

**EXECUTIVE SUMMARY FOR ESIA REPORT FOR THE
PROPOSED UPGRADING OF MTWARA (MNIVATA)-NEWALA-
MASASI ROAD (160KM) TO BITUMEN STANDARD INCLUDING
MWITI BRIDGE IN MTWARA REGION**

**UNITED REPUBLIC OF TANZANIA
MINISTRY OF WORKS AND TRANSPORT**



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STUDY TEAM

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EXECUTIVE SUMMARY

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ES-1: PROJECT OVERVIEW

The Tanzania National Roads Agency (TANROADS) is an Executive Agency under the Ministry of Works, Transport and Communications, established under section 3(1) of the Executive Agencies Act (Cap 245) and came into operation in July, 2000.

The Agency is responsible for the maintenance and development of the trunk and regional road network in Tanzania Mainland Classified Road Network. The total classified road network in Tanzania Mainland is estimated to be 86,472 km based on the Road Act 2007.

The Ministry of Works, Transport and Communication through TANROADS is managing the National road network of about 33,891 km comprising 12,786 km of Trunk and 21,105 km of Regional roads. Its vision is to have sustainable, safe and environmentally friendly all weather Trunk and Regional road network to support the social economic development of Tanzania.

TANROADS and the African Development Bank (AfDB) initiated discussions to consider the upgrading to Bitumen Standard of Mtwara (Mnivata – Newala - Masasi road (160km) project.

Initially this ESIA study was conducted in 2015 but was not completed due to unavoidable circumstances. In 2019 TANROADS has commissioned Eng. George Kimaro and Huruma Kisaka (both Registered EIA Experts) to review and update the ESIA in accordance with the requirements of the Environment Management Act No.20 of 2004 and Environmental Impact Assessment and Audit Regulations (2005) and AFDB guidelines.

The project road starts from Mnivata village in Mtwara district and ends up at Masasi Town (160km). Mtwara to Mnivata (50km) is paved road and from Mnivata to Nanyamba (20.3km) the road is engineered gravel traversing through moderate flat terrain. Nanyamba to Kitama (13.8km) constituting a surface dressed Nanyamba escarpment (3.6km). From Kitama to Newala via Tandahimba the road is engineered gravel. At Newala the road is surface dressed for 1km. From

Newala to Amkeni (3.9km) constituting gravel road of 2.1km and surface dressed road of 1.8km. From Amkeni to Mbuyuni (30.5 km) constituting gravel road sections and 4km of surface dressed Namaleche escarpment. From Mbuyuni to Mpeteta (12.1km) constituting the Mwititi bridge of 72m length traversing through moderate flat terrain. From Mpeteta to Masasi (24km) constituting of a surface dressed section of 16.5km from Masasi Junction and the rest being gravel road traversing through moderate flat terrain. The total length of the proposed road is 160km.

➤ **Project Objective**

The current condition for Mtwara (Mnivata – Newala - Masasi road is poor and users found it time-consuming travelling from one place to another. The proposed project aims to provide an improved, safer road for all road-users which will serve as a development spine for communities along the road and link this area with the economic hub of Mtwara region.

Once completed, it will provide excellent travelling conditions and reduced travelling time, encourage businesses, industries and investments for the areas along the proposed road and help alleviate poverty and boost the economy of the region as whole.

➤ **Project key components**

A summary of the key components of the proposed road upgrading project includes; *Carriage Way, road shoulders, pedestrian walkways, storm water drains, service roads, bridges and drifts, outlet ditches, side ditches, culverts, T/Y Junctions, bus bays, road Signs and Crossings, road side parking lots, road lights, borrow sites, Quarry sites, construction camps and any other supporting infrastructure.*

In broad terms, upgrading of the road will involve the upgrading the existing road to include cutting and filling section, drainage structures, culvert and bridges construction, site clearance, detour section, opening of borrow pits and quarry site, road embankment construction as well as Pertinent features of the road design include:

- The width of the bitumen carriageway will be 6.5m
- The width of the (paved) shoulders will be 1.5m
- A road reserve corridor of 45m
- Cross-drainage structures, intersections and ancillary road works
- The road will have 20-years design life
- Shoulder width in built-up areas - 2.0m
- Normal camber - 2.5%

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- Side slopes - 1:2, 1:1.5, 1:4, 1:1
 - Back slopes - 1:1, 1:2.
 - Min side drain depth - 1m below shoulder break point
- **The project implementation will involve the following activities in phases**

(i) Project Mobilization or Pre-construction phase

Activities

During the pre-construction phase, both skilled and unskilled temporary employment opportunities will be created. It is difficult to specify the actual number of employment opportunities that will be created at this stage; however approximately 500 direct and indirect employment opportunities are expected to be created during the construction phase. It should however be noted that, employment during the construction phase will be temporary, whilst being long-term during the operational phase.

Below is a summary of activities during mobilization phase of the proposed project;

- Site clearance and construction of campsite
- Implementation of the RAP
- Installation of temporary security fence at the camp sites, site office and storage facilities
- Acquisition of materials from a reliable sources and storage
- Testing of the construction materials
- Acquisition of other permits such as water use permits
- Confirmation of data and accuracy of topographical survey
- Mobilization of labour force, equipment and plant for construction works
- Relocation of utilities,

(ii) Construction phase

Activities

The major construction activities include;

- Extraction and transportation of materials (gravel, sand, hard stones, aggregates, water and bitumen)
- Clearing the right of way (RoW).
- Formation of the road embankment, establishment of sub-base and base, road surfacing
- Construction of bridges and other drainage structures.
- Pedestrian Crossings, Speed Humps and Rumble Strips shall be provided in all built up areas and trading centres of all villages.

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- The landscaping of areas covered by the project road and establishment of vegetation for functional and aesthetic purposes on cut and fill slopes shall be in accordance with the requirements of the Road Geometry Design Manual, 2011.
 - The final finishing and cleaning up of the road and road reserve after construction, treating of old roads and temporary diversion
 - Detours will be required to maintain a usable route during the construction period. Wherever practicable, alternative local roads will be used. The construction and maintenance of these detours must be of a standard that ensures the safety of workers, road users and the general public. Detours outside the road reserve will require additional permission from the owner of the land. At the end of the detour's period of use, the detour must be decommissioned and the original land reinstated in an acceptable manner.

Transportation

Materials (fine and coarse aggregates) from quarries will be transported by trucks to the construction site. Water will be moved by water boozers. Other materials like asphalts, cement, timber and reinforcement bars will be transported by trucks to the construction site.

Storage

Some of the materials from borrow pits will be used directly after delivery and as such no piling up is expected. Other materials like aggregates and sand will be stored at the backyard of the camp site ready for use. Cement and reinforcement bars will be stored in special storage rooms. Timber will directly be used at the required areas and consequently there will be no stockpiling of timber at the camp sites. The asphalt will be stored in their respective containers which will be kept in the storage rooms. Fuel will be stored in drums or tank.

(iii) Demobilization phase

Activities

- Demobilization of temporary structures will be done for proper restoration of the site (e.g. removing/spreading top-soils piled along the road, restoration of borrow pits to required grades, removing all temporary structures, campsites may be left to the local governments depending on agreements that will be reached during the mobilization phase.
- Other activities include rehabilitation of the workshop and stockpile yard, rehabilitation of campsite at least to the original condition, clearance of all sorts of wastes including used oil, sewage, sewage, solid wastes (plastics, wood, metal, papers, etc.).
- Deposit all wastes to the authorised dumpsite.
- Restoration of water ponds (if any) and temporary quarry sites to a natural and useable condition, termination of temporary employment.

(iv) Operation phase

Activities

The actual usage of the road is expected to commence after the construction works. The project road is under “trunk road” category and therefore will be directly managed by TANROADS. The design period is 20 years, after which re-surfacing will be needed. During this time, TANROADS will carry out routine maintenance by attending to pot holes, clearance of vegetation within the ROW (road reserve area) and monitoring.

Other activities include Installation of road signs, thermo-plastic road marking, reinforcement and replacement of road furniture, control of litter accumulation on road sides, awareness rising on proper road use and road management to the communities, monitoring and evaluation, management to reduce pollutant concentrations in runoff, disposal of wastes from road maintenance activities, storage and management of maintenance materials and equipment.

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

➤ Project alternatives

Overview

One of the purposes of undertaking environmental assessment is to determine whether there are alternative means of carrying out the project which could meet the project objectives from environmental, social or economic considerations. It is important to consider various alternatives early in the planning process and to provide a comparison of each on the basis of economic, social, environmental and technological merits. Several project alternatives were considered which includes 1. No Project Alternative 2. Alternative Types of Bridges 3. Re-alignment Alternatives: Horizontal and Vertical 4. Pavement Design.

The conclusion of alternative analysis was conducted based on the ALT 4 (Pavement design alternatives) as described below:

Pavement Design

The design alternative was considered by taking into consideration that the design will follow the existing alignment with minor geometric design hence will have less impacts to environmental and social set up of the area. Also apart from environmental and social point of view the design alternatives are considered to have less costs compared to the designing of the new route which will be costly in term of capital investment.

Two main options were considered in this **PAVEMENT DESIGN** alternative, namely Alternative 1 (**with granular base course**) and Alternative 2 (**with cemented base course**).

ES-2: PROJECT DESCRIPTION AND DESIGN

➤ **Project location**

Mtwara Region is one of the 26 regions of Tanzania Mainland. It is located in the southern part of Tanzania, between longitudes 38° and 40°, 30" East of Greenwich and latitudes 10°, 05" and 11°, 25" south of the Equator. It borders with Lindi Region to the north, the Indian Ocean to the east and separated by Ruvuma River from Mozambique in the south. To the west, it borders with Ruvuma Region. The project road is located in Mtwara Region, on the Southern Part of Tanzania. The Region Borders Indian Ocean to the East, Ruvuma Region to the West, Lindi Region to the North and Mozambique is on the southern side.

The proposed road project has direct and indirect influence to communities surrounding the proposed site. The proposed road construction will directly influence settlements and economic diversification hence to have multiplier effects on both environment, social and economic aspects of the communities around the proposed project particularly at the following village centers of Mnivata, Mdui, Mbawala, Ngorongoro, Nanguruwe, Mtimbilimbwi, Mtopwa, Kitama, Madaba, Tandahimba town, Nanyanga, Tandika, Dinduma, Nanyuila, Nakayaka, Mahuta, and Lidumbe mtoni, Mnazi Mmoja, Mahumbika, Kiduni, Legeza, Newala Mjini, Mitesa, Nkangaula, Mdibwa Keko, Mbuyuni, Mpetu, Milunda, Lundelunde, Mchaka and Mumbaka. The indirect area of influence will include the areas beyond 250m from the road centerline to both side of the road and the area from Mtwara (Mnivata) to Masasi (160km).

➤ **Project area of Influence**

The Area of Influence includes the Project site (the land to be used for the proposed road/construction corridor (45m width), the area surrounding the proposed road to be potentially affected and nearby communities, laydown area and materials sites' locations (i.e. borrow pits and quarry sites).

➤ The area of influence for this project are defined as:

(i) Direct Area of Influence

In the context of this report, the Direct Area of Influence includes the proposed road footprint as well as the receiving environment surrounding the road likely to be affected by the Project activities during construction, operation, and decommissioning phases within a radius of 100m.

This also includes areas that will be impacted by the construction of the road, health and safety impacts (including disturbance from noise and dust during construction), and construction camps and in-migration of job opportunists into the local area.

(ii) Indirect Area of Influence

The Indirect Area of Influence includes areas within a wider radius of (250m) from the road centerline to each side of the road and the area from Mnivata to Masasi (160km), which may be affected by the Project although to a lesser extent.

The following map in figure 2.1 and 2.2 below indicates the project location in Mtwara region

Figure 2.1: Map of Mtwara Showing project location

MAP SHOWING PROJECT LOCATION



(Source: InfoBase Website, 2020)

Figure 2.2: Map of Mtwara Showing project location



(Source:googleerthPro,2020)

➤ **PROJECT ENVIRONMENT AND SOCIAL ECONOMIC CONDITION**

• **BIOPHYSICAL ENVIRONMENT**

i. Climatic Condition

Prevailing winds are critical in determining climate for this region which borders on the Indian Ocean. During the period November/December to April/May the dominant winds are from the north-east. They bring a hot humid rainy season to the region, when they blow from south-east the region is dry, cooler and less humid.

The rainy season of November/December to April/May is single peaked, the peak being reached in January but occasionally in February or March. The amount of total annual precipitation tends to vary with altitude. Mtwara district rains vary from 935 mm to 116 mm in the hills and the plateau. It is 893 mm at Masasi Mission and 1001 mm at Newala. It also varies from 1133 mm at Mtopwa to 832 mm at Lukwika Mission. Likewise, temperatures vary from 27°C as the highest monthly mean at Mtwara on the coast in December to 23°C in July. Relative humidity goes from 87% in March to 79% in October in Mtwara. Temperatures and humidity are lower inland.

ii. Soil

Geologically, Mtwara Region is divided into two parts: the eastern coastal part is characterized by quaternary tertiary sediments and Mesozoic cretaceous rocks; and the western part, which comprises a Paleozoic basement complex of highly metamorphosed rocks. The region can be divided into three different geographic vegetation belts, namely (i) the grassland and bushes in the east; (ii) woodlands covering the north eastern side; and (iii) wooden grassland in the Ruvuma Valley.

iii. Vegetation

The region is divided into three different geographic vegetation belts, namely (i) the grassland and bushes in the east; (ii) woodlands covering the north eastern side; and (iii) wooden grassland in the Ruvuma Valley. The region has vast forest reserves and game reserves/parks. There are two game reserves: Msanjesi (44,425 ha) and Lukwika/Lumesule (21,025 ha) both of which are in Nanyumbu District. A large part of forest composition in these forest areas is occupied with various valuable tree species such as Mpingo (*Dalbergia melanoxylon*), Mninga (*Pterocarpus angolensis*) and Mvule (*Mellicia excelsa*).

iv. Topography

Topographically, Mtwara Region is divided into two halves; the coastal plain with its complexity landform and basement plain dominated by Makonde Plateau. It is generally low level with isolated rocky hills and steep riversides. The western half, lying beyond the Makonde Plateau, drains to the south through the tributaries of the Ruvuma River. The Maombi and Mbuo rivers drain most of the Makonde Plateau.

v. Climate Change and Adaptation issues

Mtwara region is among many regions which suffer from significant negative or positive climate change related events as the global phenomenon that continues to affect development issues in the last three to four decades. The region is suffering from the following climate change events such as:

- i. Rise in average ambient temperature which increases the spread of pests and diseases among livestock, wildlife and crops through climate sensitive vector and water borne diseases such as malaria, rift valley fever,
- ii. Changes in air and ocean currents for example La-Niña and El Niño events similar to those that are responsible for the severe droughts.
- iii. Rainfall variability and drought causes abiotic and biotic stresses to become more frequent, widespread, and intense.
- iv. Decline in immunity of livestock and increased contraction of diseases;
- v. Decline in quantities and diversity of certain fish species;
- vi. Fast growing population and livestock densities and long dry spells which result in rise in natural resource-based conflicts amongst communities and between people and wildlife due to declining land, water and pastures;
- vii. Destruction of property, and human settlement and infrastructure due to flooding, e.g. such as roads and bridges;
- viii. Water shortage which affects wildlife, human population and the tourism industry;
- ix. Desertification from drought and deforestation;
- x. Potential mass extinction of certain species in fragile certain ecosystems;

In view of the above, the region, communities and project should review or formulate new Climate Change related strategies and programs to cope with and address existing and future Climate Change effects in specific local livelihood and socioeconomic areas to minimize vulnerabilities and suffering.

- **BIOLOGICAL FEATURES**

Flora

About 80% of the road profile vegetation is covered by cashewnut and cassava farms while the remaining 20% is covered by natural forests and wooded shrubland. The dominant species of the wooded grassland and miombo woodlands present are *stercalia quinquelobes* *Acacia spp*, *Millecia stlhmanii*, *Jurbenadis spp* *Afzelia quensesis*, *Khaya anthotheca* *Xerodemis stuhlmanii*

Fauna

The main fauna of the area for which the project road passes consist of domestic animals such as livestock, dogs, chicken, water loving birds, and several fish species. Other aquatic creatures include toads, and monitor lizards.

- **SOCIO ECONOMIC ENVIRONMENT**

The proposed road project will affect directly or indirectly number development sectors such as agricultures, Natural resources, industry, tourism, micro and small-scale enterprises, mining and education, water supply, social services, health sector and trade sector as described below.

(i) Population

The population of Mtwara Region has experienced significant growth during the period between 1988 and 2012. It increased from 888,882 (1988 census) to 1,124,481 in 2002 and reached 1,270,854 in 2012. The 1988 and 2002 censuses recorded inter-censal growth rate of 1.7 percent, and the 2002-2012 inter-censal population growth rate was 1.2 percent.

The population growth rate of rural areas was 0.9 percent and that of urban areas was 2.4 percent between 2002 and 2012. The region accounts for 2.9 percent of the total population of Tanzania Mainland (2012 Census). Population projection for year 2019 shows that Mtwara Region's population increased to 1,451,078.

(ii) Agriculture

Agriculture is the mainstay of Mtwara Region. A total of 257,833 out of 342,165 households in the region (equivalent to approximately 75%) were engaged in agricultural activities (2012 National Population Census). Masasi District Council had the highest number of private households (56,285 households) engaged in agriculture. Agriculture is also an economic activity in urban areas, whereby 16.4 percent of households (42,225 households) were involved in agricultural activities in the 2018/19 farming season.

(iii) Natural Resources

Natural resources sector is comprised of various sub-sectors including forestry, bee keeping, fishery and wildlife. The sector plays an important role in promoting climate stability, conserving water sources and soil fertility, controlling land erosion, and providing source of wood fuel, and industrial materials. This is among the sector to be affected positively and negatively by the road project. Upgrading of the road project will ease illegal harvesting of the natural resources such as timbers, charcoal towards markets within and outside the region. Positively the project will facilitate the natural resources conservation strategies, access to market and associated natural resources inputs within the region.

(iv) Industry

Mtwara Region is well endowed with small and medium-scale industries ranging from agro-processing, fishing and manufacturing of various products. Among the 2,844 industries that were present in the region in 2018, 2,194 (42.0% of the total industries) were maize mills; 1,622 industries (39.5%) were doing carpentry; 295 (9.7%) were service industries; 195 (6.9%) were doing welding, 45 (0.7%) were engaged in timber processing; 26 (0.6%) were into food processing; 15 were carrying out cashew nut and cassava processing; 10 were sunflower oil processing industries; 9 were doing carving; and the remaining one industry was engaged in bottling fresh water. Industrial sector in the study area is yet developed due to various limitations one being reliable road transport to the north and other areas within the corridor. Construction of the road project will boost the growth of the industry sector within the region.

(v) Education

Tanzania's education policy recognizes the need for private sector participation in providing education to Tanzanian children and youth. Consequently, individuals, non-government organizations and religious institutions are invited to invest in provision of primary and secondary education in Mtwara Region. There are also potentials for establishing skills training institutions. The proposed road project will facilitate the growth of the education system within the region by providing accessibility and investors in the education system.

(vi) Public utilities and services

The proposed road project will affect negatively the public utilities although in a short term. The public utilities to be affected along the project road includes water supply pipe, telecommunication cables, electricity poles found within the RoW. During construction activities the number of utilities will have to be relocated out of the construction corridor. Prior to the construction phase, TANROADS and Contractor will liaise with the utility company on the

logistic on how to relocate the utility facilities in the way that will not affect the services given to the communities. Costs for utility relocation will be borne by the project implementer. Construction of the road project will boost the growth of the public services sector within the region.

ES 3: POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

This section is aimed at giving the brief description of the relevant policy, legislation and regulatory requirement relevant for environmental and social impacts mitigation to ensure that “Upgrading of Mtwara (Mnivata)-Newala-Masasi Road Project” meets national and AfDB policy and legislative requirements, and that relevant requirements are built into project design and implementation. The ESIA will review the summarized framework’s components’ relevance to the Project and how will contribute to the implementation of the ESMP for the road project. The brief summary of Policy, Legislation and Institution framework for this project is as follows. National Environmental Policy, 1997; National Transport Policy, 2003; National Land Policy of 1997; National Human Settlements Development Policy, 2000; National Tourism Policy of 1999; National Water Policy of 2002; National Health Policy of 2003; National HIV and AIDS Policy of 2001; National Women and Gender Development Policy, 2000; Environmental Management Act (EMA) No. 20 of 2004; Road Act No. 13 of 2007; Land Acquisition Act, No 47 of 1967; Valuation and Valuers Registration Act No. 7 of 2016; Land Act No. 4 of 1999; Forest Act, 2002; Explosive Act No. 56 of 1963; The Occupational Health and Safety Act No. 5 of 2003; Water Resources Management Act No.11 of 2009; The Workers Compensation Act No. 20 of 2008; The HIV and AIDS (Prevention and Control) Act No.28 of 2008; Grave (Removal) Act. No 9 of 1969; Employment and Labour Relations Act No 6 of 2004; EIA and Audit Regulations No. 349 of 2005 and the Amendment) of 2018; The Environmental Management (Water Quality Standards) Regulations, 2007; Environmental Management (Hazardous Waste Management) Regulations, 2009; Environmental Management (Standards for the Control of Noise and Vibration Pollution) Regulations, 2015; Environmental Management (Soil Quality Standards) Regulations, 2007; Environmental Assessment and Management Guidelines in the Road Sector of 2011; Valuation and Valuers (General) Regulations, 2018.

- **Operational Safeguards of AfDB**

In addition to the national regulation framework, the project is subjected to the environmental and social requirements of African Development Bank (AfDB). First institution of financing of the development in Africa, the African Bank of Development gathers 78 Member States, including 53 African countries. The major challenge of the AfDB is the reduction of poverty in Africa.

The Bank has developed an Integrated Safeguards System (ISS) to update its safeguards policies and consolidate them into a set of Operational Safeguards (OSs) supported by revised ESAPs and Integrated Environmental and Social Impact Assessment (IESIA) Guidance Notes.

The Bank requires that the borrowers/customers conform to these safeguards during the preparation and of the execution of the projects. The declaration of policy of safeguards integrated establishes the essential principles which found the approach of the Bank as regards safeguard. Consequently, the Bank adopted five Operational Safeguards, thus limiting their number at least necessary to achieve its goals and to ensure the optimal operation of ISS:

Table 5: List of Operational Safeguard and their Objectives

SN	Operational Safeguard	Objectives
OS- I	Environmental and Social Impact Assessment	Establishes the procedure to determine the category of the project and the social and environmental impacts.
OS- 2	Involuntary Resettlement, Land Acquisition, Population Displacement and Compensation	This safeguard consolidates the political commitments and requirements established by the Bank on involuntary resettlement and incorporates a number of details to improve the operational efficiency of these requirements
OS- 3	Biodiversity and Ecosystem Services	It has the objective of conserving biological diversity and promoting sustainable use of natural resources. It also reflects the commitment of the AfDB's policy on integrated management of water resources within the operational requirements
OS -4	Prevention and Control of Pollution, Hazardous Materials and Efficient Use of Resources	It covers a range of key impacts of pollution, waste and hazardous materials that are part of international agreements and conventions as well as specific standards, including gas greenhouse effect that other development banks also follow.
OS- 5	Working Conditions, Health and Safety	It establishes the bank's requirements to their borrowers or customers with respect to the conditions of workers' rights and protection against abuse and exploitation. It also ensures wide harmonization with most other multilateral development banks

The Operational Safeguard (OS-1) is a mandatory requirement for projects funded by the AfDB to its borrowers. The remaining safeguards support the implementation of the first and indicate specific requirements related to different environmental and social issues, including gender and vulnerability, which are triggered if the evaluation process shows that the project will have certain risks

- **Institutional and Administrative Framework for this ESIA**

Institutional framework for this ESIA refers to administrative and institutional actors in which the project interacts and guided through. The administrative framework for environmental management in Tanzania is well articulated and structured in Environmental Management Act no. 4 of 2004. All environmental issues in Tanzania are regulated, controlled and guided through the Minister for Environment and Union Affairs under the Vice President's Office (VPO). Under the Ministers' command is the Division of the Environment (DoE), which is the authority that issues all environmental guidelines, policies and certificates based on advice from the Technical Advisory Committee (TAC) at NEMC. The EIA procedure and reports are reviewed by NEMC as are the management plans. Other ministries' sectors and departments are also involved as stakeholders in EIA reports such as central and local government, district and village authorities, NGOs, private and non-private institutions.

ES 4: IDENTIFICATION OF POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

The development of highways, regional and rural roads, and other transportation systems cause a wide range of environmental and social impacts on a number of receptors. The impacts are of both positive and negative in nature. The significant environmental and social impacts identified include;

- (i). Vegetation clearance and habitats loss/fragmentation (**approx. 3039 crops will be cleared**) especially along the new alignment and diversion road;
- (ii). Loss of land (**approx. 50,000M² will be taken**) livelihoods and properties due to physical and/or economic relocation (**approx. 83 houses, 14 fencing and 2 religious building will be relocated**) along the corridor's right of way;
- (iii). Potential contamination of surface water, groundwater (along Mlundelunde, Mumbaka, Chiwisi, Mokou, Napupa and Mwitit rivers-not exceeding <50 standards), soil (**around the workshops**);
- (iv). Occupational health and safety risks during construction i.e. (**works results into injuries and fatal accidents, noise and vibration during construction**),
- (v). Noise and Vibration (**from operating vehicles and quarry site operations-not exceeding <110 standard ...standard is 75 dBA and 65 dBA**)
- (vi). Air pollution during construction (exhaust gases such as **SO_x, NO_x, CO, VOC** from the constructional mechanization-not exceeding <0.01 standard);
- (vii). Exposure to HIV/AIDS transmission and other STIs;(i.e. gonorrhea, HIV/AIDS)

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- (viii). Risk of traffic accidents at the livestock crossings, pedestrians at the main junctions and towns along the project corridor **(Caused by the project vehicles along the project road)**
 - (ix). Increase risks in gender based violence (GBV) result from employment opportunities and compensation
 - (x). Loss of flora and Fauna (e.g. **Insect, small mammals, reptilian, rats, snakes, wild pigs will be killed during earth excavation**)
 - (xi). Increase risks on child abuse /Child labour result from employment opportunities
 - (xii). Generation of wastes both hazardous such as **(used batteries, filters, scrapers, oils and non-hazardous such as cement bags, timbers, bars, papers and others debris)**
 - (xiii). Climate change and adaptation risks **(increase of greenhouse gases from operation vehicles, clearance of vegetation).**
 - (xiv). Destruction of public utilities such as **(relocation of water pipes, electrical poles, fiber optic cables along the road)**
 - (xv). Population influx result into **(safety risks, crime and communicable diseases risks)**
 - (xvi). Interference with local hydrology **(result into water scarcity, pollution risks caused by contamination with oils and greases)**

➤ **Long term beneficial impacts (to be promoted through enhancement measures proposed in the study)**

- (i). Improved tourism in the southern circuit area;
- (ii). Improved transportation sector and economy (travel time, costs, fares, operation and maintenance costs, accidents, quality public transport);
- (iii). Reduced travel time and improved comfort to passengers;
- (iv). Improved accessibility, services and community livelihoods;
- (v). Income generation to materials, service providers, local suppliers, contractors and sub-contractors;
- (vi). Creation of local employment opportunities;
- (vii). Improved roadside drainage and soil erosion control along the road;
- (viii). Resources diversification and enhancement of women's opportunities;
- (ix). Skills/knowledge transfer; and
- (x). Reduced ambient dust emission.
- (xi). Safety and health risks
- (xii). Interference to local hydrology;
- (xiii). Increased natural resources exploitation rates;
- (xiv). Increased water and soil pollution;
- (xv). Soil erosion;

ES 5: STAKEHOLDERS CONSULTATION AND ENGAGEMENT

Identification of the relevant stakeholders as well as conducting public consultation was main aspect of EIA study. Public consultation was one of the ways of obtaining relevant information related to the study. Public consultation helped in identifying the issues and concerns related to the project. The consultations were done mainly to technocrats in Mtwara Rural, Nanyamba, Tandahimba, Newala and Masasi District Councils. Public consultative meetings to key stakeholders and communities in the villages were conducted to probe for the social implications of the project.

- **Objectives of the Public Consultations and Engagement**

Objectives of public consultations and engagement are:

- Informing stakeholders
- Gaining their views, concerns and values
- Taking account of public inputs in decision making
- Influencing project design
- Obtaining local knowledge
- Increasing public confidence
- Improving transparency and accountability in decision-making; and
- Reducing conflict

- **Public Consultation process**

The main aim of the consultation process as elaborated in an introductory part was to inform people about the proposed project and incorporate the views of stakeholders in the design of the mitigation measures, Environmental and Social Management Plan (ESMP) and Resettlement Action Plan (RAP). The specific aims of the consultation process were to;

- Increase long term project sustainability and ownership;
- Reduce problems of institutional coordination;
- Provide precise information about the project to the communities along the proposed road;
- Obtained the main concerns and perceptions of the population and their representatives regarding the road project;
- Obtain opinions and suggestions directly from the affected communities on their preferred mitigation measures; and

-
- Identified local leaders with whom further dialogue can be continued in subsequent stages of the project.

The modes of consultation that were applied during the survey include the following; -

- Direct, personal interviews with selected informants, (e.g. DC, DED, TD, MD. Planners, Education Officers, Livestock Development Officers, Fishery Officers, Agricultural Extension Officers, Community Development Officers, Medical Officers, Water Engineers and District Engineers; and
- Meetings with Local Government authorities and villagers.

Characteristically, the Agenda for these consultations included;

- Presenting the Project background;
 - Presenting the proposed road (using maps);
 - Defining the Regional/District institutional framework;
 - Discussing the previous experience along the road corridor with respect to compensation eligibility criteria and entitlement packages;
 - Obtaining from the authorities their socio-economic concerns and perceptions regarding the proposed road; and
 - Discuss the role of the authorities in public information dissemination, monitoring and management plan
- **Summary of Key Issues and Incorporation into Project Decision Making Process**

The improvement of the road project to a bitumen standard is the interest of the community and stakeholders expected its realisation. All consulted stakeholders have indicated that the positive impact of the road rehabilitation project outweighs the negative ones. Therefore, the road users in particular and the community, in general, have a positive attitude towards the road project and have promised to work closely with government in all phases of the project implementation. The summary of key concerns from stakeholders and responses is presented in Table 6 below.

ES 6: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

The Environmental and Social Management Plan (ESMP) presents the implementation schedule of the proposed mitigation measures to both environmental and social impacts as well as planning for long-term monitoring activities. For the proposed road construction works of Mtwara (Mnivata) -Newala-Masasi road (160km), the summary of ESMP implementation is given in Table 8-2 of the main report. The ESMP also includes the associated environmental costs needed to implement the recommended mitigation measures. The engineering designs have already included some of the mitigation measures recommended in this report. Additional recommendations are provided in the ESMP to enable the road facility to be more environmentally friendly. The implementation steps will involve the contractor, the Resident Engineer, District Councils, Road Agency (TANROADS), road users and the local communities at large.

➤ Impact Management Strategy

The ESMP points out essential obligations for the TANROADS, construction Contractors and operator to meet relevant environmental guidelines in line with the recommendations provided in this EIA report. With respect to the proposed road upgrading project, the ESMP requires that the contractor and/or operator:

- possesses an Environmental Policy statement;
- addresses contractual and regulatory requirements;
- provides procedures developed to address the environmental aspects and risks related to the construction;
- provides for the implementation and operation of the ESMP to ensure that structure and responsibilities are assigned; staff are trained, aware and competent; and that there is proper communication, documentation, operational control, reporting and emergency preparedness and response;
- provides clear and precise organisational and technical procedures for implementation of the ESMP, which ensure that construction and operation activities associated with potential environmental and social impacts are carried out in a controlled and responsible
- Preparation of the Contractor Specific Environmental and Social Management Plan (S-ESMP)
- provides checking and corrective action through monitoring and measurement; and

-
- provides records collection and storage, and programme audit that includes management review of the ESMP and enables improvements to be incorporated in the Plan.
- **A brief description and essence of the mandatory safeguards tools to be prepared by contractors as part of the Specific-ESMP prior project implementation.**

These tools shall be prepared prior to the implementation of the road project and shall form part of the project contract and must be approved by the Resident Engineer and TANROADS before implementation. These tools will draw the basis for Contractor to abide with the requirements of the implementation of the environmental, social, health and safety mitigation measures. These tools will be updated from time to time by the Contractor on emerging issues and challenging during project implementation or upon the request from TANROADS and/or AfDB.

i. Health and Safety Management Plan (HSMP)

The plan should detail the measures taken by the project Contractor to manage the hygiene conditions and medical care in each of the worker's camps. It should also address occupational health & safety in alignment with Labour law of Tanzania, ILO recommendations, Good Industry Practices. This plan should include (but not limited to) the following topics: (i) Health and safety policy and commitment from management, (ii) Description of organization; human resources, definition of roles and responsibilities, (iii) workers accommodation, hygiene facilities and food supply, (iv) Description of material resources including Personal Protective Equipment (PPE) to be used by workers, (v) Health and safety procedures, (vi) Risk assessment , (vii) Pollution prevention and protection, (viii) Health and safety training, (ix) Monitoring of health and safety performance, and (x) Medical checks. This plan shall be prepared by contractors and to be approved by Client prior to the project implantation.

ii. Gender Based Violence (GBV) Action Plan

Gender-based violence (GBV) undermines the health, dignity, security and autonomy of its victims, yet it remains shrouded in a culture of silence. Victims of violence can suffer sexual and reproductive health consequences, including forced and unwanted pregnancies, unsafe abortions, traumatic fistula, sexually transmitted infections and HIV, and even death. (<https://tanzania.unfpa.org/en/topics/gender-based-violence-10>).

The Gender Based Violence Action Plan should form part of the ESMP for the project objectively but prepared separately by the Contractors to provide guidance to mitigate, prevent and respond to gender based violence's during project's construction and post construction phases. The action plan should include but not limited to: communities' participation in ending GBV, healthcare for GBV survivors, mental health & psychosocial support to GBV survivors,

safety and security of GBV survivors, justice and legal aid, social economic empowerment and referral systems. This plan shall be prepared by contactors and to be approved by Client prior to the project implementation.

iii. Child Abuse Protection Plan

In line with Tanzanian Labour Law Act of 2004, the Contractor will formulate and implement a child labour policy as the basis of commitment to find practical, meaningful and culturally appropriate measures to support the elimination of child labour in workplaces.

The policy shall be publicly available throughout the company and clearly communicated to all employees in a manner which it can be understood through induction programs and policy manuals. The implementation of the policy will be the responsibility of the Human Resources Department and the security staff who do not permit minors to enter the working places. This plan shall be prepared by contactors and be approved by Client prior to the project implantation.

iv. Redress Grievance Mechanism at project level.

A Grievance Redress Mechanism has been designed and will be modified during the project implementation to fit the need for the proposed road project. Grievances related to communities/workers will be handled by the specific project GRM to be prepared by the Contractor prior to project implementation and the GRM related to Compensation issues will be handled separately as described into the RAP report.

Grievance redress mechanism (GRM) for the project activities will continue up to the end of the road project and shall involve a formal process for receiving, evaluating and redressing program-related grievances from affected communities and the public. The project recognizes vulnerability of the different project's participants to be involved or affected by the project (such as community members, workers and other beneficiaries).

A Grievance Redress Mechanism (GRM) will describe the procedures that will be followed to address grievances/complaints submitted by the people who may be benefitted or impacted by the project. The GRM will provide clarity and predictability on how grievances/complaints will be received, assessed, sorted, and resolved, and monitored. The central aim of the GRM will be to help reduce tension between the Contractor and affected communities and workers and to prevent unrealistic expectations or negative perceptions from the local population towards the Project. This plan shall be prepared by contactors and be approved by Client prior to the project implementation.

➤ **Grievance Committee at project level**

The GRC at project level will involve responsible Ward Executive Officer-(Secretary), Village Executive Officer (Member, Community Development Officer, complainer and Village chairmen (Member) and from project level is Site Manager(Chairmen), Contractor Environmental/Social experts (Member), RE-Environmental/Social experts (Member) and labor Officer (Member). All costs related to the GRM and GRC implementation will be provided by the Contractor.

v. **Gender Based Violence, Sexual Exploitation and Abuse (GBV& SEA) plan**

To mitigate these risks, the project Contractor will develop and implement a Sexual Exploitation and Abuse/Sexual Harassments (SEA/SH) Prevention and Response Action Plan with an Accountability and Response Framework as part of the C-ESMP. The SEA/SH Action Plan will follow guidance on the AfDB guideline for Addressing Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH) in Investment Project Financed by the Bank.

➤ **Prevention of Gender Based Violence (GBV) at the Community**

The contractor will implement provisions that ensure that gender-based violence at the community level is not triggered by the Project, including:

- effective and on-going community engagement and consultation, particularly with women and girls;
- review of specific project components that are known to heighten GBV risk at the community level, e.g. compensation schemes; employment schemes for women; etc.
- Specific plan for mitigating these known risks, e.g. sensitization around gender equitable approaches to compensation and employment; etc

The contractor will ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation.

vi. **Code of Ethical Conduct**

The Contractor will prepare and implement workers' Code of Ethical Conduct (CEC) attuned to Part III (Employment Standards), Section 14 (Contracts with employees) of the Tanzanian Employment and Labour Relations Act No. 6 of 2004. The CEC will set out guidelines i.e. "dos" and "don'ts" intended to support ethical behavior and decision making for all employees of the Contractor. The term 'employees' here include all management, staff, volunteers, students, subcontractors and others who provide services for the organization.

vii. Chance Finds Procedures

During construction works, archaeological findings may be encountered and potentially damaged or disturbed. Culturally sensitive areas (where cultural practices occur) may become affected by both construction and operation works, by modifying the religious or cultural value of a certain area. **Appendix V: contains “Detailed Chance Finds Procedures” to be followed by the Contractor.**

- **Contractor S-ESMP arrangements at project level**

Responsibilities for mitigation have clearly been defined, including arrangements for co-ordination between the various actors responsible for mitigation. The project set up will include various staff. The head of the organization will consist of project Manager, Site manager (Works Manager), Envoy, Health and Safety Manager, Chief Engineer, Mechanical Manager, Assistant Manager, material Engineer (QA manager).

The Main Contractor will be responsible for all construction works and Client who will be represented by the project Consultant to supervise the operations and compliances. Regarding the Safety, Environmental and Social Management during construction the Contractor will employ the Environmental and Social Experts, respectively to undertake routine environmental and social monitoring, advice the contractor and report to the management. During the guarantee period as shall be specified in the contracts, it will be the responsibility of the contractor to rectify all problems as per the agreement.

- **Public Awareness and Education**

The Contractor should encourage environmental awareness among his foremen before and during implementation of the road project. The education will include:

- Provide copies of the ESMP and discuss its contents with all construction foremen;
- Discuss techniques and answer questions about erosion and pollution control at regular site safety meetings;
- Demonstrate proper housekeeping methods
- Inform the foremen of actions to take in the event of spill of hazardous materials (oil, fuel, and concrete)
- Installation of sign at key locations reminding foremen how to properly store construction materials, handle and dispose of toxic wastes, dispose of wash water, and similar instructions;
- Remind foremen of fines, penalties that may be levied against the project by the local permitting agencies control environmental destruction is not adhered to.

The main Contractor needs to be aware that he/she is responsible for education and informing all Sub-Contractors (if any).

➤ **Monitoring Parameters**

The selection of the parameters to be monitored is based on the high likelihood of occurrences of the selected parameters. The detailed of the parameters to be monitored are indicated in table 9 of the main report. Monitoring of these parameters will be done in various stages of the project as follows;

- **Pre-construction stage** – Monitoring of the parameters at this stage is meant to establish the baseline information of the target parameters in the project area.
- **Construction stage** - Monitoring at this stage is meant to establish the pollution levels that arise from the construction activities.
- **Operation stage** - Monitoring at this stage is meant to check on the impacts that might arise as the result of normal use of the infrastructure.
- **Decommissioning** - Decommissioning is not anticipated in the foreseeable future. However, if this will happen, may entail change of use (functional changes) or demolition triggered by change of land use.

➤ **ESMP implementation costs**

Implementation of the proposed construction of the Mtwara (Mnivata) -Newala-Masasi (160km) road will entail no adverse impacts provided the recommended mitigation measures are adequately and timely put in place. The identified adverse impacts shall be managed through the proposed mitigation measures and implementation regime laid down in this EIS. TANROADS is committed in implementing all the recommendations given in the EIS and further carrying out the environmental auditing and monitoring schedule.

The options to minimize or prevent the identified adverse social and environmental impacts as well as a monitoring plan have been suggested in the main report and are contained in the ESMP. Many of them are based on good engineering practices. The ESMP describes the implementation schedule of the proposed mitigation measures as well as planning for long-term monitoring activities. It defines roles and responsibility of different actors of the plan. The table 8 below summarizes the direct costs related to ESMP implementation.

s/n	DESCRIPTION OF MITIGATION ISSUES IN ALL PHASES	AMOUNT (TZS)
1	Environmental and social protection measures	207,000,000
2	Health and Road safety measure	80,000,000
3	HIV/AIDs and STI and TB diseases	100,000,000
4	Compensation of affected properties	Included into RAP
5	Climate risks adaptation	75,000,000
	Sub-Total-1 for ESMP implementation costs (Excluding RAP)	462,000,000
6	Environmental & Social Monitoring	58,500,000
	Grand Total for ESMP implementation and Monitoring	520,500,000

Sources: Design report. 2020

ES 7: CONCLUSION AND RECOMMENDATIONS

Implementation of the proposed road will entail no deterrent impacts provided the recommended mitigation measures are adequately and timely put in place. Furthermore, it is recommended that; the project should continue as there are no deterrent impacts to the environment. All mitigation measures suggested should be implemented during all phases of the project. Since major impact is expected to be resettlement of people and their properties from the road reserve, this exercise should be conducted with outmost care.

The identified adverse impacts shall be managed through the proposed mitigation measures and implementation regime laid down in this EIS. TANROADS is committed in implementing all the recommendations given in the EIS and further carrying out the environmental auditing and monitoring schedule.

