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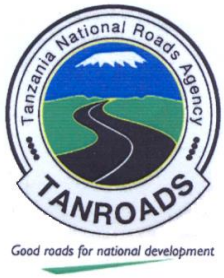

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Environmental and Social Management Framework for Dar es Salaam Urban Transport Improvement Project

January, 2017

This Environmental and Social Management Framework (ESMF) was developed by TANROADS (Tanzania National Roads Agency), in order to comply with the Bank's Environmental Assessment Safeguard Policy (OP/BP 4.01), during the project preparation of the Dar es Salaam Urban Transport Improvement Project (DUTP).

Dar es Salaam, January 2017.

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Abbreviations

HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
CBO	Community-based organization
CO	Carbon monoxide
CO2	Carbon dioxide
COMESA	Common Market for Eastern and Southern Africa
CRG	Compensation and Resettlement Guidelines
CRP	Compensation and Resettlement Plan
DOE	Director of Environment
DSE	Department of Safety and Environment (of the MOW)
DUTP	Dar es salaam Urban Transport Improvement Project
GoT	Government of Tanzania
EAC	East African Community
ECPRW	Environmental Code of Practice for Road Works
ESIA	Environmental and Social Impact Assessment
EIS	Environmental Impact Statement
EMA	Environmental Management Act (2004)
EMC	Environmental Management Committee (district level)
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESPAF	Environmental and Social Preliminary Assessment Form
ESMR	Environmental and Social Monitoring Report
ESFR	Environmental and Social Final Report
HC	Hydrocarbon
IDA	International Development Agency
LGA	Local Government Authority
MLHS	Ministry of Land and Human Settlement
MoWTC	Ministry of Works, Transport & Communication
NEAP	National Environmental Action Plan, 1994
NEP	National Environment Policy, 1997
NCSSD	National Conservation Strategy for Sustainable Development, 1994
NEMC	National Environment Management Council
NGO	Non-Governmental Organization
NOX	Nitrous oxides
PAPs	Project Affected People
PM10	Particulate matter < 10µm
PPRA	Public Procurement Regulatory Authority
RA	Road Authority
RAS	Regional Administrative Secretariat
RFB	Roads Fund Board
RSA	Road Safety Authority
SEU	Safety and Environment Unit (of TANROADS)
SEA	Strategic Environmental Assessment
SO2	Sulphur Dioxide

STDs	Sexually Transmitted Diseases
TAC	Technical Advisory Committee (of the NEMC)
TANROADS	Tanzania National Road Agency
TBS	Tanzania Bureau of Standards
TEC	Tender Evaluation Committee
THC	Total hydrocarbon
ToR	Terms of Reference
VPO	Vice President's Office
WB	World Bank

Glossary

Biodiversity: Short form for biological diversity". Biodiversity refers to the wealth of ecosystems in the biosphere, of species within ecosystems, and of genetic information within populations.

Biosphere: That part of the earth – atmosphere system that supports and is characterized by life, encompassing all terrestrial and aquatic ecosystems.

Biota: A collective term that denotes all the living organisms in a particular space.

Environmental Code of Practice for Road Works (ECPRW): Instrument developed by the Ministry of Works and NEMC, in order to ensure good environmental practices in the project stages.

Compensation and Resettlement Plan (CRP): A plan prepared as part of an EIA process to address the issues of involuntary resettlement, compensation and rehabilitation of people and communities affected by a project.

Cumulative impacts: Those impacts that result from the incremental impacts of individual events, when added to other past, present and foreseeable future events. The individual impacts contributing to the cumulative impacts may be minor on their own, but the impacts collectively may be significant.

Direct impacts: Those impacts that are caused by a specific action and which generally occur at the same time and place as the action.

Ecology: The study of relationships of organisms to their environment (or surroundings). It considers individual organisms, as well as large units of landscape, such as forests, estuaries and river basins.

Ecosystem: Ecosystems are the basic structural units of the biosphere, characterized by interdependent interaction between the component species and their physical surroundings. Each ecosystem occupies a space where macro-scale conditions and interactions are relatively homogeneous.

Ecotone: A habitat that occurs at the boundary between adjacent, but significantly different ecosystems. Ecotones are in general relatively biologically diverse, as they may contain species native to both bordering ecosystems.

Endemism: A condition where species occur only in a single, spatially limited and distinct location, such as isolated islands, mountain valleys, caves, lakes, and craters. Endemic species are often highly specialized to the limited environmental conditions in which they exist, and are thus vulnerable to changes introduced from outside.

Environment: Surrounding conditions that include all those physical, chemical, biological and socio-economic factors that impinge on an individual, a community, or a population.

Environmental and Social Management Framework (ESMF): A management instrument that will be implemented by TANROADS in the " Dar es Salaam Urban Improvement Project" DUTP, in order to ensure compliance with Tanzanian national law and the World Bank Safeguards Policies.

Environmental and Social Management Plan (ESMP): A synthesis report containing all proposed mitigation and monitoring actions, and, defining a timeline, specific, assigned responsibilities, and follow-up actions. The ESMP is one of the most important outputs of the environmental assessment process.

Environmental Impact Assessment (EIA): The systematic process by which the effects on the bio-geo-physical and socioeconomic environment of a proposed human action or set of actions are evaluated, producing a set of recommendations which serves as influential input to the design of the action or actions.

Environmental Audit (EA): The evaluation of effectiveness of environmental management and monitoring practices and procedures during and after a project (e.g., post-project evaluation) so that remedial measures can be taken. An audit may also be a comparison of actual impacts against predicted impacts.

Environmental expert: Environmental expert means an individual person or a firm of experts which has requisite qualifications prescribed by the regulations on registration of environmental experts made under the Environmental Management Act and duly certified and registered in the Register of Environmental Experts as may be kept and maintained by the National Environment Commission (NEMC).

Environmental impact: An effect (positive or negative) on an environmental resource or value resulting from infrastructure development projects.

Environmental Impact Assessment Process: A systematic procedure to consider the possible environmental impacts of proposed projects before a decision is made to approve the project.

Environmental Impact Statement (EIS): A document that contains the results of an EIA study.

Environmental Inventory (EI): A description of the environment where a particular proposed action is being considered. Other similar terms include: Environmental baseline study (EBS), Environmental Identification (EI), and Environmental Setting (ES).

Environmental management: Management and control of the environment and natural resource systems to ensure the long-term sustainability of development efforts.

Environmental monitoring: Continuous or periodic surveillance of the project activities to ensure that mitigation measures are followed during project implementation. It involves repeated observation and measurement of environmental quality parameters to observe changes over a given period.

Environmental planning: All planning activities with the objective of preserving or enhancing environmental values or resources.

Environmental review: A process that entails preparing a detailed EIA, a Preliminary Environmental Assessment, or no further action or analysis depending on the results of screening process.

Environmental scoping: It is an early, open identification of potentially significant environmental impacts and the elimination of insignificant impacts or impacts that have already been addressed by other EIAs. It may also simply refer to procedures for determining the scope of environmental issues to be covered in the EIA process.

Environmental screening: It is the determination of the level of environmental impact assessment required for a particular proposed activity or project. It may also refer to procedures for categorizing projects based on professional judgment.

Impact: The effect of any action that affects one or more elements of the natural, social, or economic environment, either negatively or positively.

Indicators: Physical, chemical, biological, or socio-economic attributes that provide some indication of the environmental condition.

Indigenous peoples: Collectively, the members of cultural groups that have a historical, ancestral, spiritual, and functional connection to the land on which and from which they live. In popular usage, indigenous peoples are distinguished from members of those cultural groups whose connection to the land on which they live is limited to the historical period.

Indirect impacts: Those impacts that are closely, but indirectly linked to the project activities that induce changes in the natural environment, population, economic growth, and land use.

Key stakeholders: The inhabitants of an area affected by a project, who have the most to lose or gain from the completion of the project, and whose concerns must be addressed in an environmental assessment.

Limited environmental impact assessment: Limited environmental impact assessment (limited EIA) means an EIA, where only the environmental issues which

are exceeding the environmental screening criteria will be addressed in the environmental impact study and the environmental impact statement

Mitigation measures: Actions taken to reduce, avoid, or offset adverse (negative) impacts. Mitigation options include: (1) prevention (e.g., rejecting a project), (2) amelioration (e.g., modifying the design) and (3) compensation (e.g., replacing an economic activity or investment).

Natural areas: Terrestrial and aquatic areas where the component ecosystems are characterized primarily by native species, and where human activities have not altered the ecological function to the point where the ecosystem has changed its character or distribution.

Participation A process through which stakeholders influence and share control over development initiatives and decisions on resources that affect them.

Periodic maintenance: Activities that are typically scheduled over a period, such as road resurfacing and bridge repairs.

Project: A set of planned activities designed to achieve specific objectives within a given area and time frame.

Project affected people: Individuals, groups or communities, or other organizations, whose interests may be directly affected by the location, construction and operation of the project.

Project area: The area that includes the immediate and the proximate area of a project that the project may have an environmental or social impact on.

Proponent: The agency, unit, or individual who proposes, and is responsible for a project. For road projects it will typically be the relevant road authority.

Public involvement: The dialogue, encompassing consultation and communication, between a road authority and the stakeholders. It includes dissemination, solicitation, and presentation of information.

Rehabilitation/ Resettlement: A term often used to describe the process of re-establishing lifestyles and livelihood following the relocation of affected persons.

Resilience: A measure of how quickly an ecosystem or environmental variable returns to its natural state after cessation of a disturbance.

Routine maintenance: Refers to activities such as grading, grass cutting, drain clearing, pothole patching, and shoulder repairs, usually performed on a daily, weekly or monthly basis.

Significance: An expert evaluation and judgment of the magnitude of impact or the degree to which a proposed activity or project may (potentially) impact on the environment if implemented.

Significant impact: A substantial or potentially substantial, adverse change in any of the physical, biological, or social factors of the natural or built environment.

Social impact: An effect (positive or negative) on a social issue resulting from an infrastructure project.

Stakeholder: Any person or group having interest in or being directly or indirectly affected by a proposed or past project.

Strategic environmental assessment (SEA): A formalized and systematic procedure to identify environmental impacts that may arise from broad actions (e.g., new policies, national and regional development plans, or major program initiatives). SEA helps to incorporate environmental considerations and actions into strategic-level decisions (i.e., above the project level).

Synergistic effects: Those effects that result from the combination and interaction of individual impacts. The effects are often greater than the sum of the individual contributing impacts.

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1. Introduction

1.1 Background

The Dar es Salaam city is Tanzania's largest city which is also a business hub of the country. The city has functioned as a capital of the country with government and private sector offices and industries making it one of the fastest growing cities in the East African region. The population of the city and the import of vehicles are growing exponentially while the infrastructures have been growing at a stagnant pace. This has contributed to the traffic chaos in almost every corner of the city and the situation is worse during AM and PM peak hours.

To alleviate the traffic congestion in the city the Government of Tanzania (GoT) has embarked on a program for development of the transportation system that includes road widening schemes and establishment of a Bus Rapid Transit (BRT) network. The Dar Rapid Transit Agency (DART) plans to implement a total of six phases of BRT trunk corridors as a step forward in upgrading the public transport system from the current mini-buses (Daladalas) to high quality bus-based mass transit system.

The first phase of the BRT system was implemented under the IDA's Central Transport Corridor project. The first phase comprised of 20.9 kilometers of a trunk corridor with two lanes of Ordinary Portland Cement Concrete pavement for segregated exclusive bus lanes at the center (with overtaking lanes at stations); four lanes of asphalt concrete pavement mixed traffic lanes; bicycle lanes, and pedestrian walkways. Other infrastructure pieces included five terminals, one bus depot, 27 stations, and four feeder-transfer stations. The system is being operated through a trunk-feeder arrangement with a capacity of carrying about 400,000 passengers per day. The implementation of infrastructure for the second phase of the BRT system is ongoing through AfDB support. The report on the 'Environmental and Social Impact Assessment'[1] (ESIA) of the BRT phase 1 was prepared by the Government and cleared by the Bank and publicly disclosed in-country and at the Infoshop in February 2007. The ESIA for Jangwani depot was also later prepared and disclosed in April 2010[2]. The ESIA for BRT phase 2 was prepared and published[3] at the AfDB website on August 4, 2015.

The Dar es Salaam Urban Transport Improvement Project (DUTP) is going to support the implementation of BRT phases 3 and 4 as well as other project activities including additional infrastructure related to first phase BRT. In this context, and in order to ensure

[1] http://documents.worldbank.org/curated/en/479381468311398469/pdf/E16870vol-01.pdf

[2] http://documents.worldbank.org/curated/en/148551468312601627/pdf/E16870v40P10361IC10AFR1ESIA1P103633.pdf

[3] https://www.afdb.org/en/documents/document/tanzania-dar-es-salaam-bus-rapid-transit-project-esia-report-04-2015-52224/

adequate environmental and social management of all activities under DUTP implementation, and to comply with the national environmental laws and the World Bank's Environmental and Social Safeguard Policies, an "**Environmental and Social Management Framework (ESMF)"** document has been prepared e. The ESMF document is also based on the **Environmental Assessment and Management Guidelines (EAMG)** developed in April 2011, by the Ministry of Works, Transport & Communicatiin (MoTC). An accompanying Resettlement Policy Framework covers land acquisition aspects of the DUTP.

TANROADS is responsible for implementing this ESMF. The ESMF will be reviewed by both TANROADS and World Bank and approved by TANROADS. After approval, the ESMF will be published on the TANROADS web site and in the World Bank InfoShop, in compliance of the Bank's disclosure policy.

1.2 Purpose of the Framework

The overall purpose of the ESMF is to include effective environmental and social management during the project cycle, in order to ensure adequate environmental management during the project cycle and to comply with Tanzanian national law and the World Bank Safeguards Policies.

The ESMF is intended to be implemented by TANROADS during the project cycle of the projects that the Program will support.

The specific objectives of the ESMF are:

- Present the policy, legal and institutional framework related to the environmental and social context in the road sector that the DUTP will support; and

- Outline the processes through which all project activities will undergo environmental and social assessment using various methodologies, instruments, and procedures, and specify the responsibilities (role) for environmental and social management of the project.

1.3 Scope of the Framework

The ESMF is an instrument to be applied by TANROADS to provide guidance for environmental and social management, and govern the development of appropriate environmental and social studies, during the implementation of DUTP. The ESMF applies to the following specific activities under the DUTP: (i) BRT phase 4; (ii) complementary road safety infrastructure along the BRT phase 1 corridor, and (iii) any additional activities, within the DUTP components, arising from change of design.

The instrument is structured as follows:

- **Chapter 1,** presents the background of the DUTP, the objectives and the scope of the ESMF;

- **Chapter 2,** describes the DUTP Program and components;

- **Chapter 3,** presents Environmental and Social Setting which include environment and social characterization of Tanzania;

- **Chapter 4,** describes the Policy, Legal and Institutional Framerk for environmental management in Tanzania

- **Chapter 5,** describes the Bank's Safeguards Policies that should takes into account during the Program implementation;

- **Chapter 6,** present the main environmental and social impacts and measures in the road sector;

- **Chapter 7,** the Environmental and Social Internal Management where include methodologies, tools and internal procedures of TANROADS in order to ensure adequate environmental and social management;

- **Chapter 8,** a summary of the Environmental Assessment Process based on the Environmental Assessment and Management Guidelines developed by **MoWTC**

- **Finally, t**he document includes some **Annexes,** which contain additional information that complement the document and the format that should be used as part of the environmental and social management during the project cycle.

2. The Program

2.1 Strategic Context

1. The Dar es Salaam city is Tanzania's largest city which is also a business hub of the country. The city has functioned as a capital of the country with government and private sector offices and industries making it one of the fastest growing cities in the East African region. The population of the city and the import of vehicles are growing exponentially while the infrastructures have been growing at a stagnant pace. This has contributed to the traffic chaos in almost every corner of the city and the situation is worse during AM and PM peak hours.

2. To alleviate the traffic congestion in the city the Government of Tanzania (GoT) has embarked on a program for development of the transportation system that includes road widening schemes and establishment of a Bus Rapid Transit (BRT) network. The Dar Rapid Transit Agency (DART) plans to implement a total of six phases of BRT trunk corridors (Figure 1) as a step forward in upgrading the public transport system from the current mini-buses (Daladalas) to high quality bus-based mass transit system.

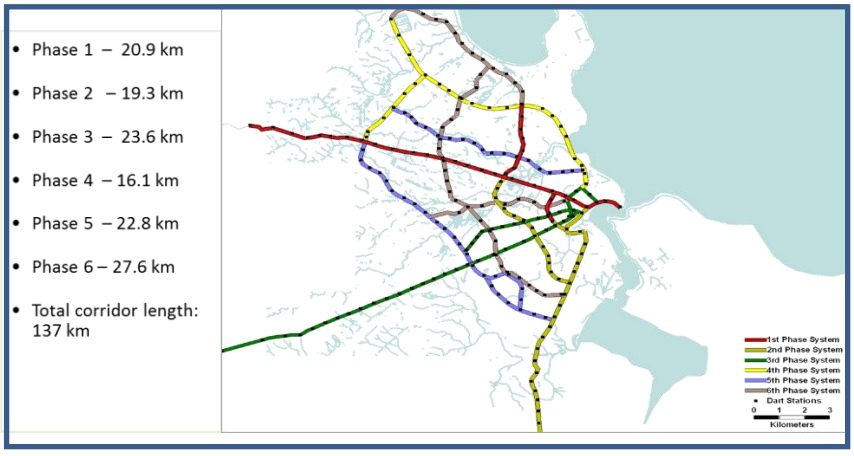

Figure 1: Proposed BRT Corridor

3. Dar Bus Rapid Transit system (DART) is a bus-based mass transit system that essentially follows the performance and characteristics of a modern rail-based transit system but at a fraction of the cost. It consists of a corridor of exclusive and segregated lanes, high capacity articulated buses and high performance boarding with central platform for level boarding and large closed stations that allow fare

payment outside the trunk vehicles. The proposed system can reach average speeds of 23 Km/h

4. The first phase of the BRT system was implemented through the support of the IDA's Central Transport Corridor project (P103633) that was closed on December 31, 2016. The first phase comprised of 20.9 kilometers of a trunk corridor with two lanes of Ordinary Portland Cement Concrete pavement for segregated exclusive bus lanes at the center (with overtaking lanes at stations); four lanes of asphalt concrete pavement mixed traffic lanes; bicycle lanes, and pedestrian walkways. Other infrastructure pieces included five terminals, one bus depot, 27 stations, and four feeder-transfer stations. The system is being operated using 305 buses (177 trunk and 128 feeder) through a trunk-feeder arrangement with a capacity of carrying about 400,000 passengers per day. The Interim Operations of the BRT phase 1 system commenced in May 2016 with 140 buses and has been carrying (ridership) between 130,000 and 150,000 passengers per day. The selection process for a second private bus operator, a fare collector, and a fund manager is ongoing and is planned to be completed by June 30, 2017. The implementation of infrastructure for the second phase of the BRT system is ongoing through AfDB support.

2.2 Dar es Salaam Urban Transport Improvement Project (DUTP)

1. The Dar es Salaam Urban Transport Improvement Project (DUTP) is organized around the following three components: (i) implementation of the third and fourth phase of the Dar es Salaam BRT system; (ii) improvement of the Ubungo intersection and complimentary infrastructure for BRT phase 1 system; (iii) Institutional Strengthening, ICT Innovation, and Safety net.

2. The implementation of the BRT infrastructure components will ensure high Road Safety standards by implementing pedestrian crossing overpasses (designed under universal access principles) at strategic locations, having two raised zebra-crossing equipped with effective traffic calming measures (i.e. speed humps) as a standard at each station. This type of interventions in combination with at-level buses and platforms ensures the safety of passengers as well as convenient accessibility of BRT facilities by the disable patrons. The following procedures will enhance the road safety:

(a) The Supervision Consultants will commence services by conducting a design review in which they will incorporate lessons learned from the Road Safety Audit carried out for infrastructure built for DART's phase 1 corridors.
(b) independent road safety audit will be conducted for all designs prior to implementation;
(c) additional road safety inspection and audit will be conducted independently through MoWCT during implementation and recommendations will be accommodated for improvement of the Project; and
(d) the results framework of the Project includes a focus on road safety, especially for vulnerable users, therefore road safety monitoring indicators will

be checked as part of outcome indicators to determine the impact of road safety interventions.

3. . The location of the project within Dar Es Salaam, distinguishing Part of Phase I to IV of BRT is as indicated in Figure 2 below:

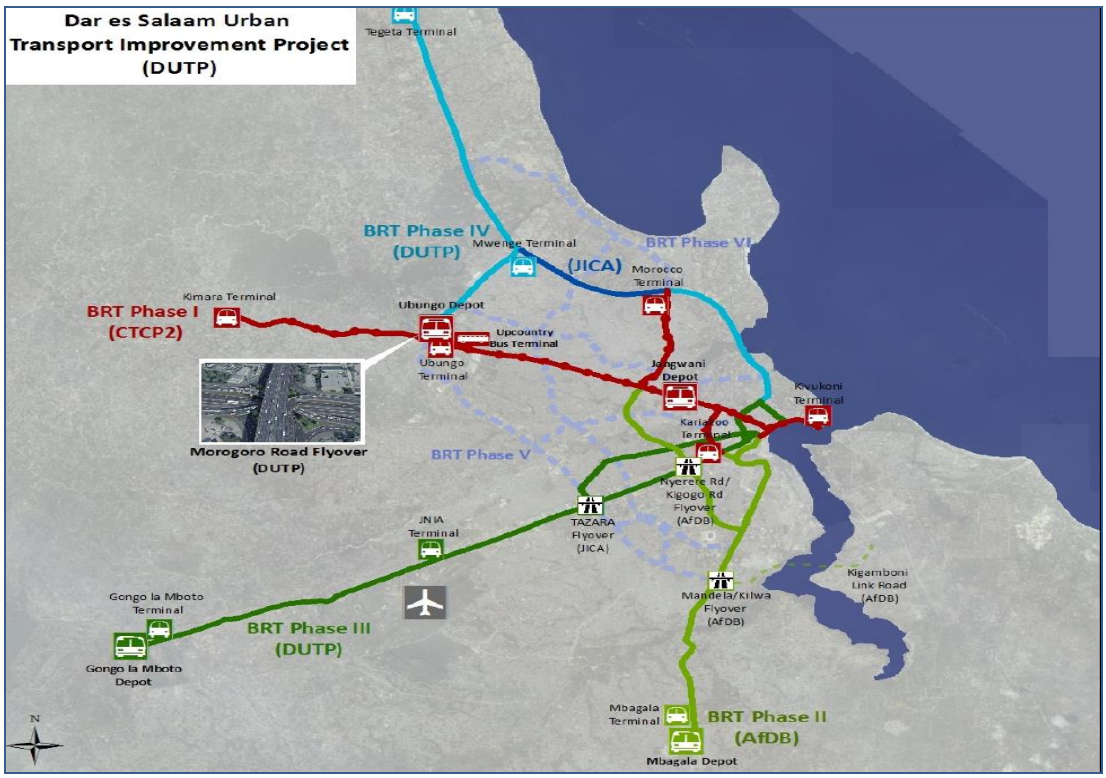

Figure 2: Location of the Project within Dar Es Salaam, Distinguishing Part of Phase I to IV of BRT

4. **Component A: Establishment of the Third and Fourth Phases of the Dar es Salaam BRT System -** This component will include five subcomponents.

4.1 **Establishment of BRT Phase 3 Infrastructure:**

(a) This subcomponent will support the development of physical infrastructure for the 23.6 km BRT phase 3 trunk corridor. The phase 3 corridor starts at Posta within the Central Business District (CBD) and passes along Maktaba Street, Bibi-Titi Street, and Nyerere Road past Julius Nyerere International Airport (JNIA) to the Gongo la Mboto area. Another branch starts at the Kariakoo BRT terminal along Uhuru Street to Buguruni and Nelson Mandela Road and joins Nyerere Road at the TAZARA junction.

(b) The BRT phase 3 infrastructure will include the BRT trunk corridor, 3 terminals, 1 bus depot, 3 feeder-transfer stations, 25 BRT stations; and 5 pedestrian crossing bridges. The BRT trunk corridor will have a median exclusive lanes for buses with a lane in each direction and overtaking lanes at stations and terminals. The trunk infrastructure is currently anticipated to include five pedestrian crossing bridges at the Kisutu market, at the Buguruni-Rozana feeder terminal, at the JNIA terminal, at Banana, and at Gongo la Mboto. As mentioned above, the appropriate number and placement of crossing bridges and other traffic safety measures will be subject to an independent safety audit. The two mixed traffic lanes will be reconstructed in both directions for the entire corridor (currently only available between the CBD and the airport), and bicycle lanes and pedestrian walkways will be constructed on both sides of the corridor at the outmost. The three terminals will be constructed at the Kariakoo hub terminal where all BRT phases integrate, opposite the JNIA, and at Gongo la Mboto. The project will also support the infrastructure for integrating the BRT corridor with the TAZARA central railway station, the JNIA, and vegetable/petty traders markets along the corridor. The BRT bus depot will be constructed at Gongo la Mboto, and the three feeder-transfer stations will be located at Jet Club, Banana, and the Buguruni Rozana area. Park-and-ride facilities for private car owners are planned to be supported near the Jet Club feeder-transfer station and at the Gongo la Mboto terminal. Also, the petty traders and vegetable markets at Kisutu, Mchikichini, and Buguruni will be provided with a safe linkage to the BRT corridor.

4.2 **Establishment of BRT Phase 4 Infrastructure**

The subcomponent will support the construction of the 25.9 km BRT phase 4 trunk corridor infrastructure. The corridor runs from the Maktaba/Bibi Titi Road junction at the CBD (where it connects with the BRT phase 3 corridor) through Ali Hassan Mwinyi Road to Morocco (existing BRT phase 1 terminal). From Morocco, it continues to Mwenge and ends at Tegeta. The trunk corridor has a branch at Mwenge connecting to the BRT phase 1 trunk route at the Ubungo terminal.

4.3 **Technical Support for preparation for Operation of the BRT System**

This will Support Transaction advisors to support the competitive selection of operators and capacity building to Daladala operators.

4.4 **Upgrading of the Fare Collection System and Improving Traffic Management along the BRT Corridors**

(a) The project will support the design and scaling-up of the automated fare collection system (AFCS), including the supply of smart cards and establishment of the intelligent transportation system (ITS) covering the BRT trunk corridors.

(b) The support will include construction of a DART traffic control center at the DART owned Kariakoo terminal plot.

4.5 Implementation Support for Integrated Transit-Oriented Development along the BRT Corridors. The activities will include

(a) Technical assistance for preparation of Integrated Land Use and Transport Plans for BRT phase 3 and 4 corridors,
(b) advisory and transaction support to guide the redevelopment of areas along the BRT phase 1 corridor using PPP mechanisms.

5. **Component B: Improvement of the Ubungo Intersection and Complementary Road Safety Infrastructure for the BRT Phase 1 System**
The project will support two subcomponents.

5.1 **Upgrading of the Ubungo Intersection and Integration of the BRT Corridor with Ubungo Up-country Bus Terminal**. This subcomponent will involve:

(a) construction of a flyover at the Ubungo intersection;
(b) rehabilitation of the Ubungo up-country bus terminal; and
(c) construction of a road linking the up-country bus terminal with the interchange for smooth entrance and departure of buses to and from up-country.

5.2 **Road Safety Strengthening along the BRT Corridor and Kimara-Mbezi Feeder Section.** This subcomponent will involve:

(a) improvement of pedestrian and cyclists safety infrastructure along the BRT phase 1 corridor by providing respective exclusive lanes between Kibo and Kimara;
(b) integration of the Kivukoni terminal with the ferry terminal for safe pedestrian and vehicle movements;
(c) improvement of infrastructure for enabling traffic flow (especially right-turning intersections) along the BRT corridor and the Kimara-Mbezi feeder line; and
(d) establishment of a performance-based maintenance contract for the BRT phase 1 corridor.

6. **Component C: Institutional Strengthening and Reform, ICT Innovation, Safety Net, and Transport Studies**
This component has seven subcomponents:

(a) Capacity Strengthening of Implementing Agencies (TANROADS, DART and SUMATRA)
(b) Technical assistance for Restructuring of DART and Establishment of DUTA
(c) Technical and operational Support to Road Safety Agencies
(d) Transport fare subsidy to the poor
(e) Technical assistance on ICT Innovation and Open Data Pilot in the Public Transport System
(f) Technical assistance for Improving Oversight Capacity of the MoWTC; and
(g) Transport Studies and BRT Communication Programs

Road safety and Communication support: the project will strengthen the road safety measures along the BRT trunk corridors and strengthen the capacity of the Road safety Authority. The recommendations from the GRSF-funded BRT corridor road safety inspection report[4] are to be implemented as follows: (i) infrastructure related improvements have been included under Component A and B, and (ii) the institutional strengthening and the development of a communication program focusing to road users to address road safety along the BRT corridors. The communication program will be aligned with the 'Road Safety Communication Framework' developed by the above GRSF funded assignment and will focus on 'Prioritizing Pedestrian Safety for the success of the DART System'. The Road Safety authority (planned to be established in 2017) will be provided with (i) operating costs for full establishment, (ii) technical assistance for rolling out of the RAIS, and (iii) road safety training. The project also will support the communication plan to BRT system stakeholders and for sensitization of road safety.

Gender Issues: the Project will support the establishment of a web-based system for monitoring gender based violence in the public transport system. A database based on mobile phone technology will be developed for collecting data related to gender based violence especially for women (and girls) in the public transport system. Thereafter a web-based system will be developed to map the violence and, not only, enable authorities to take appropriate action, but also, the maps could be used for advocacy and influencing gender policy decisions.

Skills Development and Safety Nets to the Urban Poor: The project plans to introduce safety net and skills development support to local professionals and the urban poor in the context of transport sector. This new innovative initiative will be started on a pilot basis with a possibility to scale it up gradually. The first area of intervention will focus on supporting (i) internship programs for transport sector graduates and (ii) vocational skills and entrepreneurship training to Daladala (public transport bus) drivers and conductors who will be affected by the introduction of the BRT phase 3. The graduate professionals will be embedded to work closely with TANROADS BRT team, DART agency, BRT operators, Contractors, and supervision consultants. This pilot will support the existing Structured Engineers Apprenticeship Program (SEAP) under the Engineers Registration Board (ERB-T). The ERB will guide and oversee the process and enable a pool of 100 new engineering graduates to be registered as professional Engineers. Additional targeted skills to be supported will be on professional driving, mechanics, and training on basic skill on entrepreneurship (running of small scale business) linked with transport sector. After successfully completing the skill training, the trainees will be provided with fare subsidy to cover job search costs.

The project will also, on pilot basis, introduce transport related safety net support to vulnerable urban poor families. Targeted poor families within the area of influence of

[4] Road Safety Inspection Report – BRT phase 1 by M/s CTS Embarq-Mexico -World Resources Institute

the BRT system in the city will be selected and offered with subsidized public transport fare cards for about 6 months. In particular, this will particularly have positive impact for poor families who are sending their children to schools and for those who have to travel to access marginal employment opportunities in distant places. The baseline data is to be established at the beginning of the project implementation and an impact evaluation will be designed and conducted to estimate the impact of different policy interventions. The findings of the impact evaluation will be used to inform the Government on the relevance of transport subsidy to the urban poor as part of its social protection policies. This component of the project is to be coordinated with Tanzania Social Action Fund (TASAF) interventions, namely; the Productive Social Safety net interventions in urban areas, and the beneficiary data base of TASAF is to be used to identify poor families that can be supported through this component. The team will collaborate with GSPDR team in the further design of this component.

3 Policy, Legal and Institutional Framework

3.1 Policy Framework

The Government of Tanzania's commitment to environmental management and sustainable development is reflected in its three main environmental policy documents: the National Environment Policy (NEP 1997). Furthermore, relevant policy developments in the sector ministries include: Transport; Industry; Water; Construction; Tourism; Wildlife; Forest; Agriculture; Livestock; Land; Mining; Fisheries; National parks; Energy; Gender; and Health. Together the above mentioned documents provide a comprehensive tool box for road planners, designers, constructors and decision makers regarding environmentally sound road planning and management.

3.2 Legal Framework

3.2.1 Provisions of the Environmental Management Act, 2004

Tanzania has enacted the Environmental Management Act, G.N. No. 20 of 2004 (EMA) that requires all projects in the transport sector to undertake an EIA and secure approvals from Minister responsible for Environment prior to implementation. The Act regulates the environmental management issues and EIA requirements in the country. The legislation requires sector ministries to establish environmental sections and appoint sector environmental coordinators. It also, among others, specify institutional responsibilities and obligation to oversee preparation and implementation of EIA process. Following are regulations which provides procedures for compliance.

(i) Environmental Impact Assessment and Audit Regulations

The overarching regulations for any environmental assessment of projects in Tanzania are the Environment Impact Assessment and Audit Regulations, G.N. No. 349 of 2005, made under the Environmental Management Act, G.N. No. 20 of 2004 (EMA).

(ii) Regulation on Environmental Experts

It is compulsory to assign an external environmental expert to carry out environmental impact assessment studies cf. the Environmental (Regulations of Environmental Experts) Regulation, G.N. No. 20 of 2004 made under the EMA. The expert must be registered with the National Environmental Management Council (NEMC). A list of registered environmental experts may be obtained from the NEMC or its website: www.nemctan.org.

(iii) Environmental Standards

Any project must comply with existing Tanzanian environmental standards during the site preparation and construction phases as well as the operation phases of the road project. Currently the following standards have been issued under the EMA by the Tanzania Bureau of Standards:

- Water quality standards
- Standards for discharge of effluents
- Air quality standards
- Standards for emissions to air
- Noise and vibration standards
- Solid waste regulations
- Hazardous materials regulations
- Soil quality standards
- Control of noxious smells
- Light pollution standards

Relevant standards may be purchased from the Tanzania Bureau of Standards (TBS). A reference is made to the website of TBS: www.tbstz.org.

(iv) Strategic Environmental Assessment

The Strategic Environmental Assessment Regulations, G.N. No. 153 of 5 September 2008, were issued in 2008 under the Environmental Management Act, 2004 (EMA). According to the regulations, strategic environmental assessments (SEA) must be undertaken for all bills, regulations, policies, strategies, plans and programs unless exempted by the Minister responsible for the environment. The aim is to provide a mechanism for mainstreaming of environmental issues and concerns into general planning and policy-making in order to make sure that all legislation, plans, strategies and programs conform with environmental protection and sustainable development requirements hereby enhancing environmentally sound planning in Tanzania.

3.2.2 Road Act (2007)

The BRT corridors fall within the jurisdiction of the Roads Act (Act No. 13 of 2007) and its regulations. The act provide procedures for management and use of the road corridor (road and its reserve land). It also specifies the sector specific provisions for environmental planning and management in the road sector.

Road transport in Tanzania is legally governed by the following Acts

- Tanzania's Road Traffic Act of 1973,
- Transport Licensing Act of 1973.
- Surface and Marine Transport Regulation Authority (SUMATRA) Act, 2001

This Road Act covers aspects related to road construction, development and upgrade. Part IV, 19 – (1) which states: "The road authority may, with necessary vehicles and equipment after consultation with relevant authorities, enter upon the

land owned by any person in place not less than fifty meters from any dwelling-house, and on, through and over such land construct a passage way for such vehicles, and may collect from such land any stones, sand, earth, gravel or other material which may be required for the purpose of opening, making or repairing any public road in the vicinity".

With regards to quarrying, Part IV, 19 – (2) states: "The road authority may acquire quarries for the purpose of developing and maintaining road in any area under its jurisdiction and the Minister responsible for finance after consultation with the Minister responsible for minerals may exempt the road authority from paying any levy, royalty and fees for licence."

Part IV, 19 – (3) continues to state: "In exercising the powers vested under this section, the Road authority shall give the owner of such land notice in writing at least fourteen days before entry on such land".

With regards to protection of the environment, Part IV, 30 states: "The road authority entrusted with the duties of developing, managing and maintaining the public roads under its jurisdiction, shall comply with the prescribed guidelines, regulations or any other written law relating to environmental protection and waste disposal".

Regarding Safety, Part V, 33 – (1) states: "The road authority shall ensure to the safety of road users during the design, construction, maintenance and operation of a public road by providing sidewalks, overhead bridges, zebra crossings and other matters related thereto".

The Act provides for the road authority to acquire land owned by any person; and gives the owner of such land entitlement to compensation in accordance with the Land Acquisition Act, Land Act, Village Land Act and any other written law. The authority may give a notice in writing to any person obstructing or encroaching on any public road to remove or abate such obstruction. When a person to whom notice has been given fails to comply with such notice within a prescribed time the authority may cause obstruction or the encroachment to be removed or abated.

For purposes of the road upgrading project, the Act 2007 serves as a guide to the use of the road reserve. Contrary to previous informal understanding the reserve is exclusive to road related activities that do not include other utilities. However clause 29 (2) does give provision for the request and terms of approval for use of the road reserve by utilities such as power lines and water pipes.

(i) Road Sector (Environmental Protection) Regulations, 2009

These are regulations for implementing road act 2007 on aspects of environmental protection. The regulations direct how to implement environmental management in the road sector.

(ii) Environmental Assessment and Management Guidelines in the Road Sector (2004)

These are guidelines for conducting EIAs in the road sector including trunk roads. The guidelines complements the Environmental Management Act (2004) by providing details of the different aspects pertaining to roads that are salient to the EIA process.

(iii) Environmental Code of Practice for Road Works 2008

The main objective of the Environmental Code of Practice is to provide a tool that integrates identified environmental impacts/aspects for project managers, road engineers, technicians, contractors and environmental specialists. The code presents the environmental norms that are to be observed or used during the conception/planning and construction of road infrastructure. It is intended for project managers, road engineers, and technicians to use during the implementation of road projects. The environmental consultants taking part in road sector can also use this code as a reference during the construction phase.

(iv) Compensation and Resettlement Guidelines (CRG) – February 2009

This guideline present the legal and institutional framework for compensation of project affected people, including a grievance mechanism system, and provide guidelines for preparation and implementation of a Compensation and Resettlement Plan (CRP).

(v) Guide to Road Safety Auditing (2009)

The Ministry of Works has issued guidelines on 'road safety audits'. Besides statistical information about the scale of road accidents in Tanzania, these guidelines describe the likely causes and key characteristics of road accidents and presents a checklist of road safety measures in design and operation phases of the road, such as design of safe roads, separation of different road user types, speed management, safety in junctions and bends, forgiving roadsides, drainage, crash barriers, bridges, road signs, safety at road works, and lay-bys. Under the DUTP, the supervision consultants will conduct independent road safety audit of designs as part of the design review assignment, and make necessary design adjustments, prior to launching of tenders for works.

(vi) Standard Specifications for Road Works (2000)

Finally the standard specifications for road works provide generic design and implementation criteria for environmentally sound road planning and management.

The specifications comprise seven series: Series 1000 on general issues, series 2000 on road drainage, series 3000 on earthworks and pavement layers of gravel or crushed stone, series 4000 on bituminous layers and seals, series 5000 on ancillary road works, series 6000 on structures and series 7000 on tolerances, testing and

quality control. All road constructions must be made in accordance with the Standard Specifications for Road Works (2000). The Standard Specifications series 1000 contain technical standards for environmentally sound design and construction of roads.

3.2.3 Other Environmental Laws

Table No. 1 outlines other key policies and laws related to the Environmental Management.

Table 1 Other Existing Key and Laws Relating to Environmental Management

Act	Key elements	Implementing authority
National Environmental Management Council (NEMC) Act, No. 19 of 1983 (repealed by the 2004 Environmental Management Act)	The act provides for the establishment of the NEMC, as well as all functions and other matters related and incidental to its establishment.	NEMC
Wildlife Conservation Act, No. 12 of 1974, as amended	The Act protects wildlife and vegetation by restricting the utilization of wildlife to license holders. The use of sensitive wildlife habitats is restricted during certain times of the year or for specified periods.	Ministry of Tourism and Natural Resources
Fisheries Act, No. 6 of 1970	The Act limits annual catches. Specific regulations were introduced in 1973 and 1982 restricting some methods of fish harvesting as well as prohibiting dynamiting and poisoning.	Division of Fisheries, Ministry of Tourism and Natural Resources
Mining Act, No. 17 of 1980, as amended	The Act sets out government policy on all forms of mining and is supported by various regulations covering claims, prospecting rights, mining rights, and royalties. Mining license applicants are required to submit plans for environmental protection. Each industry is required to establish realistic resource-recovery standards and to adhere to them. Mining plans must be presented before operations begin.	Ministry of Energy and Minerals
Local (District and Urban) Authorities Act, No. 7 of 1982	Local authorities are empowered to enact bylaws regarding the protection of soil, agriculture, water supplies, and other natural resources. The act contains provisions to protect human health and regulate pollution.	Local Authorities
Town and Country Planning	The ordinance was intended to establish a	National Land Use

Act	Key elements	Implementing authority
Ordinance, of 1966, Chapter 378	land-use planning scheme for designated areas. The National Land Use Planning Commission was established to advise government on land conservation and development.	Planning Commission
Public Health, Sewerage and Drainage Ordinance, Chapter 336	The ordinance prohibits the discharge of certain substances into sewers. Violation of the ordinance is an offense, and penalties may be imposed on offenders.	Ministry of Health, Community Develoment, Gender , the Elderly& & Children &

3.2.4 Environmental International Agreements

Tanzania is a party to many international agreements on biodiversity, climate change, desertification, endangered species, ozone layer protection, marine life conservation and others, including:

- Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and Their Disposal (1989);
- Convention Concerning the Protection of the World Cultural and Natural Heritage, Paris (1972);
- Development, Production, and Stockpiling of Bacteriological (Biological) and Toxin Weapons, and Their Destruction, London (1972);
- Convention on Biological Diversity;
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, 1973);
- Convention on the Ban of the Import into Africa and the Control of Trans-boundary Movement and Management of Hazardous Wastes within Africa, Bamako, Mali (1991);
- United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (1994);
- Lusaka Agreement on Co-operative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora (1994);
- Montreal Protocol on Substances That Deplete the Ozone Layer (1987);
- Phyto-Sanitary Convention for Africa, Kinshasa (1967);
- United Nations Convention on the Law of the Sea (1982);
- United Nations Framework Convention on Climate Change (1983);
- Vienna Convention for the Protection of the Ozone Layer; and
- Nile Basin Commission.

3.3 Institutional Framework

3.3.1 Ministry of Works: Transport and Communication (MoWTC)

The Ministry of Works: Transport and Communicationis the main stakeholder in the road sector. The MoW formulates policies, sets standards and specifications; defines the long-term strategic plans; and participates to the management of the executives agencies. As stipulated in the Government Instrument; the roles and functions of the Works: Transport and Communication are:

- Formulation of policies, plans and strategies towards development, upgrading and Management of the Construction Sector covering short, medium and long term.
- Setting standards and Monitoring of quality compliance in Construction, Rehabilitation and Maintenance of Roads, Ferries, Bridges, and Government Buildings.
- Monitoring & Supervision of Construction, Rehabilitation and Maintenance of Roads, Ferries, Bridges, and Government Buildings.
- Supervision and Monitoring of preliminary and detailed designs of Trunk and Regional Roads.
- Plants, Ferries, Refrigeration and Air-conditioning systems, and electronic equipments.
- Monitoring, supervision and coordination of various activities of Agencies/Parastatals, Boards and Institutions which are under the Ministry of Works, Transport & Commucation.
- Sourcing of internal and external funds for financing of various projects under the Ministry.
- Supervision of axle load control and transport safety; and
- Human Resources development for Ministry's Employees at all levels.

All road sector responsible ministries, department, agencies etc. have overall responsibility to protect the environment while planning or executing road projects or managing road operations in accordance with the prescriptions in the Roads Act, 2007. However, particular responsibilities to protect the environment lies with the following road sector authorities:

In the MoWTC is responsible for road sector environmental policies and strategies, coordination, supervision, guidance, monitoring, follow-up and reporting to the environmental authorities. TANROADS also has an Department of Safety and Environment that coordinates with the Department at the Ministry level and with NEMC; and

The MoWTC has established Department of Safety and Environment (DSE) to provide overall policy and strategic guidance in environmentally sound road sector planning and management and to supervise coordinate and monitor the implementation of environmental legislation in the road sector.

Regarding environmental management in the road sector,the functions of the department include:

- Advising on, and in collaboration with other bodies, implementing the policies of the Government on the protection and management of the environment;
- Coordinating the activities related to the environment within the (MoWTC)
- Ensuring that environmental concerns are integrated into sector's planning and project implementation in a way which protects the environment;
- Collaborating with other institutions or agencies, evaluate existing and proposed policies and legislation and recommend measures to ensure that those policies and legislation take adequate account of effects on the environment;
- Preparing and coordinating the implementation of environmental action plans at the national and local levels as required under the EMA;
- Promoting public awareness of environmental issues through educational programs and dissemination of information;
- Referring to the NEMC in matters related to the enforcement of the EMA;
- Conducting other functions as are necessary to comply with the purposes of the EMA;
- Undertaking analysis of environmental impact of sector legislation, regulations, policies, plans, strategies and programs through strategic environmental assessment;
- Ensuring that sector standards are environmentally sound;
- Overseeing the preparation and implementation of Environmental and Social Management Plan required for investments in the sector;
- Ensuring compliance with various regulations, guidelines and procedures issued by the Minister Responsible for the Environment; and
- In conjunction with the President's Office – Regional Administration and Local Government (PO-RALG) providing environmental advice and technical support to district level staff working in the road sector.

The line of communication on environmental management issues within the road sector is illustrated in Figure N° 1.

3.3.2 Tanzania National Roads Agency

The Tanzania National Roads Agency (TANROADS) was set up in July 2000, as a semi-autonomous agency under the Ministry of Works. It is the road authority for the maintenance and development of the trunk and regional roads, whereas the road authority for other categories of roads falls under the President's Office – Regional Administration and Local Government (PO-RALG). TANROADS implements road projects through its regional offices.

The main objective of TANROADs is to support the socio-economic growth and help reduce poverty through: promotion of trade; support for the economic sectors such as agriculture, mining, tourism, industry; and provision of access to social services such as health, education and recreation.

The roles and functions of TANROADS are:

- Determination of what needs to be done on the network;
- Planning for carrying out the required interventions, based on priority ranking;
- Engaging contractors to carry out the works;
- Supervising the works;
- Establishing and operating toll roads where feasible;
- Establishing and maintaining an appropriate databank for the national road network;
- Establishing and operating weighbridges and enforcing axle load control on the national road network;
- Carrying out / commissioning research in support of the operations when necessary; and
- Advising the MoWTC on standards and specifications for road works.

In relation to its structure, the agency is headed by a Chief Executive, there are five functional Directorates: Maintenance, , Planning, Procurement, Projects and Management Services. In relation with the Regional Offices, there are 27? regions managed by Regional Managers. The Regional Managers and heads of Legal and Internal Audit Units report directly to the Chief Executive.

The Agency has established the Safety and Environment Unit (SEU) under the Directorate of Planning and its main purpose is to ensure the environmental sustainability of the projects that TANROADS promotes.

The main responsibility of the SEU is to ensure compliance with environmental law and follow-up environmental management during the project cycle.

3.3.3 National Environmental Authorities

The envisaged institutional framework for environmental management in the country includes the following levels of governance:

- The Minister responsible for the environment;
- National Environmental Advisory Committee
- The Office of the Director of Environment (DOE);
- Sector ministries and their environmental sections;
- Regional administrative secretariats (RASs); and
- Local government authorities (LGAs), they are: city, municipal, district, township, ward, village, mtaa and kitongoji.

The Environmental Management Act of 2004 (EMA) contains detailed descriptions of roles and responsibilities. A brief overview is as follows:

(i) 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 an EIA 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

(ii) 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 by the NEMC of objectives, goals and targets set by the Council 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.

(iii) Division of Environment

The functions of the Division 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

(iv) 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 (2004) the NEMC has the following responsibility pertaining to ESIA 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 Technical Advisory Committee (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

(v) Sector Ministries

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 ESIA'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.

For the road sub-sector, the Ministry of Infrastructure Development has established the Division of Safety and Environment in which among others its role is to monitor the implementation of policies related to environmental management in road sector.

(vi) Regional Secretariat

The Regional Secretariat, which is headed by the Regional Environmental Management Expert, is responsible for the co-ordination of all environmental management programmes in their respective regions. The Regional Environmental Expert:

- Advises local authorities on matters relating to the implementation of and enforcement of environmental laws and regulations;
- Creates a link between the region and the DOE and the Director General of the NEMC.

(vii) 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, Kitongoji, Ward, and Village.

The Environmental Management Committee of each jurisdiction:

- Initiates inquiries and investigations regarding any allegation related to the environment and implementation of or violation of the 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 (2004), 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;
- Advice 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.

4 Environmental and Social Setting

4.1 Environment Aspects

Tanzania lies between 29°30'E and 40°30'E, and 1°00'S and 11°48'S. It is a land of contrasts, being the home of Africa's highest mountain (Kilimanjaro, at 5,895 meters [m]) and its lowest point (the floor of Lake Tanganyika, which is 1,470 m deep). Located on the east coast of Africa, it covers an area of approximately 945,000 square kilometers (km^2), of which the Zanzibar Islands cover 2,400 km^2. The islands of Mafia, Pemba, and Zanzibar are included in this area. Of this area, 61,495 km^2 are covered by the inland waters of the Great Lakes (Victoria, Nyasa, and Tanganyika). The country is bordered by Uganda to the north for 396 km; Rwanda and Burundi to the northwest for 217 km and 451 km, respectively; the Democratic Republic of Congo to the west for 459 km (a water border on lake Tanganyika); Zambia and Malawi to the southwest for about 338 km and 475km, respectively; Mozambique to the south for 756 km; and Kenya to the northeast for 769 km. The Indian Ocean, with shores characterized by coral reefs and small islands, lies to the east. The continental shelf within the 200 m depth contour varies from 4–60 km from the shore.

Tanzania experiences a variety of climatic conditions, ranging from the alpine deserts on the top slopes of Mount Kilimanjaro that are permanently covered by snow, to the tropical coastal areas that are under the influence of two monsoon winds. The northeast monsoon wind, which blows southwards from December to March, brings the hottest weather, while the southeast monsoon winds that blow northwards from March to September bring intermittent rains. The main rainy season on the coast is from March to May (the long rains) with a second season between October and December (the short rains). Mean annual rainfall varies from 400 mm in the central regions to over 2,500 mm in the highlands and the western side of Lake Victoria. Mean annual temperatures are influenced by altitude, ranging from 21°C in high mountain areas to 29°C at sea level.

Except for the coastal belt and islands, most of the country is part of the Central African Plateau (1,000–1,500 m above sea level) and characterized by gently sloping plains and plateaus, broken by scattered hills and low-lying wetlands. The Central African Plateau is deeply incised by two arms of the Rift Valley: the eastern arm, which includes lakes Natron and Manyara, and the deeper western arm, which contains Lake Tanganyika. Both arms of the rift converge in the south of the country near the northern end of Lake Nyasa/Malawi.

There are seven agro-ecological zones in Tanzania based on climate, physical geography, soils, vegetation, land use and tsetse fly occurrence, which are the main physical factors that influence opportunities and constraints for crop and livestock production.

Tanzania shares three major lakes (Nyasa/Malawi, Tanganyika, and Victoria) with other countries in the region. Other lakes in the country include Masoko, Manyara, Natron, and Rukwa. Tanzania also has many permanent and seasonal rivers. Main rivers include the Kilombero, Mara, Pangani, Ruaha, Rufiji, Ruvu, and Ruvuma.

Figure 3: Tanzania Protected Areas and the Main Road System

Tanzania's wetlands cover about 10 percent of the country. They are classified as marine and coastal wetlands, inland wetland systems, rivers and inland flood plains, and artificial wetlands. The marine and coastal wetlands include the mangrove estuary swamps, coral reefs, seaweed and grasses, and intertidal mudflats. The inland wetlands include the Rift Valley lakes (Balangida, Eyasi, Manyara, Natron, Nyasa, Rukwa, and Tanganyika), some depression swamps (Bahi and Wembere), and Lake Victoria. The shores of the Rift Valley lakes provide a habitat for birds, while Lake Natron serves as the largest flamingo breeding ground in Africa. The soda lakes (Eyasi, Manyara, Natron, and Ngorongoro) are their feeding grounds. The waters of these lakes and the adjacent land are often inhabited by wildlife, which is a major tourist attraction in Tanzania.

Some swamps are important breeding sites for fish. Lake Tanganyika is home to about 217 endemic fish species, while Lake Nyasa/Malawi has the most diverse fish species population (over 600 species). Both lakes are world famous for their variety of aquarium fish. Lake Tanganyika is important nationally for sardine, while Lake Victoria has a naturally rich and diverse indigenous fish fauna (178–208 species). However, the introduction of Nile perch has led to the disappearance of several indigenous species.

The flora of Tanzania is extremely diverse, with over 12,700 plant species—a figure comprising more than one-third of the total plant species in Africa (UNEP 1998). Yet, Tanzania's diverse flora are not evenly distributed throughout the country, they are found in six specific ecological zones, namely: (i) Moist Forest Mosaic; (ii) Coastal Forests and Thickets; (iii) Afromontane; (iv) *Acacia*—Savannah Grassland; (v) *Acacia—Commiphora* Thornbush; and (vi) *Brachystegia—Julbernardia—Savannah* Woodland.

Proportionately, Tanzania has a much bigger land surface area devoted to resource conservation (29 percent) than most countries. The hierarchical protected-area system consists of national parks (12), game reserves (28), the Ngorongoro Conservation Area (1), and game-controlled areas (38) totaling 240,000 km^2. In addition to the wildlife-protected areas, there are 540 forest reserves covering 132,000 km^2, equivalent to 15 percent of the total woodland and forest area in Tanzania, not including the Mafia Island Marine Park.

Tanzania also has a highly diverse and widely distributed amphibian population that is particularly endemic to the coastal forests and the forests of the Eastern Arc Mountains. Tanzania has 293 reptile species that are also widely distributed throughout the country and not greatly threatened by habitat change. The number of bird species found in Tanzania is 1,065. Of these, 25 are endemic, and all but 3 species are limited to forest habitats. Some 302 species of terrestrial mammals reside in Tanzania. Of these 302 species, 13 species (4 percent) and 5 subspecies are endemic to Tanzania and Kenya, and 1 subspecies is endemic to Tanzania and Uganda.

The species of critical importance include chimpanzee, colobus and mangabey monkeys, elephant, and a dwindling population of black rhinoceros. The larger carnivores include lions, leopards, cheetahs, and African wild dogs. There are over 30 antelope species, and the giraffe population is the largest in Africa. Tanzania also has a rich menagerie of small mammal species, including bats (97species), shrews (32 species), and rodents (100 species).

Tanzania also has diversity large, diverse populations of millipedes, terrestrial mollusks, and butterflies. The marine environment has more than 7,805 invertebrate species, and there are also about 789 species of freshwater invertebrates (mostly aquatic insects).

4.2 Social Aspects

According to the latest estimates, the population of Tanzania is estimated at 36 million people in approximately 130 tribes, with a 2.5 percent growth rate (national census 2002).

Despite its potential and rich resource endowment, Tanzania is one of the poorest countries in the world, with a gross domestic product (GDP) per capita of US$552 in

2010 (estimated by U.S. Department of State). The economy depends heavily on agriculture, which accounts for over 40% of GDP, provides 85% of exports, and employs about 80 percent of the workforce. Nearly 90% of the poor in Tanzania are in rural areas, and the sale of crop and livestock products accounts for about 75 percent of rural households' cash income. The severe degradation of land, forests, and water resources that support agriculture has become an obstacle to the revival of the rural economy.

Official estimates suggest that over half of Tanzania's 36 million people live below the international "dollar-a-day" poverty line. Poverty is more widespread in rural areas, with almost 61% of the rural population categorized as poor, compared to 39 percent of the urban population. Income distribution is uneven; in the 1998 rural survey, the lowest quintile accounted for only 7% of mean expenditures.

Health and education progress in Tanzania has been slow, although some achievements have been recorded in recent years. Life expectancy at birth increased from 44 in 1978 to 54 years for males and 56 years for females in 2002; infant mortality dropped from 100 to 68 per 1,000 between 2000 and 2004, while child mortality dropped from 141 to 112 per 1,000 between 2000 and 2004. However, infant, child, and maternal mortality rates still remain among the highest in the world, and more than one-third of all children under five are malnourished. HIV/AIDS incidence (human immunodeficiency virus/acquired immunodeficiency syndrome) is high, with 7 percent of the population between 15 and 49 years of age HIV positive. In the 1990s, HIV incidence increased significantly among this group and was higher among women, but recent data indicate a stabilization trend. Communicable diseases (HIV/AIDS, persistent malaria, acute respiratory infection, and diarrhea), malnutrition, and poor quality health care have been major factors in poor survival indicators. Finally, the proportion of the rural population with access to safe water remains low is 47 percent in 2001.

Net primary school enrolment increased from 57 percent in 2000 to 95 percent in 2005, but the illiteracy rate remains high. The illiteracy breakdown by age and gender is:

- 0 to14 years: 44.3 percent (male 7,988,898; female 7,938,979)
- 15 to 64 years: 53.1 percent (male 9,429,959; female 9,634,102)
- 65 years and over; 2.6 percent (male 405,803, female 524,713)

4.3 Poverty

Based on the results of the in-country consultations with local communities, local and central governments, and civil society members during the preparation of this ESMF, the poor people are: (i) rural households; (ii) female-headed households, other households with less than two adult members, elderly, and handicapped persons; and (iii) urban households. These groups are not mutually exclusive. The reasons for these categories are:

- *Rural households:*
  - ✓ Low agricultural productivity, declining soil fertility, and environmental degradation;
  - ✓ Lack of access to land, land fragmentation, and insecurity of land tenure;
  - ✓ Lack of access to markets and absence of rural commercial activity and alternative income-earning opportunities;
  - ✓ Low-quality education, lack of access to education, and high cost of education;
  - ✓ Poor health services and health standards and rise in HIV/AIDS incidence negatively impact productivity;
  - ✓ Poor nutritional intake;
  - ✓ Lack of access to low-cost capital or micro-credit or micro-grants;
  - ✓ Lack of access to affordable and sustainable household energy sources; and
  - ✓ Vulnerability.

- *Female-headed households:*
  - ✓ Shortage of household labor;
  - ✓ Declining soil fertility;
  - ✓ Many women have to take care of unemployed/unemployable husbands, dependent parents, and dependent orphans;
  - ✓ Low education attainment, poor access to land and credit, limited paid employment opportunities;
  - ✓ Poor social services, such as water, health, education, and more.

- *Urban poor:*
  - ✓ Rapid increase in urban population;
  - ✓ No employment opportunities, particularly among poorly educated young people;
  - ✓ Poor basic social services and infrastructure;
  - ✓ Lack of housing;
  - ✓ Lack of land; and
  - ✓ High food prices due to low agricultural productivity, high transport costs, and restrictions on petty trade.

5 World Bank Safeguards Policies

5.1 Description

To ensure the social and environmental sustainability of the projects, the World Bank developed its Safeguard Policies, divided in environment, social, and legal areas. Likewise, the World Bank has a Public Disclosure Policy that is of cross-character and applies in all the Safeguards Policies.

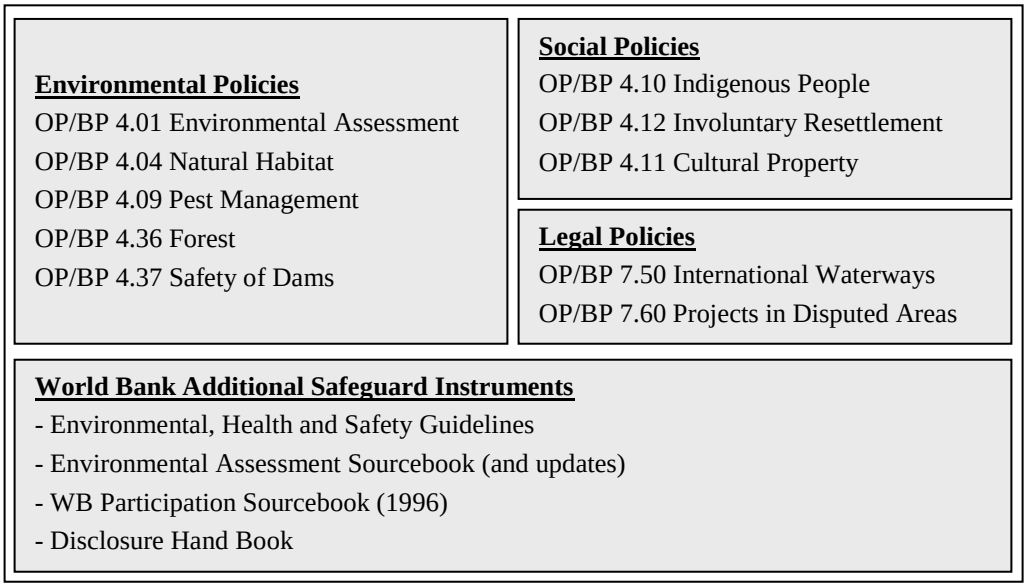

Figure 4: World Bank Safeguard Policies

The Safeguard Policies pursue three objectives: (i) ensuring that environmental and social issues are evaluated in the preparation and decision-making process; (ii) reducing and mitigating the environmental and social risks of Bank-financed programs or projects; and (iii) providing mechanisms for consultation and information disclosure.

According to the agreements between the GoT and the World Bank, TANROADS will comply with all the Safeguard Policies in the subproject or activities funded under the DUTP, irrespective of whether or not they are being funded in whole or in part by the World Bank, the GoT or any other donor. A complete description of the World Bank's safeguards and their triggers can be found on the Bank's official Web site, www.worldbank.org, and summaries are included in **Annex N° 1** of this ESMF. All environmental and social assessment and management plans for sub projects funded by the World Bank will be designed to demonstrate that they meet the World Bank

Safeguard Policies and Environmental Health and Safety Guidelines. These policies and guidelines will be included in the Terms of Reference for the preparation of these documents, in addition to all local legal requirements.

5.2 Safeguards Policies triggered by the DUTP

In infrastructure and road projects, the environmental and social Safeguard Polices that commonly triggered are:

- OP/BP 4.01 Environmental Assessment
- OP/BP 4.04 Natural Habitats
- OP/BP 4.11 Cultural Properties
- OP/BP 4.12 Involuntary Resettlement

Table 2 below presents the common settings in which the safeguards are triggered and generic directions to comply with them.

Table 2: Social and Environmental Safeguards Commonly Activated

Safeguard Policy	Trigger settings and requests
Environmental Assessment	This safeguard is typically triggered in projects where the work will affect, temporary or permanently, the natural environment and/or society, through direct, indirect, or cumulative impacts. The project will develop the Environmental and Social Impact Assessment (ESIA), Environmental and Social Management Plan (ESMP), and others required by national law and the Bank's guidelines to ensure the social and environmental sustainability of the project and to obtain the respective environmental permissions.
Natural Habitats	This safeguard is most likely triggered for projects located in a protected area or in a critical area from an environmental perspective. Depending on the potential negative impacts to the natural habitats (flora and fauna), these projects will require special studies to protect or preserve the species identified at risk of being affected. If a project can cause irreversible damages, it will be excluded from financing.
Involuntary Resettlement	This safeguard is triggered when projects require the relocation of people or compensation is required because of project impacts on livelihoods or natural resources. The affectation could be minimal or substantial depending on whether houses or productive lands (legal or illegal) are impacted. These cases require a Resettlement Action Plan (RAP) developed in accordance with the Bank's guidelines.
Cultural Properties	This safeguard might be triggered during projects constructed in zones of recognized archaeological/cultural/physical potential. Investigations, Rescue, and the Chance Finds Procedures Plan are the most common instruments required in cases when the Policy is triggered.

In accordance with the Bank's Public Disclosure Policy, a Stakeholder Engagement Plan is required to present all the environmental and social documents developed for the subprojects (ESIAs, ESMPs, RAPs, or others) as part of the participation and consultation process. Below is the status of preparation of the Safeguards documents/instruments under the DUTP:

1. Ubungo Intersection improvement:
    a. ESIA disclosed incountry and at the infoshop on January 20, 2015
    b. RAP disclosed incountry and at the infoshop on December 16, 2015
2. BRT phase 3:
    a. ESIA disclosed incountry and at the infoshop on October 24, 2016
    b. RAP disclosed incountry and at the infoshop on December 27, 2016
3. BRT phase 4: ESIA and RAP to be prepared on the basis of ESMF and RPF
4. Complementary Road Safety Infrastructure along BRT phase 1 trunk corridor and Kimara – Mbezi feeder: ESIA and RAP to be prepared on the basis of ESMF and RPF.

6 Environmental and Social Impacts and Mitigation Measures in Public Transportation Projects

This chapter presents general information about the main adverse environmental and social impacts and measures that should be taken into account during the preparation of the environmental and social studies of a public transportation projects. The possible environmental and social impacts emanating from the project development have been listed in Table 3, below. All activities to be supported under the project will be subjected to a screening process and assessment to analyze the significance and severity of impacts.

Table 3: Environmental and Social Impacts analysis

Impact	**Mitigation measures**
Construction Phase:	
Displacement of people and properties and economic activities currently on the ROW	○ Valuation and compensation in place where properties cannot be avoided or left intact – see Resettlement Policy Framework (RPF) as well as individual RAP reports of project components for detail of valuation and compensation ○ Roads alignments to follow much of existing roads to avoid relocating more of the properties ○ Structures outside the construction width but within the road reserve may be left intact during the initial stages but with time they will need to be relocated to pave way for future expansion of the roads if required

Relocation of infrastructures and disruption resulting from relocation (e.g. Water pipes)	○ Communities shall be informed in advance regarding storages of water when their utilities are about to be relocated to pave the way for road works. ○ Water pipes located /crossing in the right of way (road reserve) may be moved slightly away from the road or provision of service duct may be considered-
Interference on drainage patterns	○ Protect existing water channels feeding water the Indian ocean ○ Box culverts or long span bridge should be provided to avoid disturbance and/ or obstruction of water. ○
Landscape scarring especially at material borrow sites	○ Borrow pit areas will be located outside the ROW as per requirement of Road act 2007.The excavation and restoration of the borrow pits and their surroundings, shall be carried out in an environmentally sound manner to the satisfaction of the Resident Engineer, and in a compliance with Government regulations particularly the Environmental Assessment and Management Regulations for Road Sector and the Code of Practice for Road Works. Before final acceptance and payment under the terms of the contract all the borrow areas no longer in use shall be properly restored. The side slops shall be stabilized with vegetation and proper drainage provided.
Loss of vegetation through clearance to improve access (Though the project located in the urban setting, there are few trees and vegetation cover)	○ Detours and diversion during construction should be provided where necessary and within the road reserve. ○ Temporary projects infrastructure (access roads, road upgrading camps, stockpiling areas) should avoids woodlands and wetlands. ○ Vegetation clearance for temporary infrastructure should be limited to the minimum. Areas cleared of vegetation should be re –vegetated to prevent soil erosion. However , plants and grasses for re-vegetation should be sourced within the project area to avoid introduction of exotic species ○ Re- vegetation is only possible given suitable ground conditions (soils, slopes, drainage) moisture, and protection from destruction. ○ Clearance of the vegetation should be limited to the core area of the project. In this case the diversions to accommodate traffic should be established within the ROW i.e. within the road reserve not beyond 60 m from the ROW. ○ The topsoil and cut trees removed during construction of the pavement of the roads should be stored and be used later to rehabilitate the diversions later, so as to allow the natural vegetation to re-colonize the area. ○ All road diversion should be closed when they are no longer in use, to allow the vegetation to recover. ○ Landscaping and planting of vegetation should be done disturbed surface as a compensatory measure. ○
Soil erosion and blockage of storm Water channels	○ Earthworks should be controlled so that land not required for road works is not disturbed ○ Carry out works during the dry seasons to prevent soil from being washed away by rain.

	○ Excavated materials to be kept at appropriate places ○ Drainage structures should be properly installed to avoid scouring embankments with flat growing grass that will reduce erosion and enhance soil stability especially on embankments. ○ Areas cleared for improving sight distances should be replanted with grass to control erosion ○
Impacts from worker's Camps establishment	○ Impacts from workers' camp will be insignificant. The project location is in Dar es Salaam city therefore no workers' camp will be constructed as all workers are expected to report to the construction site daily from their existing homes. ○ Along with project implementation, measures to reduce such conflicts must be introduce e.g. training information, strengthening of ward/institutional organization structures etc. ○
Poor Air quality due to emission and dust	○ Water sprinkling to reduce to reduce the dust at construction site and near settlements. Sprinkle water twice a day or more when visual inspection indicated excessive dust and during heavy traffic ○ Use of dust masks to operators and those working in dusty areas. ○ Use of goggles for operators ○ Construction machines/ equipments shall be well maintained to ensure total fuel combustion. All the vehicles shall be frequently checked and serviced during the whole construction period so that the level of exhaust emissions is reduced ○ Movement of vehicles should be kept to minimum necessary for completing the job ○ Cover all trucks hauling materials particularly sand ○ Limit the speed of the vehicles to 40kph or by placing speed bumps especially in busy areas.
Ambient Air and noise pollution	○ Where the noise levels is beyond 85 Db (A), ear muffs or plugs shall be provided to all those working within the construction equipment area including the operators. ○ Equipment shall be well maintained or fitted with noise silencers such as mufflers. ○ Select a site for machinery not too close to residential premises ○ During construction at site, the contractor should only work during the normal hours (especially activities involving noise). ○ Provide a noise monitoring meter at noise sites and the supervision consultant will monitor to ensure the noise does not exceed the following limits as specified in the World Bank EHS Guidelines: - Residential/institutional/educational – 55dBA (daytime) and 45dBA (night-time - Industrial and commercial – 70dBA (day or night time) ○ Control the speed

Pollution due to solid and Liquid waste generation	○ Dispose the spoil materials into the numerous borrow pits located along the project road before they are restored ○ Sort wastes according to their type and quality. Decomposable waste can be buried on sanitary landfills and recyclable materials can be sent worn-out construction equipment and spare part can be sent to foundries where mental scraps are melted to produce other materials such as reinforcing mental bars, hoes, machetes etc. ○ Encourage and reward employees who show good practice of solid waste management. ○ Ensure that all machinery working on site are not lubricants, ○ No refuelling or repairing the machinery within 75m of the water source ○ Use drip pans when leakage is noted on any standing machinery. ○ Ensure all waste water is treated to meet the discharge limits ○
Public health and Safety impacts from Work camps operations	○ Contractor to prepare a waste management plan for work sites ○ For general health of labours in the work camps, a contractor to arrange for a central canteen as waste can be easily managed and general hygiene can be easily monitored ○ Contractor to initiate STD and HIV/AIDs awareness campaigns at the labour camps and settlements along the project roads. Local NGOs can be engaged to carry out such activities on behalf of the contractor. ○ Contractor to arrange for facilities for games and other recreation activities four after labour work. Such activities shall include soccer, basketball, interesting TV show etc. ○ Pit latrine shall be well located to avoid contaminating ground water facilities ○ Ablution units connected to septic tanks and soak-away pits would pits would be expensive but a less polluting option ○ Workmen shall be provided with personal protective equipment (PPE) ○ The contractor will adhere to occupational health and safety authority (OSHA) guidelines in work sites including prevention and reporting injuries. ○
Depletion and pollution of water resources	○ The contractor is responsible for indentifying his water sources for construction requirements on the project area. ○ Avoid using water from environmentally sensitive areas; ○ Avoid digging the riverbanks; ○ Use pipe system to extract water from the river; ○ Locate the pipe intake in deep water (2m) and 500m from sensitive habitat; ○ Avoid using the 75m protection zone along the water course with machinery (pumps and tankers) ○ In case of oil pollution stop construction activities, and oil booms to recover the pollutants before they disperse into the river, ○ Dismantle piping system and restore the site (riverbanks, swampy areas) immediately after completion of the work in the area. ○ Avoid washing construction equipment at the intake or near the water source.

Water and soil contamination	○ Repair all construction equipment to avoid fuel and oil leakage ○ No refuelling of construction equipment shall be carried out with 100m of the water source ○ Avoid washing construction equipment near water sources ○ Construction equipment service bays shall be provided with berms to avoid spills from being washed away to the water source.
Increase in traffic accidents	○ The contractor shall prepare and install warning signs along the projects roads requiring the vehicles to reduce the speed, ○ Install speed humps at all settlements along the project roads ○ Conduct information and education campaign for drives and the communities along the project roads ○ Traffic police from traffic police station should perform regular patrols at different locations along the project roads during the construction and operation phase to check speeds and the effectiveness of the road safety campaigns ○ Prepare and implement Traffic Management Plan in collaboration with traffic police
Delays in Transportation	○ Traffic management shall be put in place including itineraries for the site traffic daily basis ○ Prepare and install temporary traffic signs that are legible both during the day and night indicating that the road works are in progress ○ Contactor should always set aside an alternatives detour/route to avoid misunderstanding with those on emergency trips.
Soil erosion on slopes and embankments	○ soil control measures on the slopes such as re-vegetation with flat growing grass particularly with the local species ○ Introduce Vetiver grass in control of soil erosion. Vetiver grass has proved success in controlling soil erosion thus ideal for protecting the embankments.
Increase in HIV/AIDs cases	○ Enhanced health care, proper sensitization targeting drivers and the whole community.
Operational Phase:	
Reduced air quality from increase in traffic	○ Exhaust emissions must be controlled for vehicles that shuttle the project road ○ Edges, trees must be planted along the roads to assist in capturing emissions (particularly carbon dioxide) ○ BRT buses to comply with Euro-3 emission requirements for diesel engine or possible use of Natural gas to be explored.
Road Accidents	○ Traffic police should be spread and all places for control of speed ○ Speed humps at all strategic places including all busy places. ○ Enforce speed limits ○ Road signs properly installed and maintained ○ Traffic rules sensitization in schools and communications along the road.
Generation of solid wastes in depots and workshops	○ These environmental problems can be minimized with good design of the waste collection facilities, proper maintenance and good discipline among employees and good housekeeping. ○ Sort waste according to their types and quality. Decomposable waste can be buried on sanitary landfills and recyclable materials can be sent to the recycling stations such as used spare parts and written off or worn-out buses can be sent to foundries where mental scraps are melted to produce other materials such as

	reinforcing metal bars, hoes, machetes etc
Generation of liquid wastes in depots and workshops	○ Good design of in-site waste water treatment facilities including oil skimming tanks ○ Ensure discharge permit are obtained from the basin water office
Encroachment into roads reserve	○ Provide concrete bollards or similar at 200 m intervals along the project road to demarcate the road reserve ○ Conduct awareness meeting and regular presentations about the road reserve.
Environmental pollution especially by passengers travelling by bus along the road	○ Construction of toilets(e.g. septic tank system) at stations, terminals and depots to avoid pollution of water and dangers to road users ○ Introduction of dust bins within the DART buses in order to prevent improper garbage disposal and solid waste resulting from 'take away' habit disposal along the roads ○ Design a proper program for ensuring cleanness of roads e.g. sweeping and in water channels
Failure to carry school pupil to and from school	○ Design the BRT operation procedure that is fair to school pupils in term of transport charge and care i.e. they are supposed to receive preferential treatment

7 Environmental and Social Management

7.1 Project Cycle

The environmental and social management are in the function of the project cycle and the role/responsibility of various government agencies and other entities. The project cycle has five stages: (i) identification and preliminary assessment; (ii) assessment or appraisal; (iii) legal agreement; (iv) construction; and (v) operation or maintenance. The entities involved in the DUTP include: TANROADS, DART, NEMC, Municipal Councils (supporting the stakeholders engagement with residents of their respective jurisdiction area), police (traffic management), SUMATRA (transport regulation), and Contractors. The project is financed by the World Bank.

(i) Identification and Preliminary Assessment

The first stage of the project cycle is where it is very important to include in the subprojects the environmental and social variables. The EIA and Audit Regulations 2005 first schedule stipulates that all infrastructure projects have to undergo the EIA process, which starts with project identification, followed by preparation of the project brief that is submitted to the NEMC with project registration forms and registration fees. The Environmental and Social Screening Form (see Annex No. 2) is the first internal instrument that TANROADS should prepare at this stage.

(ii) Assessment or Appraisal

In this stage, once the subproject has been categorized and the TOR has been approved by NEMC, the project proponent prepares the studies required by the national law and the World Bank Safeguards Policies. NEMC is responsible for reviewing the ESIA report. The Minister responsible for environment will issue an ESIA certificate after receiving recommendations from NEMC. The project proponent has to take the project through the approval process. In Chapter 7, the guidelines for the environmental and social assessment are described in detail.

(iii) Legal Agreement

It is important to include all the environmental and social requirements in the legal contracts to ensure implementation of the environmental and social measures and action during project execution.

(iv) Construction

During construction, it is important to monitor implementation of the environmental and social measures and actions included in the plans (ESMP, RAP and others). Annex No. 3 contains the second internal instrument that TANROADS should prepare during this stage: Environmental and Social Monitoring Report. In Chapter 7, details of the guidelines for the environmental and social monitoring activities are presented.

(v) Operation

During subproject operation, it is important to monitor environmental and social conditions to ensure that operational activities are not affecting the environment or surrounding communities in an adverse manner. Chapter 7 presents guidelines for the monitoring and follow-up of environmental and social aspects during the operation phase.

7.2 Roles and Responsibilities of the Project Entities

(i) Tanzania National Roads Agency (TANROADS)

TANROADS is responsible for the environmental and social management of the DUTP. The instruments that ensure the environmental and social sustainability of the subprojects and compliance with environmental and social law and the World Bank Safeguard Polices are the Environmental and Social Management Framework (ESMF) and the Compensation and Resettlement Guidelines (CRG).

Specifically the responsibility for environmental and social management in TANROADS rests with the Safety and Environment Unit (SEU). This unit is responsible for applying the present document and the CRG.

(ii) National Environmental Management Council (NEMC)

The NEMC is the national authority responsible for ensuring compliance with the national environmental law. The main evidence of compliance with the national environmental law is the Environmental Certification that is approved once the developers complete the environmental and social due diligence process.

The NEMC, which is centrally located in Dar es Salam, has no decentralized structure and does not have the capacity to carry out on-the-ground monitoring of implementation of mitigation measures or other activities of the private operators. Therefore, regular and intrusive monitoring will have to be carried out at the district level, and the NEMC will oversee this process. The NEMC will also provide periodic oversight to ensure no adverse cumulative impacts from project activities at the national level, and will provide oversight and technical assistance to the districts when required.

Therefore, NEMC will perform three critically important roles as follows:

- Review, clearance, and approval of the operators ESIA/process for category A and B subprojects;
- Train district staff to carry out monitoring; and
- Oversight of monitoring activities.

(iii) Contractors

The constructors are the parties responsible for developing and implementing an ESMP that conforms to the requirements of all local laws and regulations, provisions in their contract, this ESMF and other relevant envionmental and social assessment documentation for the works contracted. **World Bank**

The World Bank will monitor the the Project and subprojects for compliance with its Safeguard Polices. If the subproject has been classified as moderate or high environmental and/or social risk (Category A or B) for the magnitude of the works and the potential environmental and social negative impacts, the subproject, including environmental and social assessment documentation, needs the Bank's review and approval or "no objection", depending on the document, at different stages of the project cycle.

7.3 Methodologies, Instruments and Formats

7.3.1 Environmental and Social Preliminary Assessment

Prior to the formal Environmental and Social Assessment Process, it is important to determine the environmental and social risk level of each subproject under the DUTP. This environmental and social risk level (Category) should include a review of the Bank's environmental and social safeguards. To determine the risk level it is

necessary to analyze the magnitude, scope and location (sensitive areas) of the proposed subproject. The result of this analysis will define the next steps of environmental and social management in terms of studies and budget required to comply with the national law (NEMC) and the World Bank Safeguards Policies.

In order to define the environmental and social risk level or Category, the SEU should carry out the following methodology, comprising three steps:

Step 1: Magnitude sub project impacts

The magnitude of a road project depends of hierarchy of the road (Primary or Regional road, Secondary or District road, Municipal or Rural road)); and the scope of the work that will be executed (new road, reconstruction, improvement, rehabilitation and maintenance).

Hierarchy of Roads:

- **Primary or Regional Road:** A road of strategic importance for the overall interest of the national and international economy and 25 meters measured on each side from the center-line of the road; including a) road connecting the national capital to the provincial and special zone capitals, b) road to international borders, c) road of importance with regard to socio- economic and national defense or security purpose;

- **Secondary or District Road**: A road of importance for the economic, political, socio-cultural development and for the national defense and security purpose at the provincial level, 15 meters measured on each side from the center-line of the road; including a) inter-provincial road b) road connecting a provincial capital to district centers, river ports, tourist and important historic sites of the province;

- **Municipalities or Rural Road:** A road connecting villages to villages and to various production and service centers of the village, 5 meters measured on each side from the center-line of the road;

Scope of Works:

- **New road constructions,** i.e. new roads, bypasses and realignment of existing roads.

- **Upgrading,** i.e. adding new lanes and changing of road surfaces, widening lanes and shoulders, adding extra lanes in steep slopes/inclines, improving curves, and strengthening bridges.

- **Rehabilitation,** i.e. improving drainage, slopes, embankments and other structures, strengthening of pavements, complete resurfacing and recuperating civil works.

- **Maintenance** that requires either opening of new borrow pits or quarries, or establishment of labor camps in an environmentally sensitive area. See Annex 3 related of sensitive areas.

Table 4 shows the matrix which defines the first classification of the road as a function of the Magnitude of the works:

Table 4 Matrix of Environmental and Social Classification on function of the MAGNITUDE

Scope of road works	Hierarchy of the road		
	Regional	District	Rural
New Road	I	I	II
Upgrading	I	II	II
Rehabilitation	II	II	III
Maintenance	III	IV	IV

This first environmental and social classification gives a first result for the environmental and social risk level according to the Magnitude of the road project: Type I indicate those projects with major risk and Type III those of minor environmental and social risk.

Step 2: Site sensitivity

To define the level of the site sensitivity (low, moderate or high), the following table can be used as a checklist to assess potential issues in relation to six environmental and social safeguards. Table 5 below defines the level of sensitivity in the project area.

Table 5: Site Sensitivity in the project area

SENSITIVITY	DESCRIPTION	WB Policy	
HIGH	○ Cross National Park or Protected Area – NEMC	OP/BP 4.04	☐
	○ High Index of biodiversity - L. Holdridge, 1978	OP/BP 4.04	☐
	○ High degree of threat – CITE	OP/BP 4.04	☐
	○ High danger of environmental degradation (deforestation, hunt, others.)	OP/BP 4.01	☐
	○ Mountainous topography (> 35% of slope) when is anticipated the enlargement or new construction of road	OP/BP 4.01	☐
	○ Vulnerable Zones to natural disasters (floods, earthquake, other)	OP/BP 4.01	☐
	○ Cross sensitive or critical ecosystems (wetlands, mangrove swamps, primary or secondary forests, other) NEMC	OP/BP 4.04	☐
	○ Zones recognized as ethnic groups area or vulnerable populations in the direct influence area of the project	OP/BP 4.10	☐
	○ Affectation of more than 200 families (private land or houses)	OP/BP 4.12	☐
		OP/BP 4.11	☐

SENSITIVITY	DESCRIPTION	WB Policy	
	○ Presence of places of highly cultural and historical interest in the direct influence area.		
MODERATE	○ Cross Buffer Areas of Protected Areas – NEMC ○ Moderate index of biodiversity - L. Holdridge, 1978 ○ Moderate degree of threat – CITES ○ Moderate danger of environmental degradation (deforestation, hunt, others) ○ Wavy topography (15 to 35% of slope) when is anticipated the enlargement or new construction of road ○ Moderate risk to natural disasters (floods, earthquake, others) ○ Zones recognized as ethnic groups area or vulnerable populations in the indirect influence area of the project ○ Affectation of less than 200 families (private land or houses) ○ Presence of places of highly cultural and historical interest in the indirect influence area.	OP/BP 4.04 OP/BP 4.04 OP/BP 4.04 OP/BP 4.01 OP/BP 4.01 OP/BP 4.01 OP/BP 4.10 OP/BP 4.12 OP/BP 4.11	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
LOW	○ Intervened areas out of Protected Areas - NEMC ○ Low biodiversity degree - L. Holdridge, 1978 ○ Low degree of threat– CITES ○ Low danger of environmental degradation (deforestation, hunt, etc.) ○ Flat topography (<15% of slope), when is anticipate enlargement or new construction road ○ Zones with low risk to natural disasters (floods, earthquake, other) ○ Absence of cultural and historic value places ○ No people affected ○ Absence of ethnical groups	OP/BP 4.01 OP/BP 4.01 OP/BP 4.01	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Note: - CITES = Convention on International Trade in Endangered Species.
- Study of Holdridge Zones Live 1992.

If at least one setting is high, the site sensitivity of the entire Project is **HIGH**; if no setting is in high sensitivity but at least one setting is in moderate, the site sensitivity is **MODERATE**; and if no high and moderate sensitivities are indicated, the site sensitivity is **LOW.**

Step 3: Define the environmental and social risk level (Category)

The environmental and social risk level or Category is in function of the project magnitude (Step 1), and the site sensitivity (Step 2). Applying the next Matrix obtains this risk level: Table 6 below indicates Environmental and social Risk Level

Table 6 Environmental and Social Risk Level or Category

Project Grade	Site Sensitivity		
	High	Moderate	Low
I	A	A	B
II	A	B	B
III	B	B	C
IV	B	C	C

Category A: Those projects with high environmental/social risk, because the road area of influence presents high level of sensibility and the civil works are of such a magnitude of which they can alter the natural environment, biodiversity, the economic organization and his cultural property.

Category B: Those projects with moderate environmental/social risk, because the road area of influence presents moderate level of sensibility, nevertheless the civil works are not of big magnitude. The environmental and social impacts are easily identifiable.

Category C: Those projects with low environmental/social risk. The natural environment, the biodiversity, the population and the cultural property is not in risk.

7.3.2 Environmental and Social Estimated Budget

It is important to know, at this preliminary stage, the estimated environmental and social budget for the ESMP implementation, in order to include this in the total budget of the project. The budget estimated amount is also a function of the environmental and social risk level or Category.

Table 7 below is used to estimate the percent (of the total project investment) for each risk Category.

Table 7Estimated Environmental and Social Budget

Project Grade	Site Sensitivity		
	High	Moderate	Low
I	6%	5%	4%
II	5%	4%	3%
III	4%	3%	2%
IV	3%	2%	1%

7.3.3 Internal Formats for the Environmental and Social Management

A series of environmental and social tools (formats) have been designed for the use of TANROADS, specifically for the Safety and Environment Unit (SEU), to ensure adequate environmental and social management is provided and that systematic

reporting and documentation, as a product of this management, is generated throughout the project cycle.

The tools or instruments that should be utilized during the project cycle are: a) Environmental and Social Preliminary Assessment Form (ESPAF); b) Environmental and Social Monitoring Report (ESMR); and (iii) Environmental and Social Final Report (ESFR). **Annex N° 3** contains formats for these internal management tools.

(i) Environmental and Social Preliminary Assessment Form (ESPAF)

The ESPAF is the first management instrument that the SEU will use during the first stage of the project cycle (Identification Stage) to analyze the potential environmental and social risks and determine the environmental and social risk level (Category), to identify the environmental and social studies required in order to comply with Tanzanian national law (NEMC) and the World Bank Safeguards Policies, and to gauge the estimated budget.

The format of this instrument is presented in **Annex N° 3.1**.

(ii) Environmental and Social Monitoring Report (ESMR)

The ESMR is the second environmental and social management instrument that should be developed by the SEU during works execution, to follow up and monitor the implementation of the environmental and social mitigation measures identified in the ESMPs, RAPs and others reports, which are prepared for the specific projects. The ESMR contains basic information about periodic monitoring field visits, the technical staffs who visit the project, the environmental and social aspects observed during the site visit, and recommendations for the constructor.

The format of this tool is presented in **Annex N° 3.2**.

(iii) Environmental and Social Final Report (ESFR)

The ESFR is the third and final environmental and social management instrument that should be developed by the SEU once the works done, in order to review the compliance of all the environmental and social measures identified in the ESMPs, RAPs, and others instruments developed for the specific project.

The format of this instrument is presented in the **Annex N° 3.3**.

7.3.4 Environmental and Social Studies

As mention in Chapter 7 (Environmental Assessment Process), the type and scope of environmental studies depends on the environmental Category. Separate summaries of the specific environmental studies required by Tanzanian national law and the

World Bank's Safeguards Policies as a function of the environmental and social risk level (Category) are as follows:

(i) Environmental and social studies required by Tanzanian national law

The environmental studies required by Tanzanian national environmental law are as follows:

- **Category A:** Environmental and Social Impact Assessment (ESIA)**;**
- **Category B:** Environmental and Social Management Plan (ESMP); and
- **Category C:** Application of the Environmental Code of Practices for Road Works (ECPRW).

A detailed explanation for, and content of, each of the instruments is presented in Chapter 7 (Environmental Assessment Process), and **Annex N° 4** presents guidelines to prepare the ESIA (Annex 4.1) and the ESMP (Annex 4.2) reports.

(ii) Environmental and Social Studies Required by the Bank's Safeguard Policies

If any additional safeguard issues are identified, it will be necessary to conduct environmental and social studies to comply with the World Bank Environmental and Social Safeguard Policies, as follows:

-
- If the Natural Habitat Safeguard Policy (OP/BP 4.04) is triggered, a special analysis of the specific natural habitat or species should be necessary in order to assure that the project will not affect irreversibly that habitat and if the project is viable from the environmental point of view, is necessary to identify specific measures to prevent, mitigate, and/or compensate, the potential negative impacts. This specific study may be part of the ESIA document.

- If the Involuntary Resettlement Safeguard Policy (OP/BP 4.12) is triggered, and the Potential Affected People (PAP) is more than 200 families, a full Resettlement Action Plan (RAP) should be develop during the assessment process; or if the PAP is less than 200 families, a Abbreviated Resettlement/Compensation Plan (ARAP) should be developed in accordance with the Resettlement Policy Framework that has been prepared for the DUTP. The guidelines and contents of these instruments should also meet the Compensation and Resettlement Guidelines (CRG).

- If the Physical Cultural Resources Policy (OP/BP 4.11) is triggered, is necessary to include as part of the ESIA document, an specific study about this potential negative impact and prepare an specific Plan to prevent, mitigate and/or compensate any potential impacts. Chance Find Procedures is presented in the **Annex N° 4.1.**

- Finally, to comply with the Bank's public consultation and disclosure policy, a Stakeholders Engagement Plan should be incorporated into the ESIA.

7.4 Categorisation and Disclosure Mechanism

7.4.1 Project Categorisation

The projects should contain an element of dialogue with local actors, including the community, during the phase of evaluation, to inform them on the purpose of the project and the potential environmental and social impacts (positives and negatives). The required quantity and depth of this type of dialogue depends of the environmental and social categorization.

Projects Category A: HIGH level of environmental and social risk

Projects with Category "A" designation will be required to carry out at least two dialogue/communication exercises with local actors, including the community. The first dialogue is to discuss the purpose of the project and to collect information on the population affected or who benefit from the project. In the second dialogue, the results of the environmental and social studies will be presented to the communities.

In case of the presence of ethnical groups, appropriate methods and procedures of dialogue that guarantee their participation should be designed.

Projects Category B: MODERATE level of environmental and social risk

For these projects it is required to carry out at least one dialogue/communication exercise with local actors, including the community. This dialogue should include the following aspects: a) purpose of the project; b) results of the environmental evaluation; and c) presentation of the complementary studies required, where applicable.

Projects Category C: LOW level of Environmental and Social Risk

Although a dialogue process is not required, it will be necessary to maintain a good information system to keep the community informed about the project and its progress.

7.4.2 Disclosure

All the projects should include a strategy for public information disclosure, in order to keep the general public and the actors involved in the project informed about its purpose and the potential environmental and social impacts. The disclosure of information will be done through the internet and using the local media to reach the local community.

In general the information that will be published should contain: i) basic information about the project; ii) schedule of activities before the bidding process; iii) environmental and social categorization; iv) terms of reference of the environmental and social studies; v) list of enterprises participating in the bid process; vi) the summary and the results of the community dialogue; vii) the environmental and social studies developed; viii) in the cases that apply, the Resettlement Action Plan; Ethnic Group Development Plan and Heritage and Cultural Resources Plan; ix) any another important study that have done on the project; x) the announcement of the constructor; xi) the contracts with environmental and social commitments to be executed during the construction; and xii) annual progress reports.

In addition, the following information should also be made public in adequate local media: i) the place, date and participants in the dialogue, ii) the rough draft of the study of environmental impact and iii) the rough draft of the project plans to ensure that the participating local actors to the dialogue have the adequate information with sufficient advance notification in order to be able to participate effectively in the dialogue.

7.5 Internal Environmental and Social Management

The arrangement for internal environmental and socialmanagement of DUTP is as indicated in the Flow Chart in Figure 6 below:

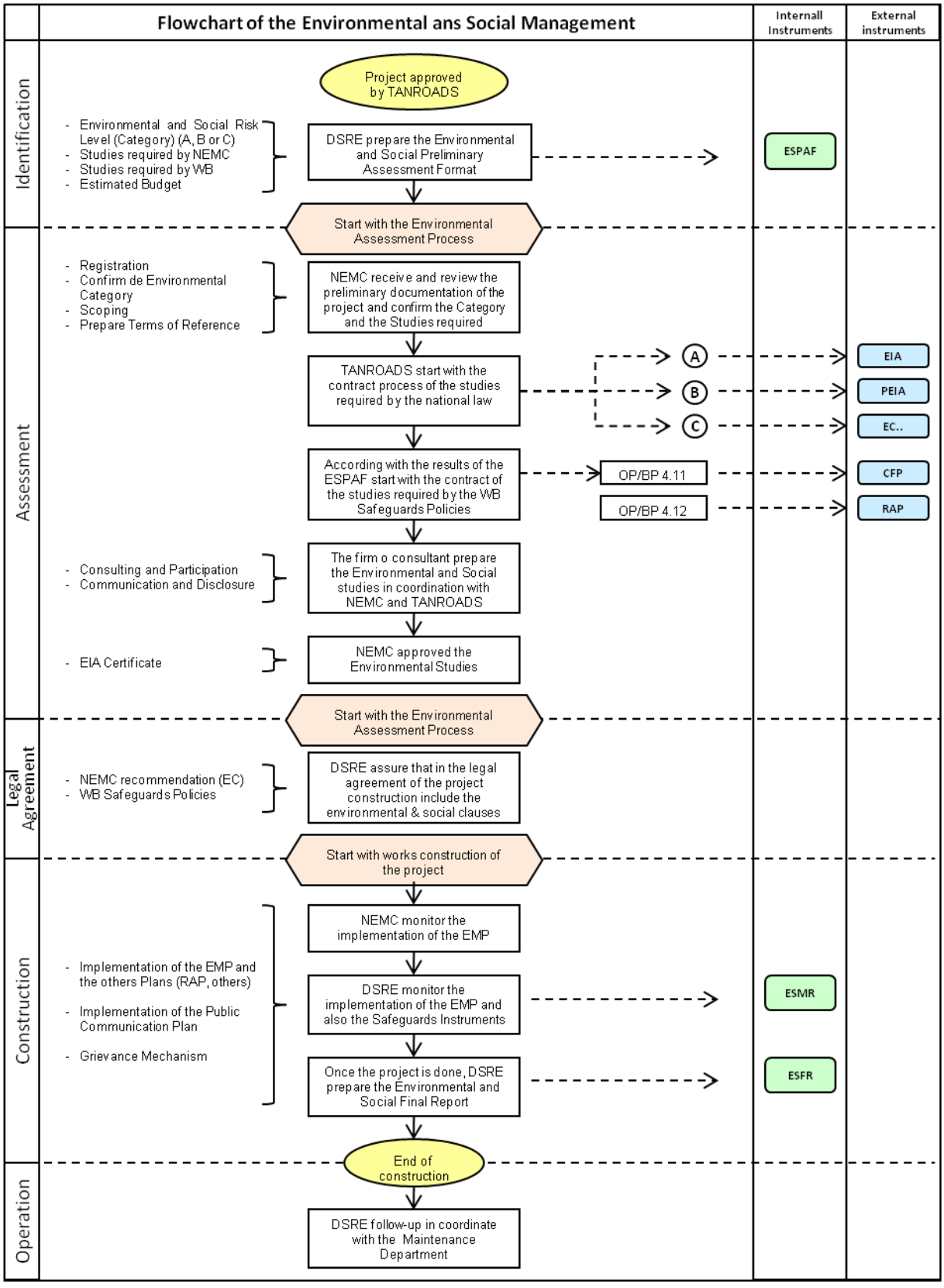

Figure 5: Flow Chart for Internal Environmental and Socialmanagement for DUTP

8 Environmental Impact Assessment Process

8.1 Objectives and Functions

The function of the Environmental Impact Assessment Process for sub projects under the DUTP is to identify the positive and negative impacts of a proposed subproject on the natural and human environment and then to formulate appropriate remedial/mitigation measures to avoid or minimize adverse negative impacts and to enhance beneficial impacts. The EIA process may help develop more environmentally friendly projects by reducing negative environmental impacts through alternative approaches, design modifications, and remedial measures. The application of EIA to DUTP sub-projects is a preventive strategy.

The objectives of an environmental assessment process for a road project are to:

- Identify potential environmental impacts and document that a thorough and site-specific mapping of the project environment has been carried out;
- Ensure environmentally sound and socially fair planning and implementation of the project;
- Ensure that stakeholders/potentially affected people are informed about the project and that their viewpoints and concerns are considered in the planning and implementation of road project; and
- Reveal the environmental and socio-economic background for an informed decision-making regarding the project.

The functions of the environmental assessment process are to:

- Clearly describe a project, including alternative project proposals;
- Describe the baseline conditions for the project environment;
- Identify potential environmental and socio-economic impacts;
- Propose mitigation measures to minimize negative impacts and to enhance positive impacts;
- Improve and optimize the project;
- Prepare Environmental and Social Management Plans which “translate” mitigation into an operational plan that can be implemented by the road authority and the contractor;
- Present to managers and decision-makers a clear assessment of potential impacts that a project (or a strategic level initiative) may have on environmental quality;
- Provide adequate information to the public and obtaining vies from the public;
- Support authorities in making good decisions; and
- Apply to a project (or a strategic level initiative) methodology that assesses and predicts impacts and provides the means to prevent and mitigate impacts and to enhance benefits.

The environmental assessment process is not only a decision-making tool, but also provides a specific forum to systematically undertake public consultation in a manner that allows stakeholders to have direct input to the environmental management process.

8.2 Steps in the Environmental Assessment Process

The formal environmental assessment process in Tanzania involves the following steps:

(i) Registering project with the National Environmental Management Council (NEMC), i.e. applying for environmental permit;
(ii) Environmental screening of the project, i.e. determining whether environmental impact assessment (EIA) is required or not;
(iii) Scoping of the EIA study and preparation of Terms of Reference (ToR) for the environmental expert;
(iv) Conducting the EIA study and preparing the environmental impact statement (EIS), and as part of the EIS prepare an environmental and social management plan (ESMP);
(v) Obtaining EIA certificate (environmental permission);
(vi) Implementing the environmental and social management plan (ESMP);
(vii) Monitoring (compliance monitoring) during construction;
(viii) Self-auditing (impact and effect monitoring); and
(ix) Control auditing by the NEMC.

A flow diagram of the environmental assessment process appears in the Figure 7 below. Each activity or action will be dealt with in detail in the EAMG.

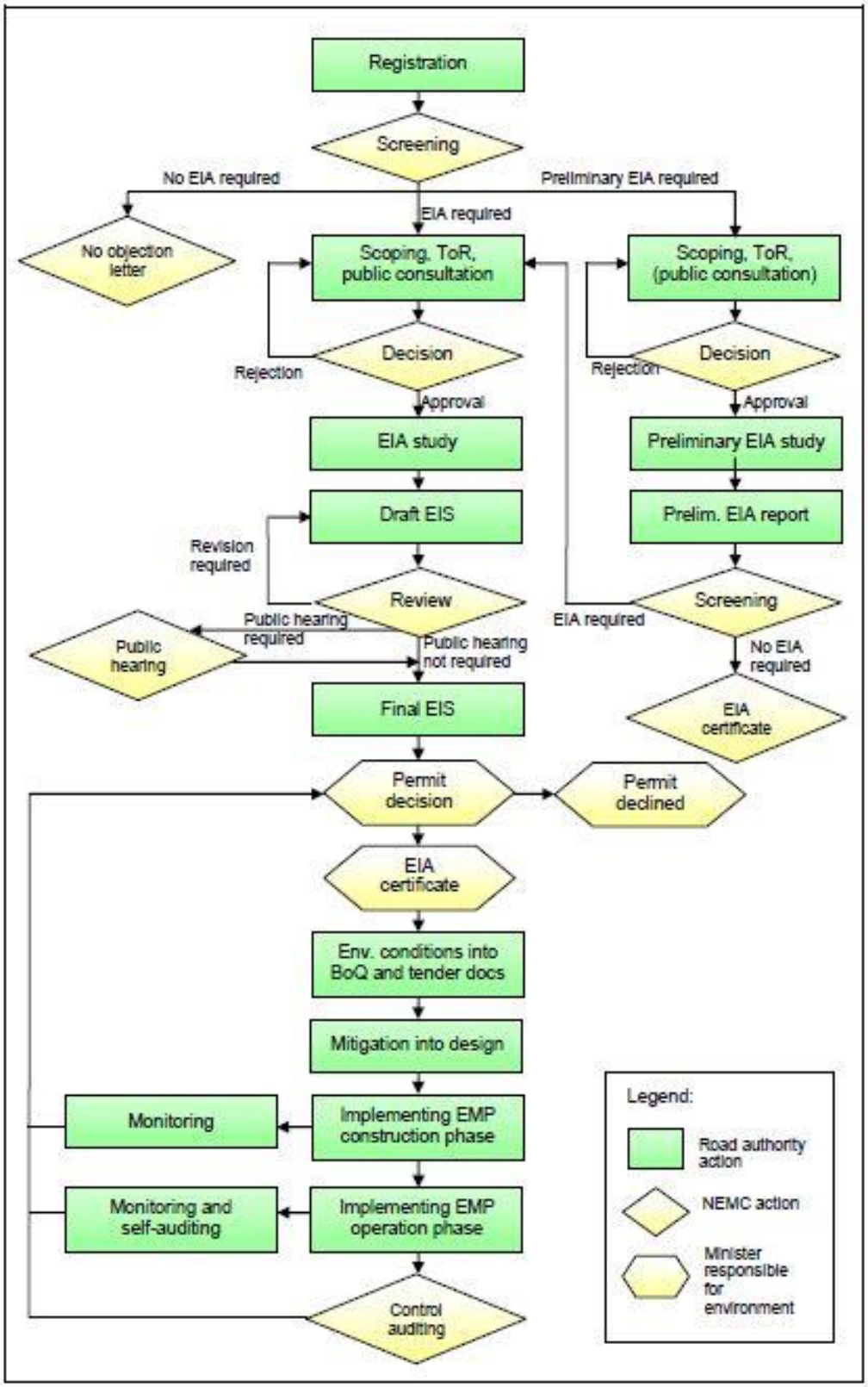

Figure 6: The Environmental Assessment Process

8.3 Government Agencies Involved in the Environmental Impact Assessment Process

The responsibilities of various government agencies in the environmental and social impact assessment process appear in Table 8 below. This table also indicates the time limit for response by the environmental authorities as per the prescriptions of the environmental assessment and audit guidelines.

Table 8: Stakeholder Responsibilities in the Environmental Assessment Process

Activities	**Road authority**	**Sector Environmental Units**	**NEMC**	**Minister Environment**	**Time limit for response**
Environmental registration (application for EIA certificate)	Submitting registration form with project brief		Issuing registration number		
Environmental screening			Determining level of EIA required	Granting EIA certificate for projects where EIA are not required	45 days after receipt of project brief
Scoping of EIA study and ToR for consultancy	Holding consultations with interested and affected people, and preparing and submitting scoping report and ToR for environmental expert	Participating in reviewing process	Reviewing scoping report and ToR for environmental expert and approval of ToR for environmental expert		14 days after receipt of ToR 3
EIS with ESMP and CRP	Conducting EIA, preparing EIS with ESMP, preparing CRP and submitting EIS	Participating in reviewing process	Reviewing EIS and holding public hearings as required	Approval	
EIA certificate			Make recommendation on permitting decision	Granting EIA certificate	
Implementing ESMP	Incorporating mitigation measures into design, construc., and op.	Supervising road authority	Conducting control audits as required		
Environmental monitoring		Monitoring and submitting monitoring reports	Monitoring and preparing monitoring reports		
Environmental self-auditing	Self-auditing and submitting annual audit reports	Supervising road authority	Approval		12 - 20 months after commencement operation

8.4 ESIA Public Consultation Requirements:

Public consultations will be carried out during the preparation of ESIA among different stakeholders within the project area and road users in general. The process will involve identification of stakeholders, strategic locations for conducting consultations, and the consultation procedure (media, focus groups, interviews, etc). The process should comply with the World Bank Stakeholder Consultations in investment operations. Issues or concerns raised from consultation will be incorporated in the ESMP and monitored during the project implementation.

8.5 Environmental Management in the Project Cycle

8.5.1 Planning and Pre-Feasibility Phase

The following environmental actions are required in the planning and pre-feasibility phases of a road project:

- Environmental registration of the project with the NEMC;
- Environmental screening of the project by the NEMC; and
- Scoping of the EIA study, including preparation of Terms of Reference for the environmental consultants.

In certain cases the NEMC may in addition required a preliminary environmental impact assessment to be carried out if the available environmental information is insufficient to allow for a determination of EIA requirement.

Figure 8 below presents an overview of desired environmental assessment activities during planning and pre-feasibility of a road project.

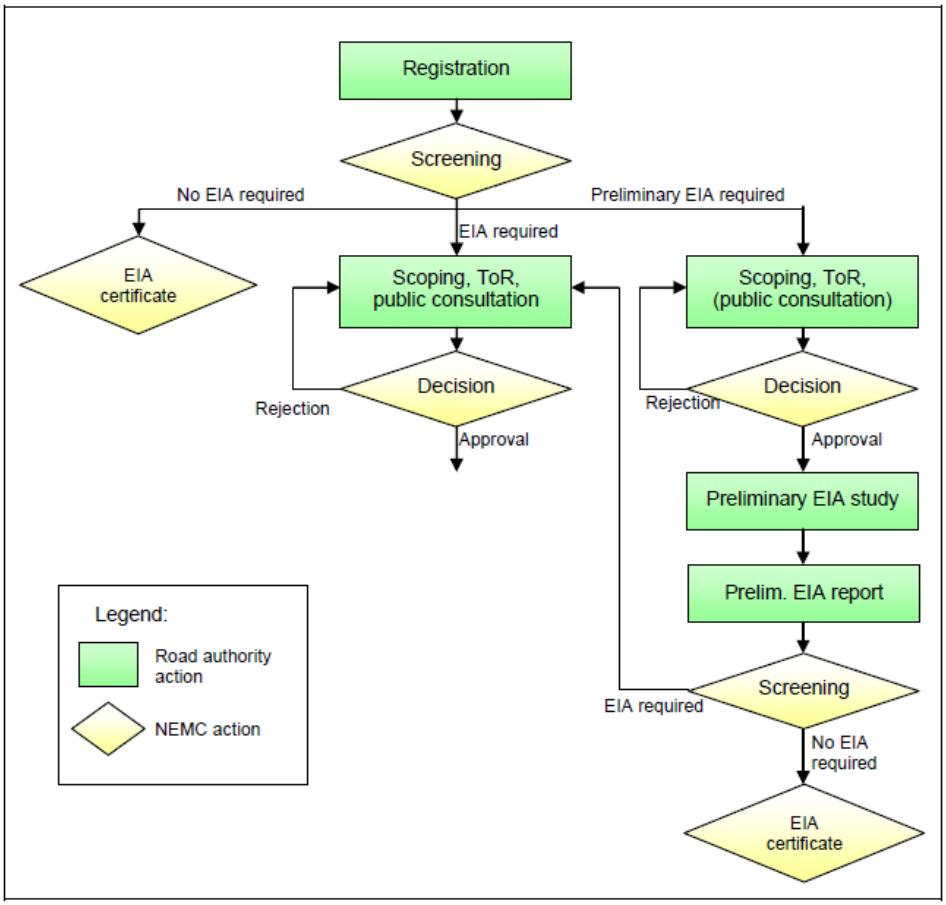

Figure 7: Environmental Assessment Activities During the Planning and Pre-feasibility Phases

a. Environmental Registration and Project Brief

The project proponent, usually the road authority, must submit a registration form with a project brief to the National Environmental Management Council (NEMC). The registration form serves as an application for an EIA certificate (or an environmental permission) for the project. The registration should preferably take place during the planning phase in order to make sure that the environmental assessment process will not delay the execution of the road project. A brief of the project must be included in the registration form. The registration and project brief form appear in the Appendix 2 of the EAMG developed by MOW.

The registration and project brief form must be submitted to the NEMC together with the prescribed registration fee.

Which Projects must be registered?

Road projects must be environmentally registered if they are listed in the Environmental Assessment and Audit Regulations' First Schedule[5], i.e.:

- *List A (mandatory list) no. 9 (i) 'Construction, expansion or rehabilitation of new trunk roads';*
- *List A (mandatory list) no. 14 (iii) 'Construction or expansion/upgrading of roads, harbours, ship yards, fishing harbours, air fields and ports, railways and pipelines'; or*
- *List B (non-mandatory list) no. (xxviii) 'Rural road'.*

Table 9 below gives an overview of which projects must be registered, and which projects do need environmental registration. It should be emphasized, though, that the Environmental Code of Practice for Road Works should be applied irrespective of environmental registration.

Table 9: Road Sector Projects Which Must be Registered with NEMC.

Types of road sector projects that are subject to environmental assessment and must be registered with the NEMC:	**Types of road sector projects that are NOT subject to environmental registration with the NEMC:**
New road constructions, i.e. new roads, bypasses and realignment of existing roads. **Upgrading**, i.e. adding new lanes and changing of road surfaces, widening lanes and shoulders, adding extra lanes in steep slopes/inclines, improving curves, and strengthening bridges. **Rehabilitation**, i.e. improving drainage, slopes, embankments and other, strengthening of pavements, complete resurfacing and recuperating works. **Maintenance** that requires either opening of new borrow pits or quarries, or establishment of labour camps in an environmentally sensitive area. .	**Periodic maintenance**, e.g. resurfacing, lane marking, and bridge maintenance. **Routine maintenance**, e.g. patching of potholes, clearing of drains and ditches, and clearance of roadside vegetation If the activity includes opening of a new borrow pit, a new quarry or establishment of a temporary labor camp in an environmentally sensitive area1), the project type Is subject to environmental assessment and registration with the NEMC

Project Brief:

Submission of an environmental registration form must be accompanied by a project brief. The project brief is not meant to be a huge document describing the project and its environmental and social characteristics and implications in detail. On the other

[5] It should be noted that the MOW has requested the Minister responsible for the environment that the lists of the First Schedule be revised as follows:
- NEW 9(i): Construction, expansion or upgrading of roads;
- Delete 'roads' from 14(iii), because it is contained in the rephrased 9(i), and
- Change (xxviii) from 'rural road' to 'rehabilitation of roads'

hand it should contain information sufficient for the environmental authority to determine whether an EIA is required or not for the project.

According to the Environmental Assessment and Audit Regulations, the required information in the project brief is as follows:

(i). Nature of the project;
(ii). Location of the project, including the physical area that may be affected by the project activities;
(iii). Activities that will be undertaken during the project construction, operation and decommissioning phases;
(iv). Design of the project (including location of work camps and sources of materials);
(v). Materials to be used, products and by-products, waste generation and methods of waste disposal (including stones, gravel and water);
(vi). Alternatives to be considered, at a minimum the do-nothing alternative;
(vii). The potential environmental impacts of the projects based on available information;
(viii). Mitigation measures considered during construction, operation and decommissioning;
(ix). An action plan for prevention and management of possible spills and accidents during construction, operation and decommissioning;
(x). A plan to ensure the health and safety of workers and neighboring communities;
(xi). A project budget estimate;
(xii). Any other information which the NEMC may require

The road authority must submit ten hard copies and one electronic copy of the registration and project brief form to the Director General of the National Environment Management Council (NEMC) together with the prescribed fees. One hard copy and one electronic copy must be submitted to the Ministry of Works (MOW), Department of Safety and Environment (DSE), Environment Section for information.

b. Environmental Screening

Upon receipt of environmental registration with a satisfactory project brief, NEMC will screen the project to determine whether an environmental impact assessment (EIA) is required or not. Within 45 days of receipt of a satisfactory project brief, the NEMC will respond to the road authority with its decision, including a justification for its decision.

The result of the environmental screening will be one of the following:

- **EIA is required** because the project is likely to cause significant socio-economic or environmental impacts. In this case the road authority may go on to determine the scope of the EIA study and prepare Terms of Reference for the environmental expert to be approved by the NEMC
- **Preliminary EIA is required** because it cannot be determined whether the project may cause significant socio-economic or environmental impacts until

further information is generated. In this case the road authority may facilitate that the required information is generated in accordance with the requirements of the NEMC, i.e. carry out a preliminary EIA addressing the uncertain issues identified by the NEMC. If the road authority finds it likely that a preliminary environmental assessment will reveal a need for an EIA, it may opt to go ahead with the EIA directly; or

- **EIA is not required** because the project is unlikely to cause significant socio-economic or environmental impacts. In this case the Minister responsible for the environment will issue an EIA certificate based on the information provided in the project brief. Alternatively the NEMC will issue a no objection letter

If the NEMC deems the provided project brief unsatisfactory, the NEMC will request the road authority for additional information, before an environmental screening of the proposed project can take place.

The NEMC may decide to involve its Technical Advisory Committee (TAC) in the screening process.

c. Scoping of the EIA Study

After environmental registration and prior to the feasibility study, the EIA study must be scoped. The road authority conducts the scoping study.

The purpose of the scoping study is to determine the approach and methodology of the study, the extent and the focus areas of the study. In addition, Terms of Reference (ToR) for the environmental expert who will undertake the EIA study be prepared. The scoping study and the ToR must be prepared by the road authority and submitted to the NEMC for approval.

The accuracy and results of the scoping process depends on the project description, so it is important that the project description be as detailed as possible.

The scoping process includes the following steps:

(i) Identifying and describing project alternatives;
(ii) Identifying the study parameters, including environmental and socio-economic issues of concern;
(iii) Determining the study area (the area of influence);
(iv) Conducting preliminary consultation with interested and affected people and developing the consultation methodology for the EIA study;
(v) Reviewing and revising the study area and scope of the study based on consultations, as required;
(vi) Preparing ToR for the study;
(vii) Preparing a time plan for the study;
(viii) Identifying the skills and human resources needed to undertake the study;

(ix) Drafting the report attached with draft ToR for the study and submitting it for review to the NEMC;
(x) Possibly revising the draft scoping report based on inputs from the NEMC and the TAC and the MOW DSE and resubmit for final approval

The EIA study must always include at least two alternatives, i.e. the main project proposal (often referred to as Alternative 1) and the situation of not implementing the proposed road project (often referred to as the zero-alternative). In addition, other alternatives may be assessed in the EIA study, as applicable. For road projects this would most often be in terms of alternative alignments, but it could in principle also be in terms of alternative technologies, such as bridge types, surfacing, slope stabilization etc.

Conducting Preliminary Consultation:

The road authority must conduct preliminary consultations of potentially affected people in connection with the scoping process. The preliminary consultations serve three purposes:

- It allows to identify key social and environmental issues based on a consultative process;
- It helps identify the most appropriate methodology for public consultation; and
- It informs local people/groups about the proposed road project.

Therefore, the preliminary consultations should:

- Identify local groups (e.g., local government, NGOs, and CBOs);
- Identify key issues to be included in the study based on preliminary consultations (e.g., geology, natural resources, and cultural practices);
- Outline the consultation process for EIA study.

This local baseline information should be collected during the scoping phase. The scoping report should clearly identify which environmental and social issues are identified as critical and exactly how the public will be involved during the EIA study.

Consulting affected groups and stakeholders facilitates data collection, problem resolution, and the successful implementation and operation of the road project. Involving local people is likely to result in a more sustainable project, as local people may develop a sense of project ownership and may commit to maintaining the road.

Preparing a Time Plan and a Budget for the Study:

A realistic time plan and budget for execution of the EIA study should be included in the scoping report.

The study should focus its time and resources on the areas where potential impacts are likely to occur and on the issues that are critical to the project. It is important to

consider time constraints and the financial budget at the beginning of the project (at planning/pre-feasibility phase) to avoid delays in conducting the EIA, and to ensure the effectiveness of the procedures.

The following issues should be considered when estimating the time and budget for an EIA study:

- Availability of information from existing database to minimize the need for field study;
- Seasonal aspects of the project area;
- The availability of in-house expertise; and
- Possibility of carrying out the EIA study in parallel with technical and economic feasibility studies.

Preparing the Scoping Report for the EIA Study

The road authority must prepare and submit the scoping report to the NEMC for approval. The scoping study report must address the following issues:

- How the scoping was undertaken;
- Identification of issues and problems;
- Synthesis of results of the scoping exercise , including details of potential negative and positive impacts of the proposed project;
- Stakeholder groups identified and how they were involved in the scoping exercise;
- Spatial, temporal and institutional boundaries of the project
- Project alternatives to be considered. At a minimum the do-nothing alternative must be included, i.e. the situation of not implementing the proposed project; and
- Terms of Reference for the environmental expert(s), including approach and methodology of the EIA study, scope and focus areas.

Submission of Draft Scoping Report and Draft ToR for Approval

The road authority must submit one hard copy and one electronic copy of the draft scoping report and the draft Terms of Reference for the environmental expert to the Director General, National Environment Management Council (NEMC) for approval.

One hard copy and on electronic copy should also be submitted to the Ministry of Works (MOW), Department of Safety and Environment (DSE), Environment Section for information and possible comments.

In addition, in case of a road project under the jurisdiction of the Prime Minister's Office – Regional Administration and Local Government (PMO-RALG), one hard copy and one electronic copy should also be submitted to the PMO-RALG in Dodoma for information and possible comments.

For all sub-projects undergoing EIA as part of DUTP, the TOR will also reference the World Bank Safeguard Policies and Environmental, Health and Safety Guidelines. The TORs for BRT phase 4 and complementary road safety infrastructure will have to be prepared and cleared by the Bank before effectiveness.

d. Terms of Reference for the Environmental Expert

As part of the scoping exercise, Terms of Reference (ToR) for the environmental expert should be prepared and attached to the scoping report. Sample Terms of Reference for an EIA study appear in the Appendix 4 of the EAMG developed by MOTC.

Depending on the size of the project and the nature of the foreseen environmental impacts the EIA is usually carried out by a team of experts, including 2 or more of the following fields of expertise:

- Biologist/geographer/environmental scientist
- Sociologist/socio-economist
- Geologist/hydro-geologist/hydrologist
- Marine ecologist/coastal zone specialist (for coastal or marine projects)
- Traffic planner
- Noise and vibrations specialist
- Air quality and climate specialist
- Urban planner/ land use planner
- Environmental engineer
- Economist/ environmental economist.

e. Preliminary Environmental Impact Assessment

If a project type is listed on list B (the non-mandatory list) EIA may or may not be required. In order to determine whether and EIA is required a preliminary environmental impact assessment must be undertaken. If the project is likely to cause significant environmental and/or social impacts, an EIA will be required. If the preliminary assessment reveals that the project is not likely to cause significant impacts, an EIA will not be required.

If the NEMC requires a preliminary EIA, and the preliminary EIA is likely to result in a requirement for a full EIA, the road authority may in consultation with the NEMC decide to leave out the undertaking of a preliminary EIA and go directly to undertake a full EIA. This may in the end save the time and resources it will take to undertake a preliminary environmental impact assessment.

8.5.2 Feasibility Study and Preliminary Design Phase

The environmental impact assessment (EIA) study is usually carried out concurrently with the feasibility study of the project with the aim of submitting a draft environmental impact statement (EIS) at the end of the feasibility study period, and getting it

reviewed and approved, and obtaining the EIA certificate for the project by the end of the preliminary design phase.

On behalf of the road authority, an independent environmental expert/firm must carry out the EIA study and prepare the EIS. The road authority is responsible for submission of the report to the National Environment Management Council (NEMC).

Based on the outcome of the draft EIS the NEMC will decide whether a public hearing is necessary. If required, the NEMC will conduct the public hearing.

Based on comments and inputs from the review (and the public hearing), the environmental expert will finalize the EIS. Upon approval of the EIS, the Minister responsible for the environment will make his environmental permit decision, i.e. permit the project and issue an EIA certificate or decline to permit the project. An overview of the process is presented in Figure 9 below.

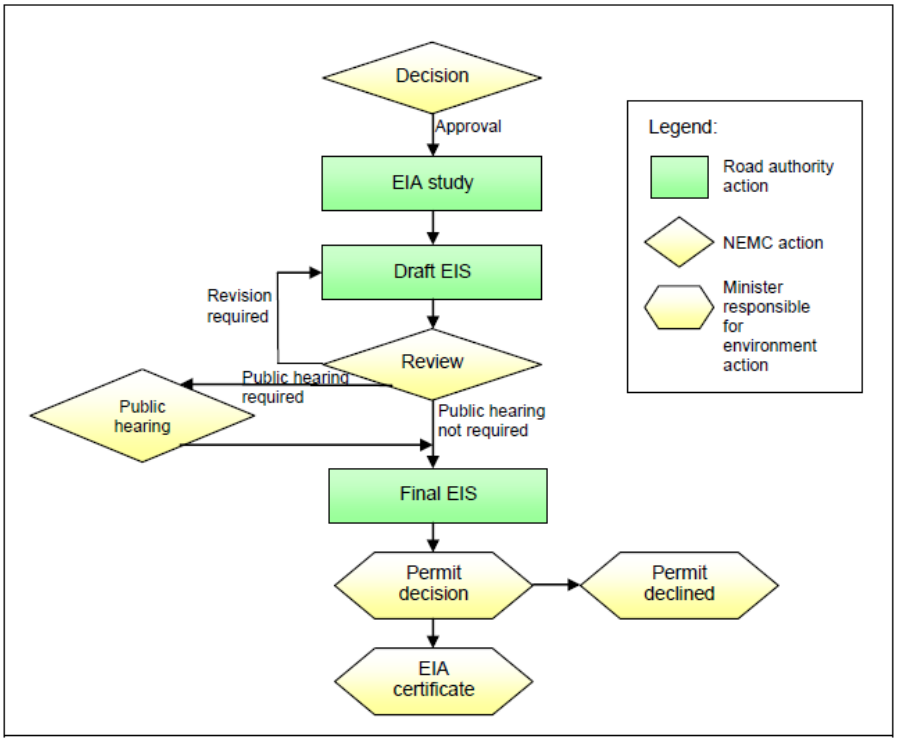

Figure 8: Environmental Assessment Activities During the Feasibility and Preliminary Design Phases

Source: EAMG, Ministry of Works, 2011

a. The EIA Study

The typical activities of an EIA study include:

- Project context and project justification;
- Project description;

- Description of alternatives;
- Baseline study to reveal existing environmental conditions in the study area, including field investigations;
- Identification and analysis of impacts;
- Analysis and comparison of alternatives;
- Proposing mitigation measures and assessing residual impacts;
- Preparing an Environmental and Social Management Plan (ESMP) with mitigation plans for detailed design, construction and operation of the road, emergency plan and monitoring plan; and
- Preparing the environmental impact statement (EIS).

In the Appendix 6 to 14 of the EAMG developed by MOW presents guidelines and formats for the preparation of the EIA and ESMP studies.

Submission of the EIA:

The road authority must submit the environmental impact statement (EIS) together with a filled EIS submission form. The submission form appears in the Appendixes of the EAMG developed by MOW.

The EIS must be accompanied by a compensation and resettlement plan (CRP) and a road safety audit report, if such documents have been produced.

The road authority must submit fifteen hard copies and one electronic copy of the draft EIS and the EIS submission form to the Director General, National Environment Management Council (NEMC).

One hard copy and one electronic copy of the draft EIS and the EIS submission form must be submitted to the Ministry of Works (MOW), Department of Safety and Environment (DSE), Environment Section for information.

In case of road projects under the jurisdiction of the Prime Minister's Office – Regional Administration and Local Government (PMO-RALG), one hard copy and one electronic copy of the draft EIS and the EIS submission form must be submitted to the PMO-RALG for information.

Review of the EIA:

Upon submission of a draft environmental impact statement (EIS), the NEMC in consultation with the Technical advisory Committee (TAC) will review the adequacy of the EIS and provide its comments and inputs to the road authority.

NEMC‟s comments to the road authority and its environmental expert are usually provided in a meeting where also the TAC is present.

Based on the comments and inputs from the NEMC and the TAC, the environmental expert will finalize the EIS, and the road authority must submit the EIS to the NEMC

who will provide recommendations regarding a decision to the Minister Responsible for the Environment.

In the course of the review process, the NEMC may decide to conduct public hearings to obtain further views of the public regarding the project in concern. The NEMC will be responsible for conducting public hearing(s).

The outcomes of the public hearing(s) will feed input into the finalization of the EIS and the environmental permitting process together with the comments and inputs from the review process.

EIA Certificate:

Based on an adequate EIS, the Minister responsible for the environment (advised by the NEMC) will make his decision regarding environmental permitting of the project. In making a decision, the Minister responsible for the environment shall take into account:

- The findings and recommendations of the EIS;
- The comments made by relevant ministries, institutions and other interested parties;
- The concerns raised at public hearings, where applicable;
- Advice of the Director of Environment (DOE); and
- Other relevant information, as required.

If the project is in compliance with requirements under the Environmental Management Act, 2004, the Minister responsible for the environment will issue an EIA certificate with attached environmental conditions for the certification. The format of the certificate appears in the Appendix 13 of the EAMG developed by MOW.

The EIA certificate will be communicated to the road authority, and a copy of the certificate will be made available for inspection by the general public in the National Environment Management Council (NEMC).

b. The Environmental and Social Management Plan (ESMP)

The road authority will prepare an Environmental and Social Management Plan (ESMP) for any road project, irrespective of whether an EIA has been carried out or not in order to make sure that the Environmental Code of Practice for Road Works is followed and the project conforms to this ESMF and World Bank Safeguard Policies and EHS Guidelines. In case an EIA was carried out, the ESMP ensures that mitigation measures proposed in the EIS are implemented satisfactorily and timely. If an EIA is carried out for a project, the ESMP will form an integral part of the EIS. If not, the road authority, possibly assisted by an environmental consultant, will prepare the ESMP.

The ESMP captures the critical project-specific issues to be managed and ensures that commitments made during the planning phase are incorporated into the design, construction and operational phases of the project. The ESMP presents the implementation responsibilities during the construction and operation phases.

The ESMP is prepared using the following information:

- The findings and recommendations of the EIA study;
- The Environmental Code of Practice for Road Works;
- Relevant environmental and social standards including the Safeguard Policies and EHS Guidelines of the World Bank
- Other relevant pieces of legislation;
- Other government agency input; and
- Outcomes of community consultation.

An ESMP should contain the following elements:

(i). An implementation plan for management of environmental and social impacts of the project, including:
  - Mitigation measures to be incorporated into the detailed design,
  - Construction phase activities,
  - Operation phase activities;

(ii). An emergency plan for accidents and spills, covering:
  - Construction phase,
  - Operation phase;

(iii). An environmental monitoring plan, covering:
  - Construction phase,
  - Operation phase;

(iv). Reporting requirements by:
  - Road authority,
  - Contractor;

(v). Cost estimates and funding sources to implement the ESMP; and

(vi). Construction guidelines that specifically address how the contractor will incorporate environmental considerations into the works.

The implementation plan for management of environmental and social impacts should be structured according to the following phases of the road project:

(i) Measures to be incorporated into the detailed design of the road;
(ii) Measures to be taken during construction; and
(iii) Measures to be taken during operation of the road.

Environmental Emergency Plan

The environmental emergency plan must identify critical incidents and vulnerable areas and populations during construction and operation of a road. The plan must assign roles and responsibilities for action in case of an emergency.

Typical emergencies in vulnerable areas during construction may include:

- Landslides and soil erosion on slopes;
- Siltation of water bodies due to spill of materials, e.g. in connection with a bridge construction or similar river crossing;
- Pollution of water bodies due to spills of oil or chemicals during construction;
- Fires;
- Accidents from use of explosives in quarries; or
- Direct or indirect exposure of people to toxic compounds from spills and unintended discharges during construction.

The emergency plan for the road operation phase does not include normal traffic operations, but should address spills of fuel and chemicals in sensitive or inhabited areas.
The plan must assign roles and responsibilities for action in case of an emergency. Inclusion of emergency telephone numbers to relevant authorities and institutions may be helpful.

Environmental Monitoring Plan

Environmental follow-up (or compliance monitoring) is carried out during the construction phase (but it may also be extended in some cases to the operational phase). The objectives of the follow-up are to ensure the application of the EIA environmental measures and the regulatory requirements, including the mitigation measures. The follow-up activities may also, if required, re-orient the construction works and eventually improve project implementation.

The objectives of the environmental monitoring activities (i.e., effects monitoring) are to check whether the impact predictions were adequate and to verify the efficiency of mitigation and compensation measures.

c. The Compensation and Resettlement Plan (CRP)

The social impacts of road projects should be avoided or reduced by using road bypasses to avoid built-up areas. Many social impacts may be related to land acquisition and the management of the resettlement process. Major potential impacts include:

- Displacement of people from an area;
- Loss of land, property, and businesses;

- Economic losses for affected individuals and families (e.g., loss of crops and economic fruit trees) with a temporary or permanent loss of income for subsistence (e.g., loss of a roadside location for an informal business);
- Equity issues (i.e., people with fewer resources and skills become more vulnerable);
- Social disruption and break-up of families due to displacement and relocation;
- Health problems and various forms of psychological depression;
- Loss of community benefits and social disintegration.

In general, involuntary resettlement should be minimized and where displacement is unavoidable, a RAP or ARAP should be implemented as a development program and in accordance with the Road Sector Compensation and Resettlement Guidelines, 2009 and the World Bank Resettlement Guidelines (OP/BP 4.12).

The ARAP/RAP should be prepared as a separate document and should be summarized in the ESIA. In addition, relevant mitigation measures should be included in the ESMP. The principal objective of a ARAP/RAP should be to re-establish (or even improve) the social and economic productivity of the displaced community.

d. The Road Safety Audit (RSA)

If a road safety audit has been performed in accordance with the Guide to Road Safety Audit, 2009, the audit report should be attached with the EIS for information. A summary of its findings and recommendations should be included in the EIS.

If a road safety audit has not been performed for the road project in concern, the EIA must address road safety issues and recommend measures to reduce risks of accidents.

In any case, it should be stated in the EIS, whether a road safety audit was carried out or not.

8.5.3 Tendering, Contracting and Detailed Design Phase

Tendering, contracting of contractor(s), and detailed design phases are the phases, where the road authority will make sure that the conditions in the EIA certificate are converted into actions which will ensure that the road project implementation will comply with environmental standards and requirements. The overall environmental management actions during these phases include:

- Incorporating mitigation measures into detailed design;
- Itemize relevant environmental and socio-economic measures and include them in the Bill of Quantities for the project;
- Include environmental requirements in the tender documents; and
- Include special conditions on environmental performance and management in the contract of the contractor.

A focused and concise ESMP will be helpful in this process, because it may be attached in part or in whole to the tender documents or the contract agreement. Environmental assessment activities during the Detail Design Phase are as indicated in Figure 10 below

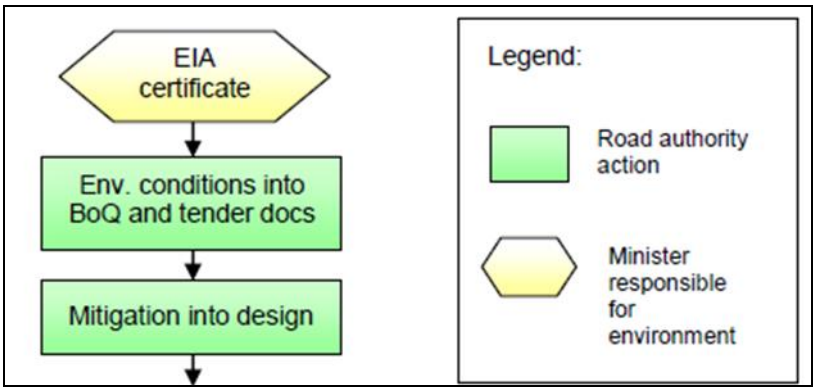

Figure 9: Environmental Assessment Activities During the Detail Design Phase

Source: EAMG, Ministry of Works, 2011

a. Inclusion of the Environmental Mitigation Measures into Detailed Design

For the recommendations of the EIS to be effectively incorporated into the design process, there must be a collaboration and coordination between the EIA study team and technical/ engineering design team to ensure that important mitigation measures are integrated into the detailed design and technical specifications.

The ESMP and the environmental strip map contain the specific requirements for inclusion of environmental considerations into the design. The Environmental Code of Practice for Road Works, 2009, serves as a general guide on good practices in road design.

It is the responsibility of the road authority to oversee that all relevant environmental considerations are included in the detailed design of the road and to make sure that the road design is in compliance with conditions of the EIA certificate. It is advised that the road authority involve the environmental expert who carried out the EIA study in this process.

b. Bill of Quantities (BoQ)

The road authority must ensure that all relevant environmental and socio-economic measures are itemized and included in the Bill of Quantities for the road project, including:

- Technical measures;
- Logistic measures;
- Measures to ensure environmentally and socially construction works;
- Road safety measures;

- Environmental supervision of construction works; and
- Training on environmental and social aspects related to the road works.

It is advised that the road authority involve the environmental expert who carried out the EIA study in reviewing the BoQ with respect to environmental management requirements.

c. Contract Tendering and Reviewing Bids

The environmental issues should be covered in the contract conditions and specifications to be able to enforce good environmental practice. The contractor's overall obligation to meet all relevant environmental health and safety legal requirements, as well as the requirements of the World Bank, should be clearly stated in the contract.

The contractor must be obliged to assign a competent and qualified person who will supervise and oversee that the road works take place in accordance with good environmental practices and in compliance with the conditions of the ESMP and the EIA certificate.

Environmental management requirements should be included as special conditions in the contract agreement with the contractor.

It is advised that the road authority involve the environmental expert who carried out the EIA study in reviewing the tender documents with a view to inclusion of the relevant specifications for environmental management.

The road authority will require the contractor to present an environmental, health and safety, management implementation plan (EHSMP). This plan should show in detail how the contractor intends to comply with all environmental and occupational health and safety regulations; the relevant environmental and social assessment documentation including the ESIA, ESMP as applicable; and the environmental conditions of his/her contract. Specifically, the contractor describes the means and mechanisms to ensure respect of the legal and environmental requirements and the good operation of the construction works, equipment, and installations. Construction sites are constantly changing and systems must be in place to review and modify control measures to ensure that they remain effective.

d. Environmental Training of Contractors and Workers

Once the contract is awarded and when required by the ESMP, an environmental-management training program should be initiated. Training should be provided to all principal stakeholders involved in environmental management, including the road authority and the contractor's staff (e.g. occupational health and safety training), as well as members of the local community. For training to be cost effective, it should involve on-the job training. For example, practical training may involve doing some re-vegetation of steep slopes to prevent soil erosion by using special grass (e.g. vetiver

grass, *Vetiveria zizanioides*). Other training may focus on building the capacity of the road authority staff or creating general environmental awareness (e.g., public awareness program on the link between road operation, maintenance, and the environment).

8.5.4 Construction Phase

a. Environmental Follow-Up Activities

During the construction phase, the road authority must monitor the contractor performs his/her work in compliance with the contractor's environmental, health and safety plan, the ESMP and the conditions of the EIA certificate. The road authority must also ensure that remedial actions be taken in case of non-compliance. The environmental management activities appear in the Figure 11 below:

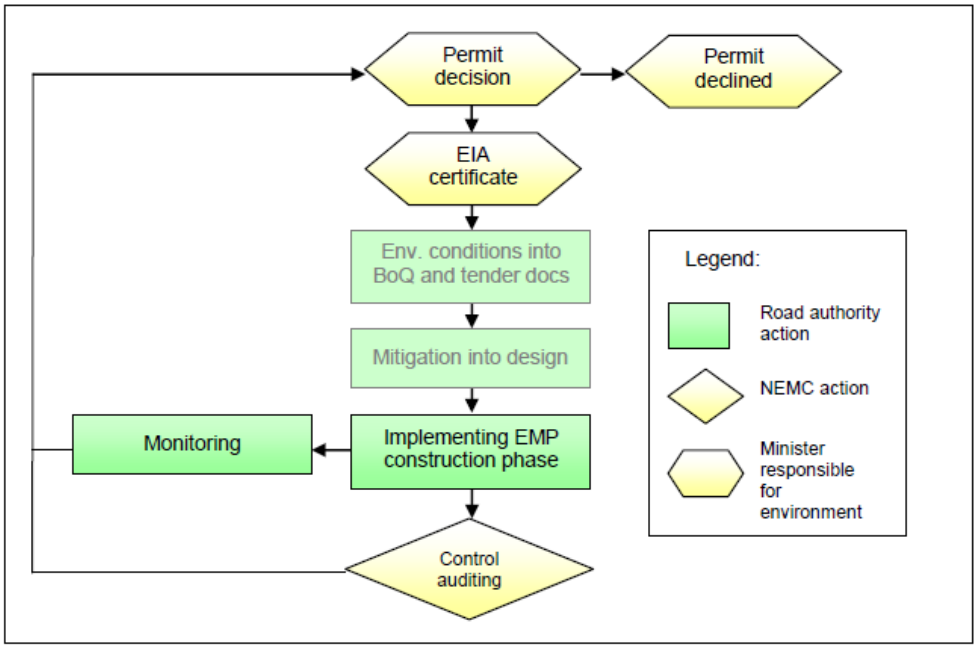

Figure 10: Environmental Assessment Activities During the Construction Phase.

Source: EAMG, Ministry of Works, 2011

In practical terms, the road authority will ensure suitable requirements for environmental supervision is part of the contractors‟ contractual obligations through a requirement for an environmental supervisor. The road authority will further ensure that the supervising road engineer has the responsibility to monitor the day to day environmental, health and safety management and performance of the contractor and compliance with all requirements. The supervising road engineer will retain appropriate expertise to fulfill this responsibility. The supervising engineer will review and recommend approval of the contractor's Environmental Health and Safety

Management Plan (EHSMP) prior to start of works. The road authority will also monitor works on a periodic basis.
Environmental management and performance should be a standard point of discussion at each construction site meeting, and the contractor's environmental supervisor should be present at these meetings. Members of the relevant Environmental Management Committee (EMC) and or the MoWTC Department of Safety and Environment (DSE), Environment Section may be invited as appropriate.

The main monitoring and follow-up issues and activities during the construction phase of a road project include:

Pre-construction activities

- The contractors assignment of an environmental supervisor;
- Going through the ESMP at the initial construction site in order to make sure that contents, roles and responsibilities of the ESMP are understood and will be adhered to and make agreements on activities and time schedule;
- Environmental supervision of site preparations; and
- Environmental training of staff and others, as required.

Construction activities

- Regular updates on progress of ESMP implementation on the monthly meetings between the contractor (and his/her environmental supervisor) and the supervising road engineer;
- Supervision by the contractor's environmental supervisor;
- Supervision by the supervising road engineer;
- Environmental compliance monitoring;
- Follow- up activities in case of emerging unforeseen environmental issues;
- Follow-up activities in case of non-compliance; and
- Self-audits by the road authority as deemed necessary by the road authority, MoWTC DSE or the relevant EMC.

Activities during demolition of work site

- Final environmental report from the contractor;
- Self-audit by the road authority; and
- Control auditing by the National Environment Management Council, as required.

b. Contractor Environmental Supervision

Regular and continual environmental supervision is important to ensure that the contractor complies with the requirements of its Environmental, Health and Safety Management Plan, the Environmental and Social Management Plan (ESMP) and the conditions of the EIA certificate.

The contractor's environmental supervisor is responsible for ensuring that the environmental management requirements are met. The environmental supervisor is further responsible for proposing remedial actions in case of non-compliance or occurrence of non-acceptable environmental or socio-economic effects, and for identifying needs for follow-up environmental training of the contractor's staff and management and carry out this training.

The environmental supervision should cover all aspects of the contractor's work. Environmental supervision must include regular site visits and should not be based on second-hand information. However, the contractor should upon advice by the environmental supervisor notify the road authority on any irregularity or event outside the control of the contractor, if the irregularity might result in undesired environmental or socio-economic effects.

c. Environmental Compliance Monitoring

The environmental monitoring should focus on:

- The extent to which the contractor is complying with the environmental specifications and contract conditions (compliance monitoring); and
- Any unforeseen environmental impacts (i.e., the failure or inadequacy of the mitigation measures) and recommendations on how to manage unforeseen impacts.

The objectives of environmental compliance monitoring are as follows:

- Applying the identified mitigation measures;
- Ensuring that mitigation measures, contract conditions, and specifications are fully implemented during construction;
- Identifying additional mitigation measures, as needed;
- Assessing the efficiency of the mitigation measures and make recommendations for not only the current project, but also for future projects; and
- Resolving problems encountered during the construction phase.

The environmental monitoring team usually includes:

- The Contractor's environmental supervisor;
- The supervising road engineer;
- Any other road engineers or technicians required by the road authority; and/or
- Any other environmental specialists required by the road authority.

d. Meeting and Communications

Progress on the implementation of the Environmental and Social Management Plan (ESMP) should be a standard agenda item on the construction site meetings, and the contractor's environmental supervisor should be present at the discussion of this item.

In addition, other environmental specialists from the PMO-RALG, the environmental management committees, the MoWTC DSE and the TANROADS SEU may be invited, as required.

These following sub-items pertaining to environmental management should be put on the agenda of the construction work meetings:

- Review the status of any problem addressed in the previous meeting; propose additional mitigation measures, if a problem has not been solved;
- Review the main construction activities and any environmental problem that occurred since the last meeting;
- Review the construction activities and general environmental performance, as listed in the ESMP.

Decisions made should be minuted, and records of the minutes should be kept with the road authority. The records should be made available to the NEMC, the MoWTC DSE, the PO-RALG, the relevant environmental management committees (EMCs) and the TANROADS SEU upon request.

e. Final Inspection and Handing Over of Site

This stage mainly involves demobilizing (decommissioning) temporary infrastructure, installations, and equipment, and restoring the sites.

The environmental specialists of the road authority should be present at the final inspection and handing over of the site. The environmental specialists of TANROADS are its officers of the Safety and Environment Unit (SEU). The environmental specialists of the PO-RALG road authorities are to be designated by the PO-RALG.

In the hand-over process, the contractor's compliance to environmental contract conditions and specifications is confirmed. Specific attention should be paid to the clearance of waste and returning disturbed land to a natural and useable condition. An inspection of all off-site activities, such as quarry sites, should be conducted.

f. Self-Auditing

A self-audit of a road project may be instituted by the road authority in concern, by the MoWTC, Department of Safety and Environment (DSE), Environment Section or, for road projects under the jurisdiction of the President's Office – Regional Administration and Local Government (PO-RALG), by the PO-RALG. Either of these institutions has the authority to cause a self-audit to held for a road project at any time during the construction phase.

The purpose of a self-audit is to control whether all relevant environmental conditions in the ESMP and the EIA certificate are complied with, to investigate the effects of the environmental management measures, and to propose remedial actions in case of

unsatisfactory performance or unsatisfactory effect of the environmental management measures during the construction.

A self-audit should be carried out by a team of experts, who are not directly involved in the implementation of the project in concern. It could be a hired consultant, a team comprising representatives of the MoWTC DSE, the PO-RALG, the road authority's environmental management unit, or a combination hereof.

The road authority and the contractor are obliged to provide the audit team with all required data and information for the audit.

g. Control Auditing during Construction

The NEMC may at any time during the construction phase cause a control audit to be held. The objectives and activities of a control audit will be determined by the NEMC, and the NEMC will bear the costs of this type of audit.

The NEMC will involve the DSE, and, if relevant, the PO-RALG in the preparations for the audit.

The road authority and the contractor are obliged to provide all relevant data and information to the NEMC's audit team.

The draft audit report will be consulted with the road authority, the MoWTC DSE and PO-RALG prior to finalization and prior to final decisions on possible remedial actions to be required in order to allow for possible comments or corrections to be considered by the audit team.

The NEMC may decide that the environmental conditions of the EIA certificate may be reviewed and revised based on the outcome of a control audit.

8.5.5 Operation and Maintenance Phase

a. Environmental Monitoring and Follow-up

The following measures should be considered during the maintenance phase:

- Ensure timely maintenance to prevent/ minimize road degradation, flooding, road accidents, traffic noise, and landscape degradation;
- Maintain grass and other roadside vegetation to slow water flow and trap suspended matter, and hence to prevent/reduce soil erosion; and
- Prune bushes and trees and cut grass frequently to prevent safety and fire hazards related to excessive amounts of vegetation along the road.

b. The Road Authority's Environmental Auditing

Some EIA certificates require the submission of an audit report, usually about one year after completion of the construction works.

The post-project evaluation serves this purpose, as well as providing the necessary feedback to the project-planning phase for cost-effective environmental management. The goal of a post-project evaluation is to confirm that the project was implemented in accordance with the terms and conditions of the EIA certificate and to take remedial measures, as required.

The critical goal of a post-project evaluation should be to apply the lessons learned from completed projects to future road works. Important tasks include:

- Evaluating and implementing remedial actions during road operation;
- Conducting consultation with key stakeholders;
- Incorporating lessons learned into future road project planning; and
- Monitoring and evaluating effects.

Public participation in the audit process should be encouraged in order to obtain the views and concerns of the concerned parties with respect to impacts of the road and the road operation.

c. Control Auditing during Operation

The National Environment Management Council (NEMC) may at any time during the road operation phase cause a control audit to be held. The objectives and activities of a control audit will be determined by the NEMC, and the NEMC will bear the costs of this type of audit.

The NEMC will involve the MoWTC DSE, and, if relevant, the PO-RALG in the preparations for the audit. The road authority is obliged to provide all relevant information to the NEMC's audit team.

The draft audit report will be consulted with the road authority, the MoWTC DSE and the TANROADS SEU or the PO-RALG prior to finalization and prior to final decisions on possible remedial actions to be required in order to allow for comments or corrections to be considered by the audit team.

The NEMC may decide that the environmental conditions of the EIA certificate may be reviewed and revised based on the outcome of a control audit.

d. Environmental Management in Road Maintenance

The road authority is responsible for proper environmental management of road operations and road maintenance during the operation phase of the road. The relevant environmental bodies may request for advice on emerging situations, as required. The Environmental and Social Management Plan (ESMP) may include environmental management requirements for the operation phase of the road.

Even if the ESMP is not covering the operation phase, relevant environmental and socio-economic issues should be addressed properly in road maintenance plans and road maintenance projects.

The management requirements may focus on:

(a.) The need for monitoring and follow-up on road traffic operations, especially safeguarding against noise and dust exposure, air pollution and road accidents; and
(b.) The need for routine and periodic maintenance activities that will remedy undesired environmental impacts during operation, such as measures to:
    - Ensure proper road drainage;
    - Safeguard against erosion of the road;
    - Safeguard against erosion of the surroundings caused by the road;
    - Ensure proper surfacing to reduce noise and dust generation;
    - Proper maintenance of shoulders and walking/biking paths; and
    - Preventing people from exposure to noise, dust and air pollution resulting from road operations and vehicle emissions; and
    - Undesired use of the road reserve.

e. Environmental Management of Vehicles and Traffic Operation

Traffic operation is a major source of ambient noise, dust and air pollution. The problem is particularly pertinent in densely populated and heavily trafficked areas, where both noise and exposure to dust and air pollutant may rise to hazardous levels.

General plans, programs or measures to manage emissions from vehicles to ensure compliance with vehicle emission standards is the responsibility of the Ministry of Works, Transport & Communication (MoWTC), Department of Safety and Environment (DSE).

f. Decommissioning

In certain upgrading projects, however, realignments will lead to abandonment of shorter or longer road sections. In such cases a restoration plan for the abandoned sections should be part of the EIA study for the upgrading project.

In case of the not likely situation of decommissioning of an entire road, a reference is made to the Environmental Assessment and Audit Regulations, 2005, regarding environmental management requirements.

Figure 12 below Figure presents the environmental assessments activities during the operation of a road project.

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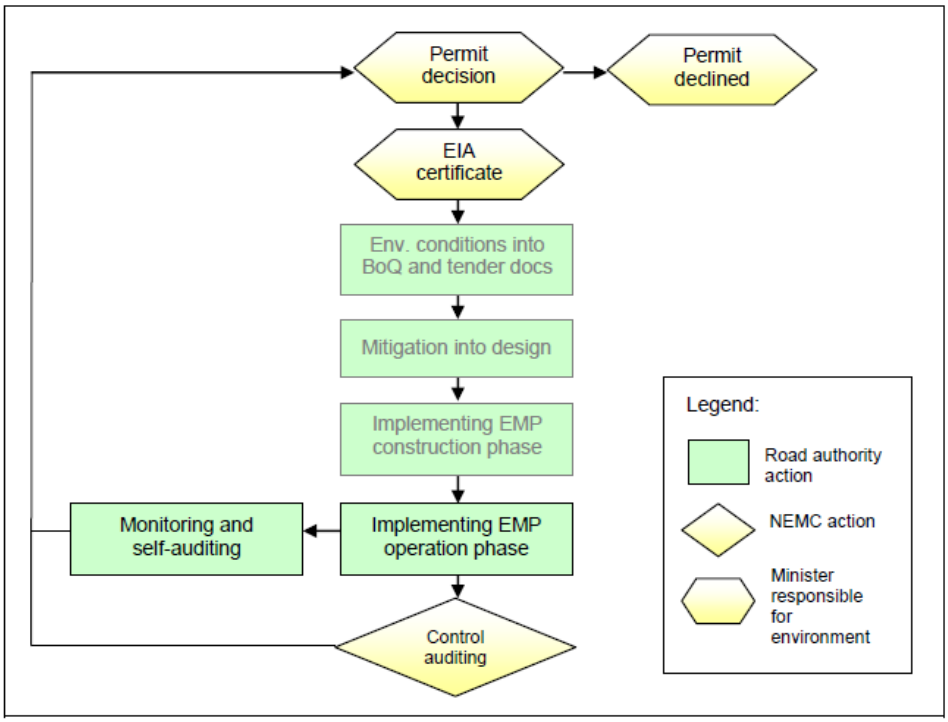

Figure 11: Environmental Assessment Activities During Operation

Source: EAMG, Ministry of Works, 2011

ANNEXES

ANNEX 1: WORLD BANK SAFEGUARDS POLICIES

1. Environmental Assessment (OP/BP/GP 4.01)

This policy requires environmental assessment (EA) of projects/programs proposed for Bank financing to ensure that they are environmentally sustainable, and also to inform decision making. EA is a process where the breadth, depth, and type of analysis depend on the nature, scale, and potential environmental impact of the projects. The EA process takes into account the natural environment (air, water, and land); human health and safety; social aspects (involuntary resettlement, indigenous peoples, and cultural property); and trans-boundary and global environmental aspects.

The environmental and social impacts of the DUTP will come from the road subprojects activities that will receive financing under the DUTP. However, since the location of these subprojects will not be identified before appraisal of the program, the EA process calls for the GoT to prepare this ESMF to establish a mechanism to determine and assess future potential environmental and social impacts during implementation of the subproject/rural electrification packages under the proposed DUTP, and then set out mitigation, monitoring, and institutional measures to be implemented during subproject operations to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels.

Therefore, this ESMF establishes the EA process for implementation of subproject activities in the proposed DUTPt.

2. Natural Habitats (OP/BP 4.04)

The World Bank does not support projects that, in the Bank's opinion, involve significant conversion or degradation of critical natural habitats. Wherever feasible, Bank-financed subprojects are sited on lands already converted (excluding any lands that in the Bank's opinion were converted in anticipation of the subproject). The Bank does not support projects involving the significant conversion of natural habitats unless there are no feasible alternatives for the project and its location, and comprehensive analysis demonstrates that overall benefits from the project substantially outweigh the environmental costs. If the EA indicates that a project would significantly convert or degrade natural habitats, the project includes mitigation measures acceptable to the Bank. Such mitigation measures include, as appropriate, minimizing habitat loss (for example, strategic habitat retention and post-development restoration) and establishing and maintaining an ecologically similar protected area. The Bank accepts other forms of mitigation measures only when they are technically justified.

In deciding whether to support a project with potential adverse impacts on a natural habitat, the Bank takes into account the borrowers/developers ability to implement the appropriate conservation and mitigation measures. If there are potential institutional capacity problems, the project should include components to develop the capacity of national and local institutions for effective environmental planning and management. The mitigation measures specified for the project may be used to enhance the practical field capacity of national and local institutions.

3. Involuntary Resettlement (OP/BP 4.12)

The developer will make dedicated efforts to avoid impacts on people, land and property, including people's access to natural and other economic resources. Nevertheless, land appropriation, compensation, and resettlement of residents seem inevitable for certain types of subprojects in certain areas. This social issue is of crucial concern to the GoT and the Bank, because its impact on poverty, if left unmitigated, is negative, immediate, and widespread. A Compensation and Resettlement Guidelines (CRG) has been prepared by the government and approved by the Bank in compliance with OP/BP 4.12. The CRG provides guidelines for the Resettlement Action Plan (RAP) that must be prepared when any program investment triggers this policy. In some cases, the World Bank reserves the right to review any RAP as a condition for financing that particular subproject investment.

This policy would be triggered when a subproject causes the GoT to appropriate land or other assets resulting in: (i) relocation or loss of shelter, (ii) loss of assets or access to assets, and (iii) loss of income sources or means of livelihood, whether or not the affected persons must move to another location.

This policy, in most cases, is not triggered because people are being affected by physical displacement. Typically this policy is triggered because program activity requires appropriation of land, whereby a physical piece of land is needed and people may be affected because they are cultivating on that land, they may have buildings on the land, they may be using the land for water and grazing of animals, or they may otherwise access the land economically, spiritually, or any other way that may not be possible during and after the subproject is implemented. Therefore, people in most cases are compensated for their loss (of land, property, or access) either in kind or in cash, or both.

The resettlement policy applies to all displaced persons, regardless of the total number affected, the severity of the impact, or whether or not they have legal title to the land. Particular attention should be given to the needs of vulnerable groups among those displaced. The policy also requires that RAPs must be implemented before implementation/start of subproject construction to ensure that displacement or restriction of access does not occur before necessary measures for resettlement and compensation are in place. For subprojects requiring land appropriation, it is further required that these measures include provision of compensation and of other assistance required for relocation, prior to displacement, and preparation and provision of resettlement sites with adequate facilities, where required. In particular, the appropriation of land and related assets may take place only after compensation has been paid, and where applicable, resettlement sites, new homes, related infrastructure, and moving allowances have been provided to displaced persons. For program activities requiring relocation or loss of shelter, the policy further requires that measures to assist the displaced persons are implemented in accordance with the RAPs.

Where there is a conflict between the laws of Tanzania and the Bank's OP/BP 4.12, the latter must take precedence if the Bank is to fund the subproject.

4. Cultural Property (OP/BP 4.11)

Cultural property includes sites having archaeological (prehistoric), paleontological historical, religious, and unique natural significance. The Bank will normally decline to finance a

subproject that will significantly damage irreplaceable cultural property, and will assist only those subprojects that are sited or designed so as to prevent such damage.

It is not anticipated that the subprojects financed by the DUTP will adversely affect sites having archeological, paleontological, historical, religious, or unique natural significance as defined under OP/BP 4.11. However, a screening mechanism is proposed to ensure that any such sites are identified and avoided, or impacts mitigated, in line with the cultural resources policy. The public, project contractors, and operators will be notified of the potential for chance finds, and chance find procedures will be included in construction contracts.

ANNEX 2: TEMPLATES FOR ENVIRONMENTAL AND SOCIAL MANAGEMENT INSTRUMENTS

Annex 2.1 Environmental and Social Screening Form

ESSF

ENVIRONMENTAL AND SOCIAL PRELIMINARY ASSESSMENT FORI

1. General Information			
Project Name (section)			
Location:	**- Region:** **- District:**		
Evaluator name: (SEU)		**Date of field visit:**	

2. Subproject	
Description and general purpose of the project: _____ _____	**Specific works:** - _____ - _____

3. Environmental and Social Analysis	
Impacts:	- Positive and negative impacts: - Direct and indirect impacts: - Accumulative impacts:
Measures:	- Prevention measures: - Mitigation measures: - Compensation measures:

4. First Step: Classification in function of the Magnitude of the project

Scope of the project:

A. New Project
B. Upgrading
C. Rehabilitation
D. Maintenance

Hierarchy of the road:

a. New construction
b. Upgrade
c. Rehabilitation

Matrix 1. Classification in function of the Magnitude

Scope of works	Hierarchy of the road		
	Regional	District	Rural
a. New construction	**I**	**I**	**II**
b. Upgrade	**I**	**II**	**II**
c. Rehabilitation	**II**	**II**	**III**
d. Maintenance	**III**	**IV**	**IV**

d. Maintenance

5. Second Preliminary Classification: Site Sensitivity		
HIGH	**MODERATE**	**LOW**
☐ ross National Park or Protected Area – NEMC ☐ igh Index of biodiversity - Holdridge, 1978 ☐ igh degree of threat – CITE ☐ igh danger of environmental degradation (deforestation, hunt, others.) ☐ ountainous topography (> 35% of slope) when is anticipated the enlargement or new construction of road ☐ ulnerable Zones to natural disasters (floods, earthquake, other) ☐ ross sensitive or critical ecosystems (wetlands, mangrove swamps, primary or secondary forests, other) NEMC ☐ ones recognized as ethnic groups area or vulnerable populations in the direct influence area of the project ☐ ffectation of more than 200 families (private land or houses) ☐ resence of places of highly cultural or historical interest in the influence area.	☐ Cross Buffer Areas of Protected Areas – NEMC ☐ Moderate index of biodiversity - Holdridge, 1978 ☐ Moderate degree of threat – CITES ☐ Moderate danger of environmental degradation (deforestation, hunt, others) ☐ Wavy topography (15 to 35% of slope) when is anticipated the enlargement or new construction of road ☐ Moderate risk to natural disasters (floods, earthquake, others) ☐ ones recognized as ethnic groups area or vulnerable populations in the indirect influence area of the project ☐ Affectation of less than 200 families (private land or houses) ☐ Presence of places of highly cultural and historical interest in the indirect influence area.	☐ Intervened areas out of Protected Areas - NEMC ☐ Low biodiversity degree - L. Holdridge, 1978 ☐ Low degree of threat– CITES ☐ Low danger of environmental degradation (deforestation, hunt, etc.) ☐ Flat topography (<15% of slove), when is anticipate enlargement or new construction road ☐ Zones with low risk to natural disasters (floods, earthquake, other) ☐ Absence of cultural and historic value places ☐ No people affected ☐ Absence of ethnical groups

6. Environmental and Social Category

Category A: Projects with high environmental and/or social risk, because the road area of influence presents high level of sensitivity and the magnitude of works can alter the natural environment, biodiversity, the economic organization and his cultural property.

Category B: Those projects with moderate environmental and/or /social risk, because the road area of influence presents moderate level of sensibility, nevertheless the civil works are not of big magnitude. The environmental and social impacts are easily identifiable.

Category C: Those projects with low environmental and/or social risk. The natural environment, the biodiversity, the population and the cultural property is not in risk.

Matrix 2. Environmental and Social Category

Preliminary classification	Site sensitivity		
	High	Moderate	Low
I	A	A	B
II	A	B	B
III	B	B	C
IV	B	C	C

7. Environmental and Social Studies required by National Law	
Category A: **Category B:** **Category C:**	Environmental and Social Impact Assessment (ESIA) Environmental and Social Management Plan (ESMP) Environmental Code of Practices for Road Woks (ECPRW)

8. Environmental and Social Studies required by the Bank's Safeguard Policy	
1	☐ Resettlement Action Plan (RAP)
2	☐ Abbreviated Resettlement Action Plan (ARAP)
3	☐ Chance Find Procedures Plan (CFPP)
4	☐ Others: _____

9. Estimated Environmental and Social Budget

Total Amount of the Project: US$
_____

Env & Soc estimated Amount : US$
_____

Matrix 3. Environmental and Social Category

Preliminary classification	Site sensitivity		
	High	Moderate	Low
I	6%	5%	4%
II	5%	4%	3%
III	4%	3%	2%
IV	3%	2%	1%

10. Map of the influence area of the Project

11. Official Decision (TANROADS-SEU)

Comments
_____
_____
_____
_____
_____
_____
_____

Officer:	Signature:	Date:

Annex 2.2 Environmental and Social Monitoring Report

ESMR

ENVIRONMENTAL AND SOCIAL MONITORING REPORT

Project name: _____ **Env. & soc. category:** _____

Project manager: _____ _____
Sign

Evaluator: Env & soc. expert: _____ _____
(SEU) Sign

1. **Environmental and Social Effects**
   Summary of the environmental effects of the project predicted during project planning.

2. **Environmental and Social Effects Observed in the Field Visit**
   Summary of the environmental effects observed in the field visit:

   - Predicted effects and nature of observation; and
   - Unpredicted effects and nature of observation.

   People participating in the field visit:

Name	Institution	Charge	Sign

3. **Compliance of the Environmental and Social Specification**
   Assessment of how project is complying with environmental design specifications, including environmental protection and control, mitigation, and reimbursement and compensation measures, if any.

4. **Results of the Field Visit**
   Provide results of the evaluation of specific biophysical and socioeconomic effects, including deviations from baseline values if available.

5. **Conclusions and Recommendations for Project Operation**
   Recommended adjustments to project operations if any, including rationale for the recommendations.

6. **Conclusions and Recommendations for Monitoring Program**
   Recommended adjustments to the monitoring program, if any, including rationale for recommendations.

7. **Other Observations, Recommendations, and Conclusions**

Annex 2.3 Environmental and Social Final Report

ESFR

ENVIRONMENTAL AND SOCIAL FINAL REPORT

Project name: _____ **Env. & soc. category:** _____

Project manager: _____ _____
Sign

Evaluator: Env & soc. expert: _____ _____
(SEU) Sign

1. Activities Realized

On (date) _____, the final review of the environmental and social aspects corresponding to the activity _____ was conducted to verify fulfillment of the mitigation measures proposed for the project, as well as to ascertain if other negative impacts have appeared during the period in which the activity took place. There was content the commission integrated by the following persons:

Name	Institution	Charge	Sign

2. Background

Capture case record including dates, brief narration of the problem, and recommendations from previous opportunities.

3. Results of the Examination

Describe in detail the conditions in which the mitigation measures were developed, the grade of fulfillment, and current state, explaining when necessary reasons why measures have not been completed. Completing the table below will help visualize this information.

No.	Mitigation measures	Accomplishment			Time still needed to accomplish measures	Observations
		Yes	No	%		

4. Conclusions

Based on the examination, prepare conclusions regarding fulfillment of the mitigation measures and recommendations.

ANNEX 3: GUIDELINES TO PREPARE THE STUDIES REQUIRED BY THE NATIONAL LAW

Annex 3.1 Environmental and Social Impact Assessment (ESIA)

Executive Summary

Stand-alone, comprehensive, and summarizing of all salient points of the ESIA—should not exceed 15 pages.

Acknowledgments

Acknowledgments to all of those who were instrumental in the conduct and completion of the ESIA.

1. Introduction

Explains the purpose, structure, and audience of the ESIA, as well as the World Bank's and Tanzania's needs for the ESIA.

2. Project Description

Describes the subproject in detail, including goals, objectives, beneficiaries, outcomes, value, schedule, and implementing bodies.

3. Legal and Administrative Framework

- Describes the main legal instrumentation for environmental control and management, particularly specific instrumentation regarding the type of subproject (for example, hydropower/dams), and the general effectiveness of the legal instruments. Indicates government bodies responsible for each of the relevant instruments.

- Lists relevant ratified international conventions, and where appropriate and relevant, a track record to confirm compliance with those conventions.

- Describes the institutional framework for administration of the relevant environmental legislation and implementation of policy, and analyzes the capacity and effectiveness of institutions.

4. Project Alternatives

Discusses the various subproject alternatives that were considered and weighs the environmental merits of each. Rationalizes the selected project on various grounds, including environmental aspects.

5. Methodology

Describes how the assessment was conducted, including: screening, scoping, and bounding; composition of the assessment team; impact scoring system used (if used); the public participation program; sources of data and information; field studies conducted; and other major inputs to the assessment.

6. Biophysical and Social Environment

Describes both the physical and social environment in which the project will take place, including soils, fauna, flora, protected areas, other special areas, biodiversity, population, ethnicity, relevant cultural patterns and traits, employment, health and relationship of the people to the resources, land use, and development patterns. Some of these areas will be surveyed to obtain primary data.

7. Potential Environmental and Social Impacts

Identifies the important potential impacts (biophysical and social), the most effective mitigation to conduct, the residual impacts to be expected, and the cumulative effect to be expected. Impacts may or may not be rated on a scale of, for instance, very significant, significant, moderately significant, low significance, or no significance.

Includes descriptions of World Bank Safeguard Policies that may be triggered and how these will be addressed.

8. Environmental Management

- Includes a detailed description of how each of the impacts will be mitigated along with cost, scheduling, and the responsible body.

- Includes a monitoring procedure with schedule, cost and responsibilities, as well as a monitoring feedback mechanism.

- Includes a self-assessment of institutional capacity-building needs for effective environmental management with a schedule and cost of various types of the capacity building required.

9. Literature Cited

A complete reference to all literature cited in the assessment and preparation of the ESIA report.

Annexes

Various volumes covering separate studies (for example, social assessment, biological studies, and others) as well as an annex including detailed descriptions of impacts and most effective mitigations.

Annex 3.2 Environmental and Social Management Plan (ESMP)

1. Description of Adverse Impacts

Anticipated impacts are identified and summarized.

2. Description of Mitigation Measure

Each measure is described with reference to the effects it is intended to address. As needed, detailed plans, designs, equipment description, and operating procedures are included.

3. Description of Monitoring Program

Monitoring provides information on the occurrence of impacts. It helps identify how well mitigation measures are working, and where better mitigation may be needed. The monitoring program should identify what information will be collected, how, where, and how often. It should also indicate what level of impact will trigger a need for further mitigation. How environmental impacts are monitored is discussed below.

4. Responsibilities

The people, groups, or organizations that will carry out the mitigation and monitoring activities are defined, as well as to whom they will report and be responsible. There may be a need to train people to carry out these responsibilities and to provide them with equipment and supplies.

5. Implementation Schedule

The timing, frequency, and duration of mitigation measures and monitoring are specified in an implementation schedule and linked to the overall subproject schedule.

6. Cost Estimates and Source of Funds

These are specified for the initial subproject investment and for the mitigation and monitoring activities as the subproject is implemented. Funds to implement the environmental and social plans will predominantly come from the developer, with possible assistance from the DUTP.

ANNEX 4: GUIDELINES TO COMPLY WITH THE BANK'S SAFEGUARDS POLICIES

Annex 4.1 Chance Finds Procedures

Contracts for civil works involving excavations should normally incorporate procedures for dealing with situations in which buried Physical and Cultural Resources (PCR) are found unexpectedly. The final form of these procedures will depend upon the local regulatory environment, including any chance find procedures already incorporated in legislation dealing with antiquities or archaeology.

Note: The general guidance provided applies when there will be an archaeologist on call. In exceptional situations in which excavations are being carried out in PCR-rich areas such as a United Nations Educational, Scientific, and Cultural Organization World Heritage site, there will normally be an archaeologist on site to monitor the excavations and make decisions. Such cases will require a modified version of these procedures, to be agreed upon with the cultural authorities.

Chance find procedures commonly contain the following elements.

1. PCR Definition

This section should define the types of PCR covered by the procedures. In some cases, the chance find procedure is confined to archaeological finds; more commonly it covers all types of PCR. In the absence of any other definition from the local cultural authorities, the following definition could be used: "movable or immovable objects, sites, structures or groups of structures having archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance."

2. Ownership

This paragraph should state the identity of the owner of the artifacts found. Depending on the circumstances, the owner could typically be the state, the government, a religious institution, the landowner, or it could be left for later determination by the concerned authorities.

3. Recognition

This is the most difficult aspect to cover. As noted above, in PCR-sensitive areas, the procedure may require the contractor to be accompanied by a specialist. In other cases, the procedures may not specify how the contractor will recognize a PCR, and a clause may be requested by the contractor disclaiming liability.

4. Procedure upon Discovery

<u>Suspension of Work</u>

This paragraph may state that if a PCR is found during execution of the works, the contractor shall cease activity. However, it should specify whether *all works* should cease,

or only the works immediately involved in the discovery, or, in some cases where large buried structures may be expected, all works may be stopped within a specified distance (for example, 50 meters) of the discovery. This issue should be informed by a qualified archaeologist.

After stopping work, the contractor must immediately report the discovery to the resident engineer.

The contractor may not be entitled to claim compensation for work suspension during this period.

The resident engineer may be entitled to suspend work and request that the contractor provide excavations at the contractor's expense if the engineer thinks that a discovery was made and not reported.

Demarcation of the Discovery Site

With the approval of the resident engineer, the contractor is then required to temporarily demarcate and limit access to the site.

Non-suspension of Work

The procedure upon discovery may help the resident engineer decide whether the PCR can be removed and work can continue, for example, in cases where the find is one coin.

Chance Find Report

The contractor should then, at the request of the resident engineer, and within a specified time period, complete a Chance Find Report, recording:

- Date and time of discovery;
- Location of the discovery;
- Description of the PCR;
- Estimated weight and dimensions of the PCR; and
- Temporary protection implemented.

The Chance Find Report should be submitted to the resident engineer and other concerned parties as agreed upon with the cultural authority and in accordance with national legislation. The resident engineer, or other party as agreed, is required to inform the cultural authority accordingly.

Arrival and Actions of Cultural Authority

The cultural authority ensures that a representative will arrive at the discovery site within an agreed upon time, such as 24 hours, and determines the action to be taken. Such actions may include, but are not limited to:

- Removal of PCR deemed to be significant;
- Execution of further excavation within a specified distance of the discovery point; or
- Extension or reduction of the area demarcated by the contractor.

These actions should be taken within a specified period, for example, seven days.

If the cultural authority fails to arrive within the stipulated period (for example, 24 hours), the resident engineer may have the authority to extend the period by a further stipulated time.

If the cultural authority fails to arrive after the extension period, the resident engineer may have the authority to instruct the contractor to remove the PCR or undertake other mitigating measures and resume work. Such additional works can be charged to the contract. However, the contractor may not be entitled to claim compensation for work suspension during this period.

Further Suspension of Work

During this seven-day period, the cultural authority may be entitled to request the temporary suspension of the work at or in the vicinity of the discovery site for an additional period of up to, for example, 30 days.

The contractor may or may not be entitled to claim compensation for work suspension during this period. However, the contractor will be entitled to establish an agreement with the cultural authority for additional services or resources during this further period under a separate contract with the cultural authority.