PROJECT: Nacala Road Corridor Project Phase IV Project (Nsipe-Liwonde-Mangochi Road Section)

COUNTRY: MALAWI

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT & RESETTLEMENT ACTION PLAN SUMMARY

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1. Introduction

Malawi Government, through the Roads Authority with funds from the African Development Bank, intends to rehabilitate the Nsipe – Liwonde – Mangochi Road with the view to upgrade it to a Regional Trunk Road (RTR) as part of the Nacala Road Corridor. The proposed road will be 125 km long and will have a carriageway of 7 meters and 1 meter width sealed shoulders on either side of the road. The project will be divided into two sections with one section starting from Nsipe to Mangochi Turn Off (55 km long) and the other section from Mangochi Turn Off to Mangochi Boma at the four ways (70 km long).

The road traverses the districts of Nctheu, Balaka and Mangochi 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) awarded MSCAT Consulting Engineers the Contract to prepare an Environmental and Social Impact Assessment (ESIA) report and the Resettlement Action Plan (RAP) for the proposed project.

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 Impact 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 to Mangochi Turn Off in Liwonde (55 km) and another section from Mangochi Turn Off to Mangochi Boma at the Four Ways (70 km). The rehabilitation works will take place from January 2014 – June 2016 with 12 months of defects liability period. The road will have a design speed of 50 - 100 km per hour with a road reserve of 30 m on either side of the road. 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.

Both the carriageway and shoulders will be paved and will have a cross fall of 2.5%. Side drains will vary according to hydraulic, topographical and maintenance considerations but they will generally be 2 m wide and will be paved or lined in stone masonry where steep longitudinal gradients combine with erodible sub grade materials. Check dams will be constructed in steep slope side drains sections to reduce velocity of runoff.

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. The aim of adopting these 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 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, Balaka and Mangochi 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.

4 Description of the Project Environment

The proposed project road starts from Ntcheu through to Balaka to Mangochi District. The three 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 and in Mangochi the passes through TA Chimwala and TA Mponda.

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.

The topography of the Liwonde-Mangochi Road stretch lies in a rift valley plain that lies between 33 to 600 m above the sea level. The plain is generally flat with very few highlands and hills. The topography is divided into two distinct categories which are rift valley floor and rift valley escarpment. The rift valley escarpment comprises hilly forested areas which are located on the west and north east of the road and include Namizimu and Mangochi 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 to Mangochi range 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-Mangochi Road stretch ranges from 340 mm to 987 mm.
**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-Mangochi Road section include 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.

The geological formation of the Liwonde-Mangochi Road section is mostly basement complex paragneisses and chanoecitic and quartzo-fields pathetic granulites. Major deposits in the project area are colluvium, alluvium, dambo soils and lascarusrine deposits.

**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. The Liwonde-Mangochi Road section has a number of numerous seasonal and perennial rivers and streams that drain from the western rift valley escarpment to Shire River and Lake Malombe. The major rivers/streams along the stretch include Kabawi, Chilanga Nkasi, Nhonde, Ulongwe Mpale and Nansenga.

**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(Mlambé), Bauhinia thonningii(Chitimbe), Ziziphus sp(Masawu), Colophospermum sp (Tsanya) Dalbergia melanoxylon (Phingo), and Terminalia sericea (Naphini) which are visibly seen along the road.

The Liwonde-Mangochi Road section has remnants of Miombo woodland with Brachystegia boehmii being dominant tree species. The rift valley plain has a mixture of tree species that include Zizyphus micronata (Kankhande), Adansonia digitata (mlambe), Ficus capensis (Kachere), Faidherbia albida (Msangu), and Colophospernum mopane (Tsanya). Colophospermum mopane is the most common in the plains of Liwonde and its presence is an indication that the area is poorly drained.

**Fauna:** Mammals in the Nsipe-Chiendausiku 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. Common Birds along the Liwonde-Mangochi section include Ducks, Geese, Flamingos, Kingfishers, Fish eagles and Cattle Egrets.

The Liwonde-Mangochi 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 while Mpale-Mangochi Stretch is in Mangochi District. According to the 2008 census, 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 355,534. The road project passes through Traditional Authorities Kalembo and Nsamala whose populations are estimated to be 137,032 and 193,031, respectively. The population for Mangochi district is estimated at 910,634. The road project passes through Traditional Authorities Chimwala and Mponda whose populations are estimated to be 128,514 and 124,625, respectively.

**Land use and 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:** In Mangochi District, as of 2011, TAs Chimwala and Mponda had 44 and 31 schools, respectively. TA Nankumba registered the biggest number of schools (49) while TA Namavi registered the least number of schools (6). According to Balaka socio-economic profile (2009-2013), Balaka has a literacy rate of about 76%. The district has 154 government and 2 registered primary schools and also 14 government and 3 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.

**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 border with Mangochi district whose population is predominantly Muslim. In Mangochi, the predominant faith is Islam.

**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 1,616 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, Liwonde and Mangochi. 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, Ulongwe and Mangochi 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- Mangochi 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

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 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. 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 is 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.

**Employment Opportunities to locals**: Road construction activities are a source of employment both for the local community and the specialised service sectors. The project will employ approximately 1,700 - 2000 people a good number of which will come from the local communities along the road project corridor especially the unskilled labour. The employment will in turn stimulate the informal and formal sectors of the community’s economy. Considering that there are many women in the project impact who are capable of doing some casual jobs just as men, where possible, the contractor will maximise employment of local people particularly for the unskilled labour force. In addition, the developer will make a deliberate effort to employ at least 30% women.

Proposed enhancement measures include: (i) employment of work force mainly from the locality where the construction work is on-going; (ii) employment of women and provision of training for women in the different skills; (iii) employment, wage system, and other administrative measures for the local workforce should be in line with the country’s law.

**Creation of income generating activities**: The Project impact areas will benefit from increased business opportunities as a result of the construction works throughout the entire length of the Road. The people at the campsites and the entire Project labour force will require a lot of food items such as vegetables and maize. This will create a market for the community and will contribute towards poverty alleviation in the Project impact areas. This will, in a way, stimulate informal and formal sectors of the economy of the communities.

**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 1,616 households shall be affected in various ways either by losing houses, other structures, fences, crops, trees, farms and other properties. Furthermore 299.22 ha of cultivable land will be lost to the project.

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.

**Impact on soils:** 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) cover embankment sides with grass and ensure growth through watering; (ii) surplus excavated top soil shall be stored and used to rehabilitate degraded grounds; (iii) loosen compacted soils upon commissioning and vegetate with seedlings, as appropriate; (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 on quarries:** A number of existing quarries will be used to extract mineral rock aggregate for the production of rock aggregates. In all 3 quarries will be used to obtain rock aggregates for use on the proposed road. The quarries will include Namalomba Quarry, Naliswe Quarry and Chawuwa Quarry.

Approximately 250,000 m³ crushed rock base will be required for the construction of the proposed road. Key activities at the quarry sites shall include land clearing, drilling, blasting, hauling of rocks and crushing of quarry stone to different sizes for use during construction of the proposed road.

Mitigation measures include (i) The construction contracts should have a clause prescribing quarry sites and access roads as part of the site, so that the powers and authority of the
Engineer extend to them in the same way as to other areas where works are being undertaken; (ii) Written agreements should be developed and signed between the land owners and community leaders and the contractor; (iii) A detailed material plan should be prepared as part of the initial design review. Subsequent to this, quarries areas should be identified, marked on engineering drawings, and specified in the tender/contract document. Only approved quarry areas should be used, (iv) Quarrying for filling should only take place at designated sites, and existing quarries should be used where possible. (v) The requirement to rehabilitate quarry areas, as well as access roads, should be included in the contract.

**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 m³ 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 contactor’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. Environmental Hazard Management

The failure of environmental mitigation can result in serious impacts such as erosion, increased road accidents and disruption of the community lifestyles. Construction of roads also involves occupational health and safety risks to road workers, primarily in the areas of storage and handling of dangerous materials, and operation of heavy machinery close to traffic, slopes and watercourses. The anticipated risks in this project include: (i) Exposure to excessive dust particles or toxic fumes from bitumen and other chemicals used in road works; (ii) Potential for collapse of trenches; (iii) Risk of bush fires during dry seasons; (iv) Risk of rock falls during blasting; (v) Risk of fuel spills and therefore contaminating soil, surface water and groundwater.

The risks can be mitigated to a large extent through: (i) Strengthening staff skills and training in environmental management; (ii) Monitoring environmental actions and responsibilities and making provision for remedial actions; (iii) Planning for remedial measures in case initial planned actions are not successful; (iv) Limiting time of exposure to dust particles, chemicals and noise; (v) Establishing safety and inspection procedures in materials handling, operating heavy equipment and constructing trenches; (vi) Safe handling of toxic materials, explosives and other hazardous substances.

The Contractor shall submit an Emergency Response Plan containing Method Statements covering the procedures for the main activities which could generate emergency situations through accidents or neglect of responsibilities. These situations include, but are not limited to: (i) Accidents at the work place; (ii) Accidental fires; (iii) Accidental leaks and spillages; (iv) Vehicle and plant accidents.
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.


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, Balaka and Mangochi.

10. Complementary Initiatives

Complementary community initiatives are planned to enhance project benefits, improve socio-economic conditions of the local communities, and ensure project sustainability. The proposed interventions are tree planting; Road safety campaign, HIV/AIDS prevention and Control. The complementary interventions are proposed based on the general understanding of the road project area & constraints grasped during the ESIA study and consultations, and hence require further onsite assessment & consultation with concerned stakeholders.

*Tree Planting:* Tree planting will be integrated into the road project so that suitable areas in the catchment area are replanted with trees. This should serve to counter balance the loss of woody biomass and will in the long term restore the vital habitats for species dependent on trees, as well as acting as a carbon sink and a balance for enhanced carbon emissions following maturity & full vegetative growth.

*Road Safety Awareness Campaigns:* The project will include an item of road safety campaign and education programs for the road users during construction and operation. Such activities
shall be performed during construction where most contractors tend to be either ignorant or negligent about road safety measures. During operation, educational campaigns will have to target all users. The service provider for this activity will have to collaborate with the RA, and the Police.

**Malaria and HIV/AIDS/STI Awareness Campaign:** Malaria and HIV/AIDS are the most prevalent health concerns of the population. The project has incorporated in its design awareness and prevention programs against the spread of HIV/AIDS and STI. The RA shall develop TORs for recruitment of Service Providers, and the bidding documents ensure that special clauses are included in the Contractor’s contract. To ensure sustainability of programs and activities, the RA will impress it upon the service provider to engage the various networks at district levels. These include NGOs, CBOs, Ministry of Health, and others who will be expected to continue with the awareness and prevention activities during project operation.

**Gender Mainstreaming:** In line with the Bank’s policy on Gender, the project plans to mainstream gender and ensure equal opportunities between men and women in project planning, implementation and benefits. Women together with men have fully participated in the consultation process and views of both gender have been incorporated in the project design. The system of marriage practiced in the project area is matrilineal so women have a say on land issues.

Gender mainstreaming will 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. Equal opportunity for all men and women land holders (including unmarried/married women/ men); (ii) Raising awareness levels of all relevant stakeholders, and engaging in advocacy to ensure that gender issues are identified and addressed; (iii) Creating partnerships with gender-sensitive NGOs, on implementation of aspects of the RAP, to address gender at the grass roots level; (iv) Working with local organizations that have an interest in or insight into gender issues, such as groups with women membership, particularly the Women’s Associations at village and district levels. Besides ensuring greater participation, it would provide support during implementation; (v) Actively including women in the consultation process, and ensuring that their participation is sought during implementation and monitoring; and (vi) Gender-sensitive project monitoring and evaluation, using gender indicators.

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

**11. Conclusion**

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 community members and traditional leaders unanimously accepted the proposed project as it was envisaged that it will generate a lot of positive impacts. 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.

A range of negative construction related impacts were identified, but these may be considered as temporary or can be mitigated. Mitigation measures for all of these have been identified and are included in the Environmental Social Management Plan (ESMP). The expected social
and economic benefits to the affected communities have been clearly identified and will compensate for the temporary negative impacts during construction.

The recommendations provided to ensure that the project is implemented in a sustainable manner include; (i) Update and implementation of the proposed environmental mitigation management & monitoring plan based on site specific conditions; (ii) inclusion of the necessary environmental clauses in the project tender & construction contract document so as to ensure the implementation of the proposed mitigation measures; (iii) ensure independent environmental supervision through recruitment of Environmentalist and Sociologist/ RAP Specialist as part of the supervision consulting service for effective implementation of proposed mitigation management & monitoring measures; (iv) implement the RAP; (v) Strengthen the capacity of RA to supervise implementation of ESMP during construction and to carry out routine inspections during the road construction period.

It is therefore recommended that project road should be upgraded to paved surface standard provided the ESMP is implemented and that strict monitoring measures will be instituted both from engineering and environmental standpoints considering the need to protect the environment while achieving economic development.

References


Environmental and Social Management Plan for the Proposed Upgrading of Nsipe – Liwonde – Mangochi Road, MSCAT Consulting Engineers, July 2013.
RESETTLEMENT ACTION PLAN SUMMARY

Project Name : Nacala Road Corridor Project Phase IV Project (Nsipe-Liwonde-Mangochi 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 Road with the view to upgrade it to a Regional Trunk Road (RTR) as part of the Nacala Road Corridor. The proposed road project will be 125 km long and will have a carriageway of 7 meters and 1 meter width sealed shoulders on either side of the road. The road will have a 200 mm base of crushed stone and a 150 mm sub base. The project will be divided into two sections with one section starting from Nsipe to Mangochi Turn Off (55 km long) and the other section from Mangochi Turn Off to Mangochi Boma at the four ways (70 km long). The road traverses the districts of Nctheu, Balaka and Mangochi while benefiting the wider populations including those of Machinga, Zomba and Blantyre, among others.

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 125 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.

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 1,616 households, representing 6,464 Project Affected Persons, shall be affected in various ways either by losing houses, other structures, fences, crops, trees, farms and other properties. Furthermore 299.22 ha of cultivable land will be lost to the project. The distribution of asset ownership shows that out of the 1,616 affected households, 947 are male headed households, while 511 are female headed households; 85 are public assets such as schools, clinics, and utilities, while 73 belong to communities such as prayer houses and water sources. It should be noted that most impacts are peripheral such as fences and also business units mainly kiosks which are commonly operated by women. According to the information provided, 80% of the land is customary land hence PAPs will be allocated alternative land by Chiefs within the villages. The regulation in Ministry of lands which carries out compensation stipulates that PAPs be compensated by cash and not land for land.

The detailed information of the PAPs is provided in Annex 5 and shows that 947 assets belong to men and 511 to females. These could be heads, but it not necessarily the case as the survey picked names of owners of the asset. The remaining 85 assets belong to the public (schools, clinics) and 73 to communities (prayer houses, water points, markets).

3. Organizational Responsibility

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

The Office of the President and Cabinet and through its representation by 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. The Ministries of Lands and Valuation and Agriculture and Forestry shall play and important role in determination of values of various assets including buildings, land, crops and trees. The Road Fund Administration shall have the responsibility of disbursing the funds to project affected persons (PAPs) in presence of the Roads Authority. The interactions among the relevant institutions for purposes of managing resettlement and compensation are depicted in the Figure below.

4. Community participation

During the preparation of the RAP, consultations were held with communities and officials from the project impact districts. A comprehensive public consultation program was undertaken between April and May 2013 to ensure that all of the information pertaining to the project and its likely impacts is disseminated to ensure that the process is done in a transparent manner. Particular focus was given to the issues related to involuntary resettlement. Consequently, the Consultants held a number of meetings in 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 potentially affected persons.
A review of the resettlement alternatives presented and choices made by displaced persons, including choices related to forms of compensation and resettlement assistance, to relocating as individual families or as part of pre-existing communities, and to retaining access to cultural property (e.g., places of worship, cemeteries, etc.) were discussed. A description of procedures for redress of grievances by people affected to project authorities throughout the planning and implementation was presented.

The discussions mainly covered the importance of the proposed road, impacts of the rehabilitation works within the project, loss of land and property close to the road project, handling of disputes and grievances in case of damage of property along the proposed road. A description of the consultation and participation of the affected persons, communities and interested parties and their views have been recorded and taken into consideration in the project design. 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. Major issues discussed during consultations included (a) perceived benefits from the project; (b) involvement of communities in valuation and compensation for loss of land; (c) involvement of women and youth in the project such as employment opportunities, and landholding for farming; and (d) health concerns such as spread of STIs, HIV/AIDS and 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, Balaka and Mangochi as it presents population characteristics for the three districts. The Nsipe-Chingeni road stretch is in Ntcheu District, Chingeni-Mpale stretch via Liwonde is in Balaka district while Mpale-Mangochi Stretch is in Mangochi District. According to the 2008 census, the population of Ntcheu district is currently estimated to be 533,560; that of Balaka estimated at 355,534 and for Mangochi estimated at 910,634 making a total of 1,799,728.

According to the district Socio-economic Profiles (SEP) of 2006-2009, of the reported health cases in the district, Malaria is the highest cause of illnesses seconded by the acute respiratory diseases. The malaria cases are high given the topography of the area which is predominantly low lying flat area with the presence of breeding areas for mosquitoes. Medical facilities in the area include District Hospitals of Ntcheu, Balaka and Mangochi; and in addition to Government facilities are those belonging to the Christian Health Association of Malawi (CHAM), and privately owned. Health delivery systems in the districts have serious capacity problems both in terms of human resources and space.
Balaka and Mangochi feature high degree of water-borne diseases which include diarrhoea and dysentery due to usage of unprotected potable water sources. Access to potable water in TAs Chimwala and Mponda, for instance, are 50% and 60%, respectively, which are lower than the national average of 80%. The contraceptive prevalence rate in Mangochi is very low as well at 26.6% (lowest in Malawi).

In terms of education, Ntcheu District has a relatively high primary school enrolment rate among the three districts with variations at Traditional Authority levels. Balaka has a literacy rate of about 76%. The district has 154 government and 2 registered primary schools and also 14 government and 3 registered secondary schools. In Mangochi district, challenges in education are considerable. Dropout rates for pupils are high with a high shortage of teachers. 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. A significant population of the Mangochi district are Muslims hence rearing of pigs is not common.

Worshiping 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. Mangochi district is predominantly Muslim with large presence of Catholic, Anglican, Presbyterian, Adventist and Pentecost.

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 and Mangochi. 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 tenure in Malawi is in three categories: (i) Public Land which refers to land occupied, used or acquired by Government; (ii) Private Land refers to all land owned, held or occupied under a free-hold or lease-hold title, or certificate of claim or which is registered as private land under the Registered Land Act (cap 58:01); and Customary Land refers to all land held or occupied or used under customary law. This system of land tenure has the traditional concept of considering land in a village as belonging to the community under the custodian of the Chief.

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, 1965:* Deals with issues of ownership, land transfer, use of land, and compensation.

*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 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 entitlement to fair and adequate compensation where the Government acquires the owner's property for public use.

*The Monuments and Relics Act (1991):* The Act stipulates the proper management and conservation of monuments that are of importance both nationally and locally.

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

*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).
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).
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. 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 18th April 2013. 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

<table>
<thead>
<tr>
<th>Types of loss/impacts</th>
<th>Definition of Entitlement</th>
<th>Definition of entitled person/unit</th>
<th>Application guidelines</th>
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<tbody>
<tr>
<td>Loss of land</td>
<td>Replacement value in cash or in-kind; provision of cash compensation as per the replacement value</td>
<td>A person with an original Certificate of Title, or customary right on that land</td>
<td>Owners losing less than 20% of their total holdings will be compensated in cash. PAPs to be exempt from capital gains tax against this payment. Owners losing more than 20% land will be provided replacement value in cash.</td>
</tr>
<tr>
<td>Loss of structure</td>
<td>Replacement value of the lost structure</td>
<td>A person with an original Certificate of Title, or customary right on that land or who has been residing / doing business before the cut-off date</td>
<td>Owners or occupier of the property should receive the full value if the structure becomes unusable.</td>
</tr>
<tr>
<td>Temporary loss of business</td>
<td>Cash compensation</td>
<td>PAP running a business on property to be acquired</td>
<td>Cash compensation equal to loss in income for the period of disruption</td>
</tr>
<tr>
<td>Temporary loss of dimba land</td>
<td>Cash compensation</td>
<td>Cultivator</td>
<td>One time cash compensation for the loss of crops</td>
</tr>
</tbody>
</table>

### 12. Implementation Schedule

The implementation schedule for the RAP is provided in the Figure below. 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) Finalizing the detailed configurations of the various project components (borrow areas, spoil disposal areas etc.) so that land acquisition requirements and recording exercises can be undertaken;

b) Appointing staff within RA and the affected district councils to commence with preparatory activities, including ongoing consultation with affected communities;

c) Updating the socio-economic baseline, including completing socio-economic questionnaires for all affected households not surveyed during the preparation of the RAP;

d) Establishing a Compensation Determination Committee to finalize compensation principles, norms and rates; and

e) Contracting suitable NGOs to assist with the preparation of the social environment, including preparation of capacity building and skills enhancement programs.
<table>
<thead>
<tr>
<th>ID</th>
<th>Task Name</th>
<th>Duration</th>
<th>Start</th>
<th>Finish</th>
<th>Timeline(2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1</td>
<td>Appointing staff within RA and the affected district councils to commence with preparatory activities</td>
<td>5 days</td>
<td>3rd</td>
<td>7th</td>
<td></td>
</tr>
<tr>
<td>8.2</td>
<td>Contracting suitable NGOs to assist with the capacity building and skills enhancement programs.</td>
<td>45 days</td>
<td>3rd</td>
<td>15th</td>
<td></td>
</tr>
<tr>
<td>8.3</td>
<td>Conducting sensitisation meetings with PAPs</td>
<td>10 days</td>
<td>6th</td>
<td>18th</td>
<td></td>
</tr>
<tr>
<td>8.4</td>
<td>Updating the socio-economic baseline</td>
<td>2 days</td>
<td>20th</td>
<td>23rd</td>
<td></td>
</tr>
<tr>
<td>8.5</td>
<td>Asset valuation and validation</td>
<td>30 days</td>
<td>2nd</td>
<td>5th</td>
<td></td>
</tr>
<tr>
<td>8.6</td>
<td>Identification of relocation sites</td>
<td>30 days</td>
<td>2nd</td>
<td>5th</td>
<td></td>
</tr>
<tr>
<td>8.7</td>
<td>Land acquisition</td>
<td>60 days</td>
<td>1st</td>
<td>31st</td>
<td></td>
</tr>
<tr>
<td>8.8</td>
<td>Establishing a Compensation Determination Committee to finalize compensation principles, norms and rates.</td>
<td>45 days</td>
<td>3rd</td>
<td>15th</td>
<td></td>
</tr>
<tr>
<td>8.9</td>
<td>Signing compensation agreements with PAPs</td>
<td>24 days</td>
<td>1st</td>
<td>31th</td>
<td></td>
</tr>
<tr>
<td>8.10</td>
<td>Payment of compensation</td>
<td>52 days</td>
<td>1st</td>
<td>31th</td>
<td></td>
</tr>
<tr>
<td>8.11</td>
<td>Update database</td>
<td>52 days</td>
<td>1st</td>
<td>31th</td>
<td></td>
</tr>
<tr>
<td>8.12</td>
<td>Provision of assistance to PAPs on grievances</td>
<td>104 days</td>
<td>1st</td>
<td>31th</td>
<td></td>
</tr>
<tr>
<td>8.13</td>
<td>Termination of assistance to PAPs</td>
<td>1 day</td>
<td>31st</td>
<td>31st</td>
<td></td>
</tr>
</tbody>
</table>
13. Resettlement and Compensation Costs

The table below presents a summary of the properties to be affected and the estimated costs of doing so. It is estimated that a total cost for the two road sections Nsipe-Liwonde and Liwonde Mangochi would be MK1,633,698,800 with MK 669,672,800.00 to be required to compensate the PAPs for the Nsipe – Liwonde section of the road and MK 964,026,000.00 for the Liwonde – Mangochi section of the Road. This amount is a preliminary estimate and may change during the verification exercise of the PAPs. The costs are determined annually based on market values. The Ministry of Lands and valuation calculates all structure related costs based either on market forces or replacement where there is no market value. Where there is no market value PAPs will be consulted on the valuation of assets lost. The values for trees and crops are obtained from the Ministries of Forestry and Agriculture, respectively. The full details of affected persons and their properties is available at the Roads Authority office in Lilongwe.

Summary Table for Properties on Nsipe – Liwonde Section

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>QUANTITY</th>
<th>Average Unit cost (MK)</th>
<th>Total (MK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLE TREES</td>
<td>4678</td>
<td>1,000</td>
<td>4,678,000.00</td>
</tr>
<tr>
<td>FRUIT TREES</td>
<td>1152</td>
<td>7,000</td>
<td>8,064,000.00</td>
</tr>
<tr>
<td>DIFFERENT TREE SPECIES</td>
<td>5155</td>
<td>1,000</td>
<td>5,155,000.00</td>
</tr>
<tr>
<td>BAMBOO</td>
<td>208</td>
<td>250</td>
<td>52,000.00</td>
</tr>
<tr>
<td>GRAVEYARD</td>
<td>10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>BANANA GARDENS/ORCHARDS</td>
<td>7ha</td>
<td>3,500,000</td>
<td>24,500,000.00</td>
</tr>
<tr>
<td>WOODLOTS/WOODLANDS/CONSERVED</td>
<td>17 ha</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FOREST RESERVES</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SUGARCANE</td>
<td>12655 ha</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>BANANA STEMS</td>
<td>3784</td>
<td>200</td>
<td>756,800.00</td>
</tr>
<tr>
<td>JATROPHA FIELD</td>
<td>3 ha</td>
<td>1,500,000.00</td>
<td>4,500,000.00</td>
</tr>
<tr>
<td>GRICIDIA</td>
<td>18</td>
<td>1,500</td>
<td>27,000.00</td>
</tr>
<tr>
<td>COCOA YAMS FIELD</td>
<td>2 ha</td>
<td>600,000</td>
<td>1,200,000.00</td>
</tr>
<tr>
<td>HOUSE INFRASTRUCTURES</td>
<td>285</td>
<td>1,000,000.00</td>
<td>285,000,000.00</td>
</tr>
<tr>
<td>CHURCH/MOSQUE</td>
<td>12</td>
<td>3,000,000</td>
<td>36,000,000.00</td>
</tr>
<tr>
<td>BUSINESS INFRASTRUCTURES</td>
<td>262</td>
<td>700,000.00</td>
<td>183,400,000.00</td>
</tr>
<tr>
<td>BOREHOLES</td>
<td>7</td>
<td>2,000,000</td>
<td>14,000,000.00</td>
</tr>
<tr>
<td>SIGN POSTS</td>
<td>173</td>
<td>200,000</td>
<td>34,600,000.00</td>
</tr>
<tr>
<td>ESCOM/MTL POLES</td>
<td>174</td>
<td>60,000</td>
<td>10,440,000.00</td>
</tr>
<tr>
<td>CROSS POINTS</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DEPOTS</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>BRICK FENCES</td>
<td>22</td>
<td>700,000</td>
<td>17,600,000.00</td>
</tr>
<tr>
<td>ROAD BLOCKS</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TRANSMITMITTER/TRANSFORMER/TOWE RPLANTS</td>
<td>3</td>
<td>1,800,000.00</td>
<td>5,400,000.00</td>
</tr>
<tr>
<td>MTL GROUND POINTS</td>
<td>2</td>
<td>1,000,000.00</td>
<td>2,000,000.00</td>
</tr>
<tr>
<td>SCHOOL INFRASTRUCTURES</td>
<td>1</td>
<td>12,000,000</td>
<td>12,000,000</td>
</tr>
<tr>
<td>COMMUNITY WATER TAPS</td>
<td>2</td>
<td>150,000</td>
<td>300,000.00</td>
</tr>
<tr>
<td>Administration costs</td>
<td></td>
<td>20,000,000.00</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>669,672,800.00</td>
</tr>
</tbody>
</table>


Summary Table for Properties on Liwonde – Mangochi Section

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>QUANTITY</th>
<th>Unit cost (MK)</th>
<th>Total (MK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLE TREES</td>
<td>7487</td>
<td>1000</td>
<td>7,487,000</td>
</tr>
<tr>
<td>FRUIT TREES</td>
<td>1844</td>
<td>7,000</td>
<td>12,908,000.00</td>
</tr>
<tr>
<td>DIFFERENT TREE SPECIES</td>
<td>8248</td>
<td>1000</td>
<td>8,248,000</td>
</tr>
<tr>
<td>BAMBOO</td>
<td>332</td>
<td>250</td>
<td>83,000.00</td>
</tr>
<tr>
<td>GRAVEYARD</td>
<td>15</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>BANANA GARDENS/ORCHARDS AND DIMBA LAND</td>
<td>12 ha</td>
<td>3500000</td>
<td>42,000,000.00</td>
</tr>
<tr>
<td>COCOA YAMS</td>
<td>3 ha</td>
<td>600,000</td>
<td>1,800,000.00</td>
</tr>
<tr>
<td>HOUSE INFRASTRUCTURES</td>
<td>456</td>
<td>1,000,000</td>
<td>456,000,000.00</td>
</tr>
<tr>
<td>CHURCH/MOSQUE</td>
<td>19</td>
<td>3,000,000</td>
<td>57,000,000.00</td>
</tr>
<tr>
<td>BUSINESS INFRASTRUCTURES</td>
<td>422</td>
<td>700,000.00</td>
<td>295,400,000.00</td>
</tr>
<tr>
<td>BOREHOLES</td>
<td>10</td>
<td>2,000,000</td>
<td>20,000,000</td>
</tr>
<tr>
<td>SIGN POSTS</td>
<td>26</td>
<td>200,000</td>
<td>5,200,000.00</td>
</tr>
<tr>
<td>ESCOM/MTL POLES</td>
<td>278</td>
<td>60,000</td>
<td>16,000,000.00</td>
</tr>
<tr>
<td>CROSS POINTS</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DEPOTS</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>BRICK FENCES</td>
<td>14</td>
<td>700,000</td>
<td>9,800,000.00</td>
</tr>
<tr>
<td>ROAD BLOCKS</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TRANSIMMITTER/TRANSFORMER/TOWE RPLANTS</td>
<td>4</td>
<td>1,000,000</td>
<td>4,000,000.00</td>
</tr>
<tr>
<td>MTL GROUND POINTS</td>
<td>3</td>
<td>500,000</td>
<td>1,500,000.00</td>
</tr>
<tr>
<td>SCHOOL INFRASTRUCTURES</td>
<td>1</td>
<td>6,000,000</td>
<td>6,000,000.00</td>
</tr>
<tr>
<td>COMMUNITY WATER TAPS</td>
<td>4</td>
<td>150,000</td>
<td>600,000</td>
</tr>
<tr>
<td><strong>Administrative costs</strong></td>
<td></td>
<td></td>
<td>20,000,000.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>964,026,000.00</td>
</tr>
</tbody>
</table>

From inventories undertaken as part of the RAP study, it has been determined that 125 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 1,616 households will be affected by the proposed road project.

14 Livelihood Restoration

One of the objectives of this RAP is to ensure that livelihoods are improved. Compensation for affected property will therefore seek to facilitate full and smooth recovery without exposing the PAPs to vulnerability and this applies to people who are not necessarily physically displaced but who are affected by a land loss that affects their sustainability. Some of the livelihood restoration measures include: Provision of agricultural extension services; Skills Training; Project related job opportunities; and Assistance through Corporate Social Responsibility (CSR) program.
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.

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.

***************************************************************************