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PROJECT: **ROAD SECTOR SUPPORT PROJECT II**

COUNTRY: **TANZANIA**
PROJECT NO: **P-TZ-DBO-019**

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT EXECUTIVE SUMMARY

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1 Introduction

The Government of the United Republic of Tanzania is currently intending to secure funds for constructing three road sections to bitumen standard under the Road Sector Support Project II which has been proposed for funding by the African Development Bank. The road sections include:

1. Mangaka – Tunduru. This road section has a length of 139.6 Km and the project road forms part of the trunk road and links Masasi (Mtwara Region), - Tunduru – Songea – Mbinga – Mbamba Bay Port and Songea. The road facilitates cross border trade with Mozambique (through Unity Bridge) in Tandahimba District). The movement of people and evacuation of agricultural and forest produce from Nanyumbu and Tunduru Districts to market centres including Songea, Njombe, Makambako, Dar es salaam, and other areas is through this road. The road is also used by tourists while travelling to Selous Game Reserve (SGR).

2. Mangaka – Nanyumbu – Mtambaswala road section. The present road has a length of 65.5km from Mangaka through Nanyumbu to Mtambaswala on the banks of Ruvuma River.

3. The Mayamaya – Bonga road section. This road section has a length of 188.15km and is part of the Dodoma-Babati Road (251.3km). The Dodoma – Babati Road is a major potential international transport corridor for the SADC countries. Thus, the road has been identified as a strategic corridor within the Tanzanian road network.Upgrading of the Dodoma-Babati Road aims at revamping its versatility so as to contribute to more in the socioeconomic progression of the central regions, and especially Kondoa and Babati districts. The road will improve transportation of agricultural products to market areas such as Dodoma, Arusha and Dar es Salaam etc. The local community within the project area will also benefit from the road in terms of reduced travel time, improved access to social services, and reduced vehicles maintenance cost. Generally, the project will contribute to improved wellbeing of the communities in the project areas of Dodoma, Manyara and adjoining regions of Singida, Tanga, Kilimanjaro and Arusha.

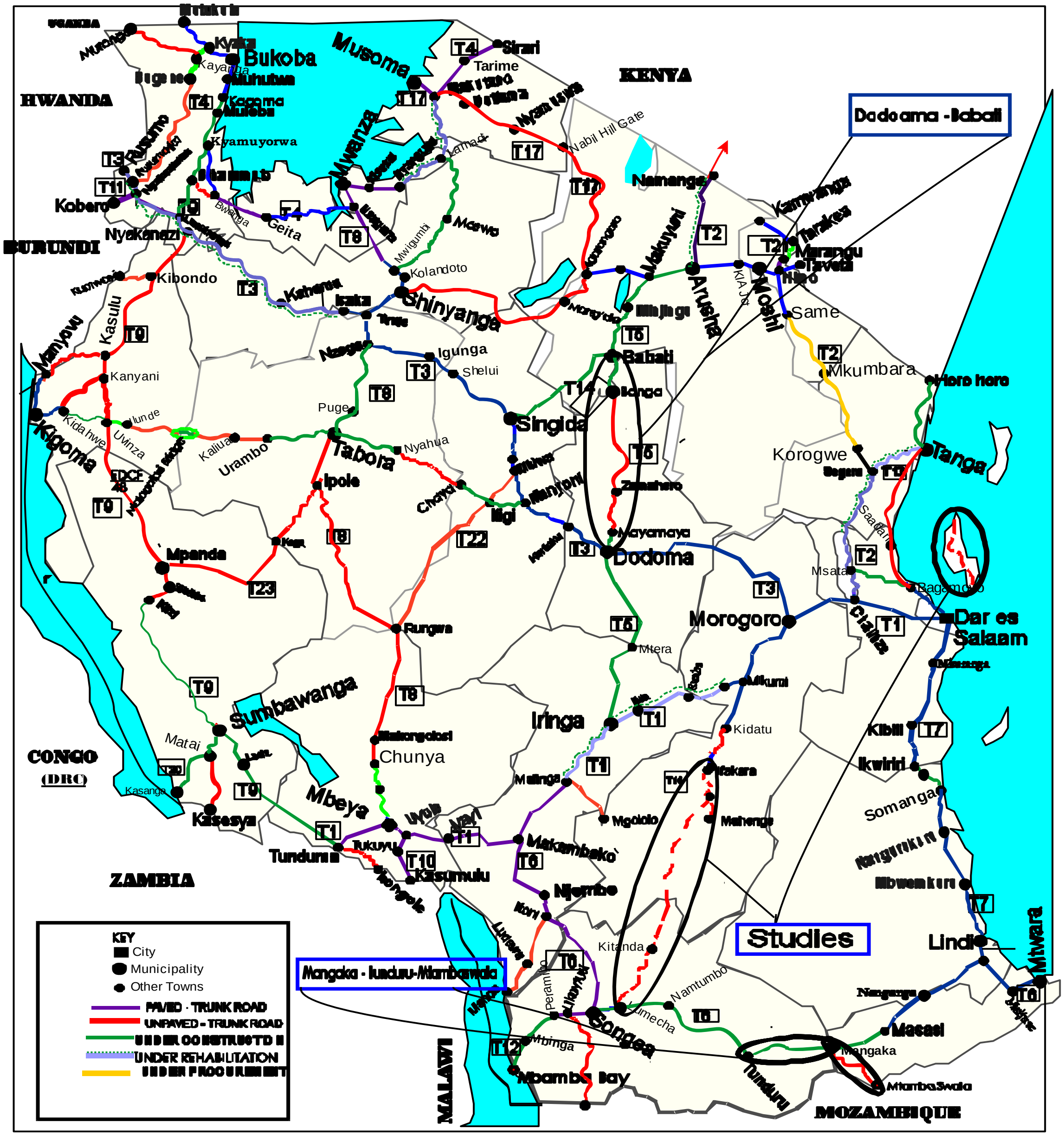
The Ministry of Works through Tanzania National Roads Agency (TANROADS) on behalf of the Government of the United Republic of Tanzania will implement the upgrading of the road sections.

In accordance with the Tanzanian "National Environment Policy" (NEP) and "The Environment Management Act, 2004" (EMA) and the Tanzania Environmental Impact Assessment Regulations as well as the ADB's Environmental and Social Assessment Procedures (ESAP), the project was classified as Category 1. This therefore necessitated carrying out full Environmental and Social Impact Assessment (ESIA). In addition, over 200 persons will be involuntarily displaced and large amounts of assets affected. For that matter a full Resettlement Action Plan (RAP) has been prepared.

Three separate ESIA studies were carried out for the three separate road sections. This summary, therefore, presents a general abbreviation of these studies and contains an assessment of the project road and attached is an Annex of the Summary of the RAP prepared for the project. The summary presents: the Project Description and Justification; Policy, Legal and Administrative Framework; Description of Project Environment; presentation of Project

Alternatives; Potential Impact and Mitigation/Enhancement Measures; Environmental Management Plan; Monitoring Program; Public Consultations and Disclosure; Conclusion; References and Contacts; and as an Annex the RAP Summary.

2. Project Description and Justification



The Staff of the ADB have provided the map for the exclusive use of needs which is appendex the applications and demarcations on this map do not imply any judgement on the part of the ADB and its members concerning the legal status of aterritoryor the approved acceptance of its boundaries.

- The project is essentially civil works in nature mainly consisting of:
- Filling and reshaping the road section to sub-grade level,
- Cutting of the earth sections to facilitate widening of the road,
- Upgrading or constructing longitudinal and cross drainage structures,

- Provision of sub-base, base-course and double surface dressing ending with finishing course of bitumen surface standard.

The main substantial components of the project will be:

- The roads will follow the existing profile except for minor realignment to improve grades, curvature and sight lines.
- Construction of new bridges, culverts, drifts and repair or replacement of existing bridges, drifts and culverts.
- Other structures such as lined and unlined side drainage channels, culvert intakes, outfall protection, gully control measures minor, river draining works and probably short lengths of retaining wall.

The current condition of the existing road sections is poor though passable all through the year. The project roads serve as the main means of transportation of for the surrounding areas as such, state of these roads impacts significantly on the social and economic development of these areas.

The civil works to improve the road sections will therefore:
1) Improve the transport system of the region.
2) Contribute to the social, economic and human welfare of the surrounding areas.
3) Attract and provide access of business community and tourists to and from northern parts of the country as well as to and from Mozambique, South Africa and many other southern countries;
4) Give access to communities for transporting their produces easily and reach important places (like hospitals, schools, etc.) without difficulty; and
5) Avail connectivity to the regional and district roads in the endeavours of improving the living standards of the people.

In accordance with the Road Design Manual the design speed is 100 km/h for rural stretches of the road, 80 km/h for rolling/hilly terrain and 60 km/h in mountainous terrain. The project will include minor realignments to improve sight distances, grades and safety, and will involve the construction, repair or replacement of bridges and culverts.

The road will have a carriageway width of 6.5 m, and shoulders of 1.5 m each side on the rural sections of the project road, to give a construction width of 9.50 m. On sections in built-up areas where pedestrian and non-motorised traffic is heavy, the shoulders will be widened to 2.0 m. A parking lane 3.0 – 3.5 m wide will be provided in urban areas, and a path for pedestrians and bicycles will be accommodated on the other side of a lined ditch.

3. Policy, Legal and Administrative Framework

The study has been guided by the NEMC's EIA Guidelines (March 2002), MOW's, Environmental Guidelines for the Road Sector (December 2004), the AfDB's Policies on Environment and Involuntary Resettlement.
Tanzanian's environmental assessment framework is guided by the following two key national legislations:

- The Environmental Management Act (EMA), 2004,

- The Environmental Impact Assessment and Audit Regulations, 2005

Tanzanian's key environmental assessment and monitoring agencies in the Road Sector include the following:

- Minister responsible for Environment (Vice President Office - VPO), The Minister is responsible for approval of the Environmental Impact Assessment
- National Environmental Management Council (NEMC). NEMC has the overall responsibility of undertaking enforcement, compliance, review and monitoring of Environmental Impact Assessment and in this regard facilitates public participation in environmental decision-making.
- Road Sector Environmental Section (RS-ES) under the Ministry of Infrastructure Development. The RS-ES oversees management of environment within the road sector and the preparation / implementation of EIA required in the road sector.
- District Council (DC). The District Council' Environmental Management Officer is responsible to promote environmental awareness in the district related to the protection of the environment and the conservation of natural resources.
- Village Development Committee (VDC). The VDC is responsible for the proper management in the village.

National policies on environment, land, transport, wildlife, forests, water and culture relevant to this project have been considered, as also various international treaties and conventions on natural resources that Tanzania has ratified. The main legal instruments applicable to Environmental and social management with respect to this particular road project are:

National Environment Policy, 1997

National Policy on HIV/AIDS, 2001

National Human Settlements Development , 2000

National Land Policy, 1995 (Revised in

Water Resource Management Act, 2009

Land Act of 1999

Local Government (District and Urban rities) Acts of 1982

Occupational Health and safety Act No. 5 of

Forest Ordinance Cap 389, 1957

National Gender Policy, 1992

National Transport Policy, 2002

National Forest Policy, 1998

Construction Industry Policy of 2002

National Poverty Reduction Strategy, 2003

African Development Bank nment Policy

The Grave (Removal) Act, 1969

The Forest Act of 2002

Wildlife Conservation Act, 2009

Environmental Impact Assessment and Regulations, 2005

The Land (Compensation Claims) ation, 2001

The Land Assessment of Value for ensation Regulation, 2001

General EIA Guidelines and Procedure

Environmental Assessment and gement Guidelines for Road Sector

Environmental Code of Practice for Works, 2008

AfDB Environmental and Social Impact sment Procedures

JBIC Guidelines for Confirmation of nmental and Social Consideration

International Convention on Biological sity

Environmental Management Act, 2004	The World Heritage Convention
Road Act, 2007	Convention on the Conservation of
Employment and Labour Relations Act,	tory Species of Wild Animals
	IUCN Red List

4. Description of the Project Environment

Topography, geology and soils: In general, the topography within the project area can be described as lightly undulating. The geology of the area includes both metamorphic and sedimentary rock types. The study area is covered by gravels, sands and loamy soils with some clayey types. The soil of the project area is characterised by two main types of soil namely Chromi Ferralic Acrisols and Chromi Ferralic cambisol. In some areas, the soils are low in fertility and organic content prone to soil erosion and becoming serious in some areas. Erosion is a serious problem, particularly in Kondoa and Babati Districts.

Climate: Rainfall pattern in the project area is primarily bimodal with the short rains falling in October to December and the long rains in February to June. The rainfall patterns in the project area are unevenly distributed, and in the arid areas unreliable. Annual rainfall varies from about 485 mm to 1200 mm. The mean average temperatures in the project area range between 16^{o}C and 32^{o}C. The study area lies between 300 – 400m above the sea level. Temperatures vary between 23^{0} C and 32^{0} C. The highest temperatures are felt between August and December, while the lowest temperatures are experienced between May and July.

Land Use: The Land use along the project road can be divided into five categories; namely settlements (residential and institutional), agriculture, transport corridor, water bodies (rivers), and undisturbed areas [undeveloped or covered by woodland, scrubland and grassland]. Farming is generally on a small scale mainly food crops (subsistence farming).

Surface Water Resources and Hydrology: The hydrology and drainage of the project area consists of numerous seasonal rivers and waterways which are completely dry for over six months every year. The drainage pattern of the project area flows in a south-eastern direction from the highlands to the plains, entering the Indian Ocean. The only perennial rivers are Namiungo, Majimaji, Mhumwesi and Mlingoti, Ruvuma River.

Groundwater Resources: Accessible groundwater resources occur in the villages along the project road. This is evidenced by the presence of shallow wells in most of the villages along the road.

Cultural and Archaeological Sites: The only cultural site along the road corridors are burial sites. Some of these sites are located within the RoW.

Social Services: The level of social services such as water, medical services, and education is poor. Although, most of the villages have primary and secondary schools, the schools have insufficient staff to cope with increasing enrolment. The communities have access to medical services, mainly dispensaries. The majority of the communities have safe source of domestic water supply.

Sources of Energy: Fire wood and charcoal is the major source of energy for cooking, while kerosene and electricity are used for lighting. However, electricity is available in Tunduru only.

4.2 Biological Environment

Flora: The project area is located in the Acacia-Savannah Grasslands Ecological Zone. The biodiversity of this zone is moderately rich in flora with about 2,500 species of plants recorded The flora along the project road is characterised by mosaics of miombo scrubland, miombo woodland in the outskirt of villages and riverine trees along rivers banks. The majority of the tree vegetation is miombo woodland. Cashew and coconut crops are found in village outskirts and village centres. In addition, exotic strip trees and shade tree vegetation can be seen at village centres. Two forest reserves are found within the project area including Chitowe (eastern side of

the project area) and the Lukwika-Lumesule Protected Area. Miombo woodlands are found in several places in the project area, but are being increasingly replaced by cultivated fields. Other forest reserves found within the project area include the Haraa, Ufiome, Salanga, Isabe, Kome, Chemi Chemi, Irange Escarpment, Songa, West and East Chenene and Mbuga ya Goima.

Fauna: The project area is located in the Acacia-Savannah Grasslands Ecological Zone. The biological nature of the entire district is composed of primarily scrubs and shrubs. The biodiversity of this zone is moderately rich in flora and numerous mammal species. The project road traverses three wildlife protected area namely Lukwika/ Lumesule/ Msanjesi game reserve, Namiungo – Muhuwesi and Muhuwesi forest area and game reserves. Lukwika/ Lumesule/ Msanjesi game reserve is located between R. Lukwika and R. Lumesule. The road also crosses important animal migration corridor between Lukwika - Lumesule - Selous Game Reserves in Tanzania and Niassa National park in Mozambique.
Rare and Endangered Species: The presence of endangered or rare flora and fauna is significant for two reasons. Firstly, changes in land use may cause or contribute to species extinction and degradation of the natural resources. Secondly, recent changes to Tanzanian legislation (notably the Tanzania Forest Policy 1998, The Forest Act of 1957 (Revised Cap 323 of 2002), Wildlife Policy 1998 and The Wildlife Conservation Cap 283 of 2009 give legal protection to red-listed plant species and animal species respectively. Chitowe village protected forest and the Lukwika-Lumesule Protected Area are cases where such species are legally protected to arrest rarity and endangering of animal and plant species in the district.

Other wildlife rich areas within the project area include: Swagaswaga Game Reserve, Songa Forest, West and East Chenene Forest Reserve, part of the Tarangire National Park as well as the Mkungunero Game Reserve which lies in the north-eastern corner of Kondoa District. Tourism activities are underdeveloped, and are limited to hippo-watching on Lake Babati and the Rock Art at Kolo.

4.3 Socio-cultural Environment

Population: According the 2002 population census, the total district population in the Nanymbu is 133,776 (2002, National Census) out these 64,333 were males and 69,443 were females. The annual population growth is 2.1% and population density of 26.4 people per square Km. In Tunduru District the total population is 299,426 with 48.2 % male and 51.4% female The annual population growth is 2.7%. In the Dodoma and Babati districts, the total population in the project districts was just under 1.5 million. Average household size varies from 4.2 in Dodoma to 5.1 in Babati, giving an average household size for the project area as being 5 persons per household. Approximately 80% of the population in the project districts can be described as being rural, while about 8% is classified as purely urban. The gender balance on average is fairly equal (1 male to 1.03 females per sq km).
Settlement patterns vary within the project area and along length of the project road, but generally urbanization characteristics migration flow is from the rural areas into these townships.

Economic activities: About 92% of the interviewed households admitted that over 90% of their incomes are derived from agricultural produces. Even for the households with other sources of incomes, agriculture contributes more than half of their incomes and expenditures.

The study showed that in access to, and utilization of production resources, both genders are involved at different scales. Statistically men and women are involved in agriculture (45% to 65% respectively), retail business (75% to 35%), food-vending (30% to 70%), casual labouring

(80% to 20%) and utilization of forestry products (85% to 15%). Collection and selling of fuel-wood is carried out mainly by the youth and women (>60%).

Ownership of means of production such as land (men own 90%), labour (men own 65%), basic capital assets (hand hoes, machetes and sometimes exes – men own 85%) and seasonal agricultural inputs such as seeds (men own 90%). In some cases ownership of agricultural harvests is based on the male dominancy (men own 85%) whereas, husband and wife have separate plots.

Health: Malaria was considered to be the main cause of morbidity (and mortality), followed by ARI, diarrhoea and skin diseases. HIV/AIDS prevalence was still low rated number 9 out of 10 common diseases.

5. Project Alternatives

The road sections which are proposed for upgrade are already in existence, what is expected is to improve them from the current status. However there will be a few alternatives including:

1) The "No Project" scenario implies maintaining the existing situation and it implies the project road would not be upgraded. This will retard socio-economic development in the project regions and there will be minimal impact on the environment if the No project alternative is considered.
2) In the Lukwika/Lumesure Protected Area the activities will interfere with the movement and tranquillity of animals. Accordingly ultimate caution will be observed to institute minimal disturbance. In this area construction will be done only during the day when most animal movements are low. Important trees will be avoided by either leaving them or diverting the road course.
3) However, it is considered that some utilities such as water wells, historical buildings and recreational facilities such as football fields were falling within the proposed right of way (ROW) of the proposed upgrade. As such these properties have been largely avoided in directing the road course. In unavoidable circumstances, the RAP has included any such facilities to be compensated and relocated.

6 Potential Impacts and Mitigation Measures

Positive impacts

Creation of Employment - Establishment of construction campsite will create direct and indirect employment to the local as well as people from other places. Direct employment will be in the form of skilled as well as non-skilled labourers.

Improved ambient air quality: Upgrading of the road to bitumen standard will improve ambient air quality, since generation of dust will significantly be minimized.

Improvement of Hydrology and Drainage: Upgrading of the road to bitumen standard will improve drainage, due construction new bridges, culverts, cross drainages, as well as road side drainage. Sedimentation of culverts and road side drains will be reduced due to provision control devices and cover vegetation and water stagnation within and on roadsides will be eliminated. Another important issues is how the road design may affect the hydrological flow in the project

area. The road design should ensure the provision of appropriate and a sufficient number of drainage structures to ensure that the road does not contribute to flooding or erosion in the project area.

Reduction of Vehicular Accidents: Improvement of the road will involve change of road geometry, including reduction of sharp horizontal curves, improvement of sight distances, and installation of speed humps. The result of this will be reduction in the rates of accident during operation.

Reduction in Vehicles Operating Costs: Lower speeds due to poor road imparts extra stress on motor vehicles engines (higher engine revolution per unit time) and so faster engine wear as compared to when a vehicle travels at higher speeds (lower engine revolutions per unit time). In addition, improvement of the existing road will result into serving in mileage per litre of fuel as traffic will be able to travel at relatively higher speeds.

Reduced Transport and Transportation Costs: Transport and transport costs are high because of bad road. Improvement of the road will make the cost of transport and transportation to be relatively low.

Reduction in Travel Time and Improved Comfort to passengers: Upgrading of the road to bitumen standard will significantly reduce travel time, since vehicles will be able to travel at higher speeds. The served travel time could be used to other productive ventures. In addition, upgrading of the road will improve comfort to passengers, due to the absence of corrugations.

Improved access to social services: The road improvement will enable easy access to social services like modern health facilities, schools, and markets which will be beneficial for women and children who are the groups that deploy these facilities for a considerable extent. Also, school children will benefit since they can reach their school in time.

Diversification of the Local Economy: Upgrading of the road will attract more investors in the area. The increased investment will bring in more employment opportunities to the local people including diversification of economic activities hence, reduce dependence on agriculture.

Increased interaction of people drive for social change: Upgrading of the road will encourage people from other parts of the country to live in the area. In migrants will come with new ideas into the project area. Such opportunity will create room for social transformation for both groups, share values and adopt new cultures and diffusion of cultural values suitable for development.

Increased investment: Upgrading of the road will attract many investors to invest in agriculture, forestry, and minerals, causing multiplier effect on the availability of other services such as hotels, schools and medical services.

Increased household income due to increased trading activities: Increased household income is expected due to improved road conditions and improved traffic. It is thus expected that there will be a positive impact on businesses and trading activities adjacent to the road, thereby increasing the income of households.

Improvement in the management of Game Reserves: Upgrading of the road will enhance accessibility to Lukwika/ Lumesule/ Msanjesi game reserve and Namiungo – Muhuwesi and Muhuwesi forest and game reserves through the project road and their internal roads. Improved

accessibility will result into improved management, including quick response to emergencies and combating illegal harvesting of forest products and poaching activities.

Improvement of Tourism Industry: Upgrading of the road will have a significant influence in increasing tourist activities in the road impact area especially SGR by increasing the number of tourists visiting the area.

Negative impacts

Loss of Vegetation and farmlands: will arise from clearance of land needed for the permanent works and for temporary use during construction (deviations, camps, borrow pits, etc). Some may be natural (grassland, shrub land, woodland) but the majority of affected vegetation is exotic trees. In addition, riverine trees are likely to be affected. However, the workforce's requirements for fuel wood and charcoal could increase pressure on local forest resource. Mitigation includes minimising vegetation clearance and confining it to within the area of construction, re-vegetating affected areas to prevent erosion and to provide a useful after-use of the affected land; instructing the Contractors to use alternative fuel sources, or establishing centralized canteens at the camps.

Disruption of Public Utilities: At several points, domestic water supply pipe lines cross or run close to the road. In addition, several shallow wells are close to the road. During construction, these water resources are likely to be affected either through reduced flows or polluted by the construction activities. The water pipe lines will be disrupted making the service unavailable to the local communities. Where practical, the contractors shall work carefully to avoid damages to the water pipe lines. Otherwise, he will remove the facility before construction, and replace them immediately after completion of construction works. Regarding shallow wells, as found relevant the Contractor shall repair or compensate damaged shallow wells.

Deterioration of ambient air quality: During construction, increased traffic volume and movement of construction equipment, construction activities (extraction, transport and stockpiling of materials, excavation, compaction etc) will cause deterioration of air quality due to generation of dust. During operation phase of the road the air quality of the paved road will be improved. Another source of air pollution is emissions from equipment and vehicle exhaust. However this is not considered a major environmental problem in rural areas due to the good dispersion of pollutants, vegetative cover for absorbing CO2 and the comparatively low number of vehicles.

The impact due to dust generation during construction shall be mitigated by sprinkling water, while that due to emissions shall be mitigated by ensuring adequate maintenance of construction equipment, including engine fine tuning, avoiding unnecessary idling of the equipment.
The project will also be selective in siting camps away from schools, residential areas or public places and maintaining health and sanitation standards at the camp(s) will reduce air and water pollution. Scheduled visits/surveillances all over the road course coupled by planned testing of media for any type of pollution will alleviate the pollution problems.

Generation of Noise and Vibrations: During construction, increased traffic volume and movement of construction trucks and equipment, construction activities (including cutting and compaction) will increase the level of noise and vibrations to the level above the present. Improvements of the road will cause increase utilization of the roads and so higher traffic volume. Upgrading of the road will increase noise and vibrations due to the fact that bitumen road propagates noise and vibrations much more effectively than gravel and loose soil.

Impacts from noise can be mitigated by maintaining plant, vehicles and equipment; adhering to a daytime work schedule, controlling the speed of construction equipment and vehicles in inhabited areas, providing PPE to workers. The contractor shall not be allowed to carry out construction works in settlement areas during the night. As for construction workers, all workers working in severe noise environment shall be equipped with ear plugs. The impact due to noise during operation of the road cannot be mitigated at the project level.

Soil erosion: Soils along the existing road are moderately to highly erodible. Concentrated drainage flows along the project road are often the cause of erosion, and improvement of the road could worsen the existing situation.
Provision of erosion prevention measures, habitual monitoring and regular maintenance during the operation will be important as mitigation measures. For borrow pits, earthworks and clearing of vegetation can be mitigated by carrying out site restoration in the areas after completion of works, rehabilitating modified areas and planting grass and trees as and when they are no longer required for the works.

Deterioration of Visual and Scenic Quality: Earthworks, excavation of borrow pits, and bush clearing will have visual impacts. This can be mitigated by rehabilitating disturbed areas as and when they are no longer required for the works and cleaning up after completion of works.

Risks of accidents to animals and humans: Increased traffic volume and activities during construction are likely to cause accidents and associated fatality to the local people. Unreinstated borrow are likely to cause accidents to animals and humans by accidental falling in or when became filled with rainwater. During operation, traffic accidents, including road accidents are likely to increase in the road due to increased traffic volume and speeds.

The impacts related with borrow pits shall be mitigated by rehabilitation of the pits. The impact due to traffic accidents will be mitigated by installing speed restraining measures at approaches to all black spots. A road safety awareness campaign shall be implemented during and after construction, targeting all the local communities, including school children. Emergency services in the health facilities along the road must be prepared for this. A road safety awareness campaign must be implemented during and after construction, targeting all the local communities, including school children, teachers, parents, patients, hospital staff.
In addition the road project will also involve studies on Road safety and capacity building in this area in Tanzania in general.

Reduction in river flows: Abstraction of water from rivers for construction works, including mitigation of generation of dust is likely to reduce the quantity of water for other purposes such as domestic and irrigated agriculture.

Modification of Surface water Flow: Construction of road fill embankments is likely to interfere with natural surface flow patterns, where by concentrating flow in one direction, resulting into flooding, soil erosion, channel modification, and diversion of surface water flow.

Depletion of water may be common in areas that are relatively dry due to long spell of dryness and with unimodal pattern of rainfall. These areas will have limited water for construction and for domestic supplies. The only alternative will be drawing water from natural water bodies such as the Ruvuma River by either using trucks or piped system. Implementing such piped water channels; will follow areas outside the Lukwika/Lumesure Protected Area to avoid imposing more disturbance to animals during construction. Moreover using machinery (e.g. pumps, tankers)

will be avoided within the 60m of the protected area, any incidents of pollution should lead to the work stoppage, clean-up of pollutants, and restoration of the site.

Surface water and soil pollution: Construction across river systems is likely to pollute the resources by construction materials, including hazardous material. In addition, sedimentation of the river systems is likely to occur if construction is not done with care. The contractor shall isolate concrete works near water courses, avoid washing concrete handling equipment near water courses, avoid refuelling and servicing near water courses, avoid stockpiling of materials or wastes near water courses, and ensure no leakage from equipment working near water courses. In addition, works across water courses should be done during dry season.

Health Problems associated with Cement and Concrete: Construction of bridges and other drainage structures will expose workers to cement and concrete. Construction workers working with cement and concrete are likely to be affected by upper tract respiratory infection due to inhaling cement and skin infection due to prolonged contact with cement and concrete. The impact shall be mitigated by personal protection through the use protective gears such as gloves, coveralls, boots, and eye protection, proper work practice that minimize release of cement dust, and exposure to cement and concrete. In addition, the contractor shall provide washing facilities on site for workers.

Impact to Wildlife in Game Reserves and SNWC: The project road traverse three wildlife protected area namely Lukwika/ Lumesule/ Msanjesi game reserve, Namiungo – Muhuwesi and Muhuwesi forest area and game reserves. The road also crosses an animal migration corridor between Lukwika - Lumesule - Selous Game Reserves in Tanzania and Niassa National park in Mozambique (Selous Niassa Wildlife Corridor - SNWC). Increased noise and vibrations during construction near or across the wildlife areas will disturb the wildlife and cause the animals to involuntarily migrate. Pits and quarries left after extraction of construction material may cause accidents to the animals. During operation of the road, speeding vehicles are likely to cause animals kills.

The impacts of the project are unlikely to result into reduction of biodiversity (habitats and species), extinctions and profound interference with animal movements. Opening up the area can encourage increased pressure for timber, fuel wood and charcoal making. To mitigate the impact, the contractor shall not be allowed to establish pits or quarries in the wildlife reserves and across SNWC. In addition speed limit sign posts coupled with a series of rumble strips and humps shall be constructed across the road where the migration route crosses the project road as well as across the game reserves.

Generation of Solid and liquid wastes: Construction activities at the sites as well as at the camps will generate significant amount of wastes: solid wastes such as plastic containers, used tyres, used printer cartridges, metal parts, plastic and cable, batteries, and liquid wastes such as used motor oil, and sanitary wastes. The main issues will be disposal of the wastes. These will be responsibly disposed of in accordance with The Roads Cap 167 of 2007 and The Environmental Assessment and Management Guidelines for Road Sector, Clause 1713. At the camp well-placed and well-marked waste bins will be placed and sorting, collecting, transporting of wastes with convenient vehicles will be done. For biodegradable materials planned alternative uses of wastes e.g. organics for manuring, plastics, metals, etc for selling to vendors of recyclable materials will be done.

Occupational health and safety impacts: Construction activities will expose workers, visitors and the general public to different physical hazards (e.g. from falling or being hit by falling objects, striking against object, overexertion, electric shock, fire and explosion, etc), chemical hazards (contact with skin, inhalation of harmful chemical etc), and biological hazards (e.g. drinking unsafe water, eating contaminated food).To mitigate occupational health and safety impacts, the contractor upon notification of contract award, shall prepare and submit site specific Health and safety plan, detailing how he will promote safety and limit, reduce, and control physical and health hazards and risks associated with the road construction.

Increased Pressure on Natural Resources: Improved road transport will cause increased influx of people to the project area, which will result into more demand for timber and land. This will cause increased clearing of vegetation of the land. The impact cannot be mitigated at the project level.

In the same context are issues related to the resource use in the camp sites including demand for water and fuel wood, and disposal of solid and liquid wastes.

Mitigation in this respect will involve the provision of water must for the workforce without interference or conflict on the host communities water resources. Effluent discharges must comply with national standards, while land fill sites must be located away from sensitive and inhabited areas, and properly managed. Once the project is completed, all work areas and offices, storage and repair sites, and other temporary installations must be cleaned and restored. A rehabilitation plan will be prepared and must ensure that damaged areas are restored and the sites are compatible for potential future uses. In addition, the construction of the roads will require large quantities of excavated construction materials. Borrow pits will not be located in or near environmentally sensitive areas, and will be located more than 250m or more from the centre of road and 500m or more from villages. Access will be controlled and the sites protected.

Increased Poaching: Upgrading of the road is likely to cause enhance poaching activities due to improved accessibility to wildlife areas. The impact cannot be mitigated at the project level.

Contribution to climate change due to emission of Green House Gases: Operation of construction vehicles and equipment during the construction of the road as well as increased traffic volume during the operation phase of the road will increase the emission of green house gases, particularly Carbon Dioxide and Nitrous Oxide exhaust gases, the result of which will be contribution to climate change.

To reduce the impact due to contribution to global warming during the construction phase, the Contractor shall ensure that construction vehicles and equipment are adequately and timely maintained (engines well tuned) to keep emissions at minimum. The impact during the operation phase of the road cannot be mitigated at the project level

Reduced life span of the road due to climate change: Variation or increase in temperatures due to climate change is likely to affect the life span of the road, including bitumen bleeding and damages to hydraulic structures due to excessive expansion. Cracking of cement-stabilized sub base layer is also likely to occur due to uncontrolled evaporation. Flooding resulting from climate change is likely to cause damages or overtopping of hydraulic structures.
To mitigate the effect of bleeding of bitumen, the design of the pavement has considered climate zoning and so the bitumen to be used can sustain high temperatures. In addition, a low spray rate of bitumen will be used to minimize bleeding at high temperatures. To prevent the cracking of

cement stabilized sub base layer, MC-70 bitumen will be used as it does not dry faster at high temperatures.

To prevent damages to concrete hydraulic structures due to excessive expansion, the design has provided expansion joints for all bridges and box culverts to allow free expansion.
To prevent damages or overtopping of hydraulic structures during flooding, a return period of 100 years has been considered in the design of the structures.

Increased transmission of HIV/AIDS: During construction, interaction between the immigrant workers and the locals may exacerbate the spread of HIV/AIDS and other sexually transmitted infections. The Contractor's workforce must be sensitised with regard to behaviour and conduct, and an HIV/AIDS Awareness Campaign must be implemented.

Social Conflicts: The road project will involve the arrival of migrant workers into the project area, which may provide context for social conflicts with the local inhabitants and raise of security concerns. Again the camp may also provide a nucleus for a new settlement and spontaneous band development is likely to occur along the length of the project road.

The most significant social impact will result from loss of land, property, crops and business, due to the acquisition of land for new alignments and for properties destroyed by construction activities. To mitigate the impact all affected people who are entitled for compensation will be compensated accordingly before commencement of construction activities.

Other probable impacts due to the project may be in form of domestic conflicts that may be related to disparities in income in the project area. This may be in the form increase extra-marital promiscuity, teenage pregnancy etc. These issues will be managed through raising awareness on this issues in the local communities.

Abuse of Road Corridor: Past experience has shown that local communities have the tendency of using the road reserve for farming and other economic activities resulting into soil erosion and eroding the road. This is also likely to happen when the road is improved. The impact cannot be mitigated at the project level.

Disruption of community access: During construction of side drains, disruption of community access to their business activities and residential places at settlements will occur due to creation of barriers. To mitigate the impact, the contractor shall provide temporary concrete slabs to enable pedestrians gain access to their business and residential premises.

Increased Cost of Living: The upgrading of the road will increase the cereal crops prices and might not be affordable to the local population, although for the sellers it will be an advantage for their crops to fetch a good price. The impact cannot be mitigated at the project level.
Increased Rate of Crimes: Improved road is likely to attract more advanced criminal activities in the project area. Criminals will be able to move faster across the project area and therefore the life of residents will be more in danger than now. The impact cannot be mitigated at the project level.

Impact to Cultural sites: The project is likely to impact on cultural properties including graves. This particular issue will be addressed according to the Grave removal Act (1969).
Reduced Economic Activities at Closure of the Project: Traders will establish trading activities points along the route during construction of the road, but as construction activities come to halt, the traders will not be able to trade, this will affect livelihood of the traders.

Mitigating these social impacts will involve an integrated approach involving the local government agencies, TANROAD and the contractor. This will involve the implementation of precautionary programmes aimed at addressing these impacts.

7. Environmental Management Planning

The Environmental and Social Management Plan (ESMP) and Resettlement Action Plan (RAP) highlight the mode of implementation arrangements for mitigation measures, environmental and social monitoring and reporting arrangements. These actions will be done collaboratively and mainly coordinated by TANROADS.

Thus TANROADS will be responsible for reviewing civil works contracts in accordance with the ESIA report; coordinating the implementation of the ESMP among the contractors, local authorities (e.g. Regional Secretariat, District Councils and Village Councils); monitoring the implementation of the ESMP and the civil works contracts in collaboration with local NEMC staff; and preparing semi-annual and annual environmental monitoring and progress reports.

The cost of standard construction mitigation measures have been integrated into the Project's Bills of Quantities. These costs cover issues of mitigation for environmental impacts, road safety, HIV/AIDS programme, Afforestation and Monitoring. The total cost for these activities is estimated at 2.3 million USD.

8. Monitoring Program

The purpose of environmental and social monitoring is to quantitatively measure the environmental effects of the road project. It is intended to ensure implementation of mitigation measures is done in accordance with regulations and standards. It is therefore based on monitoring indicators, which will have to be compared with targets to gauge the effectiveness of the mitigations plans. In addition, the baseline data will be compared with targets and post situation.

The environmental monitoring program will operate through the preconstruction, construction, and operation phases. It will consist of a number of activities, each with a specific purpose, key indicators, and significance criteria. Environmental monitoring will take place through the preconstruction, construction, and operation phases.

The monitoring of mitigation measures during design, mobilization and construction will be carried out by the Ministry of Works Road Sector Environmental/Social Specialist (MOW RS-ES). The MOW RS-ES will conduct monitoring as part of the regular works inspections. Environmental Section in TANROADS will have the responsibility for monitoring during the operation and decommissioning phases.

TANROADS will provide MOW RS-ES with reports on environmental compliance during implementation as part of their semi-annual progress reports and annual environmental monitoring reports. MOW RS-ES will forward these reports to NEMC and the Financial Institutions (AfDB and JICA). Depending on the implementation status of environmentally sensitive project activities, NEMC will perform annual or biannual environmental audit, give its opinions and recommendations in which environmental concerns raised by the project will be reviewed alongside project implementation.

The MOW RS-ES will have the following responsibilities:

- Monitoring the effectiveness of the ESMP and other mitigation measures.
- Asses the performance of environmental controls and proposed mitigation measures
- Ensure that the Contractor corrects any mitigation measure that are not functioning acceptably
- To provide regular reports on monthly basis on the status of compliance with the ESMP to the Supervising Consultant and TANROADS.

Other responsible parties shall include natural resource and water engineers for the surrounding districts.

During the first half of the construction phase, the MOW RS-ES will be on site twice per month for ten days (5 days/visit). The MOW RS-ES will reschedule his/her site visit to two visits per month for 6 days (3 days/visit) during the second half of the construction period, when the MOW RS-ES believes that the environmental impacts are being well managed.
During the visit the MOW RS-ES will make observations and recommends as described in the following sections.
If the MOW RS-ES believes that there is a potential for unacceptable impacts, he/she may require changes in the operating procedures or additional mitigations measures. The MOW RS-ES will have the authority to stop work, if necessary, and require the Contractor to improve or implement additional environmental protection measures.

The MOW RS-ES's specific responsibilities will include the following:

- To meet twice per month with the Supervising Consultant and contractor to discuss work requirements, compliance issues, and other environmental matters
- To inspect other aspects of the work area and equipment for general housekeeping, dust, fume, noise and compliance with spill prevention plan
- To monitor environmental parameters for comparison with available or proposed standards
  The following aspects will be monitored for compliance:
- Loss of vegetation
- Dusts abatement
- Control of generation of noise and vibrations
- Restoration of material borrow sites
- Prevention of pollution of water resources
- Disruption of public utilities (irrigation channels and domestic water supply pipe lines)
- Disposal of wastes
- Relocation of graves
- Compensation of properties and farmlands
- Road safety
- HIV/AIDS prevalence rates
- Changes in physical setup of the land (change of the physical composition of soils)
- Changes in vegetative cover
- Changes in aesthetics (natural setup of the physiography)

- Changes in social and economic welfare.

9. Public Consultations and Public Disclosure

Stakeholder consultation is one of the pillars of ESIA study. During the scoping stage, stakeholders were identified and means to consult them were developed.
The main stakeholders for the project include the Ministry of Works (MoW), TANROADS, Ministry of Energy and Minerals, the Regional Secretariats, and local government agencies at the district level (including District Water Engineer, District Wildlife Officer and District Forestry Officer), Road contractors, and communities in the villages located along or near to the project road (road users).

During the field visit, public consultations were held with municipal, district and village authorities in the project districts. Household surveys were conducted for each project affected person.

The benefits associated with upgrading the project road were cited as being:

- More transport options, leading to cheaper and more reliable transport;
- Better communication with other areas;
- Better access to markets (for both crops and livestock), agricultural inputs, agricultural extension services, leading to greater agricultural productivity;
- Improved access to social services (particularly health facilities)
- A resultant improvement in trade and commercial activities;
- Employment opportunities on the road.

The main concerns highlighted by the public were:

- Loss of land and property, and the resulting resettlement and relocation;
- Linked to the above, the timing and monitoring of the compensation process;
- Loss of business due to new alignments bypassing existing centres;
- Increased disposable income leading to alcoholism and further encouraging the spread of HIV/AIDS;
- Increase in the number of road accidents;
- Child truancy (as the road may encourage children to seek employment on road-related activities).
- Environmental degradation will ensue resulting from pollution, noises, dust and tree cutting;
- With increased integrations, people's culture and values may be impacted upon.

- Spread of HIV/AIDS due to integrations;

10. Complementary Initiatives

- ***Selous - Niassa Wildlife Corridor***. This programme is designed to mitigate and monitor the land use changes in the SNWC and especially parameters that the construction is likely to influence, for example deforestation, encroachment and wildlife road kills. The activity will also monitor the efficiency of measures such as the vehicle speed reduction and subsequent impacts on the number of wildlife kills. The activity will run during preconstruction, construction, and operation. The activity will support the District Councils in conducting baseline studies on forest resources (mapping, etc.) and enforce control measures for charcoal production and logging. The activity will continue during construction and operation to determine if significant changes to the forest cover have occurred. Significant change will be determined by comparing forest resource inventories between pre-construction, construction, and operation phases.

- ***Road Safety Campaign***. This activity will mitigate and respond to the potential impacts of the project on road safety. It will review the approach and methodology for the road safety awareness campaign and monitor the effectiveness of the proposed mitigation measures. The activity will take place during construction and operation, and will recommend new mitigation measures where those proposed are not effective.

- Afforestation Program: The program will involve tree and grass planting through the involvement of Village Council, women groups, schools, the District Council and outside NGOs . Approximately 1,135,000 tree and fruit seedlings will be made transplanted and about 4tonnes of grass planted on the banks of the road.

- HIV/AIDS awareness: will involve execution of the proposed HIV/AIDS awareness program and review of the approach and the effectiveness of the proposed mitigation measures. The activity will continue during construction and operation to determine whether the campaign has been effective, and propose new approaches and strategies as appropriate.

11. Conclusion

The project with will involve the upgrading of the different road sections is essential for the development of the economy of the host regions. The road project will improve access to social and health services not only for the population located immediately along the road, but also for those within the larger area of influence of the project road. Moreover, the upgrading of the road will also benefit to centre like Mtwara Port. The road project will strongly contribute to alleviate poverty in the project region, provided the negative impacts identified are adequately mitigated.
Most of the project negative impacts can be mitigated with appropriate measures. Involvement of TANROADS, the Contractor and the district authorities as well as the village authorities and the local communities will be required to implement and monitor the mitigation measures. Monitoring of environmental and social impacts will be important in ensuring sustainable development in the project regions.

The road will present temporary employment opportunities so care must be taken to ensure that as far as possible members of the local communities (including women and youth) are employed on the construction project. Diligence on the part of the Contractor is critical for ensuring that environmental and social impacts are minimised. Furthermore, maintenance of the road and monitoring of key impacts will serve to check adverse impacts during operation.

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ESIA SUMMARY ANNEX
SUMMARY RESETTLEMENT ACTION PLAN
FOR COMPENSATION AND RESETTLEMENT

Project Name: Road Sector Support Project II

Country: Tanzania

Project Number: P-TZ-DB0-019

1 Project Location and Area of Influence

1.1 The project is subdivided into three locations determined by the road sections. Dodoma – Babati road section is located in two regions of Dodoma and Manyara. The big part of the project lies in Dodoma about 240 Kms, the rest is in Mayara region. The project transverses four districts of Chamwino, Bahi, Kondoa and Babati. It provides the essential link from Arusha, Moshi and Manyara Regions to the country's capital Dodoma. In addition, the Dodoma – Babati Road is a major potential international transport corridor for the SADC countries. Thus, the road has been identified as a strategic corridor within the Tanzanian road network. The second road section is Tunduru – Mangaka which is 139.6 km long and passes through Mtwara and Ruvuma regions. The road project is a section in the Mtwara corridor linking the southern regions of Tanzania neighboring countries of Mozambique and Malawi. The road passes through districts of Tunduru and Nanyumbu at Masasi and forms part of the Tunduru - Songea - Mbinga - Mbamba Bay Road Projects which are on-going. The third section is the Mangaka – Mtambaswala road section which is located at Nanyumbu district and connects with Mozambique through the Umoja (Unity) Bridge at Mtambaswala. Both the Mangaka – Nanyumbu –Mtambaswala Road Project and the Mtwara Corridor road project when completed will link Tanzania and the Republic of Mozambique as well as the Indian Ocean at Mtwara with Lake Nyasa on the other side at Mbamba Bay to Malawi and further to Zambia. It will also link the Njombe - Makambako – Dar es Salaam or Mbeya Road in Songea town.

2. Potential Impacts

2.1 The project shall involve upgrading from gravel to bitumen standard. This will involve grading, re-gravelling, construction of drainage structures and construction of a bituminous-surfaced wearing course. In addition the project will require land for the construction of the campsite both for the contractor and Resident Engineer and workshops. The specific features of the road design being considered are 6.5 m carriage way width with sealed shoulders of 1.5m. The road reserve being applied in the project is 45m. The design includes cross-drainage structures, intersections and road appurtenances; a design speed of 80 kmph in areas without high concentration of people and 50kmph in areas with high concentration of people. The roads are being designed to a 20-year life as specified in the Tanzania Draft Road Manual (1989) of the Ministry of Works. Total number of affected households in various ways was estimated at 768 on the Dodoma – Babati road; 402 on the Tunduru - Mangaka road; and 940 on the Mangaka – Mtambaswala road. The table below (Table 1) summarises the types and quantities of assets affected:

Table 1 PAPs Total Affected Property by Household and Road Section

Type of Affected Property	Dodoma – Babati	Tunduru - Mangaka	Mangaka – swala
Boundary fence	1		1
Godown	2	1	2
Milling machine	0	1	0
Kiosk	18	30	22
Restaurant + Kiosk	6	0	2
Shop + Kiosk	12	0	17
Shop + Restaurant	6	0	0
Restaurant	35	12	0
Shop + Bar	4	0	0
Tea/coffee post	22	0	0
Shop	113	328	0
Shop + Residence	16	0	0
Kiosk + Residence	11	7	0
Restaurant + Residence	13	0	0
Residence	753	402	472
Mosque+ Madrassa	12	3	6
Church	1	0	0
Gatehouse	1	0	0
Milling machine	10	0	0
House for rent	43	19	0
Office	12	1	3
Police Station	0	1	0
Guest house	6	0	0
Dispensary	0	0	1
Water facility/well	0	6	1
Crops/trees/land	0	0	401
Institutional Residential	0	0	6
Primary school	0	0	1
Sign board	0	0	5
Grand Total	**1097**	**811**	**940**

3. Organizational Responsibility

3.12 A number of organizations and institutions will be involved with RAP implementation processes at different levels and times. However, the overall coordination of RAP activities will be under TANROADS and other institutions and organizations that have the legal obligations to carry out functions related to resettlement and /or compensation including various local authorities. The following summarises the various entities and roles and responsibilities:

- TANROADS will support sensitization of stakeholders on RAP, preparation and monitoring of RAP;

• Local Government Authorities will sensitize communities on RAP, provide technical support in preparation of RAP, screen and appraise and monitor the implementation of RAP;

• Communities, Villages, Wards, affected groups as the final owners of land, landed properties and assets to be acquired or affected will be the participants in the process;

• Independent NGOs /CBOs and other stakeholders may be engaged to witness the fairness and appropriateness of the whole process. The NGOs will be involved in the monitoring of the resettlement process, establishing direct communication with the affected population, community leaders, TANROADS to facilitate the completion of RAP;

• External Audits shall include the evaluation of the implementation of the resettlement action plans in routine annual audits. Without undue restrictions, the audits may include assessment of:

- Resettlement conditions where relevant;
- Consultation on compensation options, process and procedures;
- Adequacy of compensation; and
- Adequacy of specific measures targeting vulnerable people.

TANROADS shall set up a Resettlement Committee comprising representatives of key Ministries and a local NGO involved in similar projects. The following committees shall be established at district levels with representation from various stakeholders

- ***Resettlement Committee*** shall comprise: Regional Commissioner (Chair), TANROADS (Regional Manager), representatives of Ministry of Lands, District Commissioner, Consultant, Representative of a Local NGO, Representatives of PAPs.

- ***Compensation Committee*** shall comprise: District Commissioner (Chair), TANROADS (Regional Office), other representatives from Ministry of Lands, Consultant, Representatives of PAP, Valuer.

- ***Dispute Resolution Committee*** shall comprise: District Commissioner (Chair), other members shall be from TANROADS (Regional Office), Ministry of Lands, Valuer, Representative of a Local NGO, Representatives of PAPs

4. Community Participation

4.1 As part of the feasibility studies, consultations were carried out with the affected communities aiming at exploring their views and incorporating them into the report while formulating and finalizing of the resettlement plans. Consultations were conducted across sections of stakeholders which were done as part of participatory approach at regional, district, ward and community levels. Among key issues raised in these consultations included positive and negative impacts of the project; issues relating to compensation; resettlements; and employment opportunities during the project implementation.

4.2 Overall the main purposes of the participation and consultation process were to:

- Measures required to guarantee that the affected people will enhance or at least restore their livelihoods and living standards,
- Measures to mitigate impacts of resettlement and arrangements for addressing conflicts that might occur.
- Provide complete and timely information to PAPs about resettlement stages and related activities,
- Obtain the cooperation and participation of PAPs and other stakeholders in resettlement planning and implementation,

- Understanding needs and priorities of PAPs regarding preferences of compensation (cash or in-kind), relocation and other activities to be undertaken and conditions under which the resettlement will be socially adequate.
- Obtaining reactions of PAPs and other stakeholders on regular basis especially on the effectiveness of policies and implementation process.
- Reduce potential for conflicts, as well as risks of project delays through grievance mechanism
- Enable the project to design resettlement and rehabilitation program in a manner to fit needs and priorities of PAPs.
- Handling of crops (perennial, annual) in the road reserve,
- Impacts of community assets including prayer houses, health facilities, school water tanks and boreholes,
- Compensation for village government assets such as village offices, wood lots and market locations.
- Affected persons require more time for relocation,
- People with structures close to the potential active construction site were concern about the cracks of structures.

4.3 Key informant interviews were held with stakeholders involved in the Project, professionals and experts who have knowledge about the Project's environment, customary laws and traditions, gender issues, religious adherences, and the needs and aspirations of the community. In addition, interviews were held with different Regional, district and Ward level government officials. Stakeholders concerns and discussion outcomes are incorporated in the RAP. Agreements have been reached with specific government bodies regarding collaboration and facilitation of administrative measures directly related to the Project and implementation of the RAP. Details of community stakeholder meetings and consultations are included in the appendices of the ESIA and RAP reports together with the list of attendees and their signatures.

4.4 Compensation Options: During Public Consultations, affected persons were presented with various options for compensation to ensure that PAPs had the opportunity to choose how they would like to be compensated. The core options are between cash payment and in-king compensation. This included the resettlement options i.e. the relocation of individual families or the entire community or kinship groups. Almost all PAPs preferred to receive cash payments not in – kind payments due to the perceived advantages embedded in cash compensation.

5. Integration with Host Community

5.1 Majority of the affected people who are willing to relocate the affected properties are considering relocating within their original plots, stepping back, just behind the affected structures or buy land within the village. All affected people preferred to stay in their original villages except a few PAPs who preferred to move to other places to begin new life such as opening up businesses.

5.2 Some of key reasons for their decision include the following:

- Majority of the PAPs have either alternative land or sufficient land within the village that will be used for house structure, while others could move backward and utilize the remaining portion of land for accommodation.
- Most of the villages reported to have enough land to accommodate the affected people in case the PAP doesn't have sufficient alternative land.

- Often PAPs prefer buying land within localities familiar to them and maintain social cohesion they are familiar with.

Also of importance to consider is that road projects tend to be linear, hence holistic villages don't get affected by road projects. Since the majority of PAPs decided to relocate within the vicinities, the PAPs will not require host communities to accommodate them. PAPs will simply be observed within their original villages.

6 Socio-economic studies

6.1 Socio-economic surveys were conducted through interviewing a large number of potentially affected persons and communities to determine how they may be affected physically, economically and socially by the project roads. Structured questionnaires were prepared, which covered the following topics: household characteristics, income and expenditure, ownership of assets, employment, livelihood patterns, use of resources, accessibility to land and land tenure, arrangement of use of common properties, social organization, leadership patterns, and community structure. Enumerators were recruited and trained to undertake the surveys; recruitment considered gender balance to reduce possible bias in gathering information.

6.2 Agriculture is termed as the prevailing source of income in almost all villages where the project roads pass. Along the Dodoma – Babati road section, almost between 81% of the affected persons depend on agriculture. The agricultural produce is always sent to the market through vehicle (18.0%), bicycle (38.1%), as well as donkeys (43.9%). Off farm activities is another source of income engaging on average 15% of the affected people. However, information collected indicates that income from off farm activities is relatively small. The rest (4%) are totally dependent on formal employment and remittance from relatives. 44% of the respondents reported to earn below 100,000 Tshs per month, followed by those PAP's (18%) who earn between 100,000 to 200,000 Tshs per month. Insignificant (1%) number have income of over 500,000/= per month. Majority of the affected people farmers (80.2%) while 17.7% are engaged in businesses while 2.1% are in formal employment, this includes teachers, village and ward executive officers and district council employees.

6.3 The economic surveys for Tunduru - Mangaka were conducted between February and April 2011. A sample of 300 households affected by the project was surveyed. These surveys yielded useful information on the following aspects: *Socio-demographic profile of PAPs* including sex composition, educational status, age categorization, marital status; *Socio-economic profile of affected households* including type of household, family structure, distance from social service facilities, type of other assets owned; *Gender issues* including women household activity profile, women decision making powers in household matters; *Occupational status* in terms of cultivator, daily wage earner, government employee, self-employed, house-wife, unemployed; E*conomic profile of PAPs* including source of household income, average monthly income; *Impact on socially vulnerable groups* including those headed by females, children, less earning individuals; and *Nature of assets affected* in terms of buildings, land, trees and plantation, and those owned by communities.

6.4 The surveys indicate that agriculture is the main source of livelihood and employment in the Tunduru, Mangaka areas with maize cultivation as one of the leading food and cash crops. Much of the maize is transported to Mtwara, Lindi and Dar es Salaam as the main markets. The upgrading of the Mangaka-Tunduru road will thus have positive impact on maize production and productivity given the potential for higher prices because of high demand. This will lead to increased profit margins for both maize farmers and traders further contributing to food security in the area and beyond. Maize is the staple in the diet for most of the ethnic groups in Tanzania. Among the cash crops is growing of cashew nuts and ground nuts. Easy access through improved transportation will

entice investors to open up cashew cleaning and processing factories in so doing adding value and creating employment for the local communities.

6.5 The socio-economic survey of PAPs along the Mangaka – Nanyumbu - Mtambaswala Road section was conducted from May 2009 to June, 2009 using about 372 household questionnaires for PAPs along the corridor. During the analysis, a sample of 112 household questionnaires were analysed from 9 villages. The sample was based on gender issues. Also, it was based on the vulnerable groups e.g., elderly persons, disabled persons, widows, children who are orphans, long sickness persons etc. These households have between 4 and 6 members with the average number of 5 members per household. The survey looked at living modes, income and expenditure prototypes of the people living along the road. The study showed that statistically men and women are involved in agriculture (45% to 65% respectively), retail business (75% to 35%), food-vending (30% to 70%), casual labouring (80% to 20%) and utilization of forestry products (85% to 15%). Ownership of means of production such as land (men own 90%), labour (men own 65%), basic capital assets (hand hoes, machetes and sometimes exes – men own 85%)) and seasonal agricultural inputs such as seeds (men own 90%) is also unbalanced between the sexes. In some cases ownership of agricultural harvests is based on the male dominancy (men own 85%) whereas, husband and wife have separate plots.

6.6 Water supply is a critical issue in the project areas. Information obtained from selected villages and from the District Council offices revealed that the majority of the population gets surface water through shallow and deep wells. In places where there are rivers such as Ruvuma River populations utilize both the river and surface water. Nanyumbu District is among districts with severe shortage of water. From the available data only 12% (17,451) of the population have access to unswerving water at least to the basic amount of 25 litres a day. Furthermore, an average of 12% (2,776) households has access to clean and safe water. When the average for the district is compared with that of the nation (54%) there is every reason for more efforts into this basic social need. For instance, district interventions are required in reviving the dormant piped water schemes in Nangomba, Mangaka and other sites.

6.7 Strategies for reducing HIV/AIDS infection: In all project areas, information is available regarding the project of HIV/AIDS and related illnesses. District and Ward strategies are being coordinated with the help of the AIDS Control Commission. Among the elements of the plans are

- Continued soliciting and collaboration with various stakeholders including Government and independent agencies, media, meetings, and publications.
- Raising awareness and organizing youth meetings and trainings at local levels.
- Training the communities on how to serve the affected people and orphans.
- Multiplying and reinforcing service centres for counselling and testing.
- Distributing condoms and leaflets at the health centres, youth centres, private shops and various agencies.
- Supporting affected people, the sick, orphans and those who are needy.
- Supervising and enhancing the fight against HIV/AIDS by collaborating with TACAIDS as well as other agencies.
- Supporting communities during planning and controlling HIV/AIDS in the villages.
- Starting a programme for controlling HIV/AIDS infection from mother to child.

7. Disadvantaged and Vulnerable Groups

7.1 In all road sections are various groups who are either extremely poor, disadvantaged or are disabled. Types of groupings followed in the various studies conducted for the project included the

following child or female headed households that need support, the elderly, orphans and physically disabled persons; prolonged illness; and the extremely poor households. The Table below (Table 2) summarises the number of households identified in these categories.

Table 2: Vulnerable Affected Households by Road Section

Type of Vulnerability	Dodoma – Babati	Tunduru - Mangaka	Mangaka – Mtambaswala
Female headed household	25	29	71
Extremely poor	5	67	0
Disabled	5	0	19
Prolonged illness	0	0	21
Orphans	61	0	0
Elderly	0	0	38
Total	96	96	149

These groups of people shall be rendered with special assistance during resettlement and compensation assistance may include material and technical help during relocation, psycho-social support, re-establishing livelihoods, etc.

8. Policy and Legal Framework

8.1 Currently there is no specific policy as "Resettlement Policy" in Tanzania. However the resettlement in the country is guided by the national policies and laws related to land. There exist in Tanzania, various statutes that dealt with land matters. Responsibilities for enforcing them were spread over a number of sectoral institutions at all levels. In 1995, the government of Tanzania developed a national land Policy to streamline the system of land administration.

8.2 For those projects funded by Development Partners, the resettlements are also implemented in accordance with the requirements of the respective Development Partner. In the absence of a formal Resettlement Policy in the country, the following policy and legal instruments provide the legal framework for compensation and resettlement in Tanzania.

The National Land Policy (1995);

National Human Settlements Development Policy (2000)

The Land Act No.4 (1999);

The Village Land Act No.5 of (1999),

The Land Regulations (2001);

The Local Government (District Authorities) Act, 1984;

The Local Government (Urban Authorities) Act, 1984;

Land Acquisition Act (1967);

The Road Act 2007,

Town and Country Planning Ordinance Cap. 378.

Grave Act No. 9 of 1969

The Urban Planning Act, 2007,

ADB Guidelines on Involuntary Resettlement

8.3 The following specific policies and laws are important in understanding compensation and resettlement issues:

***National Land Policy (1995)*:** The land policy stipulates that all land is public land, vested in the president as a trustee. The National Land Policy (1995) recognizes both customary and statutory right of occupancy as being equal in law. Compensation be paid to any person whose right of occupancy or recognized long standing occupation or customary use of land is revoked or otherwise interfered with to their detriment by the State under the Land Act of 1999.

***National Human Settlements Development Policy (2000)*: T**he policy objective touches road among other infrastructure, to improve the level of the provision of infrastructure and social services for sustainable human settlements development and to make serviced land available for shelter and human settlements development in general to all sections of the communities.

***The Land Act of 1999*:** The Land Act (Section 156) requires that compensation be paid to any person for use of land, who is in lawful or actual occupation (including customary) of that land, for any damage caused to crops or buildings and for the land and materials taken. Assessment procedures are provided in the Land (Assessment of the Value of Land for Compensation) Regulations of 2001. The valuation of the affected properties be done under Section 34 of the Act.

***The Land Acquisition Act, No 47 of 1967*:** The Land Acquisition Act of 1967 stipulates the power and the procedures for acquiring land and the required degree of compensation. Section 3 & 4 of the act provide that, the President may acquire any land for any estate or term provided such land is required for public purposes such as exclusive government use, general public use, any government scheme, development of social services or commercial of any kind including declamation.

***The Road Act 2007*:** Part III, Section 16 of the Act addresses the issue of compensation for acquired land for road development. The Section emphasizes that, where it become necessary for the road authority to acquire land owned by any person for the purpose of this act, the owners of such land shall be entitled to compensation for any development on such land in accordance with the Land Acquisition Act (1967), Land and Village Land Acts (1999) and any other written law.

9. Eligibility

9.1 The eligible individual(s) are those who are directly affected socially and economically through the road project caused by:

(a) The compulsory taking of land and other assets resulting in the following:

(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.

(iv) Affected institutional structures utilized by communities

(v) Loss of perennial, annual crops and trees

(b) The forceful denial to access legally designated social economic services, with adverse impacts on livelihood of the displaced individuals

9.2 The PAPs were considered irrespective of their tenure status, with respect to land that they own, occupy or use provided they own, occupy or use the affected land prior to the cut-off-date. Cut-off date for eligibility to resettlement entitlements for all the three sections of the road are:

a. Dodoma – Babati = 27 August 2011
b. Tunduru – Mangaka = 8 April 2011
c. Mangaka – Nanyumbu – Mtambaswala = June 2009

9.3 Properties that are eligible for compensation are buildings, land, assets on the land, crops, trees etc. Affected public social services were enumerated for costing, replacement and construction at suitable sites. Local communities loosing land and or access to assets under customary rights are eligible for compensation. These criteria have been used to determine which PAPs are considered eligible for compensation and other resettlement assistance, in accordance with Tanzania Laws. For purposes of compensation, cut-off dates take into account only properties which existed before the enumeration of properties and assets along the project road was completed. Those encroaching after this date will not be compensated.

10. Entitlement

10.1 Entitlements to affected persons are summarised in the matrix below.

Entitlement Matrix

PAP Category	Entitlement
Individuals who have formal legal rights to land (including customary and traditional rights recognized under the laws of Tanzania	○ Compensation for loss in land and assets at full replacement cost. ○ In case of physical relocation, provide assistance during relocation (i.e. moving allowance) and residential housing and/or agricultural sites with productive and location advantages equivalent to the lost sites. ○ Support after displacement, until livelihoods and standards of living are restored to pre-displacement levels. ○ Development assistance in addition to compensation measures (i.e. land preparation, credit facilities, training, job opportunities.
Individuals who do not have formal legal rights to land, but have a claim to such land or assets (provided that such claims are recognized under Tanzanian laws or become recognized through a process identified in the resettlement plan)	○ Compensation for loss of assets at full replacement cost, but not for land because they are encroachers along the road reserve ○ In case of physical relocation, provide assistance during relocation (i.e. moving allowances) and residential housing and/or agricultural sites with productive and location advantages equivalent to the lost sites. ○ Support after displacement, until livelihoods and standards of living are restored to pre-displacement levels. ○ Development assistance in addition to compensation measures (i.e. land preparation, credit facilities, training, job opportunities.
Individuals who have no recognizable legal right or claim to the land they are occupying (i.e. squatter settlements, disputed ownership)	○ Resettlement assistance and the replacement values for structures/assets.

11. Valuation of and Compensation for Losses

11.1 The asset valuation and compensation comprises determining the values of affected assets/ properties for compensation once they have been defined and inspected. The Bank policy requires that the affected people be compensated and/or resttled before before project implementation. Unlike the Land Acquisition Act of 1967 which limited compensation for land acquired for public purpose to the unexhausted improvements only, Act No. 4 and 5 of 1999 (Land and Village Land Acts) advocates for full, fair and prompt compensation based on market value of the property. This position is given legal effect by the Land Act, 1999 and the village land Act, 1999 under the proviso to section 3 (1) (g) of the two acts the Land Act of 1999 and the Land Regulations of 2001 which provide the means for implementing the resettlement and compensation process. The valued assets include dwelling houses, crops, trees, hedges, fences, lands and other properties. This valuation has utilized the Replacement Cost Method. In this project, the following valuation has been adopted as the methodology to be applied:-

(i) Buildings: The replacement cost (cost for rebuilding a similar property) is assessed, and no depreciation factor is considered except for allowance of incomplete structures, workmanship and other factors affecting property market value are considered as adjustments. Market value of the real property (i.e. value of unexhausted improvement and land).

(ii) Accommodation allowance which will be equal to Market Rent of the affected building per month multiplied by 36 months i.e. Accommodation allowance equals Rent /p.m. x 36 months.

(iii) Loss of profit allowance is accessed by establishing Net profit per month evidenced by audited accounts multiplied by 36 months i.e , Loss of profit equals to Net Profit / p.m. x 36 months.

(iv) Disturbance allowance is calculated by value of Land by average percentage rate of interest offered by commercial banks on 12 months fixed deposit at the time of loss of interest in land i.e. Disturbance allowance equals Land value x i, where: i equals interest rate offered by commercial banks on 12 months fixed deposits. 5% interest rate was adopted.

(v) Transport allowance shall be actual cost of transporting 12 tons of luggage by rail or by road (whichever is cheaper) within 20 kilometers from the point of displacement i.e. Transport allowance equals 12 tons x Actual Cost / ton / km x 20 km.

(vi) Land: Values are assessed based on the average price of land at each specific area. Compensation for the loss of any interest in land includes the value of unexhausted improvement, disturbance allowance, transport allowance, accommodation allowance and loss of profits.

11.2 After assessment of the property's replacement cost, the land values, accommodation allowance, transport allowance, disturbance allowance and loss of profit are assessed. These values were added to the properties' replacement costs to arrive at a total compensation figure.

In all the three road sections, the majority of the PAPs opted for compensation in cash. Often the communities prefer to take charge of constructing their new houses unless specific intention to be built a house is expressed. Under such circumstances and those of vulnerable person, TANROADS through a contractor will construct such houses. In addition to payment for compensation, regular consultations and information sessions shall be maintained by TANROADS in order to help with getting over with trauma for those that may be impacted psychologically.

12. Grievance Redress Mechanism

12.1 Land Acquisition Act details procedures for dispute resolution with respect to compensation. The mechanisms are to be "affordable and accessible," and third parties independent of the implementers should be available at the appropriate point in the process. The grievance

procedure will be simple, administered in the first instance at the local level to facilitate access, flexibility and open to various proofs taking into account the need for speedy, just and fair resolution of their grievances. The institutional arrangements are provided above.

12.2 Usefulness of the grievance mechanism is dependent on how smooth the issues can be resolved. Therefore at the first tier it should be at the level of villager leaders through Village Executive Office. Claims and complaints shall be brought to the attention of the Village Executive Officer (VEO) who will forward all grievances concerning non-fulfilment of contracts, level of compensation or seizure of assets without compensation to the attention of the Ward Executive Officer (WEO). If no agreement made, the dispute cannot be resolved within a stated period of fourteen days, the disputes can be referred to appropriate level of land courts established by law. If local courts are unable to resolve the disputes application can be made to the High Court of Appeal of Tanzania, this is the highest appellate judge in the system and its decision will be final.

12.3 Potential grievances and disputes that may arise during the course of implementation of the resettlement and compensation programme are often related to the following issues:

1.Inventory mistakes made during census survey as well as inadequate valuation of properties;

2.Mistakes related to identification and disagreements on boundaries between affected individual(s) and specifying their land parcels and associated development;

3.Disagreements on plot /asset valuation (e.g inadequate compensation);

4.Seizure of assets without compensation;

5.Divorces, successor and the family issues resulting into ownership dispute or dispute share between in heirs or family;

6.Disputed ownership of given Assets (two or more affected individual(s) claim on the same);

7.Where affected individual(s) opt for a resettlement based option, disagreement on the resettlement package (unsuitable location of the resettlement site); and

8.Problems related to the time and manner of compensation payment.

13. Implementation Schedule

13.1 Implementation of RAPs shall consist of several resettlement activities. Efficient implementation of RAP activities require several measures to be taken prior to start-up of implementation. These include setting up of relevant committees at district level, hiring of NGO or consultant to assist and supervise, etc. In principle project civil works will not start until all PAPs determined to be entitled to compensation are fully compensated. Therefore land acquisition and assets may take place after compensation has been paid and other assistance required for relocation prior to displacement. The time frames of each of the road RAPs vary according to situations. The following are key RAP implementation activity milestones:

- Surveys; updating of the census and identifying absentees land owners
- PAPs identification and inventory of assets;
- Disclosure and validation of the list of persons deemed eligible for compensation
- Disclosure of the valuation of individual and community losses and compensations
- Valuation of affected properties and establishment of cut-off date for eligibility;
- Identification of land and clearing
- Negotiation for each individual record with the affected person or household

- Negotiation for community compensations
- Assistance to displaced persons notably to vulnerable groups
- Payment of cash compensation
- Bank account opening;
- Actual payment of compensation and delivery of other entitlements;
- Payment within 6 months of giving notices;
- Construction of new houses / structure allowances has been provided maximum six months
- Dispute /grievances resolution;
- Owners can remove all affected structures at fixed date (advised at the time of compensation payment) provided in writing; and
- Monitoring and evaluation.

13.2 Based on each of the RAPs, commencement and completions shall take 9 to 12 months starting from the time the RAPs shall be approved and cleared by Government Valuer for payment, to actual payments of compensation and PAPs resettlement, to evaluation. Specific details are elaborated in each of the RAPs.

14. Costs and Budget

14.1 The following table summarises the estimates costs for each category of expenditure. The total RAP costs therefore under the project are TShs. 13,266,005,585.28 which is approximately USD8,430,140 at the exchange rate of TShs.1573.64 to the USD. The full amount of compensation shall be met by the Government of Tanzania as part of its contribution to the project.

Table 3: Summary of Costs for RAP in TShs by Road Section

Compensation Item	Dodoma – Babati	Tunduru - Mangaka	Mangaka-Mtambaswala
Land	350,724,467.90	195,566,700.00	88,074,988.00[1]
Buildings/Structures	1,469,380,866.65	3,061,549,400.00	2,583,923,127.00
Crops	202,791,712.46	58,301,050.00	00
Disturbance Allowance	23,063,174.20	10,089,800.00	116,074,405.00
Accommodation Allowance	666,806,099.88	286,821,800.00	272,846,600.00
Transport Allowance	49,200,000.00	48,300,000.00	51,700,000.00
Loss of profit	2,271,955,632.80	353,520,000.00	00
Graves	2,775,000.00	00	00
Total Compensation Package	5,036,696,953.89	4,014,148,750.00	3,112,619,120.00
Monitoring	52,200,000	35,500,000	40,000,000.00
Assistance to vulnerable groups	9,100,000	8,500,000	10,000,000.00
Sub Total	5,097,996,953.89	4,058,148,750	3162,619,120.00
Contingencies @ 10%	509,799,695.40	405,814,875	31,626,191.00

[1] Amount covers land and crops

Grand Total	**5,607,796,649.28**	**4,463,963,625**	3,194,245,311.00

15. Monitoring and Evaluation

15.1 General Objectives of Monitoring and Evaluation: RAP implementation is one of the central components of this project its monitoring is critical to solve challenges or obstacles in the areas of mobilization, compensation, relocation etc. The monitoring and evaluation procedures will include external and internal evaluation of the compliance of the actual implementation with objectives and methods as agreed, and monitoring of specific situations.

15.2 Internal Monitoring: Project Implementation Unit and an NGO will be responsible for internal monitoring while the Consultants may provide technical assistance in implementing RAP. Monitoring will ensure the following:

- Verification of land acquisition, property valuation, and economic rehabilitation whether these have been carried out as planned;
- Information dissemination has been carried out;
- Status of land acquisition and payments on land compensation;
- Value of entitlements received is equal to the original structure or land acquired;
- Use of entitlements and its misuse;
- Compensation of affected structures and other assets;
- Relocation of PAPs if applicable;
- Payments for loss of incomes;
- Implementation of rehabilitation measures;
- Effective operation of grievances Committee;
- Funds for implementing land acquisition and economic rehabilitation activities are available in timely manner, are sufficient for the purpose and spent according to Plan;
- The Consultants shall submit reports on monthly basis documenting the RAP progress implementation;
- Project Unit shall be responsible for monitoring day to day resettlement activities;

  Performance data sheet shall be developed to monitor at the field level; and
- The Consultants shall be responsible for overall project level monitoring.

A set of verifiable indicators has been prepared to monitor and evaluate the implementation of resettlement and compensation plans. These include physical loss of buildings, land, plots, crops; financial loss of business; loss of social services; psychological loss; sociological loss; grievances; and consultations.

15.3 External Monitoring: An entity shall be hired as External Monitoring by TANROADS to carry out independent quarterly review of RAP implementation and project evaluation. External monitoring and evaluation can be done by independent researcher, consulting agency, university department or an NGO. External monitoring will focus on the following:

- ❖ Verifying whether the objectives of enhancing or at least restoring the income levels and standard of living of PAPs have been met;
- ❖ Suggest modification in land acquisition and economic rehabilitation where necessary to achieve objectives;
- ❖ Assess if all resettlements and land acquisitions have been completed;

- ❖ Verification of internal monitoring;
- ❖ Demographic baseline and bi-annual household survey to monitor progress from pre-project, pre-settlement benchmarks;
- ❖ Evaluation of delivery and impacts of entitlements to determine if they are as per approved RAP;
- ❖ Evaluation of consultation and grievances procedures especially at the level of public awareness of grievances procedures;
- ❖ Access by PAPs and households to information and rapid conflict resolution;
- ❖ Evaluation of actual operation of grievances committee in assisting PAPs as required and acting as observers; and
- ❖ Declaration of successful implementation of RAP.

15.4 ***Evaluation:*** The following are the objectives of the evaluation:

- o General assessment of the compliance of the implementation of the Resettlement Action Plan with general objectives and methods as set in the RAPs;
- o Assessment of the compliance of the implementation of the Resettlement Action Plans with laws, regulations and safeguard policies;
- o Assessment of the consultation procedures that took place at individual and community level, together with the Central Government and Local Government levels in Tanzania;
- o Assessment of fair, adequate and prompt compensation as they have been implemented;
- o Evaluation of the impact of the compensation on income and standard of living;
- o Identification of actions as part of the on-going monitoring to improve the positive impact of the programme and mitigate its possible negative impact if any.

15.5 ***Reporting Requirements:*** The following are the suggested reporting requirements:

- o The Consultants shall prepare monthly and quarterly reports on RAP progress implementation to TANROADS;
- o The Consultants responsible for supervision and implementing RAP will prepare monthly progress reports on resettlement progress activities;
- o TANROADS shall also monitor RAP implementation and submit quarterly reports to Ministry of Infrastructure and to AfDB

External monitoring agency submits bi-annual reports directly to TANROADS and determines whether or not RAP goals have been achieved and livelihoods have been restored and suggest suitable recommendations for improvement.

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