being managed effectively and efficiently.
Minor Significance	An impact of minor significance is one in which an effect will be experienced, but the impact magnitude is sufficiently small (with and without mitigation) and well within the accepted standards, and/or the receptor is of low sensitivity/value.
Insignificant/ Negligible Significance	An impact of negligible significance (or an insignificant impact) is where a resource or a receptor (including people) will not be affected in any way by a particular activity, or the predicted effect is deemed to be 'negligible' or 'imperceptible' or is indistinguishable from natural background variations.
Beneficial	When the impacts are positive.

Based on the significance criteria stated in Table 6.2, the potential environmental and social impacts due to the construction and operation of the proposed project are evaluated and presented in the following Table 6.3. These tables describe the impact significance of the proposed project “without” and “with” mitigation measures respectively.

Table 6.3: Evaluation of Potential Impacts of the Proposed Project

Parameters	Nature of Likely Impacts.										Impact Significance									
											Before Mitigation Measures				After Mitigation Measures					
	Intensity			Spread			Duration			Beneficial	Insignificant	Minor	Moderate	Major	Insignificant	Minor	Moderate	Major	Residue Impacts	
	Low	Moderate	High	Local	Moderate	Regional	Short Term	Moderate Term	Long Term											
Pre-Construction Phase																				
Creation of Employment Opportunities																				No impacts
Change in Original Land Use, Scenic and Visual Quality																				

[illegible]

A: POSITIVE IMPACTS

 Change in Original Land Use, Scenic and Visual Quality

Social Impacts

Creation of Employment Opportunities

- Mechanical/gas engineers and Architectural teams for concept development,

- Environmental Engineering and Social Studies team to carry out Environmental and Social Impact Assessments.
- Quantity Surveyors to develop a project proposal and materials feasibility studies including the associated cost estimates
- Supervising engineering team;

At mobilisation phase which among others include clearance of the site, the construction companies including subcontractor will benefit through direct employment. The locals including vulnerable groups such as, children, low income women, people with disabilities, the elderly and youth will also directly or indirectly benefit from the project including employment and thus income generation during project mobilisation. Women and vulnerable groups will also benefit by selling food items to the labourers. Waste scavengers from within the community will benefit through recycling of the waste materials including demolishing waste that will be generated from the existing structures that are to be demolished.

B: NEGATIVE IMPACTS

Social

-  Land take and demolishing of existing residential and commercial/small business structures

The negatively affected PAPs will include individuals and institutions which are located within the proposed site for the new depot, and whose land will be taken up for development of the proposed project. Small business owners and petty traders including vulnerable people will also be negatively affected/impacted as result of physical and economic displacements arising from the implementation of this project. RAP assessment has indicated that, overall structures that would be affected by the project are 90 of which 83 are residential and 7 are both residential with commercial units (small businesses-stationery, shops) and 36 substructures (fence, septic tanks, toilets). Demolishing of these structures will have economic and livelihood impacts on the PAPS

Environmental

-  Solid waste generation

At the mobilisation phase the entire area will be cleared. This includes demolishing of the existing trees and structures including buildings and fencing walls. This activity will generate solids waste that will need to be managed prior to construction activities.

6.6 SYNTHESIS OF POTENTIAL NEGATIVE AND POSITIVE IMPACT DURING CONSTRUCTION PHASE

A: POSITIVE IMPACTS

Environmental impacts

-  Change in Original Land Use, Scenic and Visual Quality

The proposed project will change the outlook of the project area following clearing of vegetations including crops and existing permanent and temporary structures and will result into beautification of the project area.

Social impacts

Creation of Employment Opportunities

The proposed project during concept phase has already created employment to the following teams;

- Mechanical/gas engineers and Architectural teams for concept development,
- Environmental Engineering and Social Studies team to carry out Environmental and Social Impact Assessments.
- Quantity Surveyors to develop a project proposal and materials feasibility studies including the associated cost estimates
- Supervising engineering team;
- Contractor staff (managerial, skilled and unskilled labour force);
- Suppliers of plants, machinery, materials, and essential services;
- Construction monitoring personnel from various government agencies.
- Local communities employed in the project

Construction of the proposed project will create employment opportunities to the following staff directly or indirectly linked to the project.

- Supervising engineering team;
- Contractor staff (managerial, skilled and unskilled labour force);
- Suppliers of plants, machinery, materials, and essential services;
- Construction monitoring personnel from various government agencies.
- Unskilled Local communities will be employed in the project
- Waste recycling individuals and companies

Improved Local Socio-economy

Construction of this facility will bring about the following socio-economic benefits.

- Employment of local workers/artisans during the construction phase of the project. More than 100 people will be employed during different project phases
- Increased business opportunities around the project site due to the presence of project workforce during construction of the proposed facility. It is expected that about 30 entrepreneurs especially women will open up food vending activities especially during project construction phase.
- Increased or strengthened local economy through the establishment of micro-enterprises such as foodstuff sales and other necessities.

Improved Government Revenue through collected Taxes

Construction materials to be purchased and services to be provided on the proposed project will all be subjected to the value added tax (VAT) which goes into the government treasury.

Companies and employments will equally give their share to the statutory contributions to the government. Overall, this is a positive impact from the proposed project that require enhancement.

B: NEGATIVE IMPACTS

Environmental impacts

Water Resources and demand

The construction will increase demand for water in the area and may cause some strain to the existing water source since construction activities are known to be heavy water consumers. The proponent will apply from DAWASA for connection with water supply from existing piped water or sink their own. In case of water shortage, there will be reserves at the storage tanks which will be constructed to store water. As such water is not expected to be a limiting factor to construction but could be used excessively if not monitored carefully.

Removal/clearance of vegetation

It will be necessary to remove the existing vegetation at the proposed project site to create room for the construction. The project will likely impact about 41 trees.

Soil Erosion and Change in Local Hydrology

The storm water run-off from the construction site could carry oil and grease if the soil is contaminated or the potentially contaminated areas are in hydrological contact with the surrounding areas. Excavations, especially for the construction of the depot station facilities will alter the topography of these sites. This is not expected to cause significant changes to the downstream hydrology, as the site presents a relatively small sub-catchment in relation to the entire city area.

Damage or Disruption of Utility Lines and Existing Services

The location of the proposed project in the urban centre that has been intensely used for many years. During construction there is a potential to disrupt and/or damage existing utility lines (e.g. water mains, storm water drainage, telephone, electricity etc.). Construction activities have the potential to cut or damage any of the existing utility lines leading to stoppage or disruption of the services they provide. Damage to these facilities in or near the project area will have the potential to raise community concern. Interruption of communication lines and electricity will disrupt businesses in the area and have an impact on the livelihood of the affected communities.

Vibration and noise pollution

The major sources of noise/vibration are expected from operation of vehicles/equipment and machinery during project implementation. The size of the construction suggest that three to four trucks will be involved in transporting the construction materials. According to ICF (2009), the level of noise pollution from these sources are as indicated in Table 6.4.

Table 6.4: Noise pollution levels from trucks

Technology (equipment, machinery)	Noise level
Trucks (transporting construction materials, equipment and crew)	Trucks (56-80 dB)

Elevated noise levels will affect local residents and may cause disruption of daily activities in the specific local areas. This impact is considered to be negative, cumulative and of short-term durations. Other potential impact of project activities (e.g., hammering/knocking and vehicular traffic) on noise and elevated vibration levels are also anticipated. The overall impact of noise to the recipients will depend on the position of equipment and their cumulative actions. Therefore, the receptors in the construction site (labourers and others) will be affected with the high noise level. Measures for control of vibration and excessive noise levels beyond 85 dB (A) will have to be instituted as will be guided in the mitigation measures to be included in the environmental impact statement (EIS).

Poor Air Quality due to emissions and dust

The excavation of top soil in construction sites will generate dust that will vary according to the soil type and nature of excavation. Dust will also be emitted from excavations and operation of equipment and vehicles within the project sites and on borrow pit/quarry sites. Dust is strongly considered as a source of respiratory disease. Dust can also impair visibility among vehicle drivers, cyclists and pedestrians, during construction period of the proposed facility

Again construction materials such as cement, steel, wood, sand, stones and aggregates etc. will be brought from different sources within and outside Dar es Salaam city. The truck and earth moving equipment will emit dust, noise and exhaust fumes which are unwanted atmospheric pollutants. Exhaust emissions mainly comprised of Carbon monoxide (CO), Oxides of Sulphur (SO_x), Oxides of Nitrogen (NO_x), Hydrocarbons (HC) and possibly Lead (Pb) from operation of vehicles and construction equipment. Main impact is impairment of the local air quality, the extent of which will depend on quantities emitted, duration and prevailing atmospheric conditions. Table 6.5 the emission factors of various construction equipment and vehicles, while Table 8.3 shows the approximate emissions.

Table 6.5: Emission factors of construction equipment and vehicles (ICF International, 2009)

Type	Quantity	Emission factors			
		CO- g/hp-hr	NO _x - g/hp-hr	PM10- g/hp-hr	PM2.5- g/hp-hr
Excavator 97 CAT,320B(128h)	1	0.75	4.31	0.101	0.093
Wheel Loader Komatsu, WA180 (124hp)	1	0.94	4.67	0.087	0.88
Trucks Mitsubishi Fuso HD 125 PS	5	11.24	15.27	0.3338	0.3071
Motor grader CAT C9.3,149kW, 200hp)	1	0.75	4.31	0.101	0.093
Compactor Dynapac CA362 D 13ton	1	0.94	4.67	0.087	0.88

Table 6.6: Emissions from construction equipment and vehicle (ICF International, 2009)

Type	Total Emissions			
	CO (tons)	NOx (tons)	PM10 (tons)	PM2.5 (tons)
Excavator 97 CAT,320B(128h)	0.268	1.539	0.036	0.033
Wheel Loader Komatsu, WA180 (124hp)	0.597	2.965	0.055	0.051
Trucks Mitsubishi Fuso HD 125 PS	0.007	0.0095	0.002	0.0002
Motor grader CAT C9.3,149kW, 200hp)	0.597	2.965	0.055	0.051
Compactor Dynapac CA362 D 13ton	0.597	2.965	0.055	0.051

Details presented above suggest that the emissions may affect local air quality but will have no significant impact on global air quality issues. This is because for example mobilisation of plant equipment and machinery will be an on-off event, requiring very limited number of trucks. However it should be noted that already there are a number of vehicles plying in the city road which emit same air pollutants. This impact is considered to be negative, cumulative, short term but of low significance.

- **Oil, Grease, Fuel spillage**

Hydrocarbon spills around the construction site should be avoided to minimize health hazards to personnel. Dripping pans shall be used while servicing the construction equipment. Any construction equipment dripping oils and other lubricants shall be withdrawn from work until the leakages are sealed.

- **Land scarring at borrow sites**

Disturbances, particularly land scarring at borrow sites or sources of construction materials (Sand, aggregates and stones) will be realised during construction stage. Borrow materials to be used for construction works will be collected from sources far from the project site. The immediate impact of borrow areas/sites is land scarring in the course of sourcing materials.

- **Traffic and Transport**

Traffic congestion particularly during construction along the main road (Ubungo to city centre) due to movement of materials and equipment to the project site can be anticipated. Transportation impacts can also be related to the amount and types of vehicular traffic associated with the construction activities.

- **Construction and Demolition Waste / Wastewater from Camps**

Existing building and structures including fences within the project site have been identified for demolition including cutting and removal of the trees and concrete foundations. In addition to the demolition waste (excavated material and demolished debris), construction activities may also produce construction waste resulting from defective materials, packaging waste, and used oils and lubricants. This impact can potentially be significant if the waste is not managed properly or left on construction sites poorly stored where the wind can blow the waste into nearby neighbourhoods. Storing piles of construction waste in areas that are visible to the public will constitute nuisance for the local residents.

The common sources of construction waste generation are as indicated in Table 6.7 (Lau, H. et al., 2008). As can be noted most of the construction waste is recyclable in nature and can

thus be recycled by local people, suggesting that the overall negative impact on the environment is likely to be minimal.

Table 6.7: Common Sources of Construction Waste Generation (Source: Lau, H. et al., 2008)

Waste type	Description	Source
Wood	Dimensional lumber	Formwork, roof truss
	Plywood	Formwork
	Timber props	False work
	Sawn timber	Formwork, roof truss
Concrete	Substructure	Footings, piling
	Superstructure	Beams, columns,
Metal	Drains and gutters	Drainage works
	Reinforcement bar	Reinforcement fixing
	Wire mesh	Reinforcement fixing
	Roofing sheet	Roof
	Aluminium frames	Window, false ceiling
Bricks	Clay brick	Wall, fencing works, gutters
	Cement brick	Wall, fencing works, partition walling
	Cinder block	Wall, fencing works
Others	Packaging	Cement packaging, plastics, cardboard, timber pallets
	Gypsum & cement board	False ceiling
	Plaster	False ceiling, finishing works
	Ceramic	Roofing tiles, floor tiles, wall tiles
	PVC Pipe	Plumbing works
	Conduit & wiring	Electrical works

Solid and liquid waste (e.g. hydrocarbons) can adversely impact the surface water, ground water, soil and air and can affect the soil use and the aesthetic beauty of an area. The contractor will be guided in the environmental management plan (to be prepared) on proper waste management in accordance with the existing by-laws.

Social impacts

Land acquisition and Displacement of the population in the project area

Land acquisition is deemed necessary and essential for the development of this project. The proposed project at Ubungu Maziwa site location is anticipated to permanently acquire about 68,000sqm of land leading into physical displacement of people, loss of shelter, loss of assets, permanent restrictions of access to land and temporary loss of income sources or livelihood. A total area of twenty-eight thousand 28,328m² of land to be impacted is owned by individual PAPs whereby a total of 90 Project Affected Households (PAHs) including other assets eligible for compensation such as land, residential and commercial structures, crops, trees and sub-structures like toilets and fences and the remaining 39,672m² is owned by a Government institution. A total of 218 PAPs will be physically displaced

Impacts on Livelihoods

There are anticipated and unavoidable adverse impacts on livelihoods for some affected households due to permanent land acquisition. Some affected households will lose sources of earning as their shops and/or small business units have been potentially impacted by the

project. Options for mitigating livelihood are discussed in the section for mitigation measures



Influx of job mongers and reduced security in the project area

Presence of job mongers to construction site is normal. The same is anticipated to occur with consequential effects of lowering security within the project area and its neighbourhood.

- **Risk to diseases transmission**

Potential socio-economic impacts resulting from an influx of job seekers into existing communities, including potential competition for resources and the delivery of social services, disruptions to social fabric, may result in public health impacts such as the transmission of infectious diseases, HIV/AIDS and STDs, as well as effects on women and economic impacts such as inflation. Since the project will be running parallel with other projects in the district such impacts will be minimal as majority of people concentrate with their business.

- **Risk to Health and Safety/ Occupational health and safety impacts**

There will be various health and safety impacts at the construction phase. This will arise as a result of increased risk to construction/project personnel, occupational hazards as result of poor instruction and/or awareness on safety regulations, ignorance of safety signs, warnings and reckless operations by personnel. The project shall be implemented in compliance to labor laws in Tanzania, in particular, the Occupational Health and Safety Act (2003). Clauses to protect the health and safety of workers shall be included in the contract documents for the implementation stage. Details of occupational health and safety as well as public health and safety issues are discussed below.

(a) Occupational Health and Safety

Different types of work incidents might occur for project workers during the construction operations that could result in injuries including:

- Electrical shocks
- Wrong usage of electro-mechanical equipment
- Traffic accidents with construction equipment.
- Incidents related to the low hygiene level such as food poisoning.
- Use dangerous equipment and tools by untrained workers.
- Fire incidents at the project facilities.
- The possibility for any of the working team to be subjected to “Run over” accidents by the project machinery at the construction site or moving from one place to another within the project’s “working Zones”.

(b) Public Health and Safety

Without implementing the appropriate safety measures regarding the people whom are: (i) living or using the households located close to the planned work areas and/or (ii) might be passing within or close to the work zones; there is a major possibility for Impacting the safety of the people whom are passing through the work areas as a result of :

- The possible collisions between their personal vehicles and the project vehicles or other private vehicles as a result of the expected traffic congestions. This potential impact may occur also during the movement of the project machinery from one working site to another without implementing an appropriate traffic management plan.
- Accidental collision between the private vehicles and the project barriers due to the absence of reflective diversions or caution signs.

6.7 SYNTHESIS OF POTENTIAL NEGATIVE AND POSITIVE IMPACT DURING DEMOBILIZATION PHASE

A: NEGATIVE IMPACTS

Environmental impacts

Abandoned infrastructure

If proper demobilisation process is not done properly, some unwanted materials and other appurtenance may be left on site and therefore create inconveniences within the site

Social impacts

Loss of jobs and business opportunities in the project areas

Project decommissioning phase means local people engaged in the project will lose their means of generating income. This may result into social stress in the project areas. Similarly, various business opportunities that emerged during construction phase including food vending will suffer as a result of demobilisation process for the constructions activities.

Loss of revenue to both the government and project proponent

Central government and the project proponent will be receiving revenue from the project activities. Following project demobilisation, the revenues generated will cease

6.8 SYNTHESIS OF POTENTIAL NEGATIVE AND POSITIVE IMPACT DURING OPERATION PHASE

A: POSITIVE IMPACTS

Social impacts

Improved public transport

This is the most important positive impact of the project and the main objective of the proposed depot station. The station aims to solve some of the major challenges faced by commuters during rainy season in Jangwani area. Any new transport system including the proposed depot station at Ubungu Maziwa is also bound to have a positive impact on existing transport systems in the city

Improved passenger travel convenience

The proposed depot station will indirectly improve passenger convenience and increasing the overall performance of the BRT in Dar es Salaam city.

Socio-economic and environmental benefits

The operation phase will create a number of direct permanent jobs. Availability of the CNG goes with the fact that Natural Gas vehicles (NGVs) can offer an array of economic and environmental benefits. Among others, reduced reliance on expensive imported hydro carbon fuels and therefore forex related savings. As the cleanest-burning fossil fuel, natural gas plays an important role in improving the environment by reducing air pollution and greenhouse gas emissions. Thus, consumption of natural gas will lead the country's economic development because it will help to lower the costs of manufacturing domestic goods which, in turn, will create more jobs, reduce fuel costs which again can reduce cost of goods.

B: NEGATIVE IMPACTS

Environmental impacts

Potential Traffic congestion

The main potential problems associated with the proposed bus depot station are traffic congestion that can be caused by buses entering and leaving the depot. If not, well managed traffic congestion may occur in the main Ubungu city centre road.

Air quality

The proposed depot has the potential for emission of dust and fumes from the buses and other workshop activities including operation of buses or other mobile equipment.

Hydrocarbon spillage

Increase in pollution load in wastewater stream due to hydrocarbon spillage on parking and workshop areas is expected. A vehicle workshop generates a considerable quantity of waste oil and if this is not disposed of properly it can cause serious pollution. This might affect wastewater quality in the treatment plant or final discharge point.

Noise

Noise nuisance from bus depot includes noise generated from the movement of numerous buses including reversing alarms on buses.

Water Quality

Pollutants associated with road transport depots may include suspended solids, grease, lubricants, solvents, nutrients and oils. Such pollutants must be prevented from entering water bodies (including groundwater) through direct discharge, seepage or through contamination of storm water. Storage facilities (including overhead fuel tanks and hand pumps), or chemical

and hazardous material storage facilities need to be bunded and preferably rain proofed to minimize the risk of surface or groundwater contamination. Leakage from underground petroleum storage systems is a significant issue that can have impacts on soils and groundwater and cause site contamination, as well as safety implications.

Fire Risks and explosion

Depot stations including CNG have a greater fire risk than most establishments because of the highly combustible products handled. Fire and explosion may result from the presence of combustible gases, oxygen and ignition sources during dispensing activities, and/or leaks and spills of flammable products. Possible ignition sources include sparks associated with the buildup of static electricity, lightning and open flames. The station will thus pose fire risk to workers, vehicles ferrying fuel or coming for refuelling and the immediate environs.

A lot of care is going to be taken while offloading, refueling and while undertaking day to day activities. Firefighting preparedness therefore becomes a must so as to ensure the risk of fire and explosion is minimized and in case of fire the response is swift to prevent any damages or loss of lives.

Among the key action required in case of fire is activation of the fire alarm. Staff will be trained on how to help each other to evacuate the building in case of accident. Other action expected to be taken by staff is to close doors behind to help prevent the fire from spreading. Final design to consider among others the IFC guidelines for retail petroleum network.

Another key mitigations to fire risk and explosion in the depot station is adherence to the Emergency prepared plan which is presented in this report as appendix 5. Other mitigation measures are discussed in section 7.4.5

Compressor explosion

The CNG station at the depot station will comprise of compressors. There will be a permanent ventilated store for the compressor and generator. Explosions could also occur due to high pressure within the receiver. During inflation, tyre bursts or ring detachment may occur and cause damage to property or loss of life. ERP provides details on mitigation measures in case of the accident in the depot station.

Contamination of water by Oil Interceptor

Oil Interceptor will be constructed along the drainage system to trap sediments and grease/oils in the premises. However, Grease, oil spills and detergents could lead to contamination of surface water sources and soils.

Soil pollution

Even small leaks from gas supply lines to the depot station can overtime cause extensive contamination of soil and ground water. This would require a lot of resources to clean up. These risks can be reduced by an effective Management Plan.

Solid waste generation

At the operation and maintenance phase, the depot station will generate assorted solid waste some of which will be contaminated with hydrocarbons (hazardous waste). This can pose environmental pollution if not well disposed of. Notably, there will be two types of solid waste generated from the operation of the proposed depot station. These are:

- Solid waste in the form of garbage and refuse generated by depot station users including staff and drivers during normal operation.
- Solid waste generated from bus maintenance operations conducted at designated depot. Station

Social impacts

Occupational safety and health impacts

There will be some occupational safety and health aspects at the operation phase including fire risk, exhaust fumes and handling of fossil fuels among others.

6.9 ALTERNATIVE ANALYSIS

6.9.1 Introduction

This Chapter describes the various alternative approaches, along with a comparison of different techniques or processes proposed for the project. It is in line with ESIA procedure which stipulates that an environmental investigation needs to identify main project alternatives for the proposed development. As such, it is required that a number of possible proposals and alternatives for accomplishing the same objectives be considered. In principle, these should include an analysis of the location, construction materials and technology, timing, input and design alternatives as well as the do-nothing option.

6.9.2 Methodology

Extensive field surveys and transect walk were undertaken, covering all corners of the project area in Ubungu Maziwa. A number of project stakeholders were identified and consulted as detailed in chapter six. Some of the stakeholders physically visited the proposed site prior to airing their views. Project Affected Persons (PAPs)/households have been consulted during the FGDs and field surveys to understand their views and expectations on compensation of the project affected structures/properties, physical or economical displacement and relocation. The project is estimated to affect 90 Project Affected Households. A total of 391 people will be physically displaced in which 90 are HH owners with 191 HH members and 110 are tenants who will lose accommodation and business units. Site visits and field work were conducted in October, November and December, 2022. The proponent commits to ensuring that all compensations are made prior to the project execution.

6.9.3 Identification of Alternatives

Analysis of Alternative site

In general basic planning criteria for planning for a bus depot include but not limited to the need, size, location and design. The need of a bus depot terminal arises with increase in the demand, which is also associated with the population and economic growth. An organized bus terminal should be easily accessible and should meet specified safety requirements. In terms of depot size, factors for consideration include number and flow of traffic. On the other hand, the design should consider the efficiency, workability, segregation of bus and non-bus traffic, elimination of vehicular traffic conflict and segregation of pedestrian flows. Again, the location should form a component in the hierarchy of transport systems. In the case of the proposed project, the Ubungu depot will be an integral part BRT phase 1 along Morogoro road and will thus provide linkage with other BRT networks in the city. Thus, the proposed location for the new depot is strategic to cater for current and future needs of the BRT phase 1 system. The location has been selected considering availability of parking accommodation, servicing and maintenance facilities for vehicles, an administrative function, and facilities for staff.

The above analysis suggests that availability of space to meet the basic planning requirement for a depot station within Dar es salaam city has been a key limitation to alternative locations to the one at Ubungo Maziwa. Most of the locations that meet the planning criteria and thus consideration as alternatives for the proposed project are within the already congested areas by residential and commercial facilities in Ubungo municipality. Acquisition of such locations would have been far more expensive in term of compensations for relocation/resettlement of the inhabitants. This situation leaves no other alternatives for the project location.

Alternatives Analysis to Minimize Land Acquisition and Resettlement

Avoiding or Minimizing land acquisition and resettlement is normally done through exploring project design alternatives especially during the feasibility study and continues through final design stage. By exploring various design options it may be possible at each point to avoid or minimize population displacement by analysing design alternatives that will yield the same or similar project benefits while requiring less land acquisition, less disruption of livelihood, and less resettlement plan implementation cost. In the case of the Ubungo Maziwa Depot, 50% the proposed construction site is an open space. Selection of this site has minimised the effect and costs related to the population displacement/resettlement.

Alternatives Sources for Construction Materials

Construction is envisaged to be developed from steel structures, concrete blocks and reinforced concrete whose materials will be sourced from common places used for other ongoing projects within Dar es Salaam city. For the case of sand and aggregates the existing borrow pits and quarry sites will be utilized while water for various construction activities will be supplied by DAWASA.

Currently authorized area for acquiring aggregates in Dar es Salaam city and coast Regions is Msoga, while sand deposits can be obtained from Kibaha and areas around Bagamoyo district. Cement will be sourced locally in Dar es Salaam city. Cement factories in Dar es

Salaam include Twiga cement, Nyati Cement factory etc. Use of cement from these local sources is not envisaged to lead to the scarcity of the product due to steady production of cement from various available cement factories in Dar es Salaam and other municipalities including Dangote in Mtwara Region and Tanga cement factory in Tanga city. Reinforcement bars will also be sourced locally from steel industries and hardware shops in Dar es Salaam cities.

6.10 THE DO-NOTHING OPTION

The “No Project” is an economic alternative but is not worth considering, as it does not have any benefits. Under the No-Action Alternative, the proposed depot station at Ubungo Maziwa would not be constructed or operated, and socio-economic impacts described in this report would not occur. No-Action Alternative also mean that the BRT system in Dar es Salaam which was implemented by the government in phase 1, and which has been facing service provision breakdown during rainy season due to flooding at Jangwani area and in the process affect the Jangwani Bridge and the Jangwani Depot will continue to persist.

The do-nothing alternative assumes that there is no future social and economic requirement that must be addressed through the implementation of this project. Pending the proposal and implementation of other significant developments within the proposed site neighbourhood, employment provision and socio-economic impact including ease of movement in the city, flooding in Jangwani area, business development and the associated revenues to the area would continue on the same trend that currently exists. The socio-economic positive impacts such as temporary and permanent direct and indirect employments and revenue generated from purchase of construction materials would not be realised at all. Based on preliminary assessment of issues, it is evident that there would not be any loss of habitats for both common flora and fauna. Proposed project might result into some localized impacts, but they are not of sufficient importance to stop the proposed project.

The project will result into relocation of the PAPS from the project site. However, the PAPS were identified and all the necessary compensations will made in line with the existing regulations. Accordingly, the consideration of do-nothing option can be justifiably dismissed as an alternative for the following reasons.

- Need and desirability of the proposed project to mitigate floods in Jangwani area and thus allow for easy vehicle movement and transportation in Dar es Salaam city.
- The environmental impacts expected from the proposed project can be reasonably and sufficiently mitigated to acceptable and satisfactory standards
- The PAPs will be compensated as required by the regulations and
- The potential environmental negative impacts will be much localized.

7.0 IMPACTS MITIGATION MEASURES

7.1 INTRODUCTION

This Section presents the description of possible mitigation measures to mitigate the identified negative impacts associated with this project. Implementation of mitigation measures during construction phase is primarily the responsibility of the Contractor under the supervision of project Manager to ensure that all mitigation measures are implemented. There should be a strong unambiguous statement in the Contract document to guide the Contractor on this.

To ensure that the contractor carries out the proposed mitigation measures during construction phase, the design consultant should clearly set out in the tender document the contractor's obligation to undertake the respective environmental mitigation measures. Therefore Table 9.1 shall be included in the bidding document. The Environmental Management Plan (EMP) also provides cost estimates and schedule for the implementation activities. During operation and maintenance, the responsibility will be solely under DART. Most of the impacts, which are to occur during construction phase, can be reduced or avoided through the application of sound construction management guidelines. The proponent/DART commits to ensuring that all mitigation measures to address the identified negative impacts are implemented. The proponent will also see to it that the EMP is implemented as recommended.

7.2 MITIGATION MEASURES FOR NEGATIVE IMPACTS DURING MOBILIZATION AND CONSTRUCTION PHASES

7.2.1 Land acquisition and Displacement of the population in the project area

Mitigation measures

The mitigation measure is a guaranteed by the government regulations related to land acquisition whereby fair compensation and resettlement of the PAPS will have to be made. Prior to the implementation of the RAP, the RAP and valuation reports are to be approved by World Bank and the Chief Government Valuer. Project civil works may not start until all PAPs determined to be entitled to compensation are compensated.

7.2.3 Removal of vegetation

Mitigation Measures

- The contractor should avoid unnecessary cutting of trees or clearing of land.
- The owners of the impacted trees will be compensated accordingly.
- The trimmed vegetation will have to be replaced after construction, to minimise exposure of the land to weathering agents.
- All cleared and compacted areas on which construction is not going to take place, should be scarified and planted with grass to stabilize the soil.

7.2.4 Water Resources and demand

Mitigation

Even though water availability for the project construction should not be very large issue, it is recommended to implement some precautionary measures for water efficiency including:

- Monitoring of water usage to ensure it is not wasted
- Use recycled water sources when possible and suitable
- Keep records of water use per activity and aim to reduce the amount used with time
- Consider recycling water within the project location when possible

7.2.5 Influx of job mongers and reduced security in the project area

- Effective security measures shall be put in place and maintained in the project area.
- Signage such as “No employment at the moment”, shall be installed to keep away job seekers.

7.2.6 Soil Erosion and Change in local hydrology

Mitigation Measures

- Storm water control diversions structures to prevent rain water to flow from construction site in addition to sediment control measures such as sit fences to prevent sediments from flowing outside the construction site
- Minimising the size of the stockpiled materials and soils that can cause sedimentation
- Select the stock pile location to be away from water runoff and to cover all such piles during rainy season
- Ensure protection of nearby culverts and storm water structures from sedimentation and blockages

7.2.7 Damage or Disruption of utility lines and existing services

Mitigation Measures

Full and detailed information on existing utilities at the project site should be compiled by the contractor before any construction commences. The contractor in coordination with project manager are expected to contact the relevant authorities to obtain such information. These include Telecommunications Companies, TANESCO, DAWASA etc. Plans for the re-routing or protection of existing utility lines must be developed by the contractor and presented as part of the method statements and construction bids. These plans must be reviewed, evaluated and approved by the project manager. Furthermore, considering the thorough documentation of the existing utility and service lines, it is expected that impacts from unplanned interruption of services resulting from interference or damage to utility lines during the construction phase will be limited.

7.2.8 Vibration and noise pollution

Mitigation

- All mechanical and engine powered equipment should be maintained properly and regularly to minimize noise generation.
- Exhaust mufflers should be employed on engine-powered construction plant and vehicles.
- Mobile plant and other vehicles will be driven responsibly and below 30 km/h within the construction site and surrounding areas.
- Transportation of materials will be optimized during construction as much as possible to reduce number of trucks and consequently the potential for traffic noise.
- Any necessary night time construction activities should be restricted to relatively quiet activities.
- All major compressors should be of sound-abated models or enclosed to reduce noise impacts.
- Noise mitigation measures should be followed such as providing acoustic enclosures around emergency generators and using low noise specification for motors, pumps, etc.
- Workers in vicinity of strong noise should wear earplugs and helmets and their working time should be limited.
- Maintenance of machinery and vehicles should be enhanced to keep their noise at a minimum.
- Contractor must follow procedures for noise abatement as prescribed in the Standard Specifications for Road Works (Section 1709).

7.2.9 Poor Air Quality due to emissions and dust

Mitigation Measures

A wide variety of options exist to control emissions from construction sites. The most effective means of reducing the dust emission is wet suppression. Watering exposed surfaces and soil with adequate frequency to keep soil moist at all times can reduce the total dust emission from the project. In case surplus water is not available to suppress dust at certain locations, it is recommended that if works are within 10 meters of any sensitive receptors, the contractor shall install site hoarding between the works and the road edge to provide a barrier to protect the sensitive receptors and passing traffic.

The hoarding should be easily erectable 2.5-meter-high hoarding /fibre boards and/or steel sheets to make protection fences around the construction site (at each station location during the construction) within which all construction works can take place. The need for large soil stockpiles shall be minimized by careful planning of the supply of materials from controlled sources. Stockpiles should not be located within 50 m of schools, hospitals or other public amenities and shall be covered with tarpaulins when not in use and at the end of the working day to enclose dust. If large stockpiles (>25m³) of crushed materials are necessary they should be enclosed with side barriers and also covered when not in use. Construction materials that are susceptible to dust formation shall be transported only in securely covered trucks to prevent dust emission during transportation.

Measures for emissions control from vehicles include periodical checking and maintenance of the construction machinery and haul vehicles also the contractors shall ensure regular change of engine oil and use new engines/machinery/equipment having good efficiency and fuel burning characteristics. All generators being used on site shall be fitted with catalytic

converters and all generators stacks are recommended to be placed at least 3 meters above the ground to reduce direct exposure to exhaust. Also sprinkling of water on bare areas and road surface during construction should be done. In addition, concrete mixing equipment should be well sealed, and vibrating equipment should be equipped with dust-removal device.

7.2.10 Oil, Grease, Fuel spillage

Mitigation Measures

- Hydrocarbon spills around the construction site should be avoided to minimize health hazards to personnel. This can be done by regular maintenance and repair of machines and equipment
- Dripping pans shall be used while servicing the construction equipment.
- Any construction equipment dripping oils and other lubricants shall be withdrawn from work until the leakages are sealed.
- Regular maintenance and inspection of equipment and vehicles engaged in construction site should be done.

7.2.11 Risk to diseases transmission

Mitigation Measures

- DART shall abide to provisions of the National HIV/AIDS policy for controlling the epidemic
- The contractor shall conduct HIV/AIDS and related health education workshop to workforce and the project surrounding communities
- The contractor shall as much as possible deploy the locally available labour to reduce the risks of people bringing in the communicable diseases from outside the project neighbourhood.

7.2.12 Risk to Health and Safety/ Occupational health and safety impacts

(a) Occupational Health and Safety

Mitigation Measures

In such a big project, any of the listed hazards are likely to occur (without the implementation of the appropriate occupational health and safety plan and procedures). Furthermore, it is considered that the intensity/severity of such hazards to be high due to the fact that, many of these hazards can cause human fatality, while the extent is considered local and the duration temporary, thus, such issue is considered to be of high significance. Monitoring the significant risk posed by the construction work to the surrounding commuters and pedestrians, it shall be ensured that the Contractor provides his staff with a detailed orientation on the safety protocols to be followed at all times during the construction work to minimize the risk of accidents, some examples are:

- Appoint an environment, health and safety manager to look after implementation of required

environmental mitigation measures, and to ensure that health and safety precautions are strictly implemented for the protection of workers and the general public in the vicinity of construction areas.

- Occupational Health and Safety Management Plan should be prepared by the contractor.
- All workers should undergo medical fitness test at the time of their employment
- Conduct orientation for construction workers regarding health and safety measures, emergency response in case of accidents, fire, etc., and prevention
- Provide first aid facilities that are readily accessible by workers.
- Provide fire-fighting equipment at the work areas, as appropriate, and at construction camps.
- Provide adequate drainage in workers camps to prevent water logging/accumulation of stagnant water and formation of breeding sites for mosquitoes.
- Provide reliable supply of potable water.
- Provide separate hygienic sanitation facilities/toilets and bathing areas with sufficient water supply for male and female workers.
- Ensure that all wastewater emanating from worker camps, construction camps and other project-related activities and facilities are treated consistent with national regulations.
- Establish clean canteen/rest area.
- The sites will have to be secured with danger tape and putting signs warning members of the public, in addition, the site should be manned throughout.
- All on-site workers must be provided with appropriate Personal Protective Equipment (PPE) that includes but not limits to dust protecting masks, hard hat, protective clothing, fluorescent reflective vest, covered hard shoes and others as per requirement
- Hearing protection devices should be provided during activities, like operation of heavy machineries etc., that may generate noise beyond the permissible limit.
- Training should be provided to workers on their work and other safety issues and their measures, before commencing work activities. Workers must be trained in lifting materials, and in machinery handling techniques etc.
- Regular safety checks for vehicles and machinery should be arranged by the Work Contractor.
- Work Contractors will be required to keep records of workers, including their age confirmed by ID cards, to ensure that child labour is not involved
- Refer Section 9.2.4 for Health and Safety Management Plan that presents workers' health and safety guidelines for the work site and construction camps
- The Contractor must ensure that machinery operators and vehicle drivers qualify for their employment with their vehicle license, age (above 19 years), as prescribed in the Tanzanian Labour Law.

(b) Public Health and Safety

Mitigation Measures

- Implement an appropriate safety measures regarding the people who are living or using the households located close to the planned work areas, and/or might be passing within or close to the work zones. The following mitigation measures to ensure public safety shall be implemented by the contractor:

- Implement precautions to ensure that objects (e.g., equipment, tool, debris, precast sections, etc.) do not fall onto or hit people, vehicles and properties in adjoining areas.
- Fencing of construction sites and regular patrols to restrict public access.
- Prior to excavation work, provide fencing on all sides of areas to be excavated.
- Provide warning signs at the periphery of the construction site.
- Educate drivers on safe driving practices to minimize accidents and to prevent spills of hazardous substances and other construction materials during transport.
- The Contractor should sensitize the workforce on the dangers of HIV/AIDS, together with the promotion of self-protection.
- Sanitation facilities should be located appropriately, such that the surface and groundwater sources do not get affected.
- A well-stocked First Aid kit (administered by qualified medical personnel) shall be maintained at the construction site. The medical personnel shall also be responsible for primary treatment of ailments and other minor medical cases as well as providing some health education to the workforce

7.2.13 Land scarring at borrow sites

- Borrow materials to be used for construction works will be collected from designated sources far from the project site.

7.2.14 Traffic and Transport

Mitigation Measures

- Traffic signs and warning instructions shall be displayed as appropriate at the main road and the project site
- Public awareness campaigns through radio and newspaper advertisements shall be conducted to educate the public and sensitize them to cooperate with the construction staff and project focal staff in order to try and avoid the areas under construction as far as possible, particularly during the peak times when traffic volumes are the highest.
- Employ flag persons to control traffic at the work sites for safety reasons when construction equipment is entering or leaving the work area.
- Post traffic advisory signs (to minimize traffic build-up) in coordination with local authorities.
- Regularly monitor traffic conditions along access roads to ensure that project vehicles are not causing congestion.
- Define and observe schedules for different types of construction traffic trips (e.g., transport of pre-cast sections, haulage of spoils, delivery of construction materials, etc.).
- As much as possible, schedule delivery of construction materials and equipment as well as transport of spoils during non-peak hours.

7.2.15 Impacts on livelihood

Mitigation measures

- Capacity building for more profitable and sustainable use of livelihood assets;

- Development of alternative livelihood resources and initiatives (security of Tenure);
- Financial literacy on judicious use of compensation money.

7.2.16 Construction and Demolition Waste / Wastewater from Camps

Mitigation Measures

The contractor shall develop a Waste Management Plan (WMP) prior to the start of construction. This plan shall provide procedures for managing hazardous and non-hazardous waste materials from the source of generation to its temporary site storage location and up to its final disposal locations. The contractor WMP will have to be approved by the project manager.

7.2.17 Hazardous waste in the construction site

Mitigation Measures

- The contractor will be guided to ensure that usage of materials including the hazardous waste generating materials is optimized to avoid excess waste
- The contractor will be guided in the implementation of effective waste inventory management
- The Contractor's ESMP (C-ESMP) will include plan for hazardous waste management

7.3 MITIGATION MEASURES FOR NEGATIVE IMPACTS DURING DEMOBILIZATION PHASE

7.3.1 Loss of jobs and business opportunities in the project areas

Mitigation measures

- The contractor to ensure that permanent employees are member of social security fund
- Employee should ensure that the contributions are made and are forwarded to the social security fund contractor
- Relevant skills to workers through on job training should be provided to make them marketable after the project is closed

7.3.2 Abandoned infrastructure

Mitigation measures

- The contractor will remove all the facilities and structures
- Metal and plastics will be sold or given free of charge to smelters and plastic recyclers within the communities

7.3.3 Loss of revenue to both the government and project proponent

Mitigation measures

- The government to seek for alternative fund revenue options

7.4 MITIGATION MEASURES FOR NEGATIVE IMPACTS DURING OPERATION PHASE

7.4.1 Potential Traffic congestion

Mitigation measures

- One of the most significant impacts of a bus depot is the impact on traffic from buses coming in and out of the depot as this will affect the neighbourhood surrounding this depot. Traffic lights will be installed to ensure that the incoming and outgoing of the buses from the depot station is not causing traffic congestion within and outside the station
- Internal circulation within the station to be designed to meet required standards
- Punctual and reliable staff to be hired. Staff shifts to be scheduled in a way that will provide ample coverage for the station's customer traffic.

7.4.2 Air quality

Mitigation measures

- Proponent should develop strategies to reduce air pollution in the depot station
- Use of advanced technologies can be utilized to reduce or eliminate harmful exhaust emissions (use of natural gas as fuel for buses is one such example). Other technologies are indicated in the table below.

BUS TECHNOLOGY	ADVANTAGES
Euro 5	Improved exhaust quality in relation to CO, Hydrocarbons, NOx, and PM
Euro 6	This is the most recent European standard for Improved exhaust quality in relation to CO, Hydrocarbons, NOx, and PM
Hybrid (Diesel / Electric)	Reduced exhaust quality, reduced CO2 emissions and fuel consumption, and reduced noise
Electric	If charged from renewable energy source this is the least emissions and lowest noise option

7.4.3 Hydrocarbon spillage

Mitigation measures

- Regular inspection should be carried out under the supervision of the depot station manager. Defective vehicle should be identified for recommendation to service them.
- Regular cleaning of the facilities to remove the dust and vehicle oil deposits should be carried out
- Storage of lubricants and liquid fuel to be provided within a containment to control the spillage within the station

7.4.4 Noise

Mitigation measures

- Noise generating equipment at the depot station including generators should be confined within acoustic enclosures.
- Proper maintenance of the BRT buses can ensure smooth operation of buses and reduction of noises.

7.4.5 Fire Risks in the proposed depot including CNG**Mitigation measures**

- State-of-the-art technology for firefighting system to be designed and installed at the station
- A lot of care to be taken while offloading, refuelling and while undertaking day to day activities at the station.
- Firefighting preparedness is critical to ensure the risk of fire is minimized and in case of fire the response is swift to prevent any damages or loss of lives.
- Prevention of potential ignition sources such as: Use of intrinsically safe electrical installations and non-sparking tools, implementation of permit systems and formal procedures for conducting any hot work during maintenance activities
- Emergency response plan (appendix 5) to be implemented and strictly adhered to within the site and for the community around the project area
- The proponent will also ensure adherence to the IFC Environmental, Health, and Safety (EHS) guidelines for Retail Petroleum networks in all project's phases.

7.4.6 Compressor explosion**Mitigation measures**

- Gas detectors to be installed around the CNG (anywhere gas could possibly accumulate, but also where people will be able to hear the alarm)
- Maintain and monitor gas detection equipment on a regular basis.
- Drain the tank after each use.
- Check the oil and lubricant levels of the compressors
- Compressors to be installed in a ventilated area.
- The proponent will also ensure adherence to the IFC Environmental, Health, and Safety (EHS) guidelines for Retail Petroleum networks in all project's phases.
- Emergency response plan to be implemented and strictly adhered to
- Residents in the vicinity of the depot will be informed about the risks associated with the CNG, explosions/fires
- Residents in the vicinity will also be sensitized informed of the basic elements of the ERP.

7.4.7 Contamination of water by Oil Interceptor**Mitigation measures**

- Oil/grease Interceptor will be constructed along the drainage system to trap sediments and grease/oils in the premises.

7.4.8 Soil pollution and water pollution

Mitigation measures

- Solid and liquid waste must be handled as prescribed in the Standard Specification for Road Works (Section 1713). Section 1713 provides guidelines on (i) clean-up and (ii) disposal of waste materials. Clean up insist on the need for the contractor to at all times keep the construction area, including storage areas used, free from accumulations of waste materials or rubbish.

7.4.9 Occupational safety and health impacts

Mitigation measure

- All gas storage tanks and components (e.g., pipes, valves, and pumps) should meet internationally recognized standards for structural design integrity and operational performance to avoid catastrophic failures and to prevent fires and explosions during normal operations and during exposure to natural hazards.
- Storage tanks and components (e.g., roofs and seals) should undergo periodic inspection for corrosion and structural integrity and be subject to regular maintenance and replacement of equipment (e.g., pipes, seals, connectors, and valves).
- CNG unloading activities should be conducted by properly trained personnel according to pre-established formal procedures to prevent accidental releases and fire/explosion hazards. Procedures should include all aspects of the delivery or loading operation from arrival to departure, connection of grounding systems, verification of proper hose connection and disconnection, and adherence to no-smoking and no-naked-light policies
- A cathodic protection system should be installed to prevent or minimize corrosion, as necessary.
- A well-stocked First Aid kit (administered by qualified medical personnel) shall be maintained at the station throughout the operation of the station.
- Fencing and signages should be provided in the surrounding around the depot station.

7.4.10 Solid waste generation

Mitigation measure

Solid wastes generated from the station operation should be collected, stored, handled and disposed of in a proper manner that allows for waste recycling and without causing environmental hazards or aesthetic nuisance. The depot station should have waste containers of an appropriate shape and size to handle the expected waste generated at the station These would need to be regularly emptied to prevent overflows. Solid waste generated from maintenance operations would include used parts, tires, consumables, packaging and similar items. These would need to be disposed of in accordance with the existing regulations.

8.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANS

8.1 IMPACT MANAGEMENT PLAN

The Environmental and Social Management Plan (ESMP) is a plan for monitoring and managing the impacts during various project implementation phases. The ESMP is a document, which encompasses all major environmental and social impacts associated with project construction and its alternative mitigation and monitoring measures. The ESMP addresses specific issues to be managed at the construction site and ensures that commitments made during the planning phase are incorporated into design, construction, operational and demobilization phases of the project. The objectives of ESMP are to describe:

- The legislative and administrative framework in the country on environmental impact assessment management
- Implementation arrangement for ESMP
- The environmental monitoring program and reporting arrangement
- Design consideration regarding environmental, health and safety and social impacts

In Tanzania Environmental Assessment framework is guided by the following two key national legislations;

- The environmental Management Act (EMA) No. 20 (Cap 191) of 2004
- The Environmental Impact Assessment and Audit regulation , 2005

Thus, ESMP indicates institutional responsibilities, time to take action and estimated costs. Based on the EMA (2004), NEMC is expected to ensure compliance of all the agreed conditions. The project proponent (DART) is committed to implementing the mitigation measures suggested by ESMP.

8.2 TRAINING AND CAPACITY BUILDING AND SKILLS DEVELOPMENT

8.2.1 Training of PAPS

While some PAPS have skills relating to: art and craft, batik production, soap making and Tailoring. They however, do not have any formal training but have acquired these skills as part of their work. Hence, for such PAPS with either existing skill or additional skills, the project will target this category of PAPS towards formal skill developments and introduce them to online marketing networking through training programs offered at SIDO and other related technical institution locate within the Ubungu Municipality and Dar es Salam city.

8.2.2 Training and capacity building for Labourers

The contractor will be required to prepare training program for the staff. The program will be approved by the project manager. Training will be provided to workers on their work and safety issues and mitigation measures, before commencing work activities. Workers will also be trained in lifting materials and in machinery handling techniques. Additionally, relevant skills to workers through on job training should be provided to make them marketable after the project is closed. Some of the specific training include: Training on the need and use of PPE, Occupational Safety and Health in a construction site, Code of conduct in a construction site, Social welfare and problems on construction site as well as emergency response in case of

accident

8.3 IMPLEMENTATION ARRANGEMENT FOR ESMP

The project proponent will be assisted by the design and supervision consultants and other sectorial consultants and will work with the contractor and sub-contractor for the implementation of this project. The environmental and social mitigation measures incorporated in the detailed engineering design shall be handed over to the contractor during the construction period.

The Contractor shall take stock of the contents of the ESMP of the Project. The contractor shall implement the ESMP during the construction period under close supervision of the consultant and TP Limited Management as well as monitoring by NEMC. During the Operation Phase, TP limited will manage and implement the ESMP. To minimize potential Environmental and social negative impacts, the project will require the support of various institutions on the project area.

8.4 ENVIRONMENTAL AND SOCIAL COST

The principal environmental and social cost includes the cost for implementing the mitigation measures proposed. These costs are indicated in Table 8.1. DART shall cover all the costs proposed in the ESMP.

Table 8.1: Environmental Management Plan (EMP)

IDENTIFIED IMPACT	MITIGATION MEASURES	IMPLEMENTOR	RESPONSIBLE ORGANIZATION	ESTIMATED COSTS (TZS),000
A. MOBILISATION AND CONSTRUCTION PHASE				
A1. Land acquisition and Displacement of the population in the project area	This guaranteed by the government regulations related to land acquisition- Fair compensation and resettlement of the PAPS will be made.		- DART - Government	2,000,000
A2. Water resources and demand	- Monitoring of water usage to ensure it is not wasted - Use recycled water sources when possible and suitable - Keep records of water use per activity and aim to reduce the amount used with time - Consider recycling water within the project location when possible	Contractor	- DART - Project Manger - Ubungu council	1,200
A3. Removal of vegetations	- The contractor should avoid unnecessary cutting of trees or clearing of land. - The owners of the impacted trees have been compensated accordingly. - The trimmed vegetation will have to be replaced after construction, to minimise exposure of the land to weathering agents. - All cleared and compacted areas on which construction is not going to take place, should be scarified and planted with grass to stabilize the soil.	Contractor	- DART - Project Manger	1,500
A4. Influx of job mongers and reduced security in the neighbourhood	- Effective security measures shall be put in place and maintained in the project area. - Signage such as “No employment at the moment”, shall be installed to keep away job seekers	Contractor	- DART - Contractor	1,000
A5. Soil Erosion and Change in local hydrology	- Storm water control diversions structures to prevent rain water to flow from construction site in addition to sediment control measures such as sit fences to prevent sediments from flowing outside the construction site - Minimising the size of the stockpiled materials and soils that can cause sedimentation - Select the stock pile location to be away from water runoff and to cover all such piles during rainy season - Ensure protection of nearby culverts and storm water structures from sedimentation and blockages	- Contractor - Project manager	- DART - Project manager	2,000
A6. Damage or Disruption of utility lines and existing	- Full and detailed information on existing utilities at the project site should be compiled by the contractor before any construction commences. - The contractor in coordination with project manager are expected to contact the relevant	Contractor Project manager Owner of the	- DART - Project manager - Utility provision	2,000

IDENTIFIED IMPACT	MITIGATION MEASURES	IMPLEMENTOR	RESPONSIBLE ORGANIZATION	ESTIMATED COSTS (TZS),000
services	authorities to obtain such information. ▪ Plans for the re-routing or protection of existing utility lines must be developed by the contractor and presented as part of the method statements and construction bids.	lines and existing services	companies	
A7. Noise nuisance and vibration	▪ All mechanical and engine powered equipment should be maintained properly and regularly to minimize noise generation. ▪ Exhaust mufflers should be employed on engine-powered construction plant and vehicles. ▪ Mobile plant and other vehicles will be driven responsibly and below 30 km/h within the construction site and surrounding areas. ▪ Transportation of materials will be optimized during construction as much as possible to reduce number of trucks and consequently the potential for traffic noise. ▪ Any necessary night time construction activities should be restricted to relatively quiet activities. ▪ All major compressors should be of sound-abated models or enclosed to reduce noise impacts. ▪ Noise mitigation measures should be followed such as providing acoustic enclosures around emergency generators and using low noise specification for motors, pumps, etc. ▪ Workers in vicinity of strong noise should wear earplugs and helmets and their working time should be limited. ▪ Maintenance of machinery and vehicles should be enhanced to keep their noise at a minimum. ▪ Contractor must follow procedures for noise abatement as prescribed in the Standard Specifications for Road Works (Section 1709).	Contractor Project Manger	• DART • Project Manger	3,500
A8. Poor Air Quality due to emissions and dust	▪ Application of wet suppression to keep soil moist at all times. ▪ Hoarding provision around the project area ▪ Large soil stockpiles shall be minimized by careful planning of the supply of materials from controlled sources. ▪ Stockpiles should not be located within 50 m of schools, hospitals or other public amenities and shall be covered with tarpaulins when not in use ▪ Large stockpiles (>25m3) of crushed materials should be enclosed with side barriers and also covered when not in use. ▪ Construction materials that are susceptible to dust formation shall be transported only in securely covered trucks to prevent dust emission during transportation. ▪ Measures for emissions control from vehicles include periodical checking and maintenance of the construction machinery and haul vehicles ▪ The contractors shall ensure regular change of engine oil and use new	Contractor Project Manger	• DART • Project Manger	4,000

IDENTIFIED IMPACT	MITIGATION MEASURES	IMPLEMENTOR	RESPONSIBLE ORGANIZATION	ESTIMATED COSTS (TZS),000
	engines/machinery/equipment having good efficiency and fuel burning characteristics. - All generators being used on site shall be fitted with catalytic converters - All generators stacks are to be placed at least 3 meters above the ground to reduce direct exposure to exhaust. - Sprinkle water on bare areas and road surface during construction. - Concrete mixing equipment should be well sealed, and vibrating equipment should be equipped with dust-removal device.			
A9. Oil, Grease, Fuel spillage	- Hydrocarbon spills around the construction site should be avoided to minimize health hazards to personnel. - Dripping pans shall be used while servicing the construction equipment. - Any construction equipment dripping oils and other lubricants shall be withdrawn from work until the leakages are sealed. - Regular maintenance and inspection of equipment and vehicles engaged in construction site should be done.	Contractor Project Manger	DART Project Manger	2,000
A10. Risk to diseases transmission	- DART shall abide by provisions of the National HIV/AIDS policy for controlling the epidemic - The contractor shall conduct HIV/AIDS and related health education workshop to workforce and the project surrounding communities - The contractor shall deploy the locally available labour to reduce risks of spreading of communicable diseases through the new comers.	Contractor Project Manger	DART Project Manger	1,500
A11. Risk to Health and Safety/ Occupational health and safety impacts	- Appoint an environment, health and safety manager to look after implementation of required environmental mitigation measures, and to ensure that health and safety precautions are strictly implemented for the protection of workers and the general public in the vicinity of construction areas. - Occupational Health and Safety Management Plan should be prepared by the contractor. - All workers should undergo medical fitness test at the time of their employment - Conduct orientation for construction workers regarding health and safety measures, emergency response in case of accidents, fire, etc., and prevention - Provide first aid facilities that are readily accessible by workers. - Provide fire-fighting equipment at the work areas, as appropriate, and at construction camps. - Provide adequate drainage in workers camps to prevent water logging/accumulation of stagnant water and formation of breeding sites for mosquitoes. - Provide adequate housing for all workers at the construction camps.	Contractor Project Manger Municipal Environmental Health Officer	DART Project Manger	4,000

IDENTIFIED IMPACT	MITIGATION MEASURES	IMPLEMENTOR	RESPONSIBLE ORGANIZATION	ESTIMATED COSTS (TZS),000
	▪ Provide reliable supply of potable water. ▪ Provide separate hygienic sanitation facilities/toilets and bathing areas with sufficient water supply for male and female workers. ▪ Ensure that all wastewater emanating from worker camps, construction camps and other project-related activities and facilities are treated consistent with national regulations. ▪ Establish clean canteen/rest area. ▪ The sites will have to be secured with danger tape and putting signs warning members of the public, in addition, the site should be manned throughout. ▪ All on-site workers must be provided with appropriate Personal Protective Equipment (PPE) that includes but not limits to dust protecting masks, hard hat, protective clothing, fluorescent reflective vest, covered hard shoes and others as per requirement ▪ Hearing protection devices should be provided during activities, like operation of heavy machineries etc., that may generate noise beyond the permissible limit. ▪ Training should be provided to workers on their work and other safety issues and their measures, before commencing work activities. Workers must be trained in lifting materials, and in machinery handling techniques etc. ▪ Regular safety checks for vehicles and machineries should be arranged by the Work Contractor. ▪ Work Contractors will be required to keep records of workers, including their age confirmed by ID cards, to ensure that child labour is not involved • Refer Section 9.2.4 for Health and Safety Management Plan that presents workers' health and safety guidelines for the work site and construction camps ▪ The Contractor must ensure that machinery operators and vehicle drivers qualify for their employment with their vehicle license, age (above 19 years), as prescribed in the Tanzanian Labour Law. ▪ Implement precautions to ensure that objects (e.g., equipment, tool, debris, precast sections, etc.) do not fall onto or hit people, vehicles and properties in adjoining areas. ▪ Fencing of construction sites and regular patrols to restrict public access. ▪ Prior to excavation work, provide fencing on all sides of areas to be excavated. ▪ Provide warning signs at the periphery of the construction site. ▪ Educate drivers on safe driving practices to minimize accidents and to prevent spill of hazardous substances and other construction materials during transport. ▪ Sanitation facilities should be located appropriately, such that the surface and groundwater sources do not get affected. ▪ A well-stocked First Aid kit (administered by qualified medical personnel) shall be maintained at the construction site. The medical personnel shall also be responsible for			

IDENTIFIED IMPACT	MITIGATION MEASURES	IMPLEMENTOR	RESPONSIBLE ORGANIZATION	ESTIMATED COSTS (TZS),000
	primary treatment of ailments and other minor medical cases as well as providing some health education to the workforce			
A12. Land scarring at borrow sites	Borrow materials to be used for construction works will be collected from designated sources far from the project site.	- Contractor - Project manager	- DART - Project Manger	NA
A13. Traffic and Transport	- Contractor will prepare and implement Traffic Management Plan (TMP) - Traffic signs and warning instructions shall be displayed as appropriate at the main road and the project site - Public awareness campaigns through radio and newspaper advertisements shall be conducted to educate the public and sensitize them to cooperate with the construction staff and project focal staff in order to avoid the areas under construction as far as possible, particularly during the peak times when traffic volumes are the highest. - Employ flag persons to control traffic at the work sites for safety reasons when construction equipment is entering or leaving the work area. - Post traffic advisory signs (to minimize traffic build-up) in coordination with local authorities. - Regularly monitor traffic conditions along access roads to ensure that project vehicles are not causing congestion. - Define and observe schedules for different types of construction traffic trips (e.g., transport of pre-cast sections, haulage of spoils, delivery of construction materials, etc.). - As much as possible, schedule delivery of construction materials and equipment as well as transport of spoils during non-peak hours.	- Contractor - Project manager - Traffic police	- DART - Project Manger - Traffic police	2,500
A14. Construction and Demolition Waste / Wastewater from Camps	- The contractor shall develop a waste management plan prior to the start of construction. This plan should include: - Site specific information of the types of waste with estimated quantities that shall be produced - Location, number, and type of waste containers that shall be used - Procedures, tools, and equipotent planned to be used to manage and transport of the waste to its final disposal destination - Attempt should be made to ensure that all recyclable wastes are collected and removed from the waste stream. Local people will be encouraged to scavenge and collect recyclable wastes - Approved disposal sites and routes for all types of wastes anticipated after coordination with the project manager and Ubungu municipal council and Ubungu District police Department	- Contractor - Project manager - Municipal Environmental officer	- DART - Project Manger - Ubungo Municipal Environment officer	10,000

IDENTIFIED IMPACT	MITIGATION MEASURES	IMPLEMENTOR	RESPONSIBLE ORGANIZATION	ESTIMATED COSTS (TZS),000
	- Procedures for monitoring of the proper disposal of all wastes from construction to ensure it is all disposed of in approved locations only - Procedures and methods to ensure all waste hauling equipment are well secured to eliminate any waste from falling from the loaded trucks. - Excavated materials that are approved for reuse at site should be stored separately from other construction wastes in order to be able to use them on site for fill. - The contractor shall ensure that domestic wastewater and municipal solid waste from the camps is not mixed with other construction waste and not released to the environment and all generated quantities of wastewater and MSW are transferred to the nearest wastewater treatment plant or disposal location for treatment and disposal. - Periodic on-site audits of waste management shall be undertaken along with auditing of waste disposal contracts and disposal facilities on regular basis to check that procedures are being followed. - Licensed waste contractors shall be engaged to dispose-of all non-hazardous waste material that cannot be recycled or reused, and - Training shall be provided to personnel for identification, segregation and management of waste.			
Sub-total				35,200
B. DEMOBILISATION PHASE				
B1. Loss of jobs and business opportunities in the project areas	- The contractor to ensure that permanent employees are member of social security fund - Employee should ensure that the contributions are made and are forwarded to the social security fund contractor - Relevant skills to workers through on job training should be provided to make them marketable after the project is closed	- Contractor - Project manager	- DART - Project Manger	2,000
B2. Abandoned infrastructure	- The contractor will removal all the facilities and structures - Metal and plastics will be sold or given free of charge to smelters and plastic recyclers within the communities	- Contractor - Project manager	- DART - Project Manger	1,500
B3. Loss of revenue to both the government and project proponent	The government to seek for alternative fund revenue options	Government	- DART - Project Manger - Government	NA
Sub-total				3,500
B. OPERATION PHASE				

IDENTIFIED IMPACT	MITIGATION MEASURES	IMPLEMENTOR	RESPONSIBLE ORGANIZATION	ESTIMATED COSTS (TZS),000
C1. Potential Traffic congestion	- Traffic from buses coming in and out of the depot as this will affect the neighbourhood surrounding this depot. - Internal circulation within the station to be designed to meet required standards - Punctual and reliable staff to be hired. Staff shifts to be scheduled in a way that will provide ample coverage for the station's customer traffic.	- DART - Traffic police	- DART - Traffic police	1,200
C2. Air quality	- Proponent will develop strategies to reduce air pollution in the depot station - Use of advanced technologies will be utilized to reduce or eliminate harmful exhaust emissions (use of natural gas as fuel for buses is one such example). Other technologies are indicated in the table below. - Unnecessary idling of buses will be prohibited		DART	2,500
C3. Hydrocarbon spillage	- Regular inspection should be carried out under the supervision of the depot station manager. Defective vehicle should be identified for recommendation to service them. - Regular cleaning of the facilities to remove the dust and vehicle oil deposits should be carried out - Any fuel storage within the depot will be will be provided within the containment	DART	DART	2,500
C4. Noise	- Noise generating equipment at the depot station including generators should be confined within acoustic enclosures. - Proper maintenance of the BRT buses can ensure smooth operation of buses and reduction of noises.	DART	DART	2,000
C5. Fire Risks	- State-of-the-art technology for firefighting system to be designed and installed at the station - A lot of care to be taken while offloading, refuelling and while undertaking day to day activities at the station. - Emergency Response plan (appendix 5) to be strictly adhered to - Periodic training on safety operation of the station to be conducted - Firefighting preparedness should be a must so as to ensure the risk of fire is minimized and in case of fire the response is swift to prevent any damages or loss of lives.	DART	- DART - Municipal council	3,500
C6. Compressor explosion	- Gas detectors to be installed around the CNG (anywhere gas could possibly accumulate, but also where people will be able to hear the alarm - Maintain and monitor gas detection equipment on a regular basis. - Drain the tank after each use. - Check the oil and lubricant levels of the compressors - Compressors to be installed in a ventilated area.	DART	DART	2,000

IDENTIFIED IMPACT	MITIGATION MEASURES	IMPLEMENTOR	RESPONSIBLE ORGANIZATION	ESTIMATED COSTS (TZS),000
	- Emergency Response plan (appendix 5) to be strictly adhered to - Period training on safety operation of the station to be conducted			
Hydrocarbon spillage in the soil	- Regular inspection should be carried out by the estates department. Defective vehicle should be identified for recommendation to service them. - Regular cleaning of the facilities to remove the dust and vehicle oil deposits	DART	DART	1,500
C7. Contamination of water by Oil Interceptor	Oil/grease Interceptor will be constructed along the drainage system to trap sediments and grease/oils in the premises premise. The interceptors will be regularly inspected and properly maintained	DART	DART	1,500
C8. Contamination of water by Oil Interceptor	Oil/grease Interceptor will be constructed along the drainage system to trap sediments and grease/oils in the premises	DART	DART	1,500
C9. Soil pollution and water pollution	Solid and liquid waste must be handled as prescribed in the Standard Specification for Road Works (Section 1713). Section 1713 provides guidelines on (i) clean-up and (ii) disposal of waste materials. Clean up insist on the need for the contractor to at all times keep the construction area, including storage areas used, free from accumulations of waste materials or rubbish.	DART	DART	2,000
C9. Occupational safety and health impacts	- All gas storage tanks and components (e.g., pipes, valves, and pumps) should meet internationally recognized standards for structural design integrity and operational performance to avoid catastrophic failures and to prevent fires and explosions during normal operations and during exposure to natural hazards. - Storage tanks and components (e.g., roofs and seals) should undergo periodic inspection for corrosion and structural integrity and be subject to regular maintenance and replacement of equipment (e.g., pipes, seals, connectors, and valves). - CNG unloading activities should be conducted by properly trained personnel according to pre-established formal procedures to prevent accidental releases and fire/explosion hazards. Procedures should include all aspects of the delivery or loading operation from arrival to departure, connection of grounding systems, verification of proper hose connection and disconnection, and adherence to no-smoking and no-naked-light policy - A cathodic protection system should be installed to prevent or minimize corrosion, as necessary. - A well-stocked First Aid kit (administered by qualified medical personnel) shall be maintained at the station throughout the operation of the station. - Fencing and signages should be provided in the surrounding around the depot station.	DART	- DART - Ubungu Municipal council	6,000

IDENTIFIED IMPACT	MITIGATION MEASURES	IMPLEMENTOR	RESPONSIBLE ORGANIZATION	ESTIMATED COSTS (TZS),000
C10. Solid waste generation	• Solid wastes generated from the station operation should be collected, stored, handled and disposed of in a proper manner that allows for waste recycling and reuse. • The depot station should have waste containers of an appropriate shape and size to handle the expected waste generated at the station • Solid waste will be disposed of in accordance with the existing regulations.	• DART	DART Ubungu Municipal council	4,000
Sub-total				30,200
TOTAL COSTS FOR IMPACT MITIGATION MEASURE				2,068,900.00

9.0 ENVIRONMENT AND SOCIAL MONITORING PLAN

9.1 INTRODUCTION

Monitoring refers to the systematic collection of data through a series of repetitive measurements over a long period of time to provide information on characteristics and functioning of environmental and social variables in specific areas over time. Monitoring serves several functions which include providing a check on the implementation of proposed mitigation measures and ESMP recommendations and; Identifying corrective measures or the need to redesign mitigation measures, if the originally planned mitigation measures are not sufficiently effective. There are four types of monitoring that are also relevant to this ESIA.

- **Baseline monitoring**—the measurement of environmental and social parameters during a pre-project period and operation period to determine the nature and ranges of natural variations and where possible establish the process of change.
- **Impact/effect monitoring**: involves the measurement of parameters (performance indicators) during establishment, operation and decommissioning phase in order to detect and quantify environmental and social change, which may have occurred as a result of the project. This monitoring provides experience for future projects and lessons that can be used to improve methods and techniques.
- **Compliance monitoring**: takes the form of periodic sampling and continuous measurement of levels of compliance with standards and thresholds—e.g. for waste discharge, air pollution
- **Mitigation monitoring**: aims to determine the suitability and effectiveness of mitigation programmes, designed to diminish or compensate for adverse effects of the project.

Therefore, monitoring involves continuous or periodic review of mitigation activities to determine their effectiveness. An environmental audit is usually carried out a few years after completion of the project. These audits assess the relevance, efficiency and impact of any mitigation measures. Environmental officers at the district/municipality where the project normally takes place may initiate such audit process to cover the project.

Since the proposed project is divided into four district phases, including mobilization, construction, and operational phase, the environmental management plan will also cover all project phases. Task to be covered and monitored during each phase are discussed below.

Mobilization phase

- Appointment of health, Safety and environmental (HSE) officer
- Maintenance and checking of construction equipment ready for transportation to site and during the actual construction work
- Training and sensitization of staff on safety and environmental issues
- Initiation of HIV/AIDs sensitization campaign

- Preparation of solid waste/demolishing waste management plan

Construction phase

- Implementation of all mitigation measures as detailed in chapter 8
- Implementation of HIV/AIDS sensitization campaigns
- Implementation waste/demolishing waste management plan
- Occupational health and safety measures (conditions at materials storage places, borrow sites, equipment, personal protection equipment etc.)
- Condition at workers camps (accommodation, sanitation facilities, hygiene water availability etc.)
- Collection and analysis of baseline data on air and water quality, noise levels, and social economic aspects.

DART and Ubungu municipal environmental officer will be responsible for monitoring environmental impacts after construction of the project. The contractor will be required to have environmental and safety engineer as one of his key personnel. For effective implementation and adherence to ERP (appendix 5), the contractor will develop and implement a training program on safety measures to prevent accidents.

Ubungu municipal development officer will equally be involved in monitoring the trend in social economic status and HIV/AIDS pattern. Therefore, among other issues, municipal environmental officer, community development officer and municipal Aids control coordinator should deal with:

- Monitoring water pollution from various pollutants from construction equipment such as oils spills
- Soils erosion and degradation control measures during construction
- Water quality monitoring
- Changes in Social-economic status
- HIV/ AIDS trend

9.2 ENVIRONMENTAL AND SOCIAL MONITORING PLAN

The Environmental and Social Monitoring Plan will thus be implemented to assess compliance and determine the impacts of the Proposed Project that were not predicted. The monitoring programme, proposed for project operations is based on the impacts identified during the undertaking of this study. Table 9.1 provides details of the attributes to be monitored, frequency, and institutional responsibility and estimated costs. These costs are to be covered by the project proponent (DART).

The regulatory authority at the municipal level (Ubungu) must see to it that the commitment made by the project proponent through mitigation measures are really put in practice and that is the essence of this ESMP as presented on Table 9.1.

Table 9.1: Social and Environmental Monitoring Plan for Implementation of mitigation measures for the proposed project

Environmental/ Impact Parameter	Social	Monitoring parameters and Target/standards	Monitoring location	Responsibility for Monitoring	Monitoring Timeframe/Frequency	Estimated Costs(USD)
			Project site			
PROJECT PRE-CONSTRUCTION AND CONSTRUCTION PHASES						
Water resources and demand		- Records of water used for various construction activities - Records of recycled and reused water in the project site	Within the sites	Contractor/DART	Once every two weeks for six months	3,000
Removal of vegetation		- Record/Number of trees cut down during site clearance exercise - Record/Number of replaced trees around the project area	Within the sites	Contractor/DART	Every day for the entire period of site clearance and preparation	5,000
Influx of job mongers		Number of people enquiring for the job/employment in the site	Within the sites	Contractor	Once per week, throughout the project time	NA
Soil Erosion and Change in local hydrology		- Storm water control diversions structures not blocked - No stockpiled materials and soils within the construction site	Stormwater drain around the project area and those along the main road which is connecting to the project site	Contractor	Once per month for the entire mobilisation and construction period	4,000
Damage or Disruption of utility lines and existing services		Reported complains by the users of the facilities	Within the sites	Contractor/DART	Once every week during mobilisation period	2,000
Increased level of noise due to operation of machines, vehicle movements, blasting and other construction activities		Noise level: Day Time: Residential - 55 dBA Industrial - 70 dBA Night Time: Residential - 45 dBA Industrial - 70 dBA	(i) Three (3) location at the construction site. (ii) Three (3) locations in the nearest residential area. Total Monitoring Locations -6	Contractor/ DART	Continuous on the desired locations during both, day hours and night hours.	8,000
Air pollution due to emission of gases and dusts		SO ₂ : Daily Average of hourly values shall not exceed 0.1 mg/kg. 0.5 mg/Nm ³ for 10 minutes.	(i) Three (3) location at the construction site. (ii) Two (2) locations in the nearest residential area. Total Monitoring Locations 5	Contractor/Municipal Environmental officer	Monthly during mobilisation and construction phases	8,000
		NO _x : 150 µg/Nm ³ for 24 hours average value. 120 µg/Nm ³ for 8 hours.				
		PM ₁₀ Daily Average of hourly values shall not exceed 0.10 µg/Nm ³ and hourly values shall not exceed 0.20 µg/Nm ³				

Environmental/ Impact Parameter	Social	Monitoring parameters and Target/standards	Monitoring location	Responsibility for Monitoring	Monitoring Timeframe/Frequency	Estimated Costs(USD)
			Project site			
		CO: 100 mg/ Nm ³ for 15 mins. 60mg/ Nm ³ for 30 mins 30 mg/ Nm ³ for 60 mins. 10 mg/ Nm ³ for 8 hours.				
Soil contamination from grease and spillage of hydrocarbons, toxic chemicals and soil erosion		pH 6.5 - 9.2	One (3) locations at the construction site. Total Monitoring Locations 3	Contractor/DART	Visual inspection weekly plus bi-annual monitoring	10,000
		Electrical Conductivity (EC) 200 - 1200 mMhos/cm				
		Inorganic Hg – 2 mg/kg				
		Pb – 200 mg/kg				
		Cr (VI) – 100 mg/kg				
		Cd – 1 mg/kg				
Increased incidences of HIV and STDs		Frequency of HIV/AIDS awareness programs, Number of attendees, Topics covered in program	At the construction site	Contractor/ Contracted HIV/AIDS Training Agency/DART	One (1) program to be conducted on quarterly basis	6,000
Occupational Health and Safety & Worker's Welfare		Compliance with ESM Plan: In accordance with Labour Laws and Regulations of Tanzania.	At the construction site	Contractor/DART	Monthly	At contractors' costs
Traffic and transport		Compliance with the Traffic Management Plan as well as Health and Safety Plan Zero accidents	At the construction site At the junction of access to the site from Ubungo– city centre road	Contractor/DART		3,000
Construction and Demolition Waste/ Wastewater from Camps		Compliance with the waste management plan Solid waste generation from workers' camps: Visible maintenance and proper management of solid waste management facilities	At the construction site	Contractor/DART	Weekly	10,000
TOTAL DURING PROJECT PRE-CONSTRUCTION AND CONSTRUCTION PHASES						59,000
PROJECT OPERATION PHASE						
Air pollution		NO ₂ : 150 µg/Nm ³ for 24 hours average value. 120 µg/Nm ³ for 8 hours.	Three (3) locations within the project site Total Monitoring Locations	DART	Quarterly monitoring at the selected locations during operation phase	8,000
		PM 10 Daily Average of hourly values shall not exceed 0.10 µg/Nm ³ and hourly values shall not exceed 0.20 µg/Nm ³ .				
		CO: 100 mg/ Nm ³ for 15 mins. 60mg/ Nm ³ for 30 mins 30 mg/ Nm ³ for 60 mins.				

Environmental/ Impact Parameter	Social	Monitoring parameters and Target/standards	Monitoring location	Responsibility for Monitoring	Monitoring Timeframe/Frequency	Estimated Costs(USD)
			Project site			
		10 mg/ Nm3 for 8 hours. Dust Fall (30 days) Not to exceed 250mg/Nm3				
Hydrocarbon spillage		pH: 6.5 - 9.2 Electrical Conductivity (EC) 200-1200 mMhos/cm Oils and Grease- Nil Hydrocarbon Content- Nil	Analysis of Soil Samples collected from within the project area at an accredited Environmental Laboratory	DART	Visual inspection weekly plus semi-annual monitoring	5,000
Increased level of noise due to the operation of the station		Noise: Day Time: Residential - 55 dBA Industrial - 70 dBA Night Time: Residential - 45 dBA Industrial - 70 dBA	Three (3) location at the construction site. Total Monitoring Locations - 3	DART	Bi-monthly at desired locations during both, day hours and night hours	5,000
Fire risk and explosion risk		Awareness and Signage number of fire extinguishers Number of safety measures provided	CNG location and other selected points within the project site	DART	Once in three months	4,000
		Records, injuries and inspection Conduct training of the staff on safety measures to prevent fire or explosion, as well as on the ERP Monitor implementation of safety measures to prevent fire or explosion				
Occupational Health and Safety		Records of absenteeism from work Records of accidents and incidents	At the deport station.	DART	Monthly	5,000
Solid waste generation		Kg (Solid waste), Litters generated	Selected points at the station	DART	Every day	4,000
TOTAL DURING PROJECT OPERATION PHASES						9,000
GRAND TOTAL						68,000

10.0 RESOURCE EVALUATION/COST BENEFIT ANALYSIS

10.1 INTRODUCTION

This section addresses financial analysis, economic analysis of the project and an extended Cost-Benefit Analysis (CBA) for the proposed project. CBA is a tool used to rank projects or to choose the most appropriate option. The general rule is that the project should be undertaken if the expected lifetime benefits, both environmentally and socially exceeds all expected environmental and social costs. CBA is a tool to estimate the equivalent money value of the benefits and cost to the community to establish whether the project is valuable. Figure 10.1 illustrates the basic ideas behind CBA.

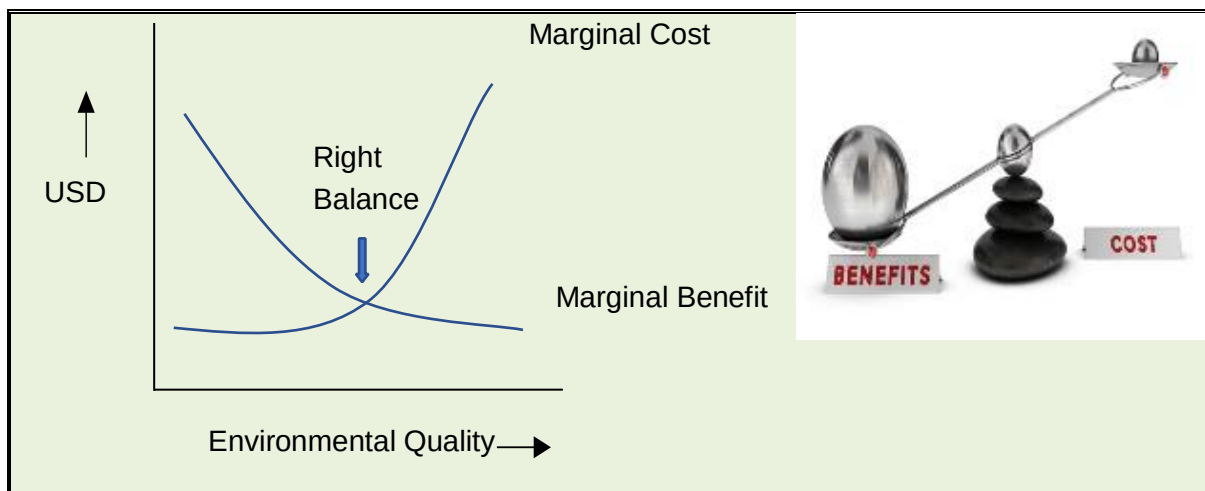


Figure 10.1: Balancing Cost and Benefits

The marginal cost (MC) of improving environmental quality in the project area is shown to increase as environmental quality increases. The marginal benefit of improving environmental quality is shown to fall with higher levels of environmental quality. The economic problem is to find the right balance between costs and benefits at the margin.

The aim of environmental and social costs benefits analysis (ECBA) is to present the lifetime costs and benefits of a project as a single number that can be compared to either interest rate prevailing or the costs and benefits of the environment. The process of conducting ECBA involves:

- Description of the project and corresponding capital costs
- Identification of the project consequences in time frame order and obtain their monetary values
- Determination of the type of ECBA

10.2 ESTIMATING COST

As already mentioned, the project will involve construction of a number of facilities including a CNG station at the new depot station in Ubungu Maziwa. This Estimate prepared for budget purposes from the preliminary Conceptual designs indicate that total project costs is about 17 million USD as indicated in Table 10.1. This amount excludes costs for RAP implementation.

Table 10.1: The total estimated cost for construction of the proposed project

Ref	Item	Unit	Qty	Rate (TZS)		Amount (TZS)
1	Demolitions and Site Clearance	sum				
1.1	Site Clearance; vegetation	sum			40,000,000	
1.2	Demolitions of Existing Residential Houses; approx.	sum			190,000,000	
1.3	9500m2	sum			217,250,000	
1.4	Demolitions of Existing Industrial Structures; approx.	sum			14,000,000	
1.5	8690m2	m2			270,000,000	
1.6	Demolitions of Existing Boundary Wall; approx.	m2			252,000,000	983,250,000
2	700lm	m2				
2.1	Gas Pipe Relocation; approx. 270lm	m2				
2.1.1	Main Water Pipe Relocation by DAWASA; approx.	m2			11,456,450,000	
2.1.2	720lm	m2			3,013,500,000	
2.1.2	Construction	m2			190,450,000	
2.1.3	Buildings	m2			65,000,000	
2.1.4	Business Centre Block	m2			143,100,000	
2.1.5	Workshop and Office Block	m2			502,400,000	
2.1.6	Visual Inspection Shed	lm			56,700,000	
2.1.7	Weighbridge Office	No			49,400,000	15,477,000,000
2.2	Luggage Storage	Item				
2.2.1	Filling Station	Item			8,082,360,000	
2.2.2	Generator/Switch & Pump Room	Item			341,050,000	
2.2.3	Entrance Gate House - 2Nos	Item			967,850,000	
2.2.4	External Works	Item			350,000,000	
2.2.5	Concrete Roads and Parking	Item			250,000,000	
2.2.6	Soft landscaping	Sum			45,000,000	
2.2.7	Boundary Wall and Gates	Sum			100,000,000	
2.2.8	Weigh Scale	km			45,000,000	
2.2.9	ICT (LAN, Fire Alarm and Detection, CCTV &	m2			450,000,000	
2.2.10	Containment)	lm			105,000,000	10,736,260,000
2.3	Rain Water Harvest Tank; 100m3					
2.3.1	Underground/Fire Fighting Water Storage Tanks;					
2.3.2	230m3				950,000,000	
2.4	Overhead Water Storage Tank; 15m3					
2.4.1	Storm Water Drainage					
2.4.2	Foul Water Drainage System & Connection to			1,450,000		
2.4.3	Existing Sewer Shared/Common Facilities		7,901	980,000	310,000,000	
3	Power Supply includes		3,075	650,000		
3.1	Main Power Connection and Metering		293	1,250,000		
4	Standby Generator, Transformers & Cabling		52	900,000		1,260,000,000
4.1	External Electrification and Lighting		159	1,600,000		
	Water Supply includes		314	900,000	450,000,000	
	Water Main Connection		63	950,000	54,340,000	
	Water reticulation		52	195,000	308,700,000	813,040,000
	Fire hydrants complete with pumping		41,448	25,000		29,269,550,000
	system Access Road Works		13,642	650,000		2,926,955,000
	Tarmac Roads; 7.0metres wide		1,489	350,000,000		32,196,505,000
	Paved Walkways		1	250,000,000		
	Drainage Channels (Covered)		1	45,000,000		
	Sub-total - 1		1	100,000,000		1,609,825,250
	Construction Risk Allowance		1	45,000,000		
	Allow for Physical Contingency - 10% of subtotal -1		1	450,000,000		
	Subtotal - 2		1	105,000,000		
	Inflation		1	1,000,000,000		
	Allow for Price Adjustment Contingency - 5% of		0.45 572	95,000		
	subtotal -2		882	350,000		
Total: Building Works Estimate						33,806,330,250
5.5.1	Taxes					
	Add: Value added Tax (VAT) - 18 %					6,085,139,445
Total Project Cost				TZS		39,891,469,695

The Project Cost in United States Dollar (USD) as of November 2022 Exchange Rate 1 USD = TZS 2,332.00	USD	Say USD	17,106,119 17,106,000.00
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10.3 COMPENSATION FOR LAND AND RESETTLEMENT

A total land area for compensation in the project area amount to 28,328 m². Compensation will also be made for affected tree, Fruit & Permanent Crops and building. The main component (about 5.2 billion TShs) for compensation will be for buildings. Budgetary estimations for various components in resettlement implementation are presented in Table 10.2. Some of the expenses during resettlement are based on social management involving consultation and participation, grievance redress, the cost of relocation, contingencies, livelihood program, monitoring and evaluation, administration and transitional allowance. In total RAP will costs about Tsh. 11,173,946,971.

Table 10.2: Summary of costs for land compensation and resettlement

Item	Quantity	Amount (Tshs)
COMPENSATION BASE		
Land		
Total Land for compensation(sqm)	28,328	2,009,630,000
Affected Trees		
Fruit & Permanent Crops	41	7,163,850
Buildings/structures		
Main building	90	5,236,106,496
ALLOWANCES		
Allowances (Disturbance, Transport, Accommodation)		1,861,046,625
Assistance to the vulnerable h/holds	21	10,000,000
ADMINISTRATION COSTS		
Monitoring Agency		30,000,000
Handling of Grievances		20,000,000
Temporary relocation of facilities		2,000,000,000

10.4 ENVIRONMENTAL AND SOCIAL BENEFITS

Relocation of the bus depot from Jangwani to the proposed new site at Ubungo Maziwa will have a positive impact in that it will save the Agency from damage cost on buildings and vehicles due to regular flash floods along the basin. The relocation site is free from flood and easily accessible where it is linked with Morogoro road on the north and Mabibo road at southeast. The removal of the depot will pave way for the improvement of the Lower Msimbazi Valley as proposed in the MOP and elaborated on in the LMUP has many socio-economic benefits. Apart from improving the safety in the area and improving quality and standard of living of the urban population, the construction activities will generate employment opportunities; and stimulating socio-economic activities within the affected area.

Employment opportunities and the benefits therein will however, depend on whether suitable qualified local personnel that can take up available positions. Capacity building therefore is a prerequisite for these benefits to be realized. Alongside capacity building, there shall be a need for putting in place deliberate policies that would compel the contractor to employ local

labour with the requisite skills and experience. The project will also generate revenue for Ubungu municipality and the Government (TRA) in the form of, taxes as well as the national pension funds. In addition, the proposed project will open many opportunities to the Dar es salaam city residents including at the depot station. As such several benefits are associated with the proposed development including the fact that urban transportation is increasingly becoming an important aspect of economic development around the globe and its importance is expected to increase in the coming decades as urbanization grows. Considering the importance of Dar es Salaam city as Tanzania's economic hub, and its share of the urban population in the country, the proposed depot station is of foremost importance to support the mobility of passengers around the city.

On the other hand, the project negative impacts during various project phases will include among others, Vibration and Noise Pollution, Poor Air Quality Due to Emissions and Dust, Solid and Liquid Waste Generation, Oil, Grease, Fuel spillage, Risk to increased incidences of diseases transmission including HIV AIDS and STID, Risk to Health and Safety etc. At the initial project execution (mobilization phase), land take and demolishing of existing residential and commercial/small business structures are the key social project negative impact. The impacted people will include individuals and institutions located within the proposed project site. During demobilization phase the negative impact is essentially loss of employment. If each of these negative impacts are assigned a monetary value at the current market value, based on combination of market value methods and one's willingness to pay methods for damage or impacts caused, or based on cost for a remedy such as water sprinkling to control dusts or provision of PPE, all these impacts including the monitoring costs presented in chapter 9, are all not worth even a quarter of million US dollars.

The market prices or monetary values of environmental negative impacts cannot be easily calculated as can be done for the project costs. The estimates on environmental costs assume that the environment cost may be equated to the cost of prevention or remedy in terms of providing PPE or health insurance as per common practice.

10.5 CONCLUSION ON COST BENEFIT ANALYSIS

For the proposed project, even after the final detailed design, the environmental and social costs are relatively lower in value as discussed in the previous section and are thus far outweighed by the benefits to be realized from this project. The consideration of "No-Project" or "Do-Nothing" option has been dismissed as an alternative due to the need and desirability of the project proponent (DART) to shift the existing depot station from Jangwani to Ubungu Maziwa area, which is also in line with the government's desires to propel the growth of the National economy. Thus, the proponent, local residents and the city as a whole stands to benefit significantly if the project is implemented.

11.1 INTRODUCTION

Grievance redress mechanism (GRM) involves a formal process for receiving, evaluating and redressing program-related grievances from affected communities and the public. Grievances redress is important because it (i) gives voice to the marginalized, (ii) builds greater trust and mutual respect between the community members and the project proponent, (iii) helps project management by enhancing project execution efficiency, (iv) provides feedback in a systematic and timely manner, (v) generates awareness and demand among community members to utilize the services properly and (vi) allows project beneficiaries communities to express their voices which in turn creates a sense of project ownership.

The MBDP recognizes vulnerability of the different project's participants to be involved including the PAPS for the proposed Ubungo depot project. In line with the requirements of World bank ESSs, ESMF has been prepared alongside other framework documents for MBDP namely Resettlement Policy Framework (RPF); Stakeholder Engagement Plan (SEP); Labor Management Procedures (LMP); and GBV Prevention, Response Plan and Contractors' Environmental and Social Progress Reports (C-ESPR)

This documents presents GRM for the proposed Ubungo depot station. Redressing Grievances in the WB supported project is among others meant to comply with the ESS2 (Labour and Working Conditions), ESS 5 (Land Acquisition, Restrictions on Land Use and Involuntary Resettlement) and ESS10 (Stakeholder Engagement and Information Disclosure).

11.2 TYPES OF GRIEVANCES

In the course of execution of this project, grievances likely to be received by the project proponent (DART) can be classified into two categories, namely;

11.2.1 Internal Grievances

Internal Grievances mainly comprise those that will be received from employees hired specifically for the site. Likely complaints may include but not restrict to the following:

- (i) Complaints related to amount of wage, salary, other remuneration or benefits;
- (ii) Timely disbursement of remuneration;
- (iii) Unethical behavior between senior and subordinates;
- (iv) Working conditions and health and safety concerns;
- (v) Gender discrimination and
- (vi) Workplace harassment.

11.2.2 External grievances

These are grievances that will be received by the Contractors and/or workers who are directly/ indirectly controlled by the proponent (DART). Also, the likely complaints from

local communities in the project area fall under this category. The on-site workers are likely to have grievances related to the following:

- (i) Risk to health and safety of the laborers or workers hired by the Contractors
- (ii) Working conditions of the workers
- (iii) Wage discrimination among the workers,
- (iv) Timing of the payments
- (v) Adequate facilities in the work camps (during construction stages) including water supply and sanitation
- (vi) Unjustified deduction from the wages
- (vii) Minimum wage rates for the laborer
- (viii) Extended working hours,
- (ix) Issue of child labour,
- (x) Issue of forced labour
- (xi) Gender discrimination
- (xii) Gender Based Violence (GBV)

Community grievances that will be considered for resolution under this GRM will include, and not limit to the following:

- (i) Risks to community, health & safety (e.g. traffic)
- (ii) Accidents (e.g. falling into open trenches)
- (iii) Unethical behavior by work contractors or subcontractors
- (iv) Noise/dust/air emissions or any other impact on environment caused by project or subcontractors
- (v) Demand for development interventions in the community

All grievances related to labour and working conditions will be redressed in line with the ESS2 (labour and working condition). On the other hand redress of the grievances related to Stakeholder Engagement and Information Disclosure will comply with ESS10. Issues or grievances related to Land Acquisition and resettlement will be redressed in line with ESS 5.

11.3 STAKEHOLDER'S ENGAGEMENT (ESS10)

According to ESS10, a GRM should be accessible and inclusive system, process, or procedure that receives and acts upon complaints and suggestions for improvement in a timely fashion, and facilitates resolution of concerns and grievances arising in connection with the project. A transparent and legitimate process of grievance redressal will help in building a good relationship between the project developer and the communities through mutual trust and better communication. In line with ESS10, the GRM for the WB supported project is expected to include the following:

- (i) Different ways in which users can submit their grievances, which may include submissions in person, by phone, text message, mail, e-mail or via a web site;
- (ii) A log where grievances are registered in writing and maintained as a database;
- (iii) Publicly advertised procedures, setting out the length of time users can expect to wait for acknowledgement, response and resolution of their

- grievances;
- (iv) Transparency about the grievance procedure, governing structure and decision makers; and
- (v) An appeals process (including the national judiciary) to which unsatisfied grievances may be referred when resolution of grievance has not been achieved.

11.4 LABOR AND WORKING CONDITIONS

11.5.1 General

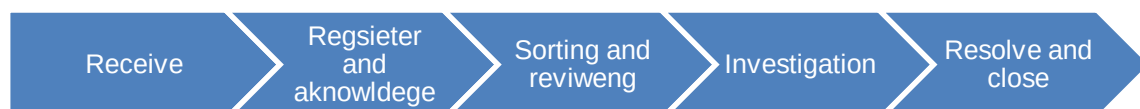
ESS2 recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. In order to comply with this ESS the project proponent will promote sound worker-management relationships and enhance the development benefits of a project by treating workers including women and venerable group in the project fairly and providing safe and healthy working conditions. The objectives of this ESS are:

- (i) To promote safety and health at work.
- (ii) To promote the fair treatment, non-discrimination and equal opportunity of project workers.
- (iii) To protect project workers, including vulnerable workers such as women, persons with disabilities, children (of working age, in accordance with this ESS), contracted workers, community workers and primary supply workers, as appropriate.
- (iv) To prevent the use of all forms of forced labour and child labour.
- (v) To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with Tanzania law and
- (vi) To provide project workers with accessible means to raise workplace concerns

11.5 REDRESSAL PROCEDURE FOR THE PROPOSED PROJECT

11.6.1 Procedures of Grievance Handling

The grievance and complaint will be received through the following procedures and channels for the effective complaints. Grievances will be received at Mtaa level, Ward level (for appellants against sub ward/mtaa GRC decision), Municipal level (for appellant against Ward GRC decision) and Court level (for appellant against Municipal GRC decisions)



11.6.2 Grievances redress steps

The proposed project is part of the Msimbazi Development project and as such the grievance redress will follow the one under the Msimbazi project. Grievance redress will involve three levels/steps as discussed below.

STEP 1: Logging and Recording of Grievance

As a first step, all complaints and grievances relating to any aspect of the project will be lodged through the representative of Mtaa member of the Grievance Management Committee and then recorded in the Grievance Forms. The *Mtaa leader* will be available to help the PAPs to channel their grievances to the committee. Grievance Form feeds into the RAP Database managed centrally at Project office. Complaints that are not connected to the Project will be filtered and referred to relevant local committees and claimants will be informed accordingly within 5 days. Some cases may just require provision of required information or clarification.

The Mtaa/facility-GMC shall maintain a record/register of all complaints/grievances received so that these can be recorded collectively. At this first step, all cases are to be heard by Mtaa/facility-GMC and addressed through consultations conducted in a transparent manner and aimed at resolving matters through consensus. In order to ensure transparency, all meetings aimed at resolving such complaints will be conducted in places specifically designated for this purpose. Minutes of such meetings shall be kept and if the resolution proposed by the Mtaa/facility- GMC is accepted by the PAP, the PAP will sign the grievance form to show agreement and the grievance will subsequently be closed.

STEP 2: Redressal at municipal-Grievance Management Committee Level

If the Complainant does not receive any response from the Mtaa/ GMC within 14 days of lodging the complaint or that the Complainant is not satisfied with the response, the issue will be appealed to the Municipal-Grievance Management Committee which will work closely with PO-RALG and DART. This committee will comprise of DART officials as well as those from the Msimbazi Project Implementing Team as well as officials from PO-RALG Project coordinating team. During the appeal to the Municipal - GMC, all the necessary details will be attached, and the Complainant notified accordingly of the venue, date and time of when a hearing will be conducted and resolved within 14 days' time. If the resolution proposed by the Municipal - GMC is accepted by the PAP, the PAP will sign the grievance form to show agreement and the grievance will subsequently be closed.

STEP 3 – Civil Courts Option

If the affected person is not satisfied with the decision of the municipal - GMC he/she will be informed of his/her rights to take the grievance to the court of law, as a last resort. However, the Complainant will also be informed that to do so will be at their own expense, unless the court awards damages to the Complainant. The decision of the court of law will be final.

11.6.3 Grievances management committees' membership

The GRC will be responsible for addressing and resolving any complaint/grievance that may arise during the project implementation. The GRC will function as a balancing body between the complainant and the project and will as much as possible be PAP centered by including representatives for project beneficiaries, PAPs i.e. those who will be and/or are likely to be directly or indirectly affected, positively or negatively, as well as the broader citizens/members of the community. PAP members to the GMC will be selected by PAPs themselves. Details of the membership in GMCs are presented in the RAP report.

11.6.4 Scope of Work of GMCs

All committees will have similar responsibilities albeit at different levels of their function/jurisdiction. Major responsibility of the Grievance Management Committees will be:

- Represent the interests of PAPs and communities in the project's zone of influence;
- Act as an entry and exit point for all grievances arising from resettlement activities
- Act as part of project monitoring and oversight committee on the corridor encroachment, construction materials vandalism and finally to sensitize the community from misusing the infrastructures.
- Monitor safety standards, labour requirements and community health issues during construction works and report to DART Project coordinator.
- Prepare progress reports and present them to the GMC during monthly meetings

11.6 COORDINATION OF SEA/GBV AND HANDLING GBV / SEA

11.7.1 Coordination of SEA/GBV Reporting

The project will provide support to local leaders (Mtaa/Wards) community development officers. The Community Development officer will do the following:

- Upon receiving the complaints, the Community Development officer will send the complaints to GBV Services Provider.
- GBV service provider will identify the survivor in accordance with international standards that articulate a minimum basic package of services, ideally including case management support, health services, psychosocial support, police support and security, access to legal services, and shelter, if needed. When identifying GBV Services Providers, the quality-of-service provision should be a key consideration. In keeping with a survivor-centered approach, accessing services should be the choice of the survivor. Access to police and justice services should be made available in the instance that the survivor would like to pursue charges through the local justice system.
- Project CLO will follow up with service providers on the mitigation and progress of resolving GBV related matters. The reports will be documented as part of quarterly reports.

11.7.2 Reporting GBV/SEA

The community will be sensitized on the existing channels for reporting grievances. Awareness will be made publicly with advertised procedures, setting out the length of time users can expect to wait for acknowledgement, response and resolution of their grievances.

11.7 RECORD KEEPING

To comply with the ESMF requirement, a simple database to manage and monitor grievances will be created. The project will log all grievances, even recurrent ones or grievances that will eventually be dismissed as unreasonable. Database and documentation of grievances will keep track of the Complaint/Issue Log which will include the following information (i) Name of person with a complaint; (ii) How the complaint was received; (iii) Date the complaint was received and recorded; (iv) Location/sub ward/ward; (v) Contact information; (vi) Description of the complaint; (vii) Follow-up corrective action steps; (viii) Corrective action taken by whom and date; and (ix) Response and means of response (written or verbal).

12.0**CONCLUSION & RECOMMENDATION****12.1 CONCLUSION**

This report presents a comprehensive environmental and social impact assessment for the proposed project in Ubungo Maziwa area. The report intended to offer an objective assessment on the concerns that were raised during scoping phase and during detailed ESIA study as well as those noticed by the assessment team in the project area based on the technical expertise that lies within the Environmental consultants. The report has also identified and assessed the potentially significant environmental and social issues.

Summing from the views of the stakeholders, it is evident that the project is important and it is much awaited by the Government of the United Republic of Tanzania due to its potential to spur the economic growth in Dar es Salaam city. Equally important, the consideration of “Do-Nothing alternative” has been discussed. The “no action alternative” would mean that the proposed project would not be executed. Thus, the various project benefits will not be realized. In view of this analysis the “no-project” has been justifiably dismissed as an alternative due to the need and desirability of the project.

In the process of implementing the project there are both positive and negative environmental and social impacts which are likely to crop up. Major positive impacts are related to among others employment opportunities, improved local Socio-economy and government revenue in the form of Taxes, while negative impacts include those that will especially arise from construction activities including for instance elevated noise and air pollution levels. The negative impacts have been discussed in great depths and corresponding mitigation measures were proposed. Some of the mitigation measures include for example; use of effective security measures in the project area, use of protective gears against Noise nuisance and vibration, abiding to provisions of the National HIV/AIDS policy for controlling the epidemic and taking precautions and educating workers on the use of safety gears.

The management of the identified negative impacts will require implementation of the necessary mitigation measures as detailed in the ESMP. With adequate management of the identified impacts, as required by the ESMP, the environmental risks and impacts of the proposed project can be minimized to acceptable levels.

12.2 RECOMMENDATION

Based on the assessment of the issues and also in consideration of the information available, the proposed project is feasible and is thus recommended. It is an alternative to the existing Jangwani depot which is associated with regular flooding during rainy seasons in Dar es salaam city. Project recommendation is also based on the fact that it will provide immeasurable opportunities to the local communities in terms of temporary and permanent employment opportunities. Providing employment to some members of the community may turn out to be “chain- reaction” through life improvement, which is the positive impact of the project and requires enhancement as

it will also spur the country's economic growth.

The proponent (DART) commits to ensuring that all negative impacts are mitigated. The proposed mitigation actions presented shall be made binding to the Project Proponent for safeguarding the environment and minimizing the social impacts. Overall, this will ensure that environmental impacts are minimized and properly monitored during all project implementation and operation phases.

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- (25) Samson s. (2018). Assessment Of The Challenges Of Water Distribution To Households At Kimara Ward, Ubungo District. A Dissertation Submitted In Partial Fulfilment For The Requirements Of The Degree Of Master Of Arts In Monitoring And Evaluation Of The Open University Of Tanzania.

- (26) TARURA, 2020. Stakeholders Engagement Plan for the Msimbazi Basin development Project Draft Report
- (27) The Architects and Quantity Surveyors Act (1997)
- (28) The Architects and Quantity Surveyors Act (1997)
- (29) The Contractors Registration Act (1997)
- (30) The Contractors Registration Act (1997)
- (31) The Environmental Management (Water Quality Standards) Regulations, 2007
- (32) The Environmental Management (Water Quality Standards) Regulations, 2007
- (33) The EWURA Act, 2019
- (34) The EWURA Act, 2019
- (35) The HIV and AIDS (Prevention and Control) Act of 2008
- (36) The HIV and AIDS (Prevention and Control) Act of 2008
- (37) The Income Tax Act R.E 2019
- (38) The Income Tax Act R.E 2019
- (39) The Land Acquisition Act Number 47 of 1967
- (40) The Land Acquisition Act Number 47 of 1967
- (41) The Land Disputes Courts Act No. 2 of 2002
- (42) The Land Disputes Courts Act No. 2 of 2002
- (43) The Land Management Act 2019
- (44) The Land Management Act 2019
- (45) The Land Use Planning Act (2007)
- (46) The Land Use Planning Act (2007)
- (47) The Mining Act (2019)
- (48) The Mining Act (2019)
- (49) The National employment policy (URT, 1997)
- (50) The national human settlement policy (2000)
- (51) The National Investment Promotion Policy, 1996
- (52) The National land Policy, 1995 (revised 1997)
- (53) The National Water Policy (2002)
- (54) The New National Environmental Policy, NEP (2021)
- (55) The Occupational Health and Safety Act No.5 of 2003
- (56) The Occupational Health and Safety Act No.5 of 2003
- (57) The public health Act of 2009
- (58) The public health Act of 2009
- (59) The Roads Act 2007
- (60) The Roads Act 2007
- (61) The Social Security Regulatory Authority Act,2015

- (62) The Social Security Regulatory Authority Act, 2015
- (63) The Standards Act, 2009
- (64) The Standards Act, 2009
- (65) The Tanzania Development Vision 2025
- (66) The Transport Policy (2002)
- (67) The Urban Planning Act (2007)
- (68) The Urban Planning Act (2007)
- (69) The Urban Planning Act, 2007
- (70) The Urban Planning Act, 2007
- (71) The Valuation and Valuers Registration Act, 2016 (No. 7 of 2016)
- (72) The Valuation and Valuers Registration Act, 2016 (No. 7 of 2016)
- (73) The Water Resources Management Act No. 11 of 2009
- (74) The Water Resources Management Act No. 11 of 2009
- (75) The Water Supply and Sanitation Act 2019
- (76) The Water Supply and Sanitation Act 2019
- (77) The Water Supply and Sanitation Act No. 12 of 2009
- (78) The Water Supply and Sanitation Act No. 12 of 2009
- (79) The Workers Compensation Act R.E 2015
- (80) The Workers Compensation Act R.E 2015
- (81) The Workers Compensation Act, 2008
- (82) The Workers Compensation Act, 2008

APPENDICES

APPENDIX 1: DETAILS OF CONTACTED STAKEHOLDERS

UNITED REPUBLIC OF TANZANIA
PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
DAR ES SALAAM RAPID TRANSIT (DART)

DART
DAR ES SALAAM RAPID TRANSIT

**ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF
BRT DEPOT AT UBUNGO KISIWANI IN DAR ES SALAAM**

STAKEHOLDER'S CONSULTATION

Institution UBUNGO WARD AND UBUNGO KISIWANI MTAA

S/N	NAME	TITLE	CONTACT/MOB. NUMBER	DATE	SIGNATURE
1	JOHN M. MASHA	M/KI MASHA	0713245028	15/11/2022	[Signature]
2	ELIZABETH AZALI	AFISA MASHA	0692 669 181	15/11/2022	[Signature]
3	ZAMBA M. SHAI	AFISA MASHA	0719810 130	15/11/2022	[Signature]
4	HENRY KISHATO	MKAZI	0715 824 120	15/11/2022	[Signature]
5	MAIDA ABUD	MJUMBE	0754913400	15/11/2022	[Signature]
6	ELASTO JOHN	MKAZI	0684 67 3060	15/11/2022	[Signature]
7	JOSEPH NG'OMBE	MKAZI	0719356975	15-11-22	[Signature]
8	ANDREW CHAPITE	MKAZI	0712043531	15/11/2022	[Signature]
11	JOSEPH M. MWINGIRA	MKAZI	-	15/11/2022	[Signature]
12	AISHA R. MSUNYA	MJUMBE S / MKAZI	0655 22 3108	15/11/2022	[Signature]

UNITED REPUBLIC OF TANZANIA
PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT
DAR ES SALAAM RAPID TRANSIT (DART)

DART
DAR ES SALAAM RAPID TRANSIT

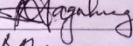
**ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF
BRT DEPOT AT UBUNGO KISIWANI IN DAR ES SALAAM**

STAKEHOLDER'S CONSULTATION

Institution UBUNGO WARD AND UBUNGO KISIWANI MTAA

S/N	NAME	TITLE	CONTACT/MOB. NUMBER	DATE	SIGNATURE
1	SARAH KAMATHA	MJUMBE	0719-850840	15-11-2022	[Signature]
2	FARAJA SIKA	CDO KATA	0714689140	15-11-2022	[Signature]
3	RAMADHAN HASAN MZALIA	MJUMBE	0689 899306	15-11-2022	[Signature]
4	SHANI HASSAN MCHENKA	MJUMBE	0714 304244	15-11-2022	[Signature]
5	HAPINESS MICHAELI LIMO	MJUMBE	0635358954	15-11-2022	[Signature]
6	ANNA LAURENT KIMU	AFISA MASHA	0655 546181	15/11/2022	[Signature]
7	VITUS A. NSAIRO	MJUMBE MASHA	0755013582	15/11/2022	[Signature]
8	DORIS S. VENKONDO	JIRANI (PROPERTY MANAGER)	0986161305	15/11/2022	[Signature]
11	JOHN MASHA	S/K MASHA	0789 235852	17/11/2022	[Signature]
12					

GIMCO APPLICA LTD
JANUARY: PAGE 1

		UNITED REPUBLIC OF TANZANIA PRESIDENT'S OFFICE REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT DAR ES SALAAM RAPID TRANSIT (DART)			
ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF BRT DEPOT AT UBUNGO KISIWANI IN DAR ES SALAAM					
STAKEHOLDER'S CONSULTATION Institution <u>UBUNGO MUNICIPAL COUNCIL</u>					
S/N	NAME	TITLE	CONTACT/MOB. NUMBER	DATE	SIGNATURE
1	Eng. Alex Masatu	Ag. ME	0686545795	23/11/2022	
2	MAGULU ALLY SEGERIAN	KATIBI DCAS	0786-727272	27/01/2023	
3	MOHAMMED HAMIS SALAMU	M/KATIBI DCAS	0655-603005	27/01/2023	
4	KELVIN JOHN SENG'ENGE	M/HAZINA DCAS	0719-467616	27/01/2023	
5	MUHAMMAD AHMED ALI	M/HAZINA DCAS	0654147322	27/01/2023	
6	YERARDU SAORU CHIRPA	M/HAZINA DCAS	0785115203	27/01/2023	
7	Neema Ibrahimchi	M/HAZINA DCAS	0789360222	27/1/23	
8	Zenga	M/HAZINA DCAS			
11					
12					

		UNITED REPUBLIC OF TANZANIA PRESIDENT'S OFFICE REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT DAR ES SALAAM RAPID TRANSIT (DART)			
ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF BRT DEPOT AT UBUNGO KISIWANI IN DAR ES SALAAM					
STAKEHOLDER'S CONSULTATION Institution <u>UTILITIES</u>					
S/N	NAME	TITLE	CONTACT/MOB. NUMBER	DATE	SIGNATURE
1	Eng. Richard Ngamba	Eng. - Inspector	075-767144	16/11/2022	
2	Eng. Hann R. Senekeu	RM - T/Roads - Dar	0784-400334	22.11.2022	
3	Eng. Yared P. Ngatana	RTE-TANESCO Dar	0735-399199	22.11.2022	
4	WSP. Amina H. Said	Police/TRAFFIC	0717515235	24/11/2022	
5	Eng. Mwandumbaye E	ROAD ENGINEER	0759612627	2/12/2022	
6	Geoffrey L. Silwanda	LATRA - MSCE	0738000015	03.01.2023	
7	Peter Mtui	Compliance Officer - FRF	0714970828	04/01/2023	
8	Eng. James Mdogosho	PE - EWURA	0784222072 0762329005	13/12/2022	-Phone consultation
11	JAMILA ZADEH	Standards Officer (TR)	0712333355	26/01/2023	
12					

	UNITED REPUBLIC OF TANZANIA PRESIDENT'S OFFICE REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT DAR ES SALAAM RAPID TRANSIT (DART)	
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**ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF
BRT DEPOT AT UBUNGO KISIWANI IN DAR ES SALAAM**

STAKEHOLDER'S CONSULTATION
Institution TRADERS AND BUSINESS OWNERS - UBUNGO KISIWANI

S/N	NAME	TITLE	CONTACT/MOB. NUMBER	DATE	SIGNATURE
1	ALEX KUNGIA KIMATO	Fundi wa Mashine za Welding	0754468691	25/01/2023	
2	MARY Abraham Sengoma	Duka Hardware	0787-529668	25/01/2023	
3	PAULI MOJESIMU	Fundi welding	065578636	25/01/2023	
4	NYANDWI ANTONY	FUNDI KUSHONANGA	0784707410	25/01/2023	
5	TADEI F. TAIRU	FUNDI WELDING	0754884390	25/01/2023	
6	SAFAR Ali	FUNDI MAGARI	0652184111	25/01/2023	
7	HEMED M. BENBERA	Fundi wa mashine za kuchipimela	0716866898	25/01/2023	
8	ERICK YOMARA MANIARO	WORKSHOP BAKULIWA CE WELDING MACHINIZ	0789869190	25.1.2023	
09	GIFT JAMES	welding machine	0762-978585	25.1.2023	
10	ADAM ALY	Welding machine	0717-835838	25/1/23	
(11)	MWONGASHE SUBI	MOTOR RUNNING	065209000	25/1/2023	

APPENDIX 2: SOME OF THE PHOTOGRAPHS TAKEN DURING CONSULTATION MEETING WITH THE COMMUNITY MEMBERS





APPENDIX 3: MINUTES OF CONSULTATION MEETINGS

CONSULTATION WITH COMMUNITY MEMBERS IN THE PROJECT AREA

MUHTASARI WA KIKAO CHA MASHAURIANO KATIKA
YA MSHAURI MWELEKIZI, SERIKALI YA MTAANA KATA
PAMOJA NA WANANCHI KWA AJILI YA MRADI WA
WA UJENZI WA STENDI YA MABASI YA MWENDOKASI
(BRT DEPOT) KATIKA ENDO LA UBUNGO MAZIWA-
MTAA WA UBUNGO KISIWANI, KATA YA UBUNGO.
KIKAO KILIFANYIKA OFISI YA SERIKALI YA MTAAN WA
UBUNGO KISIWANI MNAMO TAREHE 15, NOVEMBA, 2022.

UINGULIZI
Kikao kilifunguliwa na mwenyekiti wa serikali ya mtaa mnamo saa
(10:45) nne na dakika arabani na tano asubuhi.

AGENDA 1: MAELEZO KUHUSU MRADI:
Mshauri Mwelekezi alitoa maelezo kuhusu mradi ili
kuwaelewesha wajumbe wa kikao juu ya kinachogndelea
ili waweze kutua mawazo na maoni yao kuhusu mradi.

AGENDA 2: HOJA NA MAONI KUTOKA KWA WAJUMBE:

MSUMBE 1; Alitulia mradi utaanza lini?

MSUMBE 2; Aliongelea manufaa yatakayotokana na uanzishaji wa mradi
huu kama; Ajira, Kuboresha biashara, Kuboresha mazingira.
hivyo kwa yeye mradi umemgusa:

MSUMBE 3; Afurii zitaikuwa kwa kipindi kifupi mfano; vumbi ila
baada ya hapo utakulea manufaa katika eno la ubungo
Kisiwani.

MSUMBE 4; Alisistiza juu ya mkikamano kati ya washauri elekezi
na wananchi, lakini pia ahadi zilizotolewa juu ya malipo
basi zifanyika kwa wakati.

MSUMBE 5; Dagezika la waku, ^{katika biashara.} katika eno husika kutokana na maendeleo
yalivyafanyika.
- Afurii; ongeza la watoto wao na baba baada ya mradi kushika

- Athari: Ajaru za barabara

Kipambeli cha

MSUMBE 5; Ajaru Kipewe kwa vijana na wakazi wa eneo la ubungo mawima

: Ulinzi na usalama

MSUMBE 6; Aitongelea jini ya mudi utasaidia kupungua uhalifu.

- Ujenzi wa vyeo vya ^{ili} kupungua uhalifu na mazingira.

MSUMBE 7; Wananchi wanufaike na mudi.

(wananchi watakabaki katika eneo)

MSUMBE 8; Mudi unweze kuanza mapema tu inwezekanavyo.

MSUMBE 9; Usalama na natoto wanabenda shuleni waliozoea kupita/kukabiza katika barabara ambayo itenda kufanyika ujenzi wa mwendu kasi.

- Ifahamike mda maalumu ambao mudi utenda.

MSUMBE 10; Makenkele yatakayotokana na mudi na shughuli zake xadhibitive

- Watu wanaoishi katika eneo linalotarajiwa kujengwa hiyo standi wapewe fidia zao stahiki jana wakati.

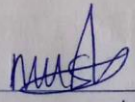
MSUMBE 11 - Mabomba ya maji taka na maji safi yajulikana yako wakati ili yasihanibiti kupinda shi mudi na kusababisha shida kwa jami.

AGENDA NO 4; MENGINEYO

Wananchi wameomba maoni yote yaliyotolewa yaweze kuangaziwa a hasa katika upande wa athari zitakazotokana na mudi katika vumbi, kelele, jinsi ya kuhibiti maji safi na maji taka.

AGENDA NO 5; KUFUNGA KIKAO:

Kikao kilipungwa na mwenyekiti mnamo saa tano na dakika arabaini na tano asubuhi (5:45).


Mtendaji Kata



MAHUBAURIO YA KIKAO		
JINA	NAMBA YA SIMU	SAH/HA
1. JOVIN M. MIMBO	0713245028	gn
2. ELIZABERT ALBIN	0752456238	~~MAHUB~~
3. ZAINABU M. SHIRI	0719810530	Shiri
4. ANNA KITUTU	0655 546181	At.
5. ELASTO JOHN	0684:178060	alast
6. MAIDA ABOD	0754 913400	ABOD
7. JOSEPH NG'OMBE	0719358975	Zoe
8. HENRY KUHATO	0715 824120	hus
9. DANABHARI HASANZALI	0689899366	By.
10. SHANI HASSANI MCHUKWA	0714 304244	SH
11. AISHA B. MSUYA	0655 223108	A. msuya
12. ANDREW CHIPITE	0712043531	A. chipite
13. VITUS A. NGATRO	0755013982	VP
14. HAPPINESS MICHAELI LYIMO	0655358954	HO
15. FARAJA SIKI	0714689990	F. siki
16. JAMALI JERAN	0784 502352	J. jeran
17. ELIZABETH BERNAD	0664-965097	B
18. MAGDALENA K. MLOWE	0718628672	M. mlowe
19. GANGA S. MARGAMBO	0786-341228	lis.
20.		



MINUTES OF THE MEETING WITH ASSOCIATION OF TRADERS AND BUSINESS OWNERS

MUNTASARI WA KIKAO CHA MASHAURIANO KATIKA
YA MSHOURI MWELEKEZI NA WAFANYA BIAHARA WA UBUN-
GO MAZIWA KWA AJILI YA MRADI WA UTENZI WA
STENOI YA MABASI YA MWENDOKASI (BRT DEPOT) KATIKA
ENEO LA UBUNGO MAZIWA-MTAA WA UBUNGO KISIWANI
KATA YA UBUNGO, KILICHOFANYIKA KWENYE ENEO LA
WAFANYA BIAHARA NA KAZI ZA UCHOMELEAJI MNAMO TAREHE

25 JANUARI, 2023.

MAHUDHURIO:

1. Alex Wingia Kimaro - Mwenyekiti
2. Adam Ally - Katibu
3. Mary Abraham Sengoma - Mjumbe
4. Paul Modest Mtey - Mjumbe
5. Nyandwi Antony - Mjumbe
6. Tacle F. Taro - Mjumbe
7. Jafar Aly - Mjumbe
8. Hemed M. Bendera - Mjumbe
9. Erick Yohana Mahimbo - Mjumbe
10. Gift James - Mjumbe
11. Mwangasho Sudri - Mjumbe
12. Magdalena L. Mlowe - Mshauri Mwelekezi (Mjumbe)

AGENDA 1: UTANGULIZI NA KUFUNGUWA KIKAO:

Mwenyekiti alifungua kikao mnamo saa nane kaimili mchana (8:00) ambapo alitoa maelezo kuhusu mradi na kukaribisha utambulisho wa mshauri mwelekezi pamoja na wafanya biashara.

AGENDA 2: HOJA NA MAONI KUHUSU MRADI KUTOKA KWA WAJUMBE:

Mjumbe 1:

Mradi ni mzuri, utachochemua maendeleo katika jamii na rehi kwa ujumla.

Mjumbe 2:

Wafanyabiashara wataathirika sababu wako kwenye eneo la mradi hivyo watalazimika kuondoka kupitia mradi. Hii itasababisha kuhama na hivyo kupoteza wateja.

Mjumbe 3:

Mwokozi anashauriwa kutakikisha watu wote wanaotakiwa kuli pwa fidia wanapewa haki zao shabiki kwa wakati ili kupitia malalamiko.

Mjumbe 4:

Wafanyabiashara wanaomba kumepo na fremu upande wa bara bara ambapo sata hivi kuna maduka ambayo kuna biashara zao. Hili likitanyika, wale ambao wapo sasa waweze kurudi na kuendelea na shughuli zao na kodi iwe rafiki ili waweze kupata maeneo hayo.

Mjumbe 5:

Mwokozi anatakiwa atakikishe kuwa mradi unajulikana na watu wote ambao wataathirika kwa namna moja au nyingine na vito vile ni jinsi gani watahusika. Pia, watatakiwa kuyua ni ipi wataweza kupata fidia sababu ya hasara zitakazotokana na kutolewa kwenye eneo la mradi kwa upande wa wamiliki pamoja na wapangaji wao.

AGENDA 3: MENGINEYO:

-Wafanyabiashara wabasisitiza kuwa mwokozi awafikirie kwenye skala la kumeka fremu za maduka ili kuwzesha biashara zrudie na watu wachangaike kutafuta wateja wapya.

Agenda 4: KUFUNZA KIKAO:

-Kikao kilifungwa na mwenyekiti mnamo saa tisa kamili alaiiri (9:00) kwa kutoa shukrani kwa walioweza kuhazimika.

Alex Wungia Kibao
Katibu Mwenyekiti

Adam Ally
Katibu

MINUTES OF THE MEETING WITH DRIVERS AND CONDUCTORS ASSOCIATION OF SHEKILANGO

MUHITASARI HA KIKAO CHA MASHAURIANO KATI YA MSHAURI MWETEKEZI NA LIMOJA WA MADDEREWA NA MAKONDAKTA (DCAS) NA SHEKILANGO UBUNGO KWA AJILI YA UJENZI WA STENDI YA MABACI YA MWENDOKASI (BRT DEPOT) KATIKA ENDO LA UBUNGO MAZIWA, MTAA WA UBUNGO KICIWANI, KATA YA UBUNGO, KILICHOFANYIKA OFISI YA KATA YA UBUNGO, MNAMO TAREHE 27 JANUARI, 2023.

MAHUCHURIO:

1. Magulu Ally Selemani - Mwenyekiti
2. Mohamedi Hamisi Salumu - Katibu
3. Kelvin John Seng'enge - Mjumbe
4. Mbarami Athuman Uhenga - Mjumbe
5. Yusuph Saidi Chapa - Mjumbe
6. Magdalena L. Mlowe - Mjumbe (Mshauri Mwelekezi)

AGENDA 1 - UTANGULIZI NA KUFUNGA KIKAO:

Kikao kilifunguliwa na mwenyekiti wa kikao hicho mnamo saa me na nusu asubuhi. Mwenyekiti pamoja na mshauri mwelekezi walitoa maelezo mafupi kuhusu mradi na wajumbe walijitambulisha. Mwenyekiti alikaribisha Maoni.

AGENDA 2 - HOJA NA MADNI KUHUSU MRADI:

Mjumbe 1:

Mradi utakuwa wa mamfaa kwetu na jamii lakabu utaleta ajira mbalimbali zikiwemo za madereva.

Mjumbe 2:

Mwekezaji anatakiwa ahakikishe mradi unjulikana na jamii ya jirani na kuweza kupunguza athari zatakazotokana na shughuli za mradi kama vumbi na kelele ili wananchi waweze kulindwa na kuyikinga na athari hizo.

Mjumbe 3:

Mwekezaji anatakiwa ahakikishe kuwepo wa uwazi kuhusu shughuli za mradi.

Mjumbe 4:

- Daladala zitapungua hivyo kupunguza ajira kwa madereva na makondakta pamoja na wamiliki kuatiirika kibiaahawa na uhabumi.
- Waathirika wa mradi wapewe shahiki zao kwa wakati.

Mjumbe 5:

- Miundombinu ya mradi inatakiwa iendane na mazingira ya halisi ya nchi na eneo husika sio kuiga kutoka kwenye nchi nyingine na kusababisha mradi kutopanikiwa.
- Kunatakiwa kuwepo mpango mkakati wa kuhakisha yenzi una malizika kwa wakati.

AGENDA 3: MENGINEYO:

Mwenyekiti alisisitiza swala la ajira na fidia kwa athirika wa mradi.

AGENDA 4 KUFUNGA KIKAO:

Mwenyekiti kwa mabw ya mshauri mwelekezi alitoa neno la shukrani kwa wayembe na kufunga kikao mnamo saa tano na nusu asubuhi.

Mogulu Ally Selemani
Mwenyekiti

Mohamed Hamisi Salumu
Katibu

APPENDIX 4: APPROVAL OF TERMS OF REFERENCE (TOR) BY NEMC



THE UNITED REPUBLIC OF TANZANIA

VICE PRESIDENT'S OFFICE
UNION AND ENVIRONMENT

NATIONAL ENVIRONMENT MANAGEMENT COUNCIL
(NEMC)



In reply please quote:

Ref: EC/EIA/2022/8259/01

Date: 15/12/2022

Dar Rapid Transit Agency,
P.O. Box 1923,
Dar es Salaam.

**RE: APPROVAL OF TERMS OF REFERENCE (ToR) FOR THE THE PROPOSED
CONSTRUCTION AND OPERATION OF THE PROPOSED BRT DEPOT AT
UBUNGO MAZIWA WARD, UBUNGO MUNICIPALITY IN DAR ES SALAAM
REGION**

Reference is made to the above heading.

2. We acknowledge receipt of the Scoping Report and Terms of Reference (ToR) for undertaking Environmental Impact Assessment (EIA) study for your above stated project.

3. Having reviewed the submitted documents, the Council found the ToR to be generally adequate to guide the EIA study and thus, they are approved. You are therefore required to proceed with the EIA study, prepare the Environmental Impact Statement (EIS) as per approved ToR and professionalism and submit EIA report to the Council according to the requirements of the Environmental Management Act, 2004 Cap 191 and its subsequent Environmental Impact Assessment and Audit Regulations of 2005. Also be reminded that among others, the following information should be included in the EIS:

- i. Activities with detailed explanations that shall be undertaken in the project mobilization, construction, operation and decommissioning phases;
- ii. Site location, accessibility and adjacent development of the proposed project and the physical area that may be affected by the project activities;
- iii. Description of raw materials in terms of quantity, type and where are sourced from;
- iv. Clearly describe all the components of the proposed project, where necessary indicate their sizes;
- v. Information on all types of wastes (solid, liquid, hazardous and e-waste) that will be generated by the project in all project phases and its management;
- vi. Information on storm water management in all project phases;
- vii. Noise, vibration and dust control mechanisms during all project phases;

Headquarters, 35 Regent Street, P.O Box 63154, 11404 Dar es Salaam, Phone: +255 22 2774852,
+255 22 2774889; +255 0713 608930/0735 608930 Fax: +255 22 2774901
Email Address: dq@nemc.or.tz Website: www.nemc.or.tz

- viii. Information/document on Land ownership acquisition that also justify the land use of the area to be compatible with proposed project;
- ix. Detailed specific and most current baseline data on physical, biological, socio-economic and cultural environment. Also provide data of various parameters including air quality, noise level, water quality and soil quality at the project area;
- x. All issues pertaining to Fire Safety, Occupational Health and Safety of workers during the project implementation;
- xi. List of expertise to conduct the EIA study should sign the document with their original signatures (not scanned or forgery signatures) and be indicated whether He/She is a registered or non-registered environmental expert. Failure to observe this requirement will constitute to an offense as per EMA Cap. 191 of 2004;
- xii. All key stakeholders (including but not limited to) Ubungu Municipal Council, Mtaa and Ward offices, TANROADS, OSHA, Project neighbours, Fire and Rescue Office are consulted and their views and concerns addressed. Records of meetings, communication and comments should be provided. Also take note of the following:
 - a) Consultation forms should bear date and each consulted stakeholder should sign against his/her name, as the law requires. Submission of documents which do not observe this requirement will be sent back;
 - b) Attach all letters that will be sent to the authorities for consultations, records of minutes of consultation meetings, pictures taken during the consultation meetings, names and original signatures (not scanned);
 - c) Their views and concerns should be responded by the developer and included in the report.
- xiii. Detailed Environmental Management and Monitoring Plan for the proposed project; and
- xiv. The submitted EIS should be attached with supporting relevant documents such as permits/certificate/licences to facilitate decision making including the following:
 - a) Land ownership documents with appropriate land use;
 - b) Detailed approved engineering designs and architectural drawings; and
 - c) Site layout plan indicating all project components.

4. Upon submission of the EIA report online, you are also required to submit seven (7) hard copies to the Council to facilitate the review process. The Council will then arrange for a technical review of the document by Technical Advisory Committee (TAC). Prior to review, representatives of the Council will visit the project area to verify the adequacy of the EIA report.

5. As you submit the EIA report, you will be required to pay to the Council review charges as generated in the system. Please take note that, the review charges exclude transport cost for officers to and from the project site, hence, you are required to organize and provide for.

6. Please, do not hesitate to contact us in case you need any further information or clarifications on this process through telephone No. +255 656 257 746.
7. We are looking forward to your cooperation concerning this project.

Yours sincerely;



Luhuvilo Mwamila
For: Director General

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APPENDIX 5: EMERGENCE PREPAREDNESS AND RESPONSE PLAN



THE UNITED REPUBLIC OF TANZANIA

**PRESIDENT'S OFFICE REGIONAL
ADMINISTRATION AND LOCAL
GOVERNMENT**

DAR RAPID TRANSIT AGENCY

Permanent Secretary, President's Office

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PROPOSED CONSTRUCTION AND OPERATION OF BRT DEPOT AT UBUNGO MAZIWA WARD, UBUNGO MUNICIPALITY IN DAR ES SALAAM CITY



EMERGENCY RESPONSE PLAN (ERP)

Prepared by:



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July, 2023

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LIST OF ACRONYMS

BRT	Bus Rapid Transit
CEO	Chief Executive Officer
CNG	Compressed Natural Gas
DART	Dar Rapid Transit
EOC	Emergency Operations Center
ERP	Emergency Response Plan
ESD	Emergency Shutdown Device
HCV	Heavy Commercial Vehicles
HSE	Health, Safety, and Environment
IMP	Incident Management Plan
NGV	Natural Gas Vehicles

PPEs	Personal Protective Equipment
SOP's	Standard Operating Procedures

EMERGENCY RESPONSE PLAN

I.0 INTRODUCTION

1.1. Background

This Emergency Response Plan (ERP) has been prepared to establish the procedures for responding to specific emergencies that may occur at the proposed BRT Depot at Ubungu Maziwa Ward, Ubungu Municipality in Dar Es Salaam City which also include a Compressed Natural Gas (CNG) station. Copies of these plans are maintained at the Dar Rapid Transit (DART) offices and at each Ubungu Depot station. This ERP has been prepared in accordance with applicable standards and regulations:

The ERP includes protocols to ensure close coordination with local area emergency response organizations, agencies and also with existing national and local Emergency Preparedness Plans. In the event there is a conflict within the standards or regulations or within pre-established site safety guidelines, the more stringent one shall govern.

1.2. Applicable Code and Standards for depot station including CNG Stations

The applicable standards include but not limited to the following

- International Building Code 2006
- International Fire Code 2006
- International Mechanical Code 2006
- National Electric Code 2011
- International Fuel Gas Code 2006
- NFPA Standards referenced from 2006
- IBC Chapter 35 and IFC Chapter 45
- NFPA 52 Vehicular Systems Code 2010, 2013
- NFPA 59A Storage of LNG 2009, 2013
- NFPA 70 National Electric Code (NEC) 2010
- NFPA 79 Electrical standard for mechanical equipment 2010

2.0 EMERGENCY CLASSIFICATION DETERMINATION

2.1. Definition of Emergency

Emergency is a dangerous or serious situation, such as an accident, that happens suddenly or unexpectedly and needs immediate action. An emergency involves raising alarms in the event of an immediate risk to prevent escalation and damage to buildings and equipment and the injury and death of individuals. In the case of the CNG station within the Ubungu depot, an emergency is a condition or event that causes actual or a threatened escape of CNG from the system in such a quantity and under such circumstances that the liquid or gas could reasonably be expected to become a hazard to people or property or there is an actual or threatened interruption of service to customers, other than planned interruptions.

For the proposed depot station an emergency might include:

- Fire or ignition
- Explosion
- Large flammable liquid spill
- Person or clothing covered in gas
- Injuries
- Threat of violence
- Robbery

2.2. Controllable Emergency

Controllable emergency is within the proposed depot is any emergency where DART could prevent harm to other personnel, customers, vendors or equipment by following standard operating procedures (SOP's) such as shutting down equipment, isolating system or initiating the Emergency Shutdown System. Controllable Emergencies at the proposed depot station include but not limited to:

- CNG spills contained within the spill containments that do not result in fire,
- Overpressure of gas or liquid process piping.
- Small fires that do not involve flammable gases.
- Electrical fires that do not involve flammable gases.
- Loss of electrical power.
- Unexpected CNG point of transfer disconnection.
- Minor vehicle accidents.
- Securing the site prior to severe weather conditions.
- Security breaches that do not result in substantial damage to the station.

2.3. Uncontrollable Emergency

Any emergency in which the Clean Energy personnel cannot prevent harm to personnel or equipment by taking reasonable actions such as shutting down equipment, isolating system or initiating the Emergency Shutdown System. Uncontrollable Emergencies include:

- CNG spills not contained by the spill containments and do not result in fire.
- CNG spills not contained by the containments and result in an unconfined fire.
- Flammable gas leaks from significant failure of a pipeline or equipment.
- Building or equipment fires that contain or can contain flammable gases. Structural failure of an CNG storage.
- Severe weather conditions that can cause damage to equipment and systems or loss of containment of CNG or flammable gases.
- An act of sabotage that may result in structural failure of an CNG storage tank or rupture of an CNG tank or major pipeline

The arrangement of the ERP is important to combat an unplanned incident or emergency situation to bring the situation under control and to minimize any consequences. In the event of a major incident at the Ubungo depot station, there are three distinct phases that have to be managed to limit the impact on the business. These are:

- a) Emergency Response—to deal with the incident including the necessary action to control the incident, make safe and to rectify/repair the equipment
- b) Incident Management—To contain the incident and limit the impact it could have on the BRT station and surrounding environment.
- c) Business Continuity—in the event an incident has occurred that has resulted in a loss of a major facilities, arrangements are in place that allows the business to continue operating.

2.4. Purpose of the ERP

The purpose of the ERP is to establish policies and procedures and an organizational hierarchy for response to emergencies occurring on Depot Station. This Depot Station-level ERP guides the response of DART personnel and resources during an emergency. It is the official ERP for DART and precludes employee actions not in accord with the intent of this plan, or the emergency organization created by it.

2.5. Objectives of the Emergency Response Plan

The objectives of the ERP are to ensure any unplanned event is quickly brought under control so that it does not cause any harm to people, property or the environment. To achieve this detailed procedures are in place to respond all the Disaster/Emergency scenarios that could credibly occur. Emergency plans should be the product of an inclusive team instead of a single individual or group. Putting together a team of subject matter experts from different departments helps in determining the overall span of the plan, including a cycle of the four phases of emergency management indicated in Figure 1. These include: (i) **Mitigation** (Preventing emergencies and minimizing the effects if an event occurs), (ii) **Preparedness** (Identified efforts to prepare for the event), (iii) **Response** (Plans and efforts to respond safely to the event) and (iv) **Recovery** (Actions needed to return the facility to normal operations).



Figure 1: Four Phases Of Emergency Management

2.6. Mission of the ERP

The mission of this plan defines and describes actions to be taken by the Station to effectively mitigate, prepare for, respond to and recover from various crises, emergency or disasters that may affect lives, property and the institution.

2.7. Goals of the ERP

The goals of this plan are:

- To protect the health and safety of the depot Station population
- To protect depot Station assets
- To preserve the DART/BRT to operate
- To establish clear lines of authority and coordination applicable to the crisis response
- To centralize and define the procedures to be implemented in response to a crisis event
- To ensure a timely recovery from a crisis even

2.8. Authority of the ERP

This plan is promulgated under the authority of the Executive officer of DART. The day-to-day management and implementation of this plan is delegated to the Director of BRT Station Security. When deemed appropriate the DART Chief Executive Officer, based on the unfolding events of a crisis or potential crisis, will activate the Emergency Operations Center (EOC)

This ERP is supported by the internal Crisis Management Plan, the Business Continuity Program and associated Business Continuity Plans, and the Public Health Emergency Plan. All plans are part of the comprehensive Emergency Management Program which incorporates the four pillars of the applicable standard through a number of corporate programs and initiatives. The program is in alignment with the requirements of standard, Emergency Preparedness and Response for Depot stations as well as Petroleum and Natural Gas Industry Systems. The four pillars of emergency management plan are presented in the Table 1.

Table 1: Four Pillars of emergent management

Pillar	Description
Mitigation/Prevention	Programs, plans and actions intended to prevent or reduce impacts. Includes applying learnings from investigations and how project integration, and hazard and risk assessment information is used in the Emergency Management Program.
Preparedness	The continuous cycle of planning, organizing, training, conducting exercises and taking corrective action in an effort to ensure effective coordination during an emergency response. It includes, but is not limited to, plans development and maintenance, training and exercise programs and equipment management.
Response	The activation, mobilization, and coordination of all necessary resources and activities to manage a hazard, exposure, or threat's immediate consequences in accordance with company emergency procedures.
Recovery	Actions after an incident or emergency which aim to restore the affected operation/area back to its pre-incident or better condition. Recovery programs and activities ensure that the response is reviewed as part of continuous improvement.

3.0 EMERGENCY OPERATIONS CENTER

The EOC is a term used not to define a specific location but a system of command and control. This system is the primary policy setting group during a major station emergency and during emergencies outside the station which have the possibility of affecting station operations. DART will appoint a chairperson as dictated by the nature of the emergency. The EOC will include the following personnel or their alternates:

- (i) Chief Executive Officer
- (ii) Director, infrastructure operation and management
- (iii) Director Transportation Development
- (iv) Director, Human Resources
- (v) Director, finance and accounts

Once the EOC is activated, the Operation manager will notify and assemble the assigned personnel. Based on the nature of the crisis, the Chairperson can establish the EOC in a fixed location or means of communication, such as emails or conference calls, which are best suited for response to the emergency. Examples of incidents that may warrant implementation of the EOC are presented in the following section.

3.1. Types of Emergency Occurrences and Details of the Emergency Response Procedures

TPL Stations	NG Escapes, Fire, Explosion and Major Leakage /spillage	All types of Escapes of Natural Gas Escapes on site that could also lead to fires and an Explosion. Leakage of Ethyl Mercapton
Piped Natural Gas (PNG)	NG Escapes, Fire, Explosion and Major leakage	All types of Escapes of Natural Gas Escapes from the gas supply piped network that could also lead to fires and an explosion
Compressed Natural Gas (CNG)	NG Escapes, Fire, Explosion and Major leakage	Failure of Equipment involved in the compression of Natural Gas operating at 200 bar Pressure.

Diesel Generators	Fire and Leakage of fuel	Failure of equipment involved in the generating of electricity
Electrical Emergency	Electrocution of single or multiple individuals	Working on High & Low voltage supplies
Terrorists Activities	Bomb Threats Terrorist attacks'	Acts of terrorism including Bomb Threats Direct acts on TPL Installations. Kidnap
Natural Disasters	Floods and Earthquake	Natural calamity, having potential to cause severe loss of life & TPL Buildings and installations - flooding and earthquakes
Un-odourised gas	Escaping gas may not be detected	Resulting in fire and

This list is not exhaustive. Any potential threat to individual safety or to station assets can quickly become a serious emergency if not reported, evaluated, and managed without delay. Each member of the BRT station has a responsibility for maintaining awareness of their surroundings and to stay alert to the development of potential threats. Sound judgment must be used at all times to avoid the unnecessary disruption of DART and BRT activities.

3.2. Communication/Points of Contact

While information relate to an emergency will be communicated through the Alert system and local media, the following individuals will serve as points of contact:

- (i) DART Chief Executive Officer, P.O. Box 724, email: info@dart.go.tz, phone +255-22-2700046/280, 0800110147
- (ii) Director, infrastructure operation and management, P.O. Box 724, email: info@dart.go.tz, phone +255-22-2700046/280, 0800110147
- (iii) Director Transportation Development, P.O. Box 724, email: info@dart.go.tz, phone +255-22-2700046/280, 0800110147
- (iv) Director, Human Resources, P.O. Box 724, email: info@dart.go.tz, phone +255-22-2700046/280, 0800110147

3.3. Plan Priorities

The following general objectives have been developed in order to help meet the goals of this plan. The objectives listed below may not apply to every possible situation, but are included here to provide a framework of global priorities to be considered at any incident.

Priority I: Ensure Health and Life Safety

Objectives:

- Attempt to identify nature and severity of threat and all affected areas
- Establish emergency communications
- Assess personal injuries and track status of injured or missing individuals
- Evacuate and isolate affected locations pending additional assessment
- Identify and rescue persons trapped in damaged facilities

- Determine need for assistance from public safety agencies – request as needed
- Communicate critical information and instructions to staff and public
- Establish medical support
- Provide emergency food and shelter as needed

Priority II: Life Support and Assessment: Protect Buildings, Facilities, Systems of Record

Objectives:

- Assess facilities
- Reinforce, barricade, or secure damaged facilities that pose safety hazards
- Shutdown critical utility, data, and telecommunications systems
- Rescue critical records, backups and other data, where possible
- Determine need for outside assistance and/or expertise – request as needed
- Document damages

Priority III: Restore Normal Operations

Objectives:

- Initiate reactivation and restart of shutdown systems
- Establish temporary facilities for displaced activities
- Normalize delivery of supplies and equipment to the station
- Provide psychological and personal assistance to those affected by event
- Provide space, equipment, or materials to external agencies, as necessary

3.4. Plan Responses

The Planned Responses to depot station Emergencies are divided into three sections namely:

- (i) Systems and Procedures for Dealing with Emergencies
- (ii) Non-Weather Emergencies
- (iii) Weather Emergencies

4.0 SYSTEMS AND PROCEDURES FOR DEALING WITH EMERGENCIES

4.1. Emergency Notification System

DART/BRT has implemented a Ubungo Depot station emergency notification system which can be activated to alert the station in the event of a serious emergency. The system consists of two primary components:

i. Emergency Warning Sirens and public address system

Upon notification of an emergency that presents a potential threat to the public, Ubungo depot station security will activate emergency sirens to alert the station staff. Upon activation of sirens, all station occupants should:

- Immediately increase awareness of surroundings and be alert for any type of potential threat.
- If outdoors, prepare to move to an area of shelter or safety using caution before automatically moving into any specific building until the exact nature of the emergency and/or the areas of station involved are known.

- If indoors, prepare to initiate evacuation, shelter-in-place, or emergency lockdown procedures.

ii. Fire Emergency

In the event of a Fire Alarm:

- ✚ Leave the station immediately
- ✚ If you are a mobility-impaired person on an upper floor, proceed to the stairwell landing on your floor and instruct someone to notify emergency response personnel of your location
- ✚ Never presume a fire alarm is a false alarm. Take action immediately
- ✚ Upon reaching a place of safety, call Station Security at 022(112) to confirm notification of the alarm and provide any information specific to the situation
- ✚ No personnel will be allowed to re-enter the Station without permission of the Fire Department Or Security

In the Event of a Fire

- ✚ Assist any person in immediate danger to safety, if it can be accomplished without risk to yourself
- ✚ Immediately activate the fire alarm system. This will activate the audible and visual warning system to evacuate and will automatically notify station Security and Fire Department
- ✚ If the fire is small enough, use a nearby fire extinguisher to control and extinguish the fire
- ✚ Don't fight the fire if these conditions exist:
 - The fire is too large or out-of-control
 - The atmosphere is toxic
- ✚ If the first attempt to put out the fire does not succeed, evacuate the station immediately
- ✚ Doors, and if possible windows, should be closed as the last person leaves a room or area
- ✚ Upon evacuating the station, staff should proceed at least 100meters from the exit.
- ✚ After reaching a place of safety, call Station Security at (022) 112
- ✚ Provide additional information, such as:
 - Name of the station
 - Location of the fire if known
 - Description of fire conditions if known.
- ✚ If you are trapped in a building during a fire:
 - Stay calm and take steps to protect yourself
 - If possible, move to a room with an outside window
 - If there is a telephone, call 911 and tell the Emergency Dispatcher where you are. Do this even if you can see Fire Department personnel from the window
 - Stay where rescuers can see you through window and wave a light-colored item to attract their attention
 - Stuff clothing, towels, or paper around cracks in the door to help keep smoke out of your refuge
 - If possible, open the window at the top and bottom. Be ready to shut the window quickly if smoke rushes in
 - Be patient. Rescue of occupants within large structures will take time

- No occupants will be allowed to re-enter the station without permission of the Fire Department, or station Security

5.0 GAS METHANE DETECTORS

Each CNG fueling station has multiple methane detectors. They have a measuring range of 0-100% of the lower flammable limit (LFL). Methane detectors are set to activate the alarm system at 20% and/or 40% of the lower flammable limit, as further described below. The exact locations are illustrated in the layout drawings.

A typical layout is as follows:

A methane detector is located near the CNG offload area, adjacent to the CNG transport offload skid.

A methane detector located on the CNG dispense pump skid adjacent to the storage tank inside the containment area.

A methane detector located near each of the CNG dispensers.

(The exact number varies depending on the number of dispensers)

6.0 CNG FUELING STATION SAFETY EQUIPMENT

6.1. Flame Detectors

Each CNG fueling station is provided with at least four (4) Ultraviolet/Infrared Flame Detectors. The flame detectors are located on poles above each corner of the CNG containment wall. The flame detectors are oriented to provide overlapping fields of view for the whole containment area, offload area, and dispensing areas.

6.2. Emergency Shutdown Device

The CNG fueling station is provided with multiple emergency shutdown devices (ESD). There are ESDs located near each of the two sets of stairs which climb over the containment wall. One ESD is located on the containment wall, in the offload control panel area. An ESD is located at each of the CNG dispensers. One emergency ESD is located on the outside of the wall surrounding the control area. There is also an emergency shutdown device located on the front of the control panel inside the gated control area.

6.3. Alarm System

Yellow and red alarm beacons are located above the electrical control cabinet. An alarm horn is also located on the top of the electrical control cabinet. When the alarm system has been activated the horn can be silenced by the pressing the "Alarm Silence" button on the front of the main electrical cabinet. Alarms can be acknowledged, thereby turning off the beacons, horn, and allowing the CNG station to be placed into service. These actions can be taken on the HMI (Human Machine Interface) on the front of the control panel. If an alarm is acknowledged, but the condition causing the alarm is still present, such as methane detection, the alarm

will not be cleared and the CNG station will not be allowed to be operated. The yellow or red beacons will remain illuminated.

7.0 CLASSIFICATION OF MAJOR AND MINOR INCIDENTS

DART/BRT classifies incidents into three categories, aligned with the applicable standards requirements.

Level 1 – A minor incident that can be managed by the onsite BRT personnel with no requirement to seek support from external resources. The effects are limited to the site and have no impact outside the site, location of the incident or installation. For Level 1-minor incidents, the Incident Management Plan (IMP) in most circumstances would not be activated.

Level 2 – A Major incident that requires support and direction from senior DART/BRT personnel and the additional resources of an external emergency response resource center. The incident has an impact on other areas of the DART and / or is likely to have a major impact on areas outside DART such as general public, industries, environment etc. In such circumstances, the IMP should be activated including the formation of the Incident Management Team.

Level 3 – A major incident of such magnitude that is beyond the control of DART and has to be managed and controlled by External agencies / Emergency services. In such circumstances, the IMP shall be activated

8.0 OFFSITE DISASTER /EMERGENCY SITUATION

By nature of the Depot business undertaken by DART, the majority of Incidents will be contained inside the perimeter of BRT Ubungu property

9.0 REPORTING OF EMERGENCIES

BRT Ubungu depot operates a 24/7 emergency control room where the general public can call in cost free to report an emergency. In addition, BRT has fully equipped emergency teams with fully equipped vehicles and personnel operating on a three shift 24/7 basis who upon receipt of a call from the emergency control room will attend the emergency. Teams is strategically located around the gas supply area and are fitted with vehicle tracking devices so their exact location can be determined.

The person in the Control Room receiving a report of an incident will: Record in the DART system the:

- Details of the caller – name, address, contact number.
- Nature of the emergency (e.g. Smell of gas, fire, loss of gas supply, etc.)
- Address of the escape/ incident
- Time of call received give advice to the caller to
- Open all doors & windows

- Turn off gas supply at the meter
- Do not switch on or off an electrical switch
- Extinguish all naked flames

NB. The internal reporting of an incident will follow the procedure detailed in the standard procedures HSE.

I 0.0 MANAGEMENT OF EMERGENCIES

The main control Centre for the operation and control of the BRT system is also at the Ubungo station. The Control Room Gas Supply Section monitors the gas supply network and can control sections of the network remotely. This Control Room upon receiving a report of a gas escapes, or any other emergency, will coordinate the implementation of the ERPs. They will receive the information detailed in this document then:-

- Dispatch an emergency team to site
- Record the time of dispatch
- Record the time of arrival on site by the team
- Receive and record the initial report of the details from the site
- Inform the appropriate Manager in the O&M department.
- Request the assistance of the emergency services, if required.

I 0.1. Resources

The Emergency Control room has detailed lists including contact numbers of the Organizations and personnel that can be called upon if additional resources are required. This information is contained in the DART Stakeholders Contact Directory that is issued to all relevant personnel and published on the DART Intranet. These lists include:

- Senior management
- Middle management and staff
- offices
- Emergency services and general support
- Contractors, plant hire companies and other related organizations
- Mutual Aid scheme members

I 0.2. Responsibilities

The management of the Emergency Services of DART is the responsibility of the Head of DART, Division of Operations and Maintenance -HOD (O&M).

- The HOD (O&M) delegates responsibility of the management of the emergency Control room to the O&M Manager after Sales Services.
- The management of the Emergency Response Teams is the responsibility of the O&M Zonal managers

I 0.3. Escalation and Implementation of the IMP

In the event that the situation on site cannot be brought under immediate control, the Control Room Engineer will inform the O&M Manager who depending on the

Circumstances will decide to inform the HOD (O&M). The HOD (O&M) will provide advice and if deemed necessary attend site to control the operations. If the HOD(O&M) considers that the situation is of a serious nature that:

- Cannot Be Brought Under Immediate Control
- Requires additional external resources
- Has the potential to escalate and cause harm to people, property or the environment
- Is a major incident – see section above, The HOD (O&M) will inform the Technical Director who will decide if the IMP is required to be implemented. The reporting of the incident will follow the procedure detailed in the TPL procedures

10.4. Training, Emergency Drills and Mock Exercises

All control room operators will be trained in procedures with specific focus on Receiving and communicating the relevant information as accurately as possible and being able to distinguish between routine and major emergency calls. Full scale unannounced mock drills are undertaken to test each one of our Emergency Response Procedures at least every year. The exception will be where a real time event Has occurred, and the response plan was put into action.

The testing of the plans is organized by the HOD (HSE). A report will be written by the HOD (HSE) on the results and findings of the Mock Drills and if necessary, an agreed action plan is prepared with the HOD (O&M). The report is then sent to the TD for approval.

All the personnel who are required to handle emergencies will be trained on this plan in January each year.

10.5. Emergency Siren

A Hooter is installed in various strategic location of station. The Emergency siren/s is located suitably to cover the whole area with the operational control within the installation. Emergency siren code is as follows:

- (a) **Level 1** - Minor Emergency: A wailing siren for two minutes.
- (b) **Level 2 & 3** - Major Emergency : Same type of siren as in case of Minor emergency but the same will be sounded for three times at the interval of one minutes i.e.(wailing siren 2min + gap 1 min + wailing siren 2min + gap 1min +wailing siren 2min) total duration of Disaster siren to be eight minutes.
- (c) **ALL CLEAR**: Straight run siren for two minutes.
- (d) **TEST**: Straight run siren for two minutes at frequency at least once a week. The siren is tested every Monday at 10:30am.

10.6. Review

A formal review of the complete Disaster Management Plan is undertaken in December every year where any necessary Amendments for improvement will be made. In

addition to the above improvements to the ERP, updates are also made following lessons learnt from the Mock Drills and safety audits.

I 1.0 PROCEDURE IN CASE OF ODORANT (ETHYL MERCAPTAN) SPILLAGE

1. Inform Emergency Control Room.
2. Barricade affected area.
3. Emergency control room will inform & take action as per ERP.
4. Onsite incident controller (responsible person at site) will take following action
5. On site incident controller to instruct and guide the firefighting team for firefighting till HSE responsible person arrives on site.
6. All operational employees' needs to be wearing all required PPEs.
7. Use neutralizing agent, to absorb them.
8. Carry out necessary rectification work.
9. Give necessary warning and instruction to nearby residents.
10. Remove the used neutralizing agent and send it to authorized agency for proper disposal. Dispose it as per procedure.
11. Fill the required forms (3,8&9) as per standard hazardous waste management & Handling rules.
12. Confirm emergency is over/complete, and inform to the Incident Control Team

I 2.0 ACTIONS TO BE TAKEN IN CASE OF FIRE TO ETHYL MERCAPTAN

1. Inform Emergency control room
2. Emergency control room will inform & take action as per Emergency.
3. Onsite incident controller will take following actions
4. On site incident controller to instruct and guide the firefighting team for firefighting till HSE responsible person arrives on site.
5. Barricade the affected area.
2. Ensure the operational people on site are required with necessary PPE, and breathing apparatus.
6. Inform Fire Brigade.
7. Use ABC type fire extinguishers & try to extinguish the fire
8. Carry out necessary rectification work
9. Send the solid waste to authorized agency for proper disposal
10. Confirm the emergency is over/complete and inform the Incident Control Team.

I 3.0 ACTIONS TO BE TAKEN IN CASE OF ESCAPE OF GAS OR FIRE ON Depot FACILITY

The CNG facility consists of compressors and filling facility of the HEAVY and Light Commercial Vehicles (HCV&NGV) used to transport the CNG to the Daughter Booster stations.

Compressors

In the case of an escape of gas or a fire on one of the compressor installations, the Emergency Isolation switch will be depressed and the compressors shut down. In case

of fire on the compressor, this will be extinguished by use of Fire Extinguisher located around the site.

CNG Filling Facility

In case of an escape or fire on the filling hose / equipment this can be isolated by operating the isolation valve. In case of an escape or fire on the NGV where possible the damaged component will be isolated and small fire can be extinguished by a fire extinguisher. In case of a major fire on a vehicle, this can be extinguished by operating the Fire Hydrant system.

14.0 ACTIONS TO BE TAKEN IN CASE OF ESCAPE OF GAS OR FIRE ON THE GAS CONNECTION INSTALLATION

Dependent on the severity of the escaping gas it may be isolated by control of the appropriate valve on site. A Diagram of the valve arrangements are displayed on a large Notice board in a dominate position on the site. In case of a major release, control room may be requested to isolate the station by remote operation of the station isolation valve

15.0 ACTIONS TO BE TAKEN IN CASE OF FIRE ON THE PIPELINE CONNECTION INSTALLATION

1. The fire will be extinguished when considered by the senior person on site to be safe to do so.
2. On site incident controller to instruct and guide the firefighting team for firefighting till HSE responsible person arrives on site.
3. Minor fires can be extinguished by use of the handheld Dry Powder Fire Extinguisher
4. In Case of Major Fires, the Fire Hydrant System may be used to: extinguish the fire and to cool the installation and neighboring buildings.
5. In the event of a major Fire that cannot be brought under control by use of extinguishers or the Fire Hydrant system then the PAET will be requested to isolate the station by remote control of the station isolation valve

16.0 ACTIONS TO BE TAKEN IN CASE OF HUGE USED OIL SPILLAGE

1. Inform to emergency control room.
2. Emergency control room to inform the concerned personnel and take action as per ERP.
3. Onsite incident controller (responsible person at site) to take following action.
4. Barricade the affected area.
5. Ensure the operational people on site are equipped with necessary PPE.
6. Give necessary warning and instruction to nearby personnel to restrict the Vehicle/personnel movement in oil spilled area.
7. Cover the spilled oil with Saw Dust / Sand to absorb Oil.
8. Collect Saw dust/Sand contaminated with Oil and send it to authorized agency for Proper disposal.

9. Fill the required forms as per the standard Hazardous Waste Management & handling Rules.
10. Confirm emergency is over/complete, and inform to the Incident Control team

17.0 PIPELINE NG EMERGENCY PROCEDURES IN CASE OF PE LEAKAGE

1. Emergency control room to inform the concerned personnel and take action as per ERP.
2. Onsite Incident controller (responsible person at site) to take following action.
3. Ensure the operational people on site are equipped with necessary PPE.
4. Isolate the section. Close up-stream, downstream valves and all branch valves from the section
5. Depressurize the section to atmospheric pressure taking safety measures.
6. Assess the situation to see any probable loss to life & property.
7. Carry out necessary rectification work of the line.
8. Purge the affected section.
9. Re-commission the section to operating pressure
10. Inform Emergency Control room and HOD (O&M) about the completion of Emergency.
11. Collect solid wastes and other scraps and deposit it in CGS scrap yard.
12. Confirm emergency is over / complete and inform it to emergency control room.

18.0 PROCEDURE IN CASE OF STEEL LINE LEAKAGE

1. Inform emergency control room.
2. Initial information to be given by District technician in shift
3. Emergency control room to inform the concerned personnel and take actions as per ERP.
4. Onsite incident controller (responsible person at site) to take following action.
5. Barricade the affected area.
6. Ensure the operational people on site are equipped with necessary PPE.
7. Assess the situation to see any probable loss to life & property.
8. Isolate the section. Close up-stream, downstream valves and all branch valves from the section.
9. Depressurize the section to atmospheric pressure taking safety measures.
10. Carry out necessary rectification work of the line.
11. Purge the affected section
12. Re-commissioning the section to operating pressure
13. Inform emergency control room and HOD (O&M) about the completion of emergency.
14. Collect solid wastes and other scraps and deposit it in CGS scrap yard.
15. Confirm emergency is over/complete and inform it to emergency control room.

19.0 ACTIONS TO BE TAKEN IN CASE OF FIRE WITHIN THE STATION

1. Inform Emergency control room.
2. Emergency control room will inform & take action as per ERP.
3. Onsite Incident Controller (responsible person at site) will take following action.

4. Barricade the affected area
5. Ensure the operational people on site are required with necessary PPE.
6. Assess the situation to see any probable loss to life & property.
7. Isolate the section. Close up-stream, downstream valves and all branch Valves from the section
8. If necessary co-ordinate with Fire Brigade to cool the affected area by spraying water and extinguish the fire.
9. Carry out necessary rectification work as per applicable Code of Practice
10. Inform Emergency Control room and HOD (O&M) about the completion of Emergency.
11. Collect solid wastes and other scraps and deposit it in TPL scrap yard.
12. Confirm emergency is over/complete and inform emergency control room

20.0 CNG EMERGENCY PROCEDURES

20.1 Types of Emergencies in Compressor

- i. Failure of high-pressure tube/fittings
- ii. Failure of gas seals
- iii. Failure of oil seals
- iv. Failure of coolant seals
- v. Failure of gas hose
- vi. Failure of coolant hose
- vii. Rupture of safety disc in stationary cascade
- viii. Cracking of filter
- ix. fire in compressor

20.2 NGV Filling Area

- i. Failure of filling hose at NGV point
- ii. Rupturing of cylinder safety disc in mobile cascade
- iii. Failure of high-pressure tubes and fittings of mobile cascade
- iv. In case of fire at NGV filling point.

20.3 By Dispenser

- i. Failure of hose
- ii. failure of valve seal
- iii. failure of high-pressure tube/fittings
- iv. in case of fire in dispensing area.

21.0 ACTIONS TO BE TAKEN IN CASE OF FAILURE OF GAS SEALS

1. Isolate electrical supply
2. Switch off the compressor by pressing ESD
3. Close the gas suction valve
4. Vent the gas inside the compressor
5. Open the compressor part having the failed seal.
6. Remove the failed seal and replace it by new one
7. After replacing the seal/s assemble the compressor parts by applying required torque Recommended by the manufacturer
8. Open the suction valve

9. Start the compressor and check for leakage
10. If there is a leakage, repeat the above-mentioned actions.
11. In case of no leakages, start normal operation.
12. Deposit the damaged seal in “solid waste” bin for disposal

22.0 ACTIONS TO BE TAKEN IN CASE OF FAILURE OF OIL SEALS

1. Isolate the electrical supply
2. Switch off the compressor
3. Place the tray immediately at the point of oil leakage
4. Close the gas suction valve
5. Vent the gas inside the compressor
6. Drain the oil if required as per the draining procedure (Standard Procedure)
7. Open the compressor part having the failed oil seal.
8. Remove the failed seal and replace it by new one
9. After replacing the seal/s assemble the compressor parts by applying required torque Recommended by manufacturer
10. Top up oil if required by following filling procedure (Standard Procedure)
11. Open the suction valve
12. Start the compressor and check for leakage
13. If there is a leakage, repeat the above-mentioned actions.
14. In case of no leakages, start normal operation.
15. Deposit the damaged seal in “solid waste” bin for disposal

23.0 ACTIONS TO BE TAKEN IN CASE OF FAILURE OF COOLANT SEALS

1. Place the tray immediately at the point of coolant leakage
2. Switch off the compressor
3. Close the gas coolant valve and suction valve
4. Vent the gas inside the compressor
5. Drain the coolant if required, precautions to be taken not to spill the coolant (by Collecting the coolants in mugs/ buckets)
6. Open the compressor part having the failed coolant seal. Remove the failed seal and replace it by new one
8. After replacing the seal/s assemble the compressor parts by applying required torque Recommended by the manufacturer
9. Top up the coolant, if required
10. Precautions to be taken not to spill the coolant while filling by the way Of using buckets and mugs etc.
11. Open the suction valve and coolant valve
12. Start the compressor and check for coolant leakage
13. If there is a leakage, repeat the above-mentioned actions.
14. In case of no leakages, start normal operation.
15. Deposit the damaged seal in ‘solid waste’ bin for disposal

24.0 ACTIONS TO BE TAKEN IN CASE OF FAILURE OF GAS HOSE

1. Switch off the compressor

2. Close the gas suction valve
3. Close the butterfly valve, in case of Sulzer compressor
4. Vent the gas inside the compressor
5. Remove the damaged hose and replace it by new one
6. Open the suction valve and butterfly valve in case of Sulzer compressor
7. Start the compressor and check for leakage
8. If there is a leakage, check tightening of the hose.
9. In case of no leakages, start normal operation.
10. Deposit the damaged hose in "solid waste" bin for disposal

25.0 ACTIONS TO BE TAKEN IN CASE OF FIRE IN COMPRESSOR

1. Stop the compressor by pressing ESD
2. Switch off the compressor main supply in electric room.
3. Inform control room
4. Control room to inform and take action as per ERP.
5. Close the gas inlet valve.
6. Extinguish the fire by using fire extinguishers. (Use CO₂ in case of fire in electrical panel and use DCP/ABC powder in case of fire in compressor)
7. Once the fire is fully extinguished, collect the extinguish powder and deposit in Designated location for disposal
8. Segregate the fire waste in to hazardous and nonhazardous waste and store it Accordingly in the demarcated bins.
9. Dispose the extinguisher powder and fill forms as per standard Hazardous Waste Management rule

26.0 ACTIONS TO BE TAKEN IN CASE OF FIRE IN NGV FILLING POINT

- 1 Stop the gas filling.
- 2 Inform control room.
- 3 Control room to inform and take action as per ERP.
- 4 Extinguish the fire by using DCP/ABC type fire extinguishers.
- 5 Once the fire is fully extinguished, collect the extinguish powder and Deposit in designated location for disposal.
- 6 Segregate the fire waste in to hazardous and nonhazardous waste and store it Accordingly in the demarcated bins.
- 7 Dispose the extinguish powder and fill form as per standard Hazardous Waste Management rule.

27.0 ACTIONS TO BE TAKEN IN CASE OF FAILURE OF DISPENSER GAS HOSE

1. Stop dispensing and immediately close the isolation valve on the dispenser
2. Remove the damaged hose and replace it by new one
3. Open the isolation valve
4. Start the dispenser and check for leakage
5. If there is a leakage, check the tightening of the hose fittings.
6. In case of no leakages, start normal operation
7. Deposit the damaged hose in "solid waste" bin for disposal

28.0 ACTIONS TO BE TAKEN IN CASE OF FAILURE OF HIGH-PRESSURE TUBES FITTINGS IN DISPENSER

1. Stop the dispenser and switch off power
2. Close the two-way valve at the dispenser inlet
3. Vent the gas from the three-way filling valve
4. Change the damaged tube/fitting by new one
5. Open the two way at the dispenser inlet
6. Check for gas leakages
7. If there is a leakage , follow the above steps.
8. In case of no leakages, start normal operation.
9. Deposit the damaged tubes/fittings in “metal scrap” bin for disposal

29.0 ACTIONS TO BE TAKEN IN CASE OF FIRE IN DISPENSING AREA

1. Isolate the electrical supply
2. Press ESD
3. Inform control room
4. Control room to inform and take action as per ERP.
5. Stop the gas filling.
6. Switch off dispensing power
7. Extinguish the fire by using DCP/ABC type fire extinguishers. Once the fire is fully Extinguished, collect the extinguish powder and deposit in designated location for Disposal.
8. Segregate the fire waste in to hazardous and non-hazardous waste and store it Accordingly in the demarcated bins.
9. Dispose the extinguish powder and fill form as per standards Hazardous Waste Management rule.

30.0 EMERGENCY PROCEDURES INVOLVING DIESEL GENERATOR SETS

Actions to Be Taken in Case of Failure Of Diesel Hose (Diesel Spillage)

1. Place the tray immediately at the point of diesel leakage
2. Switch off the load
3. Switch off the DG set
4. Close the diesel outlet valve
5. Remove the failed hose and replace it by new one
6. Precautions to be taken not to spill the diesel while replacing failure hose by the way of using buckets and mugs etc.
7. Open the diesel outlet valve
8. Start the DG set and check for leakage
9. If there is a leakage repeat the above-mentioned actions.
10. In case of no leakages, start normal operation.
11. Deposit the damaged hose in “solid waste” bin for disposal

Actions to Be Taken in Case Of Fire In D.G Set

1. Inform control room
2. Control room to inform and take action as per ERP.
3. Stop the DG.set.
4. Switch off the DG set main
5. Extinguish the fire by using fire extinguishers. (use CO2 in case of fire in electrical panel and use DCP/ABC powder in case of fire in DG.set)
6. Once the fire is fully extinguished, collect the extinguish powder and deposit in designated location for disposal
7. Segregate the fire waste in to hazardous and non-hazardous waste and store it accordingly in the demarcated bins.
8. Dispose the extinguish powder to and fill forms as per standard Hazardous Waste Management rule

31.0 ELECTRICAL EMERGENCY PROCEDURES IN THE STATION

Actions to be taken in case of an electrocution of single or multiple persons on electrical system are as follows.

1. Immediately isolate the supply
2. Do not try to touch the victim in charged condition
3. Immediately contact the control room & give the information to be conveyed to HOD (O&M) and concerned Manager
4. Call the 911 for calling for emergency shifting in Ambulance to TPL approved hospitals
5. Before shifting TPL trained first aider shall try to give first aid to the injured
6. Ensure that the area is barricaded and all open switches closed so that the other employees working nearby do not get affected.

32.0 PROCEDURES FOR HANDLING TERRORIST ACTIVITIES AT THE STATION

Bomb Threat Emergency

All bomb threats will be taken seriously. The Chief Incident Controller will consult with the team members to determine the appropriate course of action. In most cases, the fire alarm should not be activated in the event of a bomb threat. The people in the building should be evacuated to a safe distance from the building to protect them against debris and other flying objects in the event of an explosion. The Emergency Response Coordinator may mobilize the Emergency Response Team without making use of the general alarm system. The coordinators main responsibilities are as follows.

- a) Devising and maintaining a search plan.
- b) Devising and maintaining an evacuation plan.
- c) Assessing a long term and short-term threat.
- d) Making decision to evacuate.
- e) Liaison with police. (Bomb Squad)
- f) Liaison with building management representatives.
- g) Arranging staff training and security drills.

Bomb Threat Evacuation Procedures

Every threat must be taken seriously and reported to the Chief Incident Controller for subsequent Action,

- a) The Emergency Response Coordinator will notify by telephone all Assistant Emergency Response Coordinators who in turn will contact Floor wardens within their areas of responsibility. These instructions must be obeyed promptly.
- b) Employees should check (SCAN) their immediate work area for any unusual or suspicious items as they leave their workstation.
- c) Floor wardens and Facilities Management personnel should check their assigned areas such as restrooms, office areas, stairwells, and other common areas.
- d) Any suspicious items should be reported immediately.

If a suspicious **object**/item is located: Clear the area where the suspicious object is located, and then evacuate the rest of the building.

- a) Employees should take all personal belongings with them (i.e., car keys, coats, purse, and bags or backpacks). If a suspect item is found, the employees may not return to the building until it is found clear. This may take considerable time.
- b) All employees should exit through a designated evacuation route that has been checked for any devices, and proceed to their designated assembly area.
- c) Parking lots and garages should be avoided, as they may contain a vehicle bomb.

33.0 SUSPICIOUS OBJECT OR PACKAGE WITHIN THE DEPOT STATION

Some Physical Characteristics of Suspicious Packages and Letters Include the Following:

- Excessive postage
- Handwritten or poorly typed addresses
- Incorrect titles
- Title, but no name
- Misspellings of common words
- Oily stains, discoloration or odor
- No return addresses
- Excessive weight
- Lopsided or uneven envelope
- Protruding wires or aluminum foil
- Excessive security material such as masking tape, string, etc
- Visual distractions
- Ticking sound
- Marked with restrictive endorsements, such as "Personal" or "Confidential"
- Shows a city or state in the postmark that does not match the return address
- Foreign Mail, Air mail and Special
- Delivery

When A Suspicious Object or Package Is Discovered:

- a) Remain calm.

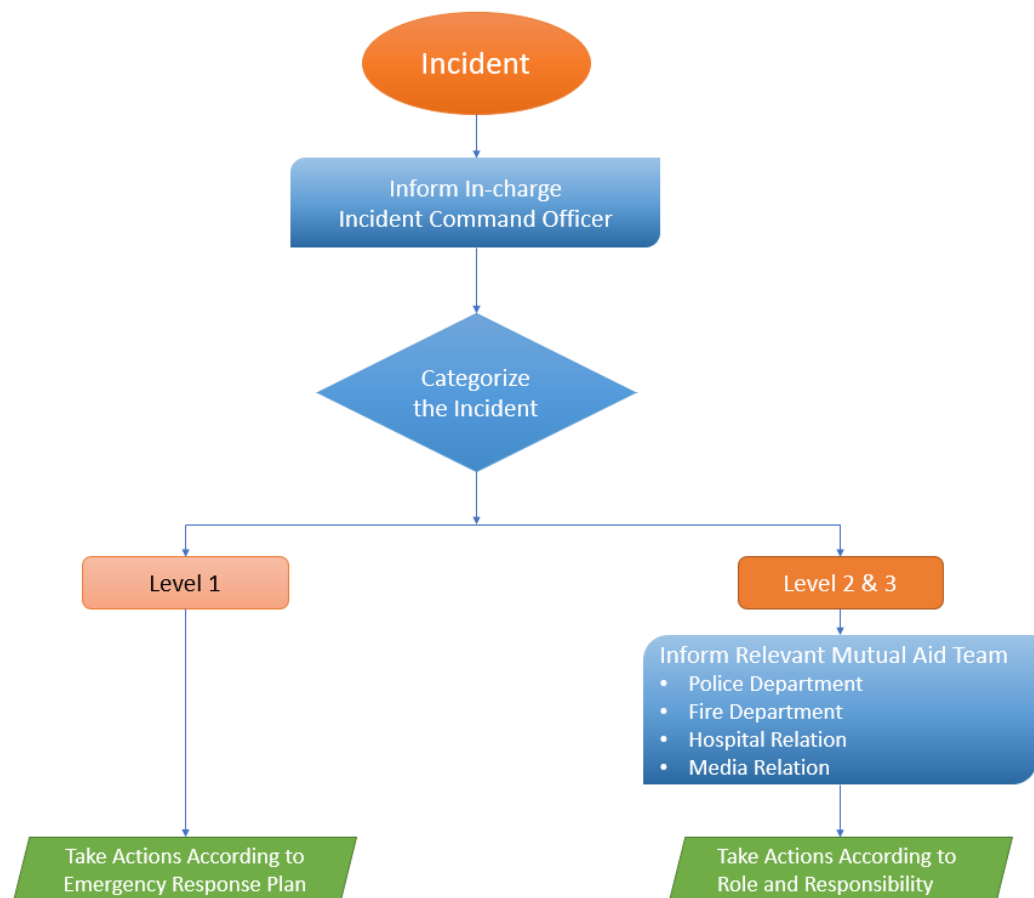
- b) The finder must not disturb or move the suspected object.
- c) Clear all persons from the immediate vicinity.
- d) Call the Emergency Response Coordinator
- e) Retreat to a safe distance and warn others to avoid the area. Be available to provide the whereabouts of the suspected object to the police.
- f) Wait for further direction from the Emergency Response Coordinator.
- g) Do not spread rumors.

In case of an **incident** involving any of the above situations, upon becoming aware, the person will immediately inform the HOD (Security) who will evoke the appropriate Security Procedure

34.0 PROCEDURES FOR HANDLING NATURAL DISASTERS

The station is located on a low risk area for earthquakes and floods constructed from flexible materials such as Steel and it will be able to withstand earthquake that is likely to occur in the Area. The majority of the Gas Supply Network is buried below ground and will not be affected by flooding. Small localized area may be affected should the water level exceed one meter in depth. In the case of a major earthquake or flood the most likely occurrence would be the loss of building in which case the ERP would be initiated.

35.0 EMERGENCY RESPONSE - FLOW CHART



36.0 ROLES & RESPONSIBILITIES

Safety Measures

All precautionary measures will be implemented in the proposed station and in according to guidelines issued by safety regulation. Some of the safety measures which will be adopted are as below:

Proper barricading & sign for the control of the traffic at connection Station

- No smoking, naked flame, use of mobile phones or any other source of ignition within six meters from the gas Station
- Maintaining sufficient clearance between adjacent vehicles in line (minimum 1.25). No vehicle is parked in staggered manner & there is a free escape path in an emergency situation.
- Control of vehicle movement at refueling place to protect against possible damage to dispensing unit as well as injury to dispensing staff.
- Separate entry & exist at the station.
- Only certified staff having valid identity card shall carry out Gas Station into the vehicle as per "Safe Operating Procedure".
- Display of warning signs & emergency contact numbers at the Station.
- First aid facilities shall be maintained with adequate contents & replaced at regular intervals.
- No electric power lines shall be installed over the Station compressor area & dispensing island, where its failure may cause an Incident /fire.
- The electrical wiring to various switchgears installed in electric room shall be routed neatly & clamped properly. The maintenance of switchgears shall be taken up periodically & any non – conformity shall be rectified immediately.
- Portable DCP type fire extinguisher shall be maintained in adequate numbers near the dispenser & compressor for gas firefighting.
- Carbon Dioxide type fire extinguisher shall be kept near electrical installation in adequate numbers.
- The staff shall be trained in methods of firefighting, first aid treatment & incident handling.
- The telephone numbers of the nearest Police station /fire Brigade/ Hospitals shall be prominently displayed at the station. These shall be updated regularly so that the agencies can be contacted immediately in case of any eventuality without loss of time.
- In case of emergency, all means of communication shall be always made available at the disposal of the operation staff of the refueling station.
- All the staff at refueling station shall be adequately trained to be aware about locations of emergency isolation of any CNG leak.
- Periodic workplace inspection & safety audits shall be done in accordance with the existing regulations.

37.0 GENERAL SAFETY RULES FOR CNG STATION

37.1 General Safety Rules for CNG stations

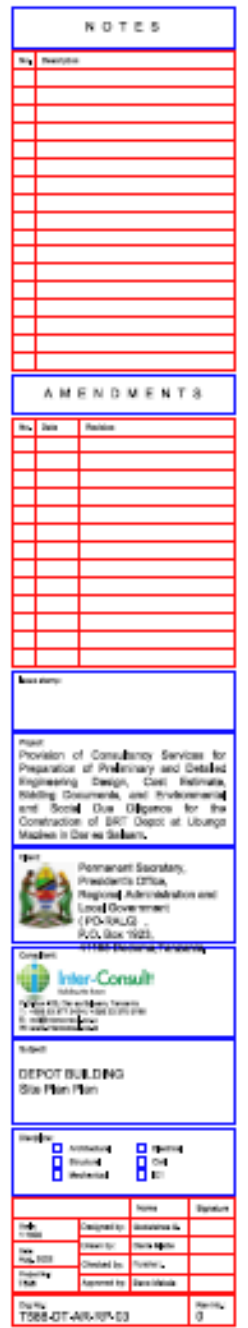
1. Switch off the mobile phones while entering the CNG station
2. The validity of the CNG cylinder should be ensured before refueling the CNG.
3. Keep watching the customers and passengers not to use their mobile phones inside the CNG station area.
4. Request passengers & visitors to stay away from the dispenser, high pressure & unauthorized entry area.
5. Ensure no vehicle is started when there is any leakage in the CNG station.
6. Ensure that there are no unauthorized persons inside the restricted entry area.
7. Always use PPE while moving around the compressor & high-pressure area.
8. Keep yourself away from the hot surface while inspecting the compressor & generator.
9. Do not open the doors of running compressor & generator.
10. In case of any leakage of gas inside the CNG station immediately stop refueling & stop the compressor. Do not allow the driver to start vehicles & move vehicles away from the leakage area by manual push method to a safe area.
11. Identify & know the location of the emergency shutdown buttons for compressor & dispensers in the CNG station.
12. Ensure that there is no leakage of gas from cascade or from any fittings. Leak test should be done with foam solution or with a portable gas detector.
13. Ensure that cascade cylinders are hydraulically tested every three years.
14. Always follow the work permit system while doing any maintenance work in CNG station.
15. Keep away from the live part of the electrical installation.
16. Ensure placement of Fire Extinguishers at safe distance and easily accessible place for use in case of emergency.
17. Know how to operate re extinguishers in case of any re in the CNG station.
18. In case of emergency follow the emergency action plan.
19. Do not roll the CNG while passengers are inside the vehicle.
20. Use of matchbox, open fire & smoking is prohibited inside the CNG station.
21. Identify & know the location of the isolation valves in the CNG station which will require to be closed during any emergency in CNG station.
22. Be aware of the location & operation of the cylinder valve, master shut off valve, and burst disc of the CNG vehicle cylinder. The valves are required to be closed during any gas leakage in the CNG vehicle.
23. Always follow the safe operating procedure & maintenance procedure for any O&M activities in the CNG station.

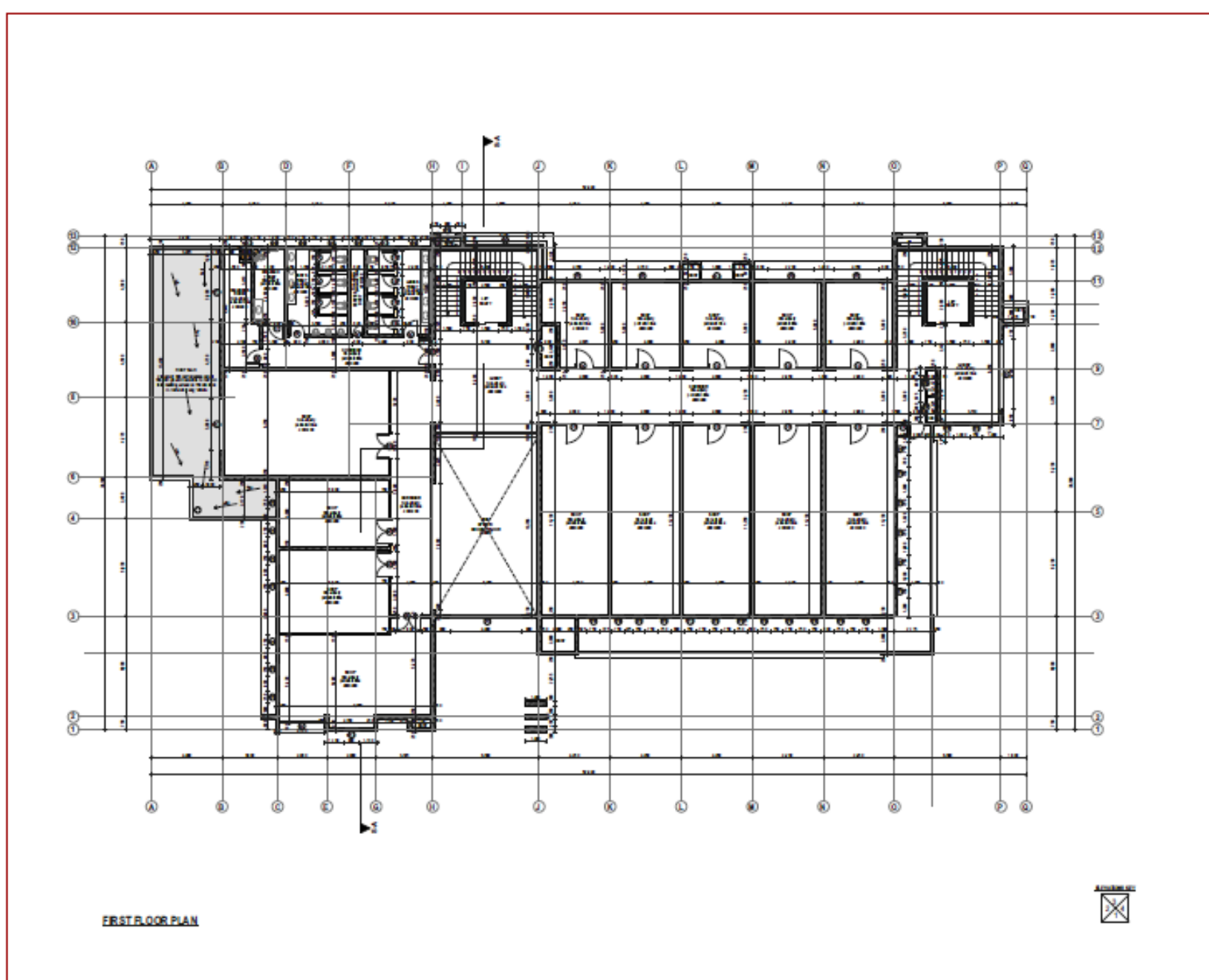
37.2 Safety Instruction for Filling CNG Vehicle

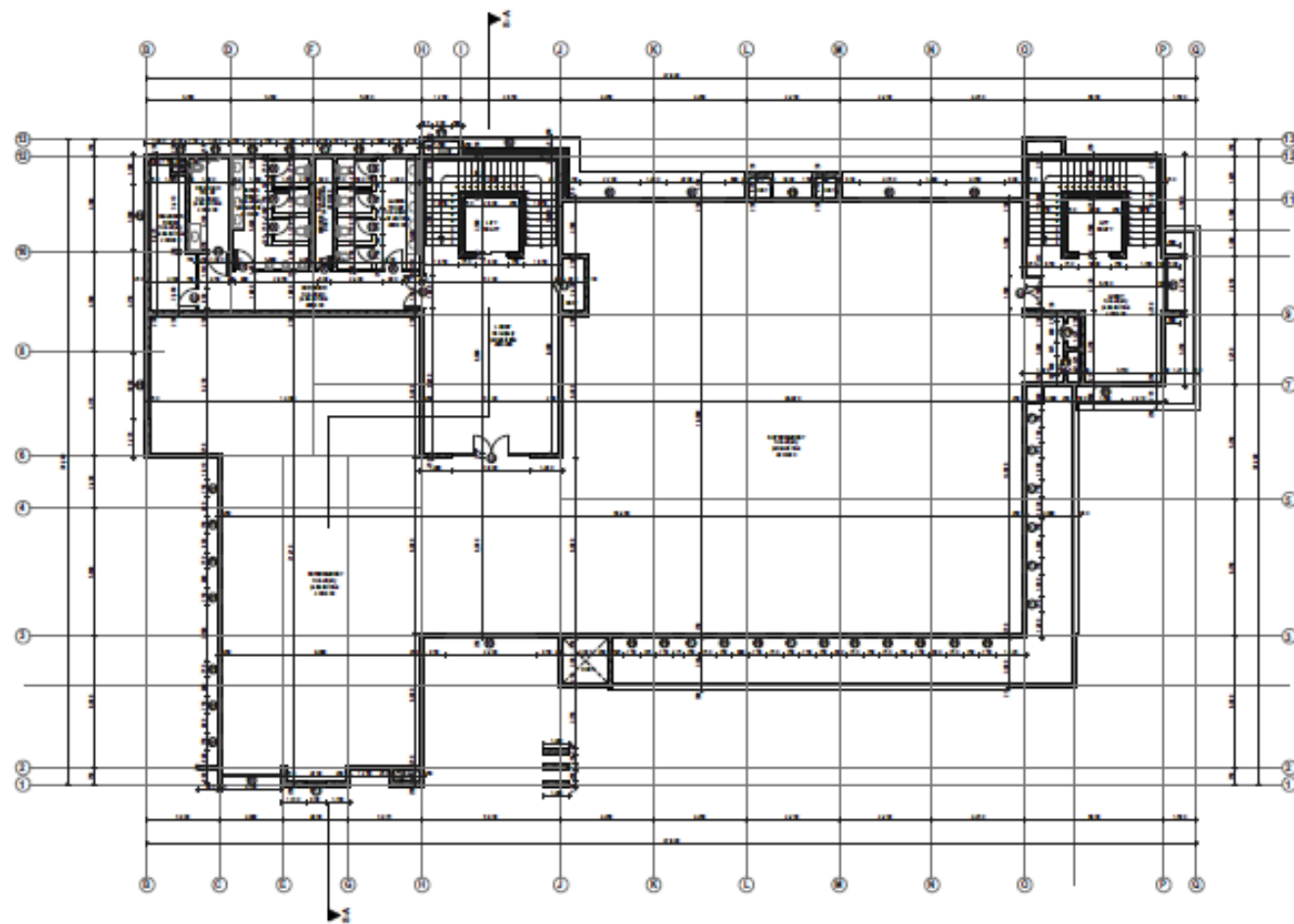
1. Ensure that the CNG vehicle is entering the station slowly and reaching the dispenser safely. Remove all the passengers from the vehicle at the entry and send them to the exit point.
2. Stop the CNG vehicle at a designated place only.
3. Stop the engine and remove the ignition key.

4. Check the hydro test due date of the CNG cylinder and ensure the validity of the test date. Also, ensure that there is no physical damage to the CNG kit and refueling receptacle.
5. If any defect is found then instruct the customer to rectify the defect at the earliest.
6. Enter the defect detected in the vehicle in the logbook maintained in the CNG station. Ensure that the defects are rectified before filling the CNG in the vehicle in the next visit.
7. Ensure that there are any open wires, any abnormal smell, high temperature & any other defect not existing in the vehicle before filling of CNG.
8. Ensure that there are no flammable materials are present in the vehicle.
9. Ensure that the driver or any other passenger of the vehicle is not smoking & using mobile phones in the CNG station area while the CNG filling is under progress.
10. Ensure that there is a minimum one-meter distance maintained between the vehicles during refueling.
11. Ensure that the earthing is connected during filling.
12. Cover the battery with a rubber mat prior to the start of refueling.
13. Check the vent pipe.
14. Remove the dust plug.
15. Ensure that the nozzle is properly fitted in the filling point and then open the valve. Hold it securely while refueling.
16. Ensure that the cylinder pressure will not go beyond 2002/kgcm.
17. Remove the nozzle carefully after filling the CNG in the vehicle.
18. Put the dust plug.
19. Remove the rubber mat from the battery.
20. Ensure that there is no leakage of natural gas prior to the start of the vehicle
21. Start the engine and move the vehicle out of the station slowly.
22. If anybody is not following the safety instruction does not allow him to fill CNG

APPENDIX 6: SELECTED DRAWINGS

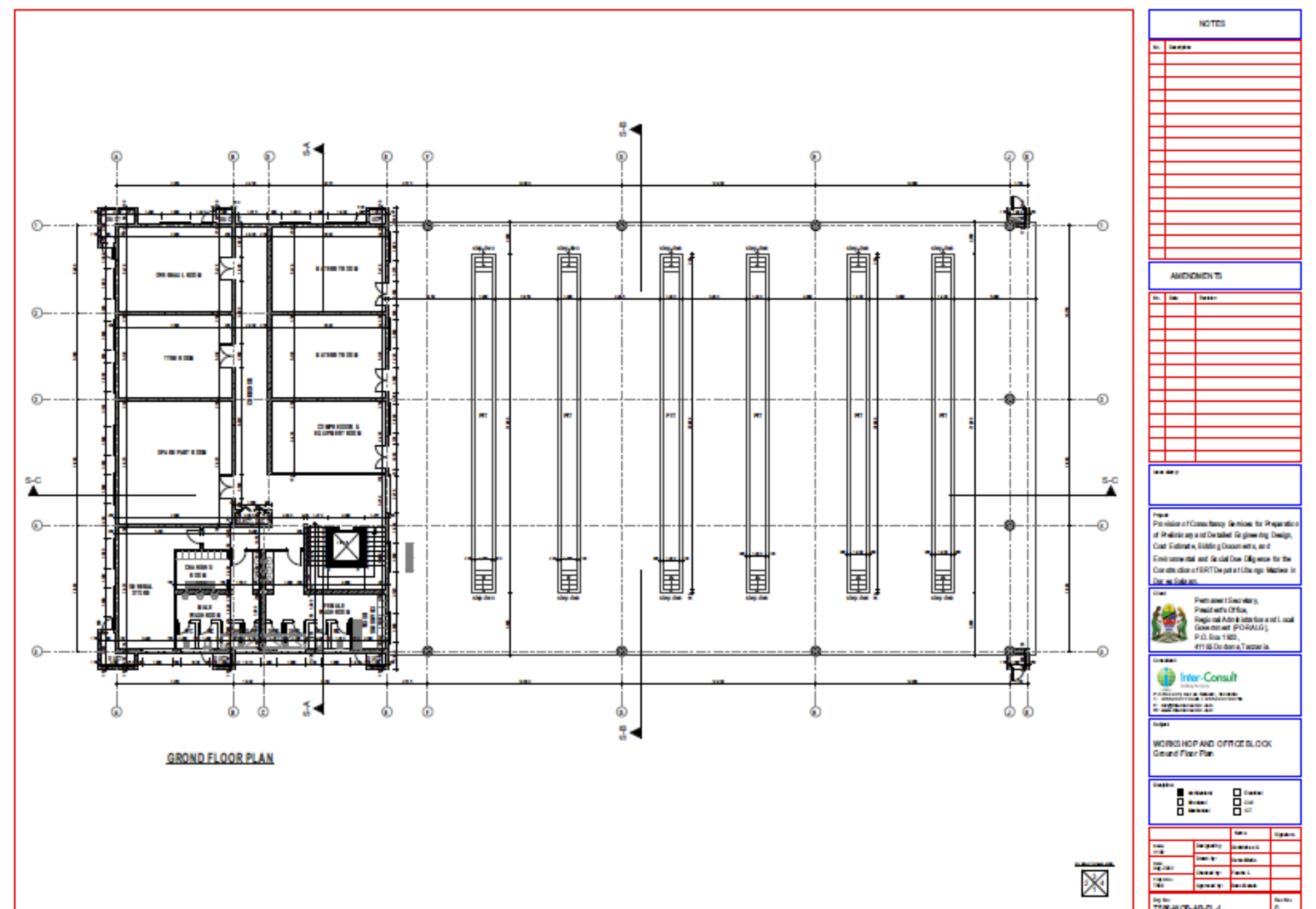


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SECOND FLOOR PLAN

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APPENDIX 7: COMMENTS FROM DAWASA



DAR ES SALAAM WATER SUPPLY AND SANITATION AUTHORITY ISO 9001:2015 Certified

DAWASA Building, Dunga/Malang Road, Mwananyamala Area
P.O. Box 1573, Dar es Salaam-Tanzania | Tel: +255 22 2760006/+255 22 2760015
Fax: +255 22 2762480 | Email: ceo@dawasa.go.tz | Website: www.dawasa.go.tz
info@dawasa.co.tz / 0800110064 / +190-00# (Tuni)



Your Ref: IC/BWM/588/028/2023

Our Ref: PA.17/310/01/27

Date: 14/3/2023

INTER - CONSULT,
P.O. BOX 423,
DAR ES SALAAM,
TANZANIA.

**REF: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR
CONSTRUCTION AND OPERATION OF THE PROPOSED BRT DEPOT AT
UBUNGO MAZIWA WARD, UBUNGO MUNICIPALITY IN DAR ES SALAAM
CITY**

Kindly refer to the captioned heading and your letter dated 17/1/2023 received on 24/01/2023 with reference number IC/BWM/588/028/2023.

2. We acknowledge receiving your letter, copy of project brief and the questionnaire.
Attached herewith are comments for the above project.


Kaimu Afisa Mtendaji Mkuu

End;

RESPONSE TO QUESTIONNAIRE FROM ECONAT CONSULTANTS LTD

STAKEHOLDER: Dar Es Salaam Water Supply and Sanitation Authority (DAWASA)

1. Do you know about the proposed construction of the BRT depot at Ubungo Maziwa?

Yes, through the submitted project brief received on 24/1/2023 from Inter-Consult.

2. Are there main sewers and water supply pipes passing through the area?

Yes, there is a main sewer line of diameter size DN 200 mm (8") near the project site approximately 5m which is located within pedestrian lanes along Ubungo Maziwa tarmac road. Also, there are sewer line household connections of diameter size DN 100mm (4") within proposed project area.

Furthermore, there are water supply pipe lines at the project site; distribution lines of pipe diameter 4" and 2" and household connections of the pipe diameter 3/4" situated within the project site.

3. The proposed project site is currently a residential area but after being compensated, the residents there will have to relocate, which procedure should be followed in order to ensure safe disconnection/relocation of DAWASA infrastructure in the area?

To avoid destruction and interference with the existing infrastructures the proponent should contact/notify the authority (DAWASA) by letter in the course of demolition of existing structures and pipes reallocation. Also, the proponent should set aside funds for reallocation of the water infrastructures.

4. Which procedures need to be followed during the operation phase to connect the proposed project to the sewerage and water supply systems in the area?

The proponent should send a request for connection to the authority (DAWASA) accompanied with the following documents: - Certified introduction letter from Local Government Authority or Official letter for corporate / Institution applicants, two passport size photos and Official acceptable identity card.

Website: www.dawasa.go.tz | E-mail address: ceo@dawasa.go.tz

5. What do you think will be the environmental and social impacts from the proposed project?

Positive effect of the project including: -

- Create Employment opportunity.
- Change in original Land use, Scenic and Visual quality

Negative effects of the project including: -

- Spread of sexual transmitted Infection disease and community interaction.
- Noise and vibration pollution
- Air pollution
- Gender based violence
- DAWASA will loss customers residing within project area
- Waste generation
- Removal of vegetables
- Traffic jam and pedestrian flow disturbance

6. Is there any additional issue you would like us to be aware of (Any advice on the project)?

The project should comply with all laws and regulations including Environmental Management Act, the Occupational Health and Safety Act and adhere to best engineering construction practices.

APPENDIX 8: COMMENTS BY TRC



UNITED REPUBLIC OF TANZANIA
MINISTRY OF WORKS AND TRANSPORT
TANZANIA RAILWAYS CORPORATION



In reply please quote:
Ref. No. DE. 204/570/08C/

16 December 2022

Managing Director,
M/S Inter-Consult Limited,
Inter-House Plot no. 47, Block 45C,
New Bagamoyo Rd, Kijitonyama,
P.O. Box 423,
DAR ES SALAAM.

RE: PROVISION OF CONSULTANCY SERVICES FOR PREPARATION OF PRELIMINARY AND DETAILED ENGINEERING DESIGN, ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED CONSTRUCTION OF BRT DEPOT AT UBUNGO MAZIWA IN DAR ES SALAAM

Sub: Comments on the proposed construction of the BRT Depot project

2 Please refer to your letter with Ref. No. CB. 32/875/01/5 dated 7th August 2022 regarding the above captioned subject.

3 TRC responsible team conducted a site verification in order to provide observations for the proposed construction of the aforementioned project. Attached herewith, please find the shortlisted observations, comments, and recommendations inserted during site visit to be incorporated in your report.

4 Kindly be so guided.

Masanja K. Kadogosa
Director General

Director General's Office, Sokoke Drive, P. O. Box 76959, Dar es Salaam, TANZANIA,
Telephone: +255 222112695, Telefax: +255 22 2116525 / +255 22 2127404,
Email address: banus@trc.co.tz / dg@trc.co.tz, Website: <https://www.trc.co.tz>

Observations during site visit

1. There is no reserved land belong to TRC other than railway line.
2. The existing road is along railway reserve according to railway proposed zone.
3. The existing road from Morogoro road towards platform is also used by natural gas filling station and warehouse as their main access.
4. The existing road is located between plot number 7 and 6.

Recommendations and conclusion

1. The railway line should not be disturbed during project implementation.
2. The project will infringe the alignment of Ubungo siding that is planned to be extended towards BRT alignment so as to save more customers from that area therefore the draft design of the project should be shared with TRC before the commencement of the project construction.
3. Ensuring proper design of storm water drainage system in the planned project area
4. Traffic management plan should be provided during the construction phase and other alternatives routes be sought.
5. Environmental aspects i.e. air pollution, noise, and vibration should adhere to permissible standards.
6. There should be counterpart personnel who will work on all crosscutting issues that may link TRC and DART.
7. Advised to buy/compensate one plot either number 6 or 7 in order to fulfill project requirements.
8. For purpose of defining the exact railway reserve boundary we will need to conduct a cadastral survey whereby we will use the RTK instrument.