



**AFRICAN DEVELOPMENT  
BANK GROUP**

**PROJECT: NACALA ROAD CORRIDOR PROJECT PHASE V  
PROJECT (NSIPE-LIWONDE ROAD SECTION)**

**COUNTRY: MALAWI**

**ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT & RESETTLEMENT  
ACTION PLAN SUMMARY**

*Date: January 2019*

# ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

## SUMMARY

**Project Name** : **Nacala Road Corridor Project Phase V Project  
(Nsipe-Liwonde M1/M8 Road Section)**  
**Country** : **Malawi**  
**Project Number** : **P-Z1-DB0-084**

### 1. Introduction

Malawi Government, through the Roads Authority with funds from the African Development Bank, intends to rehabilitate the Nsipe – Liwonde (Mangochi Turn-off) Road with the view to upgrade it to a Regional Trunk Road (RTR) as part of the Nacala Road Corridor. The proposed road project starts from Nsipe(M1 Road) up to Chingeni on M1 road and Chingeni to Mangochi Turn Off on M3, a distance of 55 km long. The road will have a carriageway of 7 meters and 1 meter width sealed shoulders on either side and will have a 200 mm base of crushed stone and a 150 mm sub base. The road starts from Nsipe to Mangochi Turn Off (55 km long and traverses the districts of Ntcheu and Balaka while benefiting the wider populations including those of Machinga, Zomba and Blantyre, among others. The proposed road project falls within Traditional Authorities Makwangwala in Ntcheu District, Nsamala and Kalembo in Balaka District.

The proposed road project has two sections with one section starting from Nsipe to Chingeni (19 km) on the M1 road located in Ntcheu District and another section starting from Chingeni to Liwonde (Mangochi Turn Off) on M3 road located in Balaka District.

The road traverses the districts of Ntcheu and Balaka while benefiting the wider populations including those of Machinga, Zomba and Blantyre, among others. The upgraded road will assist to provide quicker access for the transportation of agricultural inputs and produce and access to health, school, markets and other social amenities. The existing road as it is, is in a poor condition and acts as a bottleneck to the movement of people and goods within and outside the road corridor area.

Malawi Government, through the Roads Authority with funds from the African Development Bank, intends to rehabilitate the Nsipe – Liwonde Road with the view to upgrade it to a Regional Trunk Road (RTR) as part of the Nacala Road Corridor. The proposed road is app.75 km long and will have a carriageway of 7 meters and 2 meter width sealed shoulders on either side of the road with a with a design speed of 80 km and 50 km per hour in extreme cases dictated by steep topography and in trading centres. The project will be divided into two sections with one section starting from Nsipe to Mangochi Turn Off (55 km long).

The road traverses the districts of Ntcheu, Balaka while benefiting the wider populations including those of Machinga, Zomba and Blantyre, among others. The upgraded road will assist to provide quicker access for the transportation of agricultural inputs and produce and access to health, school, markets and other social amenities. The existing road as it is, is in a poor condition and acts as a bottleneck to the movement of people and goods within and outside the road corridor area.

The Environmental and Social Impact Assessment study for the rehabilitation of the proposed road has been conducted as part of the Feasibility Study and Detailed Engineering Design of

the Nsipe – Liwonde – Mangochi Road. The Road Authority (RA) has revised the Environmental Impact Assessment (ESIA) and the Resettlement Action Plan (RAP).

The Environment Management Act (EMA) of 1996 requires that prescribed projects such as construction of roads undergo an EIA before they are implemented. The Guidelines for EIA in Malawi (1997) outline the activities for which EIA is mandatory. According to the prescribed list of activities for which EIA is mandatory, EIA is mandatory for the rehabilitation of the proposed road. Similarly, according to AfDB's policy & guideline, the project is classified under Category 1, and therefore requires preparation of an ESIA as well as preparation of standalone ESMP. This ESIA Summary has been prepared in accordance with AfDB's Environmental and Social Assessment Procedures (ESAP). In addition, over 200 persons will be involuntarily displaced by the project. Since the ESIA is based on a detailed engineering, a full Resettlement Action Plan (RAP) has been prepared and is included as Annex 1.

## **2. Project Description and Justification**

The proposed road project has two sections with one section starting from Nsipe, the road is connected with the Zalewa road which leads to Blantyre, the commercial city of Malawi at Chingeni Road Block. The road passes through densely populated areas with most of infrastructure constructed within and closer to the road reserve. Such infrastructure includes shops, hawkers, prayer houses and few dwelling units. These are mainly observed at Nsipe and Balaka Township, Chiyaendausiku and Mangochi Turn-off.

The rehabilitation works for this will as much as possible avoid huge property loss by considering the magnitudes of the right of way at selected densely populated areas like Balaka Township, Chiyendausiku and Mangochi Turn-off. Once the road is upgraded, it will have an economic design life of 20 years and will benefit the people of Mangochi, Zomba, Blantyre and other districts of the country.

The design proposed a 200mm base of crushed stone and a 150mm sub base which will largely come from milling and reprocessing existing tar to come up with upgraded sub base. Surfacing for the Liwonde-Nsipe road will be 9.7m wide and are proposed as double bituminous surface treatment. A right of way of 30m will be adopted on either side however 18m will be applied on heavily built sections such as trading centres. The design and upgrading of the road will cost approximately EU 56million and is expected to start in 2019.

The upgrading of the proposed road is aimed at providing a reliable and durable bituminous road and concrete deck bridges, which will enhance the usage of the road network. The existing road has outlived its life span and most of the sections are in bad shape and are in continuous deterioration due to increasing heavy traffic. The road has developed a number of potholes and cracks in many places making passage of vehicles extremely difficult. Current efforts to maintain the proposed road by carrying out routine maintenance in the form of patching, reconstruction of washed away sections and drainage improvement have proved in effective and costly.

The proposed road is very crucial in supporting socio-economic development in this region and neighbouring countries such as Mozambique and Zambia. The road is part of the Nacala Road Corridor and is designated as Route 20 on the SADC Regional Trunk Road Network (RTRN) which connects Mozambique at Mandimba/Chiponde Boarder. Upgrading the road will therefore cut on maintenance costs, enhance trade as well as improve road links between Malawi and its neighbours within the SADC Region.

### **3. Policy, Legal and Administrative Framework**

Malawi has, over the past years, developed a number of policies and legislation to guide environmentally sustainable development in various sectors of the economy and is also a signatory to a number of conventions on environment. The aim of adopting these conventions, policies and legislative framework is to promote and consolidate sustainable socio-economic development in the country through the mainstreaming of environmental considerations in project planning and implementation.

The key conventions include; Convention of Nature and Natural Resources; African Convention on Conservation of Nature and Natural Resources, Convention on Biological Diversity; international Plant Protection; Convention on Fishing and Conservation of Fishing resources of the High Seas; Convention on International Trade in Endangered Species(CITES); Convention on the conservation of Migratory Species of wild Animals (Bonn Convention);UN Convention to Combat Desertification; Kyoto protocol; and Vienna Convention & Montreal Protocol(Ozone Layer).

The key policies and legislation include the Constitution of the Republic of Malawi of 1995, the Roads Authority policy statements, the National Environmental Policy (NEP) of 2004, the Environment Management Act (EMA) of 1996, the National Forestry Policy of 1996, the National Forestry Act of 1997, the National Land Policy of 2002, the Land Act of 2016, the Customary Land Act of 2016, the Land Acquisition Act of 1971, the National Land Resources Management Policy and Strategy of 1998, The Land Acquisition Act of 1971, The Malawi Forestry Act of 1997 the Water Resources Management Policy and Strategy of 1994, the Water Resources Act of 1969, The National Local Government Act, 1998, the Gender Equality Act , 2013, the Monuments and Relics Act , 1990, the Physical Planning Act, the Malawi Disaster Management Policy, 2015, the Physical Planning Act , 2016, the Occupational Health and Welfare Act, 1997, the Public roads Act(Cap.69:02) the Bank's Environmental Policy, THE Bank's Involuntary Resettlement Policy and the Environmental and Social Assessment Procedures (ESAP).

The Constitution of the Republic of Malawi (1995) is the supreme law of the land. It contains, among other things, principles of national policy in Section 13. The section sets out a broad framework for sustainable environmental management at various levels in Malawi. Section 13 of the Constitution provides a framework for the integration of environmental consideration into any development programs. The implication of this provision is that Government, its cooperating partners and the private sector have a responsibility of ensuring that development programs and projects are undertaken in an environmentally responsible manner.

The Environment Management Act (1996) makes provision for the protection and management of the environment and the conservation and sustainable utilization of natural resources. Sections 24, 25 and 26 of the EMA provide the legal framework for managing the EIA process. The EIA is a legal requirement for any project prescribed under section 24 (1) of the EMA.

Institutional responsibilities for co-ordination, planning, administration, management and control of development and environmental issues are fragmented among a number of agencies, ministries and organizations. The major institutions involved include: the Environmental Affairs Department; the Ministry of Water Development and Irrigation; the Ministry of Transport and Public Works; the Roads Authority; the Ministry of Local Government and Rural Development; the District Councils; the Ministry of Agriculture and Food Security; the Department of Physical Planning; and the Department of Climate Change and Meteorology.

The licenses required for the proposed project include; (i) an Environmental Impact Assessment certificate; (ii) Waste and Hazardous Waste Licenses in accordance with section 38 and 39 of the EMA; (iii) a license to handle, store, transport or destroy waste arising from the road construction activities and the campsites; (iv) Air Pollution License in accordance with section 42 of the EMA; (v) Development permission from Planning Committees from Ntcheu and Balaka District Councils in accordance with section 13 (2) of the Land; (vi) a license from the Forestry Department under the Forestry Act for the developer to enter a protected area (a Forestry Reserve) where he will cut down trees to pave way for the road; and (vii) Water Right for water abstraction for use on the road construction activities to be obtained under the Water Resources Act.

Administratively the Environmental Affairs Department (EAD) is the authority charged with administering the EIA process and the works the other institutions in the process. The Environment Management Act (1996) sets out the powers, functions and duties of the Director of Environmental Affairs in administering the EIA process. The Act under section 10 provides for the establishment of the Technical Committee on the Environment (TCE) under section 16.

#### **4. Description of the Project Environment**

The proposed project road starts from Ntcheu through to Balaka District. The two districts through, which the road transverses have varying biophysical and socio-economic environmental settings. In Ntcheu the road passes through Traditional Authority (TA) Makwangwala, in Balaka it passes through TAs Kalembo and Nsamala.

##### **Bio-Physical Environment:**

Topography: The topography between Nsipe and Liwonde is a flat plain with occasional shallow valleys. The road in this stretch passes through part of Great Rift Valley hence a varied topography ranging from an elevation of about 350 to 500 m above sea level. The most dominant physical features are plateaus with isolated hills.

Climate: The areas in which the road passes experiences a tropical climate with three main seasons namely cold-dry, hot-dry and hot-wet seasons ranging from April to July, August to October and November to March, respectively. The average maximum temperatures for Nsipe area is about 29 degrees Celsius and the average low temperature is 12 degrees Celsius. Temperatures for Liwonde it ranges between 30 degrees Celsius maximum and 18 degrees Celsius minimum. The annual rainfall for Nsipe ranges from 600 mm to 1200 mm. The rainfall for the Liwonde- area ranges from 340 mm to 987 mm. The project area is prone to various disasters. Participatory vulnerability analysis with communities ranked the following disasters in order of importance and frequency: dry spells, floods, windstorms, and migratory pest outbreaks.

Soil and geology: The Nsipe-Liwonde Road section passes in areas of medium textured sandy soils, sandy loam to clay sandy soils with medium textures, heavy textured sandy medium and shallow stone soils thereby making it prone to erosion. Common soils for the Liwonde- section it includes sandy soils, often referred to as eutric soils which have coarse grains and are light in texture with good air circulation.

The geology of the Nsipe - Liwonde road section is varying. The plateaus have either ferruginous soils with lithosols or ferallitic soils with moderate structures and acidity. The escarpment on the other hand has either sandy soils with lithosols or stony ferruginous soils.

Hydrology and Drainage: The hydrology of the Nsipe-Liwonde Road section is dominated by Shire, Chimwalire, Naliswe, Kalambo, Liwawadzi and Nsipe Rivers. Groundwater along this stretch comprises low yielding weathered basement aquifer of the plateau area.

Vegetation: Generally, the vegetation of the areas around Nsipe-Liwonde Road section is primarily dry savanna woodland. Part of the area is semi-evergreen forest while the other part is made of wetlands. Miombo woodlands comprise forestlands in the hills and escarpments on the Balaka side. Wetland vegetation consisting of perennial wet fringes is found between Chiendausiku and Liwonde Turn-off with natural trees like Faidherbia albida(Nsangu), Adansonia digitata(Mlambe), Bauhinia thonningii(Chitimbe), Ziziphus sp(Masawu), Colophospermum sp (Tsanya) Dalbergia melanoxylon (Phingo), and Terminalia sericea (Naphini) which are visibly seen along the road.

Fauna: Mammals in the Nsipe-Chiyendausiku area include hyenas, Gwapes, Kalulus and reptiles such as snakes and lizards. There are a number of wild animals along the Liwonde-Mpale – Mangochi Section due to its proximity to Liwonde National Park, Shire River and Lake Malombe. The common ones include Elephants, crocodiles, Hippopotamus, antelopes, snakes, cane rats and bushbucks as these can easily swim across Shire River which borders the Park.

The Liwonde-Nsipe Road stretch has a number of perennial and seasonal rivers that flow into Shire River and Lake Malombe. Most of these tributaries have fish especially when you are getting closer to where the streams/rivers are joining Shire and Lake Malombe as fish migrate to the tributaries. Fish is found in abundance during rainy season. The common fish species include mudfish (Mlamba), Eugraucypris sardela (Usipa), oreochromis shirana (Chambo), Randochromis (Mcheni), Haplochromis (Kambuzi) and Bagrius mendionalis (Kampango).

## **Socio-Economic Environment**

Population: The Nsipe-Chingeni road section is in Ntcheu District, Chingeni-Mpale stretch via Liwonde is in Balaka district According to the 2017 population projections, the population of Ntcheu district is now estimated to be 533,560 whereas the Nsipe-Chingeni road stretch passes through STA Makwangwala, with an estimated population of 96,643.

The population for Balaka district is estimated at 422,925 people with a projected population density of 193 persons/km<sup>2</sup>. The road project passes through Traditional Authorities Kalembo and Nsamala whose populations are estimated to be 137, 032 and 193,031, respectively.

Ethnicity: The project area population is made up of several ethnic groups. These include Yao, Ngoni, Lhomwe, Mang'anja, Chewa, and Sena. The Yaos constitute about 40% and the other groups make up the remaining 60%. The Ngonis are found mostly along the boundary with Ntcheu, the Senas and Mang'anjas are concentrated in the Shire North area, and the Lhomwes and Yaos are found in the rest of the areas.

Languages: The most widely spoken language in the districts is Chichewa. It is spoken by 66% of the population. 40% of the population of speak Yao. A good percentage speak more than one language, particularly Chichewa and Yao.

Land Tenure System: The proposed road passes through customary land in Traditional Authorities Makwangwala in Ntcheu District, Nsamala and Kalembo in Balaka District and Chimwala and Mponda in Mangochi District. At Balaka town and Mangochi turn off town the land is owned by the councils, private institutions and individuals.

*Health:* Malaria is the most prevalent disease in the project districts. Other commonly occurring diseases in the district are waterborne diseases, eye infections, tuberculosis and acute respiratory infections. Most people from Nsipe area access medical care from Balaka District Hospital because it is closer as compared to Ntcheu District Hospital.

Balaka district has 23 health facilities, 6 belong to Christian Health Association of Malawi (CHAM), 3 are privately owned and the rest belong to Government. Healthy delivery system in the district has serious capacity problems both in terms of human resources and space. The district has a district hospital with a total bed capacity of 281. The HIV/AIDS prevalence rate in the district is at 16.2 %, which is above the national prevalence rate. Most people in TA Nsamala access medical facilities at Balaka district hospital and other health facilities within Balaka Township because of proximity.

After Chiendausiku, along the Balaka-Liwonde road section, most people access medical facilities in Liwonde Township because of relatively shorter distances. There are a number of health facilities along the Liwonde-Mpale road section, both public (4 health centres) and private (2 clinics). Along Mpale-Mangochi road section are 42 main health care facilities in Mangochi District and these include 25 government health facilities, 15 CHAM health facilities and 2 private clinics.

*Education:* Ntcheu District has a relatively high primary school enrolment rate among the three districts with variations at Traditional Authority levels with 240 private primary schools and 77 public schools. The proportion of the population aged 15 years and over that is literate is at 69%. Balaka has a literacy rate of about 64%. The district has 161 public primary schools and 4 registered private primary schools and also 15 Government and 11 registered secondary schools.

*Economic activities:* The project area of influence is characterized by farming and livestock keeping mainly cattle, poultry, goats, sheep and pigs. Along the Nsipe-Liwonde Road section, maize, tobacco and cotton are the main crops. Other crops grown include sweet potatoes, cassava, groundnuts, beans, pigeon peas, soya beans, fruits and vegetables.

The economy of Balaka, like most of the districts in Malawi is agro-based. Balaka district has a total area of 211,716 hectares of which 188 hectares are under customary land and are used by small holder farmers plus a few estates. Most of the commercial farming in the district is done by estate sub sector. The major food crops in the district include maize, groundnuts, sorghum, roots and tubers. Cotton is a major cash crop in the district.

Major crops that are grown in Mangochi district include maize, rice, sweet potatoes, cassava, groundnuts, beans, pigeon peas, soya beans, fruits and vegetables, tobacco and cotton. Of these crops, the main cash crops are tobacco and cotton and the rest are food crops.

The livestock sector plays a crucial role in the agricultural economy. The major livestock reared in the district include cattle, goats, rabbits, poultry, and pigs. Livestock is raised mainly as a source of income, food, and prestige. It is also used to pay dowry and meet needs during festivals.

*Religion:* In Ntcheu, over 60% of the people are Christians the majority being Catholics followed by Protestants/orthodox and a few Muslims. In Balaka over 55% are Christians. Muslims form the majority of the population in STA Amidu and TA Kalembo because these traditional authorities boarder with Mangochi district whose population is predominantly Muslim.

*Settlement Pattern and Migration:* The settlement pattern is generally linear and follows the proposed Road. A good proportion of the population has settled in areas very close to the road reserve. It is estimated 1,013 people and some of their property will be displaced as they are located within 30 meters of the road reserve on either side of the road.

*Communication and Transport Systems:* The project impact area has mobile phone reception in most parts. There are a number of post offices at along the road at Balaka, Liwonde and Ulongwe and Mangochi. There are also a number of banks operating along the area. These are at Balaka and Liwonde. The area has a number of minibus, buses and trucks operating along the proposed road. Bicycle taxis and motor cycles also operate in the town centers of Balaka, Liwonde and Ulongwe ferrying people from one place to another.

*Energy:* The major source of energy for the area is firewood and charcoal. The continual reliance on firewood has resulted in deforestation of especially natural trees hence the road stretch along populated areas has basically only exotic and fruit trees left. ESCOM provide hydro electrical energy but only a few people have access to it. Electricity is available throughout the road stretch.

### **Cultural Environment**

The main tribes along the road sections are Ngonis and Yaos. In the both tribes, the system of marriage is mostly matrilineal, meaning that a man goes to stay at the wife's homestead and therefore women have more say over land issues. Thus the road rehabilitation project will have a heavy involvement of women since they are the owners of the land. The dead are buried at graveyards and all the villages along the road have their burial sites along the road. At least 25 graveyards or their entrances are in some places within 30 m of the road reserve on the current road alignment.

## **5. Project Alternatives**

The existing Nsipe-Liwonde road, the no-project alternative or "base scenario", has failed to sustain the growing traffic flow rate, and axle load volume, long haul and local transport demands as well as social and ecological safety rules. The no-project alternative means that the project will not be undertaken and the road will be left in its current state and geometry. The vertical and horizontal alignments, which are sub-standard, will be left unimproved and the pavement, which is in urgent need of rehabilitation throughout its length, will be left unimproved too. Hence the capacity of the road in the project area will remain inappropriate for the increasing traffic load.

The road will continue to deteriorate and government expenditure on maintenance will continue to accumulate as government will be undertaking routine maintenance work on the road which shall include patching, reconstruction of washed away sections and drainage improvements. Therefore, the no-project option was not evaluated as a feasible option.

Thus, excluding the "base scenario" option, three alternative options have been identified and considered for the proposed Project. The "Project Development Alternatives" assumes that the road will be upgraded to a 7 m carriageway and 1 m sealed shoulder on either side of the carriageway. Under this alternative, three more options were considered. The options included:

- Option 1: Patch and Seal
- Option 2: Strengthening the Existing Pavement
- Option 3: Pavement Reconstruction/Replacement/Recycling

Option 3 was selected as the preferred option (this project) on technical, economic, social and environmental feasibility. The description of Option 3 is provided in Section 2 of this Summary. Pavement Reconstruction (Option 3) will require that an all-weather road be placed on an existing alignment with the road horizontal and vertical curves and road width be improved to RA's road standards to improve sight distances and reduces steep climbs. The road pavement will be upgraded to bituminous surfacing with modified horizontal alignment. The alignment will be modified in some places to reduce demolition of property, destruction of vegetation and to avoid large cut/fill lengths. The pavement option will be bituminous material.

Option 2: Strengthening the Existing Pavement: The option will involve placement of asphaltic concrete overlay or an overlay crushed stone base directly on top of the existing bituminous surface, which has been lightly broken to allow for internal pavement drainage. The problem with this option is that it will only strengthen the existing pavement by applying an overlay of crushed stone base on top of the existing bituminous surface without improving the road alignment in terms of horizontal and vertical structure despite of the road poor condition. This option is also a safety hazard and cannot be the best option.

Option 1: Patch and Seal: The option will require patching and sealing existing ruts and leaving the existing road with poor horizontal and vertical alignment as it is. The road will continue to create safety hazards and the maintenance costs will continue to increase. The option will not result into a better road hence not preferred.

## **6. Potential Impacts and Mitigation Measures**

### **Positive and Beneficial Impacts:**

*Regional Integration:* The upgrading of the proposed road is aimed at providing a reliable and durable bituminous road and concrete deck bridges, which will enhance the usage of the road network. The proposed road is very crucial in supporting socio-economic development in the project districts, the region and neighbouring countries such as Mozambique and Zambia. The road is part of the Nacala Road Corridor and is designated as Route 20 on the SADC Regional Trunk Road Network (RTRN) which connects Mozambique at Mandimba/Chiponde Border. Upgrading the road will therefore cut on maintenance costs, enhance trade as well as improve road links between Malawi and its neighbours within the SADC Region. Thus the project will contribute to promoting Regional Integration.

*Reduction in Travel Time and Costs:* The rehabilitation of the road will bring about improved linkage to markets, hospitals and other social amenities. As the vehicles operate through a bumpy and rough road, wear and tear increases thereby making maintenance costs very high. With a well upgraded road, costs associated with wear and tear will greatly be reduced. Road safety will be improved because the road will be wide enough to allow for other road users such as cyclists and pedestrians. The upgrading of the Road will result in reduced travel time as vehicles will be able to move faster, covering longer distance in shorter time periods.

Proposed enhancement measures include: (i) Ensure that the road is clearly marked for cyclists and pedestrians; (ii) Install road safety signs and speed limits especially when the road is passing through trading centers and close to schools; (iii) Set aside funds for Road Maintenance; and (iv) Enforce Road Safety Rules.

*Increased Employment opportunities:* One of the most direct positive impacts of the road project is creation of job opportunities for the road side communities. There will also be direct and indirect job opportunities for skilled labourers. Other opportunities will result from the general economic improvement of the area due to increased access and increased traffic flow which will create further indirect jobs. The contractor should enhance this impact by giving

favourable consideration in offering the job to the surrounding local communities when such skills are available in that community.

In addition to increased job chances at the construction site, income generating opportunities would arise from emerging demand for services such as restaurants, small shops and allied activities which tend to favour women who have demonstrated better preparedness than men to capitalize on them. This will also improve earnings and purchasing power of local people through opportunities to market commodities and produce to construction workforce. The developer (RA) should consider linking the already existing women business clubs to micro-financing institutions that would provide business support to such groups

*Stimulated businesses:* There will be an increased demand for food, clothing and other amenities due immigrant workers. The local communities should therefore be sensitized of the impending business opportunities so that they are able to strategize on capitalization of their businesses which are normally characterized by inadequate capital. Local communities should be advised on how to obtain loan from micro financing creditors. The road should also be repaired regularly.

*Improved delivery of goods and services:* The rehabilitation of road will lead to vehicles moving at the appropriated speed and reaching their destination at the punctual time. This will in turn facilitate the quick flow of goods and services especially between the towns of Ntcheu, Balaka and Liwonde. To enhance this impact, the contractor should ensure that the road alignment adhere to the recommended designs.

*Economic growth:* Economic growth will be enhanced as accessibility and motorization of traffic in this area will be improved and a better marketing of agricultural produce will be assured. Due to increased traffic along this road, more roadside vendors will be attracted and this will lead to improvements in the general economy of the communities along the road. Timely reparation of the road would also enhance this impact.

*Improved scenic beauty:* The rehabilitation of the road will improve the scenical beauty especially in points where the road passes towns and trading centres. Improved scenical beauty enhances good sanitation practices in people. This eventually improves their health status. The contractor should construct bus bay shelters in appropriate place to complement the scenical beauty brought about by the road.

*Access to places of tourist attraction:* The rehabilitation of this road will support the provision of comfortable journeys to tourists when visiting places of interest in Malawi, like Mangochi. The project will reduce travel time to the Mangochi both from Central and Northern region. By ensuring installation of appropriate road safety signs this impact will be enhanced.

*Improved Drainage and flood control:* The Road will be constructed with appropriate drainage systems to avoid water retention on the road surfaces and sides. The drainage will range from 1.5m to 3m wide dish drains to allow a large flow of water. The slope of the embankment of the drains is going to be in the ratio of 1:3 to make the slope gradual to minimize erosion. The wider the side drains invert the lower will be the flow velocities and likewise the potential for erosion. With the improvements in drainage efficiency following the construction of a paved road surface, particular attention will be paid to the prevention of erosion in side drains, below side drain turnouts and culverts outlets.

Where the side drains cannot discharge into gullies with culverts, these drains shall discharge water into vegetated areas through the use of mitre drains. The embankment of the drains shall be planted with vegetation to stabilize its soils and protect it against erosion.

## **Negative Impacts:**

Some of the significant adverse impacts and proposed mitigation measures are outlined below.

*Land Take, Resettlement and Compensation:* The road passes through a number of settlement, agricultural land, forest areas and places of cultural interest such as graveyards and government and organization institutions. Some of these areas are within the road reserve and will be affected by the project activities. The road project will require acquisition of land some of which is agricultural land, homestead land affecting several households, houses and small shops, most of which will need to be relocated. In the entire stretch, a total of 1,013 households shall be affected in various ways either by losing houses, other structures, fences, crops, trees, farms and other properties.

Mitigation measures for land take include: (i) The Resettlement Action Plan developed for the project should be implemented. (ii) No construction should commence until all land and property expropriation procedures have been completed, replacement land allocated, and cash compensation paid.

*Increased soil erosion:* Since the Road involves opening up of new roads for detours, access roads and widening of the current Road, soil erosion is to be expected. Construction and road rehabilitation activities will expose loose earth making it prone to various forms of erosion such as wind and surface run-off. The loose material may be eroded by wind and settle on surfaces of other objects such as vegetation or may be blown into water bodies.

During the rainy season, uncovered soil may be washed away through drainage into existing water bodies causing sedimentation of the rivers with detrimental impacts on water quality for aquatic life or ecology and domestic uses. This will also have a negative impact on the people using the river for bathing and washing. Furthermore, the tarred Road will increase mean annual runoff such that the possibilities of soil erosion are high especially since the region has a high mean annual rainfall.

Mitigation measures include: (i) Construction of channel for movement of run-off (ii) elrction of contour bands; (iii) loosen compacted soils upon commissioning and revegetation as appropriate; (iv) Restricting construction to dry season.

*Decline in water quality:* The main sources of water pollutants include campsites, storage areas and civil works. Effluent and runoff from campsites and storage areas can contain high levels of pollutants including human wastes, asphalt related compounds, persistent organic pollutants, fuels and oils, lime and cement particles, detergents, heavy metals and corrosives from old batteries and antiseptic materials, salts and other elements.

As mitigation, the contractor should i) provide for proper waste disposal facilities more especially at the camps and storage sites. Interceptors should be installed where the stored substances are of a liquid form. The contractor must ensure that storage sites are located over 100m away from water sources; ii) ensure regular construction and disposal of wastes from project area; iii) Disposal of all rubble in recommended sites; iv) maintain a vegetative buffer zone around mortar mixing points; v) Mixing mortar at least 100m away from water resources.

*Disturbed natural hydrology:* Road works is normally associated with the disruption of the natural hydrology especially where the road crosses water bodies. The Liwonde-Nsipe Road crosses three notable rivers. Potential adverse impacts to surface hydrology and the rivers

crossing the road in the construction phase of the project will be avoided through the enforcement of contract provision and oversight by RA.

Road drainage provisions and other rehabilitation activities are not expected to alter the current status of natural water bodies or irrigation structures in the vicinity of the road ways. In addition to adherence to good engineering and construction practices and the enforcement of contract provisions related to drainage during both the construction and operational stages of the project, sub-contractors will be obligated to coordinate with local land use planning authorities. Contract provisions will ensure that construction camps and other potential sources of secondary impacts are properly sited and provided with drainage and wastewater facilities.

As mitigation the Contractor should undertake selective excavations to avoid places near rivers and streams.

*Disturbed natural topography of the area:* Road works involve activities that usually shake-up the soils. Such activities include excavation; borrow pitting, ground resurfacing and rock blasting. This results in the changing of the topography especially on sites which these activities are undertaken.

As a mitigation the contractor will correct quarry from the already existing mine. Borrow pits should be filled and the open surfaces be rehabilitated and re-vegetated.

*Increase in generation of solid waste:* Almost all the waste generated, except gases are eventually disposed of on soil. This makes soil vulnerable to contamination especially if the waste is not biodegradable. One of the soil's greatest contaminants is the persistent organic pollutants (POPs). There are twelve most important POPs of which organochlorines are the most common in Malawi. POPs can stay in soils for over a century without any significant breakdown. The biggest sources of POPs during road construction include electrical installations, termite proofing and waste burning.

Abandonment of rubble and used-out equipment creates a potential of hazardous waste. These in most cases are accident spots for mostly children. The developer will ensure that all the used out equipment and rubble are deposited at the recommended sites by the Assemblies of Balaka and Ntcheu. The Assembly has committed to advise the developer about this site at that material time.

Mitigation measures include: i) selling out disused meta to welders; ii) Disposal of all scrap metals at designated sites by the District and Town Assemblies.

*Impact on air quality and climate change:* Almost all the waste generated, except gases are eventually disposed of on soil. This makes soil vulnerable to contamination especially if the waste is not biodegradable. One of the soil's greatest contaminants is the persistent organic pollutants (POPs). There are twelve most important POPs of which organochlorines are the most common in Malawi. POPs can stay in soils for over a century without any significant breakdown. The biggest sources of POPs during road construction include electrical installations, termite proofing and waste burning.

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Mitigation measure recommended are: i) Sprinkling dusty surfaces with water; ii) ensuring that activities are undertaken using well serviced machinery.

Loss of flora and fauna: Almost all the waste generated, except gases are eventually disposed of on soil. This makes soil vulnerable to contamination especially if the waste is not biodegradable. One of the soil's greatest contaminants is the persistent organic pollutants (POPs). There are twelve most important POPs of which organochlorines are the most common in Malawi. POPs can stay in soils for over a century without any significant breakdown. The biggest sources of POPs during road construction include electrical installations, termite proofing and waste burning.

Abandonment of rubble and used-out equipment creates a potential of hazardous waste. These in most cases are accident spots for mostly children. The developer will ensure that all the used out equipment and rubble are deposited at the recommended sites by the Assemblies of Balaka and Ntcheu. The Assembly has committed to advise the developer about this site at that material time.

Mitigation measure include; i) Restoration of the vegetation, rocks and soils of the disturbed habitat in order to create necessary conditions for the re-development of flora and fauna.

Disturbance in aquatic habitats: Aquatic habitats are likely to be affected by activities during project construction. Impacts during construction could be generated by sedimentation caused by work in the river bed (sand mining, collection of water for construction work), erosion at construction sites, water pollution caused by oils, fuels and chemical use. Replacing culverts may also minimally affect the natural drainage systems and disturb vegetation and riverine aquatic species. Increased sediment loads can directly affect fish downstream through damage to or accumulation in their gills leading to death or sub lethal effects. Increased sediment loads will also indirectly affect fish through modification of habitats (e.g. rocky-river bed to mud-covered), destroy spawning sites, and reduce primary production and therefore fish food. Spills of fuels and chemicals may directly affect aquatic fauna or humans and animals feeding on aquatic products.

Mitigations measures will ensure that: i) During construction, strict management and regulation of construction activities, including measures to minimize sedimentation, prevent and control fuel/chemical spills; ii) scheduling of sediment-generating construction activities to occur during the dry season, to mitigate construction related impacts.

Threat to pedestrian and livestock safety: The rehabilitation of the road will encourage more traffic and higher vehicular speeds which would effect on road safety for pedestrians, cyclists, livestock and their owners. Particular attention has been given in project design to put in place measures that would enhance road safety like: provision of sealed shoulders, bus bays in settlements, improved road signs and markings and rumble surfaces. The contractor will implement traffic management at construction sites to enhance traffic flow and safety and public road safety awareness activities along roadside communities. Proper traffic signs shall be placed at all necessary sites in the construction area to reduce traffic congestion and safety problem associated with haulage of materials and the construction works.

Land take and material sources: The widening of existing road where necessary or creation of detours may require land take and may affect people's property like valuable trees. This may also lead to loss of agriculture land, associated social stress; and change in lifestyles and livelihoods. Residents of this area will also be affected by construction activities including disturbance, increased pressure on resources and services. Land take would also occur where land will be acquired for contractor's camps, gravel pits and hard stone quarries. However, the

rehabilitation of the road is expected to cause minimal adverse impact. Minimum land take shall be done in areas of 18m right of way. Some old borrow pits and quarries will be used in order to minimize the impact. After completion of road works, the borrow pits / quarries and construction camps would be reinstated through drainage and sediment control, re-soiling and re-vegetation.

*Decline in human health:* The project is likely to exacerbate the situation on HIV/AIDS and Sexually Transmitted Diseases (STDs) due to workforce that will be away from home and has higher disposable income. There may also be possible impact of immigrant workers who would bring social disruption of communities where construction campsite and accommodation will be located which can lead in some cases to marriage break-ups during the construction period. This is exacerbated if construction workforce is brought from elsewhere. There could also be increased drug and alcohol abuse mainly during construction period.

It is also worth to note that the social impacts described have the potential to causing social, psychological and physiological stress among affected people, particularly those whose land will be taken. This in turn can lead to problems such as alcoholism and drug abuse and place stress on social, cultural and family structures. The client (RA) will implement HIV/AIDS awareness programme and institute a workplace HIV/AIDS and Social Welfare Policy. The contractor can sub-contract an experienced NGO (vetted by RA) to implement the activities.

*Impact on borrow sites:* Gravel will be extracted from existing borrow pits located along the proposed road. In all 9 borrow pits will be used for extraction of gravel for the road project and these will include Bula Borrow Pit A, Bula Extension Borrow Pit B, Chitseko Borrow Pit, Mzengera Extension Borrow Pit A, Mzengera Extension Borrow Pit B, Chawona Borrow Pit, Mapando Borrow Pit, Radio Maria Borrow Pit and Chiwawula Borrow Pit.

Approximately 300,000 m<sup>3</sup> gravel will be required for sub base material for the construction of the proposed road. Key activities at the borrow pits shall include bush clearing, creation of access roads, removal and stock piling of top soil and overburden, extraction of suitable gravel material, haulage, stock piling and transportation of gravel to the proposed road for construction.

Mitigation measures for the borrow sites include; (i) reinstatement of the sites (ii) the borrow areas shall be drained, (iii) the sides shall be trimmed to suitable slopes, (iv) backfilling with top soil and planting trees and shrubs to return the ground surface to its original landform. (v) Backfilled material shall be adequately compacted to prevent erosion of surface materials and to avoid settlement and creation of depressions in which water will collect. (vi) Old borrow pit areas will be replanted with some trees and shrubs to prevent erosion on the reinstated surfaces. (vii) The trees and shrubs will create a vegetation cover comprising indigenous grasses, shrubs and trees.

*Land Clearance and Vegetation Loss:* Rehabilitation/construction works for the proposed road will involve land clearing along the whole route the road will take. Land will be cleared in all places where diversions, access roads, sites for extraction of construction materials and campsites will be established. Land clearing will lead to loss of vegetation and habitat for different animal species. Furthermore, land clearing will involve removal of unsuitable materials, which shall include vegetation, rags, plastic, metal, debris and topsoil.

Mitigation measures include; (i) Debris from the proposed project area shall be dumped at appropriate places designated by the concerned councils; (ii) The Contractor shall observe the requirement of confining earthworks within the road reserve of 30 meters (15m either side of the road from the centre line) of works. The purpose is to minimise the potential impact of loss

of vegetation; (iii) The Contractor shall seek approval prior to felling trees and where trees are felled, these will be compensated by replanting at appropriate locations or compensation of the owners; (iv) Spoil soil should be timely collected and carted away to designated disposal sites. Spoil soil should not be disposed or accumulated at river banks, close to the streams, lakes reservoir, and at water ways and flood routes.

Impacts from Construction Camps: The project contractor will build camps which will be used to provide residence for workers as well as act as project administration offices, storage facilities for different building materials and equipment, workshop for servicing the vehicles and road construction machinery. The establishment of construction camps and residential houses for the construction work force and the Engineer's camp sometimes competes with the limited local resources. The existence of camps for the constructions workers close to settlement areas could influence negatively on local life style and sometimes may lead to cultural and social conflicts. To avoid such type of conflicts and problems the establishment of the construction camps should be in a planned way without negatively affecting the local resources and society.

Mitigation measures include; (i) Camp location and design should not be on environmental sensitivity of sites like forested areas, but consider the future use of the facilities upon commissioning of the project. These considerations can assist safe and economical use of resources and can benefit the local administration and/or the surrounding community up on handing over of the camp facilities to the client. (ii) The continued use of the buildings and the camp facility after commissioning of the road will avoid demolishing and disposal problems that could result both in economic losses and environmental damages to the surrounding area. (iii) Consultation with the local administration shall be done to assist in identification of the appropriate camp site that can serve dual purposes.

Impact on Water Resources: Water will be required for compaction during construction, washing of machinery, and equipment, for sanitation and personal hygiene activities, for reducing the impacts of dust and for domestic use by the contractor's work force. This demand for water will exert pressure on the existing water supply sources. The Contractor will be drawing water for the road construction from a number of sources which shall include Nsipe, Rivirivi and Shire River and Lake Malombe. On average about 1,300, 000 liters of water will be required per day.

The adverse impact on water quality of the rivers & lakes is related to increase of suspended sediment and risk of residual chemical contamination from bridge construction, earth work and other construction activities. Oil products used for the machinery and vehicles during construction works and waste generated in camps and garages could also be sources of pollution to the water resources in the project influence area.

Mitigation measures include; (i) The abstraction of water for construction purposes will be given serious considerations to the requirements for local potable water supplies and take into consideration the riparian rights of the people downstream. (ii) Construction of settling basins to remove silt, pollutants, and debris from road runoff water before it discharges in to stream drainage; (iii) Construction of bridge & other major earthwork works around water sources should provide for soil erosion protection measures and scheduled during dry seasons to minimize the entry of soil material into the rivers by flooding and runoff water; (iv) Alternative water supply sources shall be provided for construction camp sites to avoid interference with local water supplies.

Waste Management: The Project will generate solid waste from the debris during removal of old tar, clearing of access roads, construction materials as well as the material from domestic

activities by the construction gangs. The solid waste from the clearing of roads will include vegetation (grass, shrubs and trees) remains, quarry and gravel. From the domestic activities paper, bottles, old clothes and left over food can be typical constituents. The Contractor will prepare and implement a Waste Management Plan.

*Road Safety and Accident Prevention:* Road accidents are mainly associated with poor road conditions, lack of road signs, lack of awareness on road safety by users & pedestrian. The proposed Road improvements will lead to increased vehicular speed and consequently an increase in accident rates for both humans and animals. Users of upgraded road will be tempted to over speed because of the good condition of the road thereby increasing the risk of road accidents.

Mitigation measures include; (i) Minimizing accidents with implementation of proper traffic operation & regulation; (ii) Develop and implement a Road Safety Campaign for all road users; (iii) Design and install road safety signage and speed limit signs during construction and operation.

The Executing Agency, the Roads Authority (RA) shall ensure; (i) the project's ESMP is passed on to the Contractor and the Supervising Consultant during bidding; (ii) the Contracts and bidding documents contain all required mitigation measures to be implemented during the construction period and obligation for the contractor to implement ESMP at construction period, (iii) Construction permits and required licenses are obtained prior to granting any civil works contract, (iv) monitoring ESMP implementation is undertaken on a regular basis as required, (v) semi-annual reports on ESMP implementation should be well documented and submitted routinely to EAD (v) coordination with other parties and government agencies to effectively implement ESMP at all Project stages, (v) remedial actions are undertaken for unpredicted environmental impacts.

To ensure that contractors comply with the provisions of the ESMP, the following specifications should be incorporated in all construction bidding procedures: (i) a set of environmental prequalification conditions for potential bidders, (ii) a list of environmental items budgeted by the bidders in their proposal, (iii) environmental evaluation factors for bid reviewers, (iv) environmental clauses for contract conditions and specifications, and (v) the ESIA and ESMP reports should be made available to potential bidders.

## **7. Implementation Approached recommended**

The proponent of the project should liaise with the Environmental Affairs Department, Ntcheu and Balaka District Assemblies, Water Resources Board and traditional leaders in the project area in implementation the suggested measures for the main negative impacts. The proponent will have to liaise with appropriate authorities to obtain necessary licences for undertaking such activities like abstraction of water. The developer should ensure that environmental legislations are followed as well as the following measures;

- i) The Contractor should comply with legal obligations related to this project and should use the National Environmental Standards as a guide for emission limits. In absence of any emission limits in the national standards, the contractor should use other internationally acceptable standards for the limits.
- ii) All displaced parties and other groups who will lose property should be fairly and promptly compensated.
- iii) The Contractor should closely work with district and all relevant licensing authorities during the entire project implementation period

- iv) The contractor should follow procedure for land acquisition and use for various purposes of the project
- v) The Contractor should fully rehabilitate campsites, borrow pits and road sides after project completion
- vi) A comprehensive HIV/AIDS programme should be developed to facilitate sensitizations and training of workers and the general public
- vii) Land that has been used for temporary works of the project should be returned to the rightful owners immediately after completion of the works.
- viii) The contractor should prepare monthly progress reports on environmental and social management activities and submit to the RA and relevant Assemblies.
- ix) The contractor should follow all the formalities related to development control and approval systems for this nature of projects.
- x) Stakeholder site meetings should regularly be organised by the RA in liaison with the contractor to discuss the implementation of the ESMP.

## **8. Monitoring Programme**

Environmental management and monitoring plans are necessary to minimize or offset adverse impacts or enhance beneficial aspects, in order to achieve the objectives of the proposed road project and ESIA study. The purpose of an Environmental & Social Management Plan (ESMP) is to set out how the adverse environmental and social impacts identified in the environmental study will be controlled during project construction and operation/service phases. Therefore, these measures need to be integrated with the overall project implementation during the construction and operation phases.

Mitigation measures proposed for socio economic issues like compensation to damaged properties, and lost/degraded plots of land should be handled by a committee, composed of representatives of all stakeholders including RA, other local government administrative organs, NGOs, and the affected group as per the RAP.

The primary responsibility of environmental management during the project construction phase lies with the project construction contractor & supervision consultant. For this purpose, both the Contractor and the supervision consultant shall each recruit an Environmentalist and Sociologist/RAP Specialist. The Contractor's E&S specialist shall be responsible for development and update of a construction specific ESMP. The Consultant's E&S Specialist shall be responsible for undertaking an independent supervision of the implementation of the ESMP and be actively engaged in integrating environmental supervision work with the overall project construction supervision activity.

Monitoring is a long-term process, which should begin at the start of construction and should continue throughout the life of the project. Its purpose is to establish benchmarks so that the nature and magnitude of anticipated environmental and social impacts can be continually assessed. It involves the continuous or periodic review of construction and maintenance activities to determine the effectiveness of recommended mitigation measures. Consequently, trends in environmental degradation or improvement can be established, and previously unforeseen impacts can be identified or pre-empted.

An overall supervision and monitoring of the environmental conditions and performances of the project will be made by the environmental officers at the RA and the Environmental Affairs Department in compliance with the conditions in the ESIA Certificate. External monitoring can

be conducted with government financing institutions like the Ministry of Finance as well as the AfDB that will check the project performances against their funding policy & environmental guidelines.

The total cost of implementing the mitigation measures in the ESMP is MWK 50,600,000. The costs for borrow pit rehabilitation will be paid for in accordance with the rates provided in the Construction Bill Items. The costs of monitoring are estimated at MWK 35,000,000.

## **9. Public Consultations and Public Disclosure**

Consultations with the stakeholders and the project affected persons were conducted in all the traditional authorities along the road namely Makwangwala, Nsamala, Amidu, Kalembo, Chimwala and Mponda. The consultation process provided an opportunity for stakeholders, particularly village communities to express their views and opinions on the Project as well as to raise any issues of concern relating to the Project. The method adopted for stakeholder consultations was open discussions with the relevant institutions at local and district level, village headpersons, representatives from NGO's and community based organizations and residents from communities living along the project impact areas.

Responses from the consultations provided relevant background information and helped in the identification of major social and environmental concerns of the communities along the project impact area. The different stakeholders viewed the Project as part of development activities that was going to open up the project area to the rest of the districts of Malawi. Further the stakeholders requested the authorities to speed up construction of the Road and improvement of the drainage infrastructure to deal with anticipated heavy erosion along the Project corridor during the rainy season.

The PAPs raised the following issues: (i) needed a clarification on the exact dates, the Project activities were expected to commence; (ii) how compensation was to be paid or relocation done and to which locations; (iii) the adequacy of the compensation packages. The beneficiary communities were concerned about; (i) the level of dust and noise that was going to be generated during construction phase; (ii) the need for provision of road signs and speed control devices during construction and especially upon road completion; (iii) Safety concerns for pedestrians in the settlements along the Road corridor; (iv) disruption of school activities in different places by noise and other construction activities; (v) the need to manage overburden properly rather than dumping the overburden in peoples' gardens; (vi) the authorities to devise a structured and acceptable disposal methods for spoils and overburden; (vii) the need for proper location and rehabilitation of borrow pits and quarries and that these should be effectively rehabilitated after the Project is over; and (viii) conduct public awareness and education on the merits and demerits of the Project for the beneficiary communities to appreciate the Project.

The community members and traditional leaders unanimously accepted the proposed project as it was envisaged that it will generate a lot of positive impacts. Traditional leaders, however, urged their subjects not to start new construction projects in anticipation for compensation as this will increase the budget for compensation as such money could have been used for other developmental activities.

The ESMP has spelt out mechanisms to address issues raised during consultations conducted with the general public particularly the local communities. Further consultations were conducted with staff from the three District Councils namely Ntcheu and Balaka.

## 10. Complementary Initiatives

### Potential immigration leading to competition for resources:

Mitigation measure include i) Promotion of other IGAs as alternative sources of livelihoods ii) Promoting efficient use of various energy sources.

### Increased noise and vibration from use of heavy machinery and blasting:

Mitigation measures proposed are: i) Observe designated selected periods for conducting activities which produce a lot of noise; ii) Use noise barriers like earth mounds

### Disturbance of traffic flow:

Mitigation proposed is to: i) Segment the rehabilitation works at differentiated points to allow traffic to use the existing road while one parties undergoing rehabilitation; ii) Train workers in traffic control skills and place them in appropriate positions; iii) Construct detours and place appropriate signage

### Occupational health and safety risks works:

Mitigation measures proposed are: i) Ensure that PPE are provided and used by workers ii) Establish an occupational health and safety programme

### Cultural intrusion due to disturbance of graveyards and, initiation camps:

Mitigation measures include: i) Avoiding demolition of grave yards; ii) Avoiding clearing initiation camp areas; iii) Conducting sensitization of the surrounding communities on the social consequences of indulging in unacceptable sexual relationships

### Poor sanitation arising from overcrowding at the campsite

Mitigation measures proposed are: i) Provide waste disposal facilities such rubbish pits and toilets; ii) Provide portable water; iii) Conduct health and sanitation education to the campsite dwellers

Resettlement/Compensation (RAP): The details and estimates for Resettlement and Compensation are included in Annex 1 of this summary.

## 11. Conclusion

The rehabilitation of the Liwonde-Nsipe (M8/M1) Road is an important project that has great benefits including facilitation of trade, education, health, reduction in travel times, improvement of income for the local communities through trade and employment. However, the EIA study has illustrated that the rehabilitation of the road will be realized at an environmental and social cost. The study showed that the environment and social contexts will be interfered with in varying magnitudes such as through erosion; loss of trees; disturbance to ecosystems; pollution of water, air and soils; loss of property and land; proliferation of communicable diseases and many other negative impacts. The study has therefore proposed several mitigation measures to control reduce or reverse the perceived impacts. It has also proposed implementation and monitoring mechanisms of the environmental and social management plan. Finally, recommendations have been made to guide the contractor on broader issues of environmental and social significance.

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## Contacts

**Makasa, Davies Bwalya**, Principal Transport Engineer, African Development Bank, Email: [d.makasa@afdb.org](mailto:d.makasa@afdb.org)

**Muja Annah Rutebuka**, Principle Social Safeguards Specialist, African Development Bank, Email; [a.rutebuka@afdb.org](mailto:a.rutebuka@afdb.org)

## ANNEX 1

### RESETTLEMENT ACTION PLAN SUMMARY

**Project Name** : **Nacala Road Corridor Project Phase IV Project (Nsipe-Liwonde Road Section)**  
**Country** : **Malawi**  
**Project Number** : **P-Z1-DB0-084**

#### **1. Description of the project, project area and area of influence**

Malawi Government, through the Roads Authority with funds from the African Development Bank, intends to rehabilitate the Nsipe – Liwonde (Mangochi Turn-off) Road with the view to upgrade it to a Regional Trunk Road (RTR) as part of the Nacala Road Corridor. The proposed road project starts from Nsipe(M1 Road) up to Chingeni on M1 road and Chingeni to Mangochi Turn Off on M3, a distance of 55 km long. The road will have a carriageway of 7 meters and 1meter width sealed shoulders on either side and will have a 200 mm base of crushed stone and a 150 mm sub base. The road starts from Nsipe to Mangochi Turn Off (55 km long and traverses the districts of Ntcheu and Balaka while benefiting the wider populations including those of Machinga, Zomba and Blantyre, among others. The proposed road project falls within Traditional Authorities Makwangwala in Ntcheu District, Nsamala and Kalembo in Balaka District.

The proposed road project has two sections with one section starting from Nsipe to Chingeni (19 km) on the M1 road located in Ntcheu District and another section starting from Chingeni to Liwonde (Mangochi Turn Off) on M3 road located in Balaka District.

The envisaged road works shall be expected to result in disturbances to populations living along the road reserve demarcation, and those that may result from creation of temporary diversions and access roads to material sites and material sites themselves. The Laws and Regulations in Malawi require that such disturbances should be compensated for and affected persons be assisted in relocating their assets which include dwelling houses and sources of livelihood. Similarly, the African Development Bank's Involuntary Resettlement Policy requires that any persons that may have to lose their assets in the process of developing the road projects should be fully compensated and assisted with the relocation.

A Resettlement Action Plan (RAP) has been prepared to guide the process of resettlement and compensation. Hence this summary of the RAP shall cover potential impacts; organizational responsibility; community participation; integration with host communities; socio-economic studies; legal and administrative framework; grievance redress process; eligibility; valuation and compensation for losses; entitlement matrix; implementation schedule; resettlement and compensation costs; and monitoring and evaluation.

#### **2. Potential Impacts**

The envisaged impacts shall emanate from the road works activities in general. The project activities shall entail rehabilitation of an approximately 55 km with a 60m (RoW) Right of Way (30m on each side). Works under construction phase shall include mobilization of workforce; construction of camps; clearing of vegetation; excavation of borrow pits; removal and disposal of old bitumen and concrete; creation of impervious surfaces; transportation of equipment,

materials and workforce; construction of diversions; construction of drainage structures; construction of bridges and culverts; construction of pavement layers (gravel and crushed stone materials); asphalt surfacing; construction of ancillary works such as bus bays, kilometer posts, guardrails, road marking and landscaping; creation of detours and access roads to material sites. All these activities have the potential of causing disturbances to people and communities in the project area.

The Project will impact on a wide range of households, business operators, institutions and community members. These impacts, however, manifest at individual and group level. Some of the losses qualify for compensation and resettlement assistance include; Loss of residence, Loss of business, Loss of land, loss of communal resources, loss of places of worship, disruption of traffic and transport, loss of archaeological and cultural heritage and effect on utilities

The Nsipe- Liwonde Project has affected a total of 1,013 households. This comprises of property PAPs and tree PAPs in the two districts of Ntcheu and Balaka. A total of 65 households in Ntcheu which comprises of 49 tree PAPs and 14 property PAPs have been affected. In Balaka, there are a total of district there are a total of 988 Project Affected People of which 285 households are Property PAPs and 703 are tree PAPS. Women PAPs constitute about 32 percent of the PAPs on this road project. It is estimated that a total of MK 160,501,320 will be required to compensate the PAPs.

All the people and institutions whose land will be utilized for the extension of the road reserve, diversions and construction of drainage systems, borrow pits, campsites and loss of businesses and infrastructures will be compensated accordingly. In the entire stretch, a total of 1,013 households shall be affected in various ways either by losing houses, other structures, fences, crops, trees, farms and other properties.

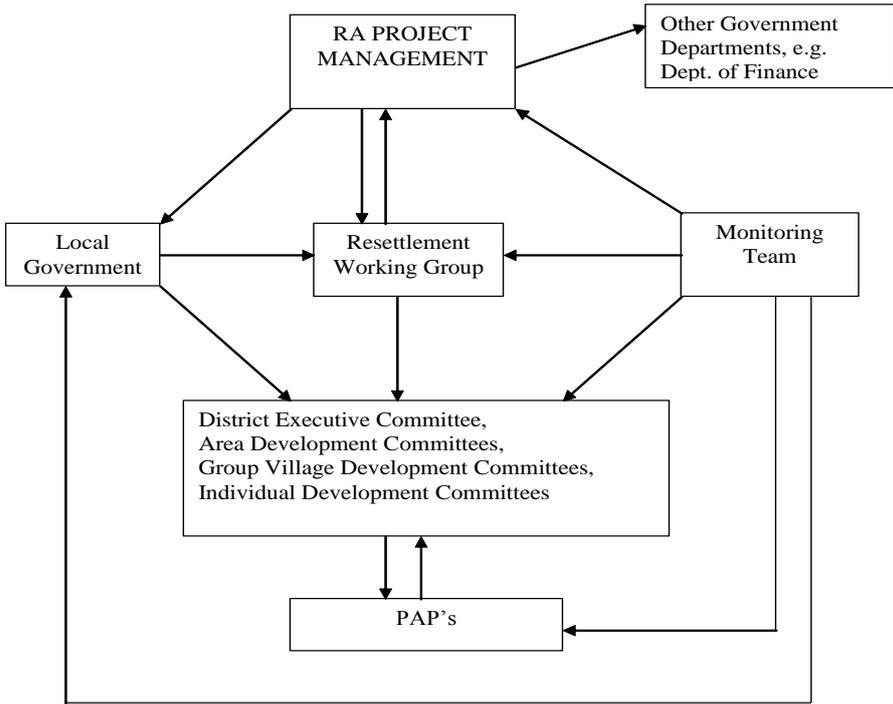
### **3. Organizational Responsibility**

Government being the primary proponent of the project will have the overall responsibility of coordinating the implementation of the RAP through the Roads Authority. The Roads Authority will set up a project management team and a team to monitor the resettlement process. The indicators to be monitored are provided in this Report. The actual execution will be done through collaboration with Ntcheu and Balaka District Councils (local government) and all the relevant ministries and departments such as the Ministry of Lands, the Ministry of Finance and the Office of the President and Cabinet. The interactions among the relevant institutions for purposes of managing resettlement and compensation are depicted in Figure 3.1.

The Roads Authority will have the overall responsibility for coordinating and monitoring implementation of the RAP. The three district councils namely Ntcheu and Balaka shall make every effort to ensure that no land is acquired against the will of any person(s), exercising rights over their land.

District Councils and Local Leaders/Chiefs are important institutions who will have to interface with the RAP implementing agency. They will play important role during RAP implementation. The Roads Authority will oversee the progress of land acquisition through the three district councils. The District Councils will initiate land acquisition, secure replacement of land and prepare and maintain records for the PAPs. The Village Development Councils will coordinate with the District Councils to implement the resettlement and rehabilitation activities, among other activities.

**Figure 3.1 Major Actors in the RAP process**



**4. Community participation**

A comprehensive public consultation program was undertaken to ensure that all of the information pertaining to the project and its likely impacts is disseminated, in order to implement it in a transparent manner. This was done at the National, District and local community level.

Particular focus was given to the issues related to involuntary resettlement. In line with the above, the Consultants held a number of meetings in the different traditional authorities along the proposed road project. The meetings were well attended by different interested parties in the potentially affected project area, paying special attention to PAPs. The meetings were held in December 2018 for purposes of updating the RAP which was initially developed in 2013. The meetings were held with officials of the district councils of both Ntcheu and Balaka and with men and women on different sections of the road and with vulnerable groups (elderly women in Balaka).

The consultation process provided an opportunity for stakeholders, and particularly village communities to express their views and opinions on the project and to raise issues of concern relating to the Project.

Meetings were with Ntcheu District Executive Committee and Balaka District Executive Committee. The discussions mainly covered: importance of the proposed road, impacts of the rehabilitation works for the project, loss of land and property close to the road project, handling of disputes, grievance handling in case of damage of property along the proposed road as follows;

- a) Expected benefits from the project which shall include short term employment during the construction period, which the people welcomed;
- b) Loss of land, which called for discussion on compensation amounts, participation of the community in valuation, the assessment of different crops, and compensation for dual seasonal planting;

- c) Involvement of women and youth in the project which will include employment opportunities, position of women and youth around landholding tenure and farming; and
- d) Health concerns, which will involve the spread of STIs, particularly HIV/AIDS, an increase in water-borne diseases particularly malaria.

## **5. Integration with host communities**

Given that the project shall be linear and that most affected persons losing pieces of land shall be expected to step back within their compounds, the issue of host communities shall therefore not be significant to warrant further assessment of host communities. The affected persons will continue living within their communities and will not be subjected to any risks of moving far off. However, the project shall include in its design the construction of schools, health facilities, water points and places of worship where they will have been affected by the road works.

## **6. Socio-economic studies**

The Road project passes through districts of Ntcheu and Balaka as it presents population characteristics for the two districts. The Nsipe-Chingeni road stretch is in Ntcheu District, Chingeni-Mpale stretch via Liwonde is in Balaka district. According to the 2008 census, the population of Ntcheu district is currently estimated to be 471,589; that of Balaka estimated at 355,534 making a total of 1,799,728.

While no new socio economic assessment was done for this project, updated socio economic survey was obtained from the Socio Economic Profiles for the two districts which were updated in 2018. For example, the national poverty rate was 50.7%, Balaka district's poverty rated 67.7%, meaning more than two-thirds of the population was poor. In terms of housing characteristics and personal assets, the district is below the national average on almost all housing characteristics and personal asset parameters except for access to housing with finished walls (73.9%), bicycles ownership (49.8%), radio ownership (48.7%), battery torch/lamp ownership (84.9%), and access to agricultural land (90.5%). The data shows there are opportunities for economic growth through agriculture if climate-sensitive crops, livestock, and agribusiness are promoted in Balaka district. Poverty levels for Balaka are above the national rate at 67.7% and the ultra-poor at 33.2%. This means that there is need for all stakeholders to support interventions for poverty alleviation. The socio economic profiles for Balaka and Ntcheu were reviewed and are presented as follows;

The district HIV prevalence in Ntcheu is estimated to be at 8.8% a decline from 12% in 2015/2016 (source MDHS 2015-16 and HMIS 2017). The district has 40 HTC sites providing HIV/AIDS counselling and testing services; an increase from 37 in 2011/12 years. It also has 76 trained HTC counsellors of which 28 are volunteers and 48 are health workers

In terms of education, Ntcheu District has a relatively high primary school enrolment rate among the three districts with variations at Traditional Authority levels with 240 private primary schools and 77 public schools. The proportion of the population aged 15 years and over that is literate is at 69%. Balaka has a literacy rate of about 64%. The district has 161 public primary schools and 4 registered private primary schools and also 15 Government and 11 registered secondary schools. The average teacher/pupil ratio is 1:129 which is far below the recommended national standard of 1:60. The enrolment for girls at district level is 50%, again lower than the national average.

Agriculture is the mainstay of economic activities although livestock and fishing also play an important role. The project area has two distinct terrains i.e. highland and lowland. The Nsipe-

Liwonde Road sector is located in the highland areas with relatively higher rainfall growing mainly tobacco while the lowlands grow mostly cotton. Maize is grown in both zones as a food crop. Other crops include rice, sweet potatoes, cassava, groundnuts, beans, pigeon peas, soya beans, fruits and vegetables. The areas also rear livestock including cattle, poultry, goats, sheep and pigs. Ntcheu district experiences two main cropping seasons; summer and winter cropping. Crops grown in summer are rain fed while winter crops are grown under irrigation. Balaka experiences a monocropping season which starts around November and ends in March. The cropping season is generally short and associated with frequent droughts and hot weather which is more pronounced along the Shire River.

Worshipping God is a common practice in the area with Christianity dominating in most parts of Ntcheu and Balaka, with Islam being the dominant religion in Mangochi and Balaka. It is important to note that both religions have significant presence in all the three districts and are practiced without restriction. In Ntcheu, over 60% of the people are Christians the majority being Catholics followed by Protestants/orthodox and a little bit of Moslems. In Balaka over 55% are Christians with the balance being Islam.

The business community in Ntcheu district indulges in hawking, vending, produce selling, fish farming, wholesale, retail, bars, bottle stores, mining though at a very small scale. Services comprise of; tailoring shops, salons, battery charge, restaurants, rest-houses, motels, garages, electronic repairs, laundry, telephone bureaus, taxi, kabaza and private schools and hospitals. Commercial and industrial activities of Balaka district are characterized by medium and small enterprises. There are very few large-scale enterprises involved in lime making, baking, and cotton ginning.

The project area has several households which are female headed. The laws in Malawi give equal opportunities for men and women in terms of access to economic assets and land tenure. However, the vulnerable PAPs shall be provided with additional assistance especially in need of construction of new houses and opening up new gardens. Gender mainstreaming will, hence, be addressed through provisions under the entitlement framework developed for this project. The following principles will be adhered to: (i) incorporating legislative requirements of gender equality in all aspects of the project; (ii) Raising awareness levels of all relevant stakeholders; (iii) Creating partnerships with NGOs and associations on implementation of aspects of the RAP; (iv) Actively including women in the consultation process, and ensuring their participation; and (v) Gender-sensitive project monitoring and evaluation, using gender indicators.

Communications and commercial facilities are readily available in the project impact area such as mobile phone reception; a number of post offices and banking facilities at Ntheu, Balaka, Liwonde and Ulongwe. The area has a number of minibus, buses and trucks operating along the proposed road which includes bicycle and motor cycle taxis which often are an accident risk therefore communities are more hopeful that the improved road will improve their mobility.

## **7. Legal and Administrative Framework**

The legal framework provides for acquisition of land for public purposes like road construction. The Land Acquisition Act is the guiding framework for how the resettlement will be done. However, the following statues and policies will be relevant during implementation of the project:

***The Constitution of the Republic of Malawi:*** The Constitution of the Republic of Malawi provides the principles on which land acquisition can occur in Malawi (no arbitrarily

deprivation of property” and “Expropriation of property” to be done with adequate notification and appropriate compensation.

***Land Act, 1969:*** The Land Act covers land tenure and land use quite comprehensively. Deals with issues of ownership, land transfer, use of land, and compensation. Sections 27 and 28 of the Act guarantees landholders for appropriate compensation in the event of disturbance of or loss or damage to assets and land interests.

***The Lands Acquisition Act (1971) (Cap 58:04) and the Public Roads Act (Cap 69:02):*** Set out in detail, the procedures for acquisition of customary land and freehold land. The act makes provision for preliminary investigation, preliminary survey of the area and the procedure to be followed where land should be acquired. Section 6 outlines the procedure for land acquisition:

***The National Land Policy, 2002:*** The National Land Policy recognizes Government's duty to protect the free enjoyment of legally acquired property rights in land and for that reason a landholder is entitled to fair and adequate compensation where the Government acquires the owner's property for public use.

***The Town and Country Planning Act, 1988:*** This is a principal act for regulating land use planning and physical developments in Malawi. The aim of regulating land uses and location of physical developments is to enhance orderly spatial physical growth of human settlements activities.

***The Monuments and Relics Act (1991):*** The Act stipulates the proper management and conservation of monuments that are of importance both nationally and locally. It also provides for proper preservation of monuments in the event that there is a change in the use or development of land.

***The Public Roads Act (1962):*** The Public Roads Act covers the management of road reserves and streets. Provides that an area not exceeding 60m wide should be reserved along the course of the proposed Road, and contains a detailed compensation scheme.

***The Forestry Act, 1997:*** It affirms the role of Department of Forestry on control, protection and management of forest reserves and protected forest areas. In addition, the act recognizes the need to promote participatory social forestry and empowerment of communities for conservation and management of trees within the country.

***The National Gender Policy, 2011:*** The Constitution of the Republic of Malawi recognizes and promotes gender equality as one of the ways of promoting the welfare and development of the people of Malawi. Further, gender equality is a basic human rights and development issue as affirmed in a number of international and regional human rights instruments to which Malawi is signatory.

***International Standards:*** Starting with adoption of the Universal Declaration of Human Rights (UDHR) in 1948. Instruments include those of the United Nations (UN) and the European Union/Commission; particular bodies such as the World Bank Group, including the International Finance Corporation (IFC), the Asian Development Bank (ADB), and the African Development Bank (AfDB).

***International Agreements and Conventions:*** Malawi Government is a party to a number of international conventions, treaties and other agreements in the ambit of environment. Of particular importance to social issues that relate to aspects of involuntary resettlement are the Millennium Development goals, Agenda 21,

## **8. Grievance redress process**

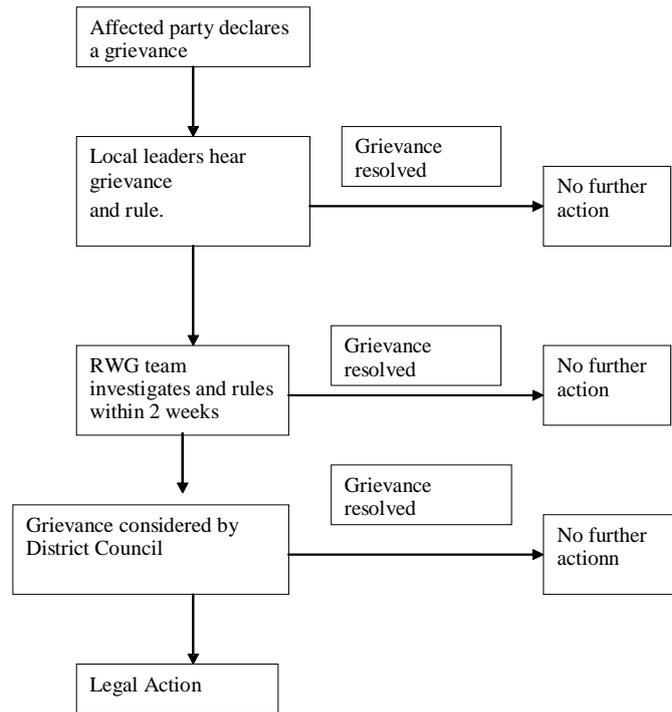
All attempts shall be made to settle grievances amicably. Those seeking redress and wishing to state grievances will do so by notifying their Local Leaders. The Local Leaders will inform and consult with the Resettlement Working Group (RWG) to determine validity of claims. If valid, the Local Leaders will notify the complainant and s/he will be assisted. If the complainant's claim is rejected, the matter shall be brought before the District Councils for settlement. All such decisions must be reached within a full growing season after the complaint is lodged if it refers to crops.

The grievance redress mechanism will be designed with the objective of solving disputes at the earliest possible time, which will be in the interest of all parties concerned and therefore, it implicitly discourages referring such matters to the Tribunal for resolution. Contracts for compensation and resettlement plans will be binding under statute, and will recognize that customary law is the law that governs land administration and tenure in the rural areas. This is the law that most Malawians living in these areas, are used to and understand.

All objections to land acquisition shall be made in writing, in the language that the PAPs understand and are familiar with, to the Local Leader. Channeling complaints through the Local Leader is aimed at addressing the problem of distance and cost the PAPs may have to face. The Local Leaders shall maintain records of grievances and complaints, including minutes of discussions, recommendations and resolutions made. The procedure for handling grievances will be as follows:

- a) The affected person should file her/his grievance in writing (in English or the local language that s/he is conversant with), to the Local Leader. The grievance note should be signed and dated by the aggrieved person. Where the PAP is unable to write, he should obtain assistance to write the note and emboss the letter with his thumb print.
- b) The Local Leader should respond within 14 days during which any meetings and discussions to be held with the aggrieved person should be conducted. If the local leader cannot solve the problem, it will be referred to the RGW.
- c) If the aggrieved person does not receive a response or is not satisfied with the outcome within the agreed time s/he may lodge the grievance to the District Council.
- d) The Council will then attempt to resolve the problem (through dialogue and negotiation) within 14 days of the complaint being lodged. If no agreement is reached at this stage, then the complaint is taken to the Courts of Law (represented by Compensation Board which comprises Resident Magistrate and two assessors).

**Figure 8.1 Grievance Redress pathways**



## **9. Eligibility**

The RAP has focused on the identifiable PAPs who will be affected by asset loss and resettlement and are eligible for compensation and other assistance required. Those who will be affected by asset loss and resettlement and are eligible for compensation and other assistance require definition and identification, with criteria set for determining their eligibility. This has included the criteria set for determining their eligibility. The identification of persons eligible for compensation and resettlement will be based on the following criteria:

- a) Persons losing land with or without legal title;
- b) Persons losing temporary or permanent access or rights to services;
- c) Persons losing business or residential property;
- d) Persons with homes, farmland, structures or other assets within the proposed project area;
- e) Persons whose source of livelihood and income sources will be affected by the project;
- f) Members of the household who cannot reside together because of cultural rules, but depend on one another for their livelihood that's being lost;
- g) Impact on members of the household who may not eat together but provide housekeeping or reproductive services, critical to the family's maintenance; and
- h) Persons that incur losses whether partial or total and whether they have their own land or rent land, including those that rent or occupy buildings individually or as a group for business or as households.

## 10. Valuation and Compensation for Losses

A cut of date for which this RAP is effective was 24<sup>th</sup> October 2018. All affected persons, village heads and other Traditional Authorities were informed of this date. This therefore means that any new inhabitants coming to the Project affected area after this date will not be considered for compensation. Valuation methodology was explained to all affected communities and will be based on the Public Roads Act.

Validation of the affected assets and properties will be conducted based on the provisions in the Malawian legislation for consistence and accountability. The properties to be verified shall include:

- a) Physical assets;
- b) Crops and fruit trees; and
- c) Forests (exotic and indigenous).
  - a) Fruit trees;
  - b) Exotic trees;
  - c) Indigenous trees;
  - d) Houses;
  - e) Land; and
  - f) Business.

## 11. Entitlement Matrix

The laws and policies of Malawi consider all titled landowners, customary landowners, encroachers (who have settled before the cut-off date), persons affected by loss of access to sources of income and persons affected by loss of access to natural resources (water, wood, grazing areas etc.), as PAPs. Therefore, PAPs will be entitled to compensation based on the status of their occupation of the affected areas.

Land for land is considered to be appropriate for people whose livelihoods are land based. However, the project impact area does not have any idle land for the traditional leaders to distribute to their subjects. Cash compensation will therefore be considered.

The entitlement matrix prepared for the Project is given in the Table below:

*Entitlement matrix*

<b>Land and Assets</b>	<b>Types of Impact</b>	<b>Person(s) Affected</b>	<b>Compensation/Entitlement/Benefits/Remarks</b>
Farm land	Cash compensation for affected land equivalent to market value/ Less than 20% of land	Farmer/ title holder	Cash compensation for affected land equivalent to replacement value, taking into account market values for the land as well as the transaction and administrative costs. To reduce impact on affected people, clearing to target mainly the required road corridor

Land and Assets	Types of Impact	Person(s) Affected	Compensation/Entitlement/Benefits/Remarks
	<p>holding affected</p> <p>Land remains economically viable.</p>		
		Tenant/ lease holder	<p>Cash compensation for the harvest or product from the affected land or asset, equivalent to average market value or market value of the crop for the remaining period of tenancy/ lease agreement, whichever is greater.</p> <p>For fruit trees it is the value of production lost until replacement seedlings mature.</p>
	<p>Greater than 20% of land holding lost</p> <p>Land does not become economically viable.</p>	Farmer/ Title holder	<p>Land for land replacement where feasible, or compensation in cash for the entire landholding according to choice, equal to replacement cost. . However, in the case of this affected persons preferred cash compensation based on replacement value, taking into account market values for the land, as well as the transaction and administrative costs.</p> <p>Relocation assistance (costs of shifting + assistance in re-establishing economic trees + disturbance allowance)</p>
		Tenant/Lease holder	<p>Cash compensation equivalent to market value for the mature and harvested crop, or market value of the crop for the remaining period of tenancy/ lease agreement, whichever is greater. For fruit trees it is the value of production lost until replacement seedlings mature.</p> <p>Relocation assistance (costs of shifting + allowance).</p>
Commercial Land	<p>Land used for business partially affected</p> <p>Limited loss</p>	Title holder/ business owner	<p>Cash compensation for affected land, considering market values.</p> <p>Opportunity cost compensation until the income is restored in the new place (it could be equivalent to 5% of net annual income based on tax records for previous year, or tax records from comparable business, or estimates where such records do not exist).</p>
		Business owner is lease holder	<p>Opportunity cost compensation equivalent to 10% of net annual income based on tax records for previous year (or tax records from comparable business, or estimates where such records do not exist).</p>

<b>Land and Assets</b>	<b>Types of Impact</b>	<b>Person(s) Affected</b>	<b>Compensation/Entitlement/Benefits/Remarks</b>
	Assets used for business severely affected  If partially affected, the remaining assets become insufficient for business purposes	Title holder/business owner	Compensation in cash according to affected people's choice, taking into account market values for materials.  Relocation assistance (costs of shifting + allowance)  Opportunity cost compensation equivalent to 2 months net income based on tax records for previous year (or tax records from comparable business, or estimates)
		Business person is lease holder	Opportunity cost compensation equivalent to 2 months net income based on tax records for previous year (or tax records from comparable business, or estimates), or the relocation allowance, whichever is higher.  Relocation assistance (costs of shifting + allowance)
Residential Land	Land used for residence partially affected, limited loss  Remaining land viable for present use.	Title holder	Cash compensation for affected land equal to replacement value, taking into account market values for the land as well as the transaction and administrative costs.
	Land and assets used for residence severely affected  Remaining area insufficient for continued use	Title holder	Land for land replacement or compensation in cash according to affected people's choice based on replacement value, taking into account market values for the land as well as the transaction and administrative costs.  Transfer of the land to the people shall be free of taxes, registration, and other costs.  Relocation assistance (costs of shifting + allowance)
		Rental/lease holder	Refund of any lease/ rental fees paid for time/ use after date of removal  Relocation assistance (costs of shifting + inconvenience allowance)
Buildings and structures	Structures are partially affected	Owner	Cash compensation for affected building and other fixed assets based on its replacement value without including depreciation, and taking into account market values for the structures and

Land and Assets	Types of Impact	Person(s) Affected	Compensation/Entitlement/Benefits/Remarks
	Remaining structures viable for continued use		materials as well as the transaction and administrative costs.  Cash assistance to cover costs of restoration of the remaining structure
		Rental/lease holder	Disturbance compensation equivalent to two months rental costs
	Entire structures are affected or partially affected  Remaining structures not suitable for continued use	Owner	Cash compensation for entire structure and other fixed assets without depreciation, and taking into account market values for the structures and materials.  Right to salvage materials without deduction from compensation  Rehabilitation assistance if required (assistance with job placement, skills training)
Squatters and encroachers		Rental/lease holder	Cash for affected assets (verifiable improvements to the property by the tenant), taking into account market values for materials.  Right to salvage assets.  Assistance in relocating to a place where they can live and work legally.  Assistance with restoring livelihoods.
		Squatter/informal dweller	Cash for affected structure without depreciation, taking into account market values for materials.  Right to salvage materials without deduction from compensation  Alternatively, assistance to find accommodation in rental housing or in a squatter settlement scheme, if available  Assistance with restoring livelihoods
Standing crops	Crops affected by land acquisition or temporary acquisition or easement	Affected people (whether owner, tenant, or squatter)	Cash compensation equivalent to average of last 3 years market value for the mature and harvested crop.
Trees	Exotic Trees lost	Title holder	Cash compensation based on type, age and productive value of affected trees plus 10% premium. For fruit trees it is the value of production lost until replacement seedlings mature.

<b>Land and Assets</b>	<b>Types of Impact</b>	<b>Person(s) Affected</b>	<b>Compensation/Entitlement/Benefits/Remarks</b>
	Natural tree loss	Within Road Reserve Boundary	No compensation to be paid for natural trees growing on land within the RBB
Loss of grazing land, fishing rights or sand harvesting rights, communal property	Loss of livelihoods	Affected people depending on the affected resources	Livelihood Restoration Plan including compensation for loss of livelihoods; road should be designed in such a way to ensure that it facilitates access to resources e.g. crossings for human and livestock, construction of new communal properties if affected.

## **12. Procedures for Acquisition and Notification**

The survey captures the profile of each affected individual. For a household, the affected individual is the owner of the land on which the household is built whilst for business the owner of the business or business premises. The record will include the land to be acquired, names of owners or occupiers of the land, names of the traditional and community leaders or representatives to assist in the process of land acquisition and resettlement and the estimated magnitude of impacts relative to the need for resettlement or compensation and valuation of assets for the compensation.

The Ministry of Lands, District Councils will maintain financial records and the Ministry Finance, Economic Planning and Development will release funding for the payment compensation to each person or household.

The Ministry of Public Works and National Housing shall publish its intention to acquire land in a newspaper with wide circulation News. The areas of land to be acquired will be stated in the advert. Personalized notices should also be served to each person who owns and occupies land in the affected areas as long as the addresses of the persons are known to the Ministry.

Valuation of the affected properties was conducted based on the provisions in the Malawian legislation for consistence and accountability. All the factors explained in the Public Roads Act were considered in the valuation process. The properties that has been valued include: Physical assets; Crops; Forests (exotic and indigenous); Fruit trees; Exotic trees; Indigenous trees; Houses; Land; and Business Asset.

The compensation package was derived from summation of the costs of affected land, buildings, trees and crops to which was added a 15% mark-up to cater for involuntary acquisition or disturbance allowance. The disturbance allowance rate is based on the Reserve Bank Policy Lending rate and it changes from time to time.

## **13. Implementation Schedule**

The implementation schedule is expected to last a period of about one year. In order to facilitate the resettlement process given the proposed construction timing, the following key activities will be initiated immediately upon commencement of the Project:

- a) Appointing staff within RA and the affected district councils to commence with preparatory activities Appointing staff within RA and the affected district councils to

commence with preparatory activities, including ongoing consultation with affected communities;

- b) Contracting suitable NGOs to assist with the capacity building and skills enhancement programs;
- c) Conducting sensitisation meetings with PAPs;
- d) Updating the socio-economic baseline;
- e) Asset valuation and validation;
- f) Identification of relocation sites;
- g) Land acquisition;
- h) Establishing a Compensation Determination Committee to finalize compensation principles, norms and rates;
- i) Signing compensation agreements with PAPs;
- j) Payment of compensation;
- k) Update database;
- l) Provision of assistance to PAPs on grievances; and
- m) Termination of assistance to PAPs.

#### **14. Resettlement and Compensation Costs**

The Nsipe- Liwonde Project has affected a total of 1,013 households. This comprises of property PAPs and tree PAPs in the two districts of Ntcheu and Balaka. A total of 65 households in Ntcheu which comprises of 49 tree PAPs and 14 property PAPs have been affected. In Balaka, there are a total of 988 Project Affected People of which 285 households are Property PAPs and 703 are tree PAPS. Women PAPs constitute about 32 percent of the PAPs on this road project. It is estimated that a total of MK 160,501,320 will be required to compensate the PAPs

This amount is a preliminary estimate and may change during the verification exercise of the PAPs. The full details of affected persons and their properties is available at the Roads Authority office in Lilongwe.

From inventories undertaken as part of the RAP study, it has been determined that 55 km long piece of land with the Right of Way (ROW) of 30 m either side of the centre line will be affected. The road project will require acquisition of land some of which will be agricultural land, trees, crops, homestead land affecting several houses and small shops, most of which will need to be relocated. In all 1,013 households will be affected by the proposed road project.

#### **15. Monitoring and Evaluation**

Monitoring and evaluation will form an integral part of project implementation, providing the necessary information about the involuntary resettlement aspects of the project, measuring the extent to which the goals of the RAP have been achieved and the effectiveness of mitigation measures.

Indicators and targets will be established for the project as a whole, in consultation with representatives of the affected communities and other key stakeholders. Indicators are usually grouped into the categories as spelt out in the RAP including: input indicators, output indicators, outcome indicators, impact indicator and performance indicators. This RAP also details out the performance monitoring, impact monitoring and qualitative monitoring.

Monitoring and evaluation will form an integral part of project implementation, providing the necessary information about the involuntary resettlement aspects of the project, measuring the extent to which the goals of the resettlement plan have been achieved and the effectiveness of mitigation measures. Problems and successes will be identified as early as possible so that timely adjustment of implementation arrangements will be made. The process needs to be undertaken for a reasonable period after all resettlement and related development activities have been completed. The RAP specifies the methods to be employed, frequency of measurement, reporting procedures, and the organizational arrangements to be made to undertake the activities including the involvement of those affected in the process.

The monitoring program will involve the following:

- a) Establishment of required institutional structures;
- b) Operation of compensation, grievance and other necessary procedures;
- c) Disbursement of compensation payments;
- d) Development of livelihood restoration programs; and
- e) Preparation and submission of monitoring and evaluation report.

Indicators and targets will be established for the project as a whole, in consultation with representatives of the affected communities and other key stakeholders. These will be grouped into the following categories:

- a) **Input indicators** – will measure the resources (financial, physical and human) allocated for the attainment of the resettlement objectives, such as livelihood restoration goals.
- b) **Output indicators** – will measure the services/goods and activities produced by the inputs. Examples will include compensation disbursements for acquired assets.
- c) **Outcome indicators** – will measure the extent to which the outputs will be accessible and used, as well as how they will be used. They will also measure levels of satisfaction with services and activities produced by the inputs.
- d) **Impact indicators** – will measure the key dimensions of impacts to establish whether the goals of the Resettlement Plan will be achieved such as livelihood restoration.
- e) **Process indicators** – will measure and assess implementation processes such as functioning of liaison/participation structures, etc.

Indicators will also be disaggregated to ensure that social variables are properly accounted for.

Reporting on the activities around involuntary resettlement forms an integral part of monitoring and evaluation to ensure early detection of conditions that necessitate particular mitigation measures, and provide information on the progress and results of mitigation.

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