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**PROJECT: CHINSALI – NAKONDE ROAD REHABILITATION
PROJECT (NORTH – SOUTH CORRIDOR)**

COUNTRY: ZAMBIA

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT SUMMARY

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ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

SUMMARY

Project Title: Chinsali – Nakonde Road Rehabilitation Project (North-South Corridor)

Project Number: P-ZM-DB0-003

Country: Zambia

Department: OITC

Division: OITC.2

Project Category: Category 1

1. INTRODUCTION

The Government of Zambia (GRZ) through the Roads Development Agency (RDA) is seeking funding from the African Development Bank (AfDB) to finance the rehabilitation of the T2 road from Chinsali to Nakonde (208.6Km) road section which is part the 611.5 km Serenje–Nakonde road proposed for full reconstruction. The project is to be implemented by the Road Development Agency (RDA). The rehabilitation of the Serenje-Nakonde section of the T2 North – South trunk road has been identified through the North-South Corridor network planning project prioritization process as a key project requiring immediate rehabilitation.

The 611.5 km long Serenje–Nakonde Road was selected for rehabilitation in a strategic economic analysis of the investments of the entire North-South Corridor carried out by Birmingham University in 2009. It forms a critical link in the North-South Corridor, linking trade routes between Angola, Namibia, Botswana, Zimbabwe, South Africa and Tanzania. Moreover, it supports the Sixth National Development Plan (SNDP) as well as ROADSIP (Road Sector Investment Programme) objectives. The 611.5 km Serenje–Nakonde section has been subdivided into three (3) subsections for ease of project implementation, namely i) Serenje-Mpika (238.3 km), ii) Mpika-Chinsali (164.6 km), and iii) Chinsali- Nakonde (208.6 km). The Chinsali – Nakonde Section has deteriorated and presents safety hazards to drivers due to its reduced width and deteriorated riding surface.

Grontmij A/S, in association with Bicon Zambia Ltd, was commissioned by the Common Market for East and Southern Africa (COMESA) and the Road Development Agency (RDA) to undertake a Feasibility Study, Detailed Engineering Design, Preparation of Tender Documents and Environmental and Social Impact Assessment (ESIA) for the Chinsali – Nakonde Road Section.

According to AfDB environmental screening guidelines, projects involving upgrading and rehabilitation of major roads, are classified “Category 1”, and these require detailed environmental and social impact assessment. Similarly, the Zambia EIA Regulations under Part II Clause 7 (2) (a) indicates that an Environmental Impact Statement (EIS) is required to be prepared for any project specified in the Second Schedule of the Regulations, or (b) for any alterations or extensions of any existing project specified in the Second Schedule. The Second Schedule of the Regulations, under Item 2 on Transportation sub-section (a) specifies that “*All major roads outside urban areas, the construction of new roads and major improvements over 10 Km in length and over 1 Km in length if the road passes through a national park or Game Management Area*” require EIS.

An ESIA was therefore carried out in fulfilment of these requirements. The ESIA was submitted to the Zambia Environmental Management Agency (ZEMA) on 22 January 2014 for review and disclosure to

the general public in accordance with the requirements of the Environmental Impact Regulations, Statutory Instrument No 28 of 1997. ZEMA issued a Decision Letter of Approval on 12 May 2014. This ESIA Summary has been prepared from the project documents in accordance with AfDB's Environmental and Social Assessment Procedures (ESAP). In addition, over 200 persons will be involuntarily displaced by the project. A full Resettlement Action Plan (RAP) has been prepared and is included as Annex 1.

2. PROJECT DESCRIPTION AND JUSTIFICATION

The proposed project road, Chinsali-Nakonde section of the T2, is located entirely in Zambia's newly created Muchinga Province and runs in a north easterly direction from Chinsali to Nakonde on the border with Tanzania. The road begins 100 m before the junction leading to Chinsali town, and ends at the gate of the southern entrance to the Zambian Border Facility. It traverses mostly flat terrain, with occasional rolling hills. There are very few steep sections along the road, the most notable being just before Nakonde town.

Existing Road Width: The existing road dimensions consist of between 5.8 to 6.1 m wide bituminous carriageway and 1.5 m wide un-sealed shoulders. There are generally edge breaks which reduce the original width of the carriage way.

Existing Pavement Condition: The overall condition of the road can be rated as fair to poor. Cracks for the full width of the carriageway have been observed at many locations. Pot holes and patch works have been observed at many locations. The predominant distress types found are potholes and edge breaks. Pothole patching had been carried out recently by the local maintenance contractor.

Drainage Structures: There are about 203 cross drainage structures located on various natural streams. These comprise, 154 cross pipe culverts (concrete or corrugated metal pipe culverts); 41 access road culverts; 4 box culverts; and 4 lined drains. In general no significant drainage problems were found along the Project Road except for the dambo section (approximate chainage km 19+700 to 20+600).

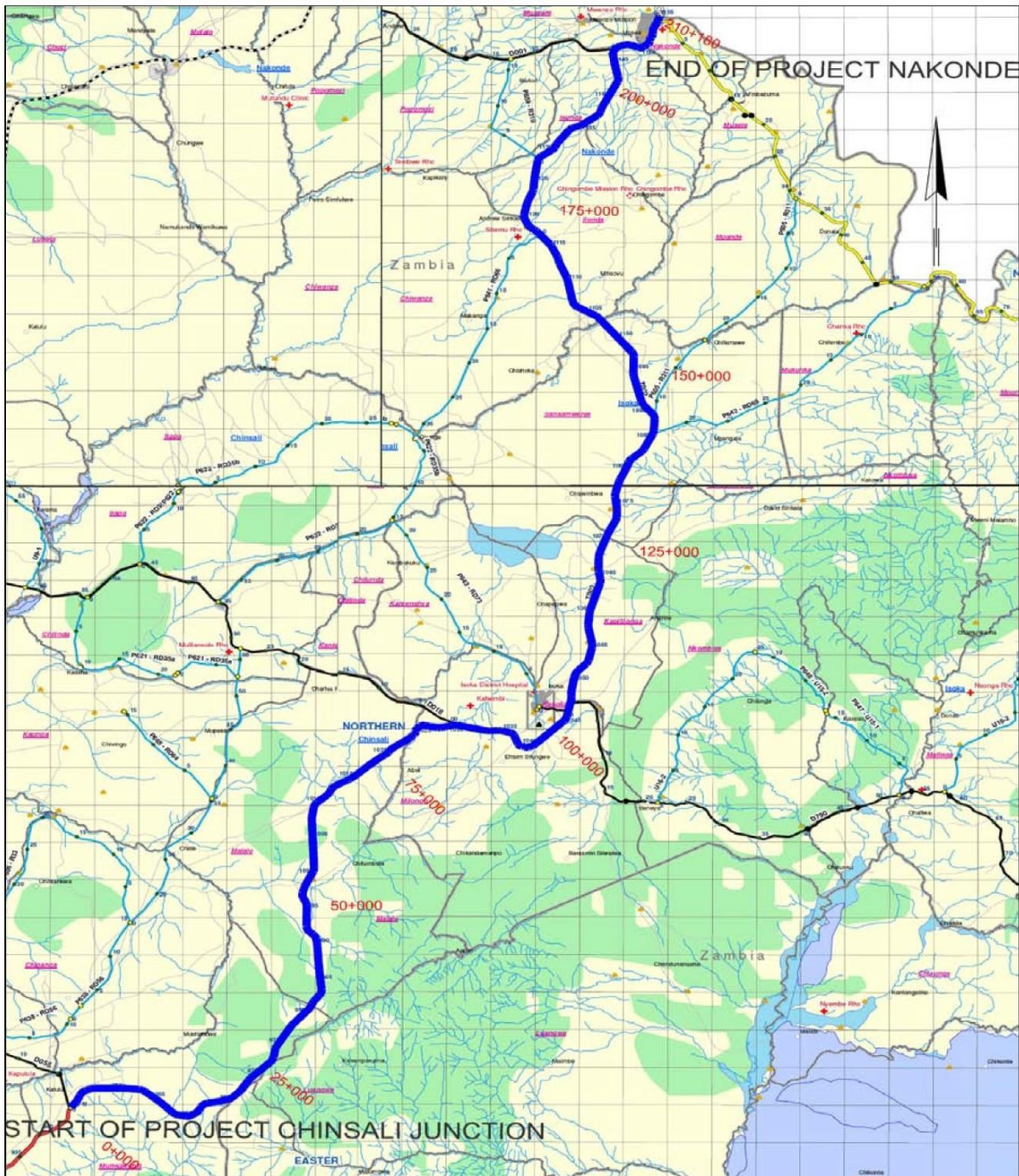
Bridges: There are three existing bridges along the project route crossing the rivers Musanya, Chifuma and Kalungu at chainage km 54+436, km 67+920 and km 158+500 respectively.

The project involves a full reconstruction of the existing carriageway and demarcation of the road reserve of 100m (i.e. 50m on both sides of the existing centreline). The design concept is to provide a high-speed road that allows safe and efficient movement of traffic with fully controlled access. Although the road will be designed for vehicles, the movement of pedestrians and bicycles along the road will be considered in the overall design.

Overall the cross section of the rehabilitation of the T2 road from Chinsali to Nakonde Road will largely depend upon the road categorization. Bearing in mind that 80% of the project road length is rural; a typical Type 1-Rural cross section will apply to most of the road length with standardized lane and shoulder widths for a total roadway width of 11m made up of a 2 x 3.50m = 7.00m wide 2-lane single travelled way and shoulders 2.0m wide each. For the urban section of the Nakonde town (Km 208+700) passage at both sides of the T2 Project Road 4.50m wide (including width of kerb) combined pedestrian/bicycle paths will be provided. Lay-bys have been included in the designs, to be provided in

suitable areas for resting drivers outside urban areas and segregated from the main traffic by raised islands. Three locations for truck parking with 1 lay-by at either road have been identified, i.e. km 22.5, km 47.0 and km 202.9.

Figure 1: Location of Proposed Project Road



Project Justification: The primary economic function of the road is the long distance transportation of goods and thus the rehabilitation of the T2 road from Chinsali to Nakonde has immediate relevance to inter-regional trade and transit traffic between Zambia and its neighbours. . The road forms a critical link in the North-South Corridor, linking trade routes between Angola, Namibia, Botswana, Zimbabwe, South Africa and Tanzania In addition, this road traverses productive agricultural areas and is essential for the local transportation of agricultural inputs and produce. The project area also has great potential to develop its livestock industry especially on the Isoka-Nakonde section of the road.

3. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

In terms of policies and legislation, Zambia 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 key policies and legislation of relevance to the current project include: The National Conservation Strategy (NCS) of 1985; National Policy on Environment of 2007; National Climate Change Response Strategy; Environmental Guidelines for Road Rehabilitation and Maintenance Work; National Resettlement Policy Guideline; The Environmental Management Act (EMA), No. 12 of 2011; The Environmental Impact Assessment (EIA) Regulations, Statutory Instrument No. 28 of 1997; The Water Resources Management Act, No.21 of 2011; The Zambia Wildlife Act, CAP. 12 of 1998; The Forest Act, CAP 199 of 1999; The National Heritage and Conservation Commission Act; The Public Roads Act, CAP 12 of 2002; The Road Traffic Act; The Petroleum Act, CAP 424; The Energy Regulation Act, CAP 436 and The Factories Act, 1967.

These Policies and Acts among others, have been reviewed recommendations have been made on how the project would comply with these National Environmental requirements as enshrined in these policies and Acts. According to both the Zambian Environmental Policies and Legislations and the AFDB environmental screening guidelines, the rehabilitation of the T2 Road from Chinsali to Nakonde requires that it is subjected to a full EIA process.

4. DESCRIPTION OF THE PROJECT ENVIRONMENT

Bio-Physical Environment

The biophysical environment in the area of influence of the Chinsali to Nakonde road is a modified one where human activity has essentially altered the area's primary ecological functions.

Climatic conditions: The climatic data from the Meteorological Station in Isoka, has been applied to the study of the road corridor. Overall, the climate of the road project area is controlled largely by the north-south migration of the Inter Tropical Convergence Zone (ITCZ), producing seasons. The area between Chinsali and Nakonde experiences one of the highest diurnal temperature ranges. Mean annual regional temperatures for the road corridor area range 21.1°C – 27.4°C. The road corridor is located in agro-

ecological region 3 whose average rainfall is over 1,000mm. Most of the rain falls between October and April, with December and January as the wettest months.

Topology: The main topographic features of the road corridor area are represented by gently undulating and flat plateau with isolated hills and low ridges. The relief of the plateau is dominated by drainage density with swamps, flood plains and isolated hills.

Geology: The geology of the road corridor area can best be described as Kibaran and Karroo system. The Kibaran has a basement complex of the pre-Katanga formations that were affected by the Kibaran orogeny and includes Granites, Gneisses, Migmatites, Metasediments, Phylites, Cataclasites, Amphibolites and Metavolcanics. The basement complex consists of highly deformed gneiss, schists and migmatites caused by erosion and rifting systems. The basement complex is overlain by undeformed Precambrian to lower paleozoic sediment known as the Plateau Series and Muva Group.

Soils: The Chinsali-Nakonde soils are mainly light sandy clays, orange brown in colour where they overlie lower Roan, with less fertile paler clay sands on flatter grounds. Outcrops of laterite gravel exist along the route, which have been used as sub-base and stabilised base course for the existing road.

Hydrology: The project area is drained by two major rivers, namely the Chambeshi and the Luangwa. The region lies at fairly high altitude, debouching its waters partly into the Indian Ocean via the Luangwa River and into the Atlantic Ocean via the Chambeshi through the Luapula river. The project area has a number of perennial streams of which the major ones are the Kalungu and Nakonde Rivers.

Flora: The vegetation found along the road corridor falls in three categories which are primarily Miombo woodland, Riparian and Chipya grasslands. Overall however, the Chinsali-Nakonde road project lies in the miombo woodland area which is dominated by broad-leaved trees of the *Brachystegia spiciformis* (musasa) and *Julbernardia globiflora* (munondo) vegetation. The observations made along the road corridor on flora have provided useful insight to the need for high conservation measures of the vegetation and the need for sustainable management of the remaining miombo woodlands.

Fauna: Anthropogenic activities and degradation of habitats have led to lower numbers of animal species in the project area. The project site does not possess any rare or endangered species. However, it is worth noting that on a wider scale human threats to mammalian life continue to increase with continued growth of human population which seeks more land for food production, more space for settlement and even greater development to improve quality of life.

Socio-economic

Administrative Set Up: Administratively, the project road from Chinsali to Nakonde is located in Muchinga Province. It traverses through three districts namely Chinsali, Isoka and Nakonde. In terms of constituencies, the project road cuts across three constituencies namely Chinsali, Isoka West and Nakonde Constituencies. In terms of traditional administration, the T2 road from Chinsali to Nakonde cuts across four chiefdoms of Chief Nkweto and Chief Chewe in Chinsali District, Chief Kafwimbi in Isoka District and Chieftaincy Nawaitwika in Nakonde District. The functions of these Traditional Chiefs have been legalised and limited by the government, although they retain a certain degree of independence.

Land Tenure: Land along the project road is held in customary ownership. However, within the Nakonde township, the Nakonde Council has planning jurisdiction and land is held under the 99 year lease.

Settlement Patterns: The settlement pattern along the Chinsali/Nakonde Road corridor is greatly influenced by livelihood systems and population growth dynamics. Overall however, the settlement pattern is linear along the project road. Other pull factors that have influence on settlement patterns along the road corridor include location of social institutions and streams.

Population Estimates: The overall goal and benefits of road infrastructure, together with other development pillars, is to contribute towards improved livelihoods; improved public transport; improved access to health and public service delivery; enhanced opportunity for employment and incomes; and achievement of millennium development goals. Special attention has been given on the investment in communities with high incidences of poverty, unemployed youth, women and vulnerable groups. The population to be directly affected by the project road was taken to include a 5km radius throughout the road corridor as an area of influence.

Age: One of the demographic indicators captured and which has relevance to the project is the age of the population along road corridor. Age will be a very important variable during the construction phase of the project because employment opportunities during construction phase will be affected by age. Analysis of the characteristics of household members indicate that majority of people (74%) along the road corridor are below the age of 35 years. During the construction phase of the Chinsali to Nakonde Road, the contractor needs to be aware of this young age along the road corridor in order to avoid engaging young people below the recommended age (i.e. limiting employment to above 18). One way in which the contractor would avoid child labor, is by ensuring that all those recruited have National Registration Cards.

Gender Based Roles and Responsibilities: The issue of gender inequality along the project road corridor, just like is the case elsewhere in the country has remained rooted in traditional values and has been exacerbated by limited education, training and skill development; employment opportunities for women and men and; disparities in incomes. Thus the traditional role of a woman is still perceived as being a mother and taking care of household duties.

Gender and Transport: Another demographic variable considered is gender and roles. The results of the household survey reveal that women and men along the project road have different travel needs and patterns, though the mode of transport largely is the same. Along the road project, out of the 86 women who were interviewed along the road corridor, 73% tend to engage more in non-work, off-peak travel, visiting a more diverse set of locations, using more complex trip patterns or engage in trip chain. This means that when they travel, they tend to have multiple purposes and multiple destinations within one trip, such as shops, market, schools, and health centers. Hence, unlike men, women tend to value flexibility over time savings in their travel choices. On the other hand, out of 104 men who responded to the household questionnaire, the majority (69 percent) reported that their travels are centered on economic aspects (i.e. going to sources of income) and therefore they tend to value speed, reliability, and road safety in that order of importance. The foregoing results of the household survey therefore means that the rehabilitation of the Chinsali to Nakonde Road would need to be done in a gender-responsive manner, through the availability of areas for walking and intermediate modes of transport in addition to areas for motorized vehicles. This will enable women to perform their multiple roles and, therefore, satisfy their practical gender needs.

Poverty Levels: In terms of poverty levels, majority of household along the road corridor fall within the “poor category” (55%) and over half of these poor households have income far below the upper poverty line (earn less than ZMW150 per month). Only 7% of the households interviewed indicated that their incomes were above ZMW300 per month, while 38% indicated that their income per month is less than ZMW150 and therefore fall under the lower poverty line. Another economic indicator used to determine the poverty level along the road corridor was household size. Poor households along the road corridor tend to be large. The household survey revealed that majority of households (38.9%) have between 5-8 members. In terms of household headship, female headed households are more likely to be below the poverty line. Although the results of the household survey indicate that only 23% of the respondent were female headed households, the number of these female headed households living below the lower poverty line is significant (73%) compared to 29% of male headed households living below the lower poverty line. Finally, ownership of consumer durables among households along the project roads was generally low, and there was little difference in asset ownership among poverty groups. Only 60% of households owned an average of two consumer durable items. Nearly 60% owned a radio, and 40% owned a bicycle, but only small number of households owned such other items as sewing machines, televisions, refrigerators and other items.

Income Composition: Although there are no trend data on the composition of household income along the road corridor, the baseline survey requested the actual household income per month. People generally tend to under-report their incomes, and it is likely that the reported figures for the baseline survey is even further under-reported, given that many of these households produce some food for household consumption. Despite these limitations, results of the baseline survey show that the majority of households in the project area earn less than ZMW300 per month, with a significant number of these households earning less than ZMW150 per month. The main sources of income are: (a) own livelihood or economic activity; (b) income from employment paid in cash; (c) unpaid income; (d) other cash income; and (e) income from employment paid in kind. Respondents were asked to identify their main and second source of income. It appears that own livelihood or economic activities play an important role in day-to-day living of households along the road corridor with more than 80% dependent on it. This pattern could change when the road project is implemented, although it is with optimism that such change is in favor of a higher proportion for the combined own livelihood and employment income sources.

Livelihoods Activities and Strategies: Making ends meet for the households along the road corridor is a daily struggle and this is not just a case for the road corridor but it is a common feature among Zambian Rural Households. The baseline information obtained along the road corridor indicates that households typically pursue diverse livelihood portfolios, not because they have plenty of economic opportunities, but as a response to a range of constraints and risks. Much of the road corridor’s population is dependent on slash-and-burn, rain-fed agriculture for its subsistence. Maize still dominates the crop production along the road corridor, although it is declining because of diversification away from maize due to the resurgence in the production of traditional crops. The factors observed throughout the country, and which are responsible for the decline in maize, also hold for the observed decline in maize production along the road corridor. These are (i) Reduced subsidies have made small scale farmers intensify crops that rely less on modern farm inputs-fertiliser and seeds. (ii) These crops have become increasingly marketable both domestically and through cross border.

5. PROJECT ALTERNATIVES

There are no alternatives to this road that fulfill the functions of providing relatively fast, cheap and cross border transportation of goods. The only other alternatives are Air and TAZARA rail, which are unlikely to either complement or to substitute for roads or highways in the short to medium term.

The “NO” Project Option: The “do nothing” alternative, is the current road which is associated with a number of adverse environmental and social impacts. One of the most significant impacts is the increase in road traffic accidents which have occurred as a result of poor road conditions. Transit times will remain as is, and over time would become worse as the road deteriorate further. Generally there would be no change with regard to impacts on water quality, vegetation, forests/trees, wetlands, visual impacts. No households would be affected as there will be no loss of land, property or crops. Infrastructure along the road would not be affected.

Pavement Alternative Options: The improvement options considered are:

Option 1 (Reconstruction and Widening on one side): involves reconstruction of the existing pavement using 125mm asphalt surfacing on 150mm granular base on 150mm cemented sub-base. The existing travelled way is widened on one side to achieve a road pavement width of 7m.

Option 2 (Reconstruction and Widening on both sides): involves reconstruction of the existing pavement using 125mm asphalt surfacing on 150mm granular base on 150mm cemented sub-base. The existing travelled way is widened on both sides to achieve a road pavement width of 7m.

Option 3(a) (Asphalt overlay to existing pavement and surface dressing to shoulders): involves overlaying the existing pavement using 50 to 70mm asphalt concrete including partial widening to achieve after works width of 7m.

Option 3(b) (Asphalt Overlay to existing pavement and shoulders): involves overlaying the existing pavement using 50 to 70mm asphalt concrete including partial widening to achieve after works width of 7m.

From the economic analysis, the Economic Internal Rate of Return (EIRR) for the Options was found to range from 15.3% to 20.0%. The lowest value was for Option 3b (for the Chinsali – Isoka section), and the highest value for Option 3a (for the Isoka – Nakonde section). From an economical point of view therefore, all pavement improvement options are viable, with preference for Option 3a that yields the highest EIRR.

With respect to a technical point of view, however, the asphalt overlay with widening options are not likely to achieve the desired goal of the planned rehabilitation, particularly over the 20 year service-life. This is in regard to the thick asphalt overlay required in comparison to the 125mm thick asphalt surfacing for the Reconstruction & Widening options that are of similar materials. The design also further noted that experience shows that, despite provision of reinforcement in the asphalt overlay, widening of pavements has the problem of cracking at the old/new interface. This may not manifest immediately to be significant, but increased deterioration and maintenance requirements have to be expected. The alternative adopted is therefore Option 1, for which the road is to be reconstructed and widened on one side to achieve the new cross section. The adopted option took due cognizance of the determined economic viability and the whole life costs with due regard to inherent risks from latent pavement failure.

6. POTENTIAL IMPACTS AND MITIGATION MEASURES

Positive Impacts

Employment and income opportunities: Rehabilitation of the proposed road presents income opportunity for contractors and tax revenue for government. About 300 people from the host community are likely to be hired by the contractor during road construction. The majority of this number will be unskilled or semi-skilled labour. This presents a positive but short-term economic benefit especially for youth. However, it is common for the largest proportion if not all of this labour to comprise male workers only but for equitable benefit and gender equity, able women should also be hired wherever they meet job requirements.

Enhancement Measures: Preference for casual labourers shall be given to local people but the three Local Councils (LC) officials and local leaderships along the road corridor shall be involved in recruitment processes. RDA will make it a contractual obligation for the road contractor to hire women.

Improved Drainage: The road is an existing paved road, hence the impact of the existing road as a barrier to natural drainage can be observed especially on low lying areas such as is the case at Km 19+700 to 20+600, where water sometimes flood due to poor drainage (only one culvert). The bridges will be cleaned, maintained, bearings replaced, joints reinstated and erosion protection measures provided. The corroded metal pipe culverts, some which are silted shall be replaced.

Enhancement Measures: It is intended that drainage at the Km 19+700 to Km 20+600 shall be improved by installation of at least four culverts to improve flow of water. The existing cross culverts were found to be metal pipes (Armco) with the majority of 600mm diameter showing signs of severe corrosion. In view of this, all 600mm cross culverts will be replaced by 900mm reinforced concrete pipe (RCP) culverts.

Lease/ Rental income for workers camp and equipment yard site owners: Land will be required on which to set up temporary workers camp and equipment yard. Owners of land on which these facilities will be erected will earn a rental income negotiated with contractors. This is a short term positive benefit ceasing with project completion or whenever such facilities are no longer required in a given location.

Enhancement Measures: As a contractual obligation, contractors shall, where feasible, construct facilities with permanent materials that can be re-used by the land owners for other purposes. RDA shall make it a contractual obligation for the contractor to restore camp and equipment yard sites upon their closure.

Income from supply of construction materials: Road rehabilitation will require considerable volumes of gravel and aggregate (stone). Other materials are lime, bitumen, water, cement and steel especially for bridges. Procurement of these resources connotes income to suppliers and owners of land where quarry sites will be located. This is a positive but short-term impact.

Improved Road Safety: Improvement of the road will have positive, significant and long-term local, national and regional socio-economic impacts. These include: (i) reduced vehicle wear/ tear. (ii) reduced

travel time. (iii) safer journeys with reduced accident risk (design will remove sharp corners and steep inclines). Accident rates change following improvement in road geometry and pavement. Rehabilitation of the project road will improve visibility, reduce braking distances and have road signs installed where none existed. Although speeds are expected to increase, there is evidence that overall, rehabilitation of the project road will reduce accident rates and fatalities.

Enhancement Measures: RDA shall ensure that the road design shall provide facilities and signage for pedestrians to cross road.

Regional Integration and Increased cross-border trading: A good road will enhance access to cross border trading and improve local and regional economies. Road improvement will also stimulate development of businesses along the road, for example, roadside markets and secondary job opportunities from new businesses.

Enhancement Measures: RDA shall ensure that there is continued project road maintenance.

Negative Impacts

Impact of Construction Camps: Engineer's Camp, Workers Camp and equipment yards will require land to develop, temporarily altering land use. Their operation will generate domestic and hazardous waste (waste oil) which if improperly managed can contaminate local environmental resources (soil, water) and pose public health risks. Livestock could die from feeding on camp waste such as peelings commingled with plastic carrier bags. Lack of medical facilities at camp would pose a considerable risk to workers' health. Unrestored camp and yard sites are unaesthetic and contamination from fuel, oil or unused bitumen degrade the environment.

Impact mitigation: implementation of a waste management plan as a contractual obligation; sensitization of workers about potential of environmental contamination due to improper waste management practices; Ensuring that waste types (organics, inorganic, hazardous, medical etc) are segregated and responsibly disposed of. Containers will be provided for safe onsite waste containment and segregation before final disposal; Camp site and yard will have adequate sanitation facilities (latrines) that are gender friendly; Contractor will not be allowed to dump waste oil in watercourses, drains or on land but will instead ensure that waste oil is collected and recycled, reused or disposed of appropriately.

Loss of Vegetation: Although much of the road section is modified and the species composition in the area is poor in terms of diversity due to the disturbance of natural habitats by anthropogenic activities, there are some sections of the road corridor with good standing miombo woodlands, which will be affected by the proposed road upgrade. This impact is likely in sections of the road with minor realignments between Chinsali and Isoka. Loss of vegetation could impact fauna, accelerate soil erosion, siltation of streams due to sediment transport.

Impact Mitigation: RDA shall ensure that contractors have a contractual obligation to restore areas of temporary land take after construction. Clearing of vegetation and trees shall be strictly controlled: be limited to what is absolutely necessary, and not be done indiscriminately. Keeping the construction width to a minimum will substantially reduce the amount of vegetation and the number of trees that will have to be removed during construction. Clearing shall be done manually or mechanically; the use of herbicides shall be prohibited. The workforce shall be provided with alternatives to fuelwood and

charcoal for cooking (e.g. by providing kerosene cookers), so that the pressure on fuelwood and charcoal will be reduced. After road improvement is complete, grass and trees must be replanted wherever vegetation has been inadvertently or unnecessarily destroyed. Trees shall be planted along the roadside at the main trading centres and the local councils shall be requested to look after them.

Impacts on Forests: Kapili and Chipunga Forest Reserves are the two local forest reserves within the vicinity of the project road between Chinsali and Isoka. The main threat to the miombo woodlands and forest reserves will result from increased deforestation for the production of stimulated by an improved road, assuming that a better road will result in more traffic, creating a greater demand for wood and charcoal and facilitating easier transport of these products from the project area.

Impact Mitigation: (i) District Authorities and Forestry Department shall intensify monitoring along the corridor; (ii) Sensitization campaigns on impacts of deforestation and charcoal production shall be undertaken during construction (iii) Support shall be provided to the on-going initiatives in the project districts on planting woodlots and sustainable charcoal production.

Impact of bridge and box culverts construction: During road rehabilitation, the existing bridges will be maintained and improved upon while box culverts and pipe culverts will be installed or constructed. This will have the potential impact of increasing sediment load in rivers. Increase in sediment load in watercourses would impair water quality.

Impact mitigation: RDA and the design consultant shall ensure that bridge and box culverts' design provides for prevention of scouring using gabions, stone pitching or lining with concrete. Contractor shall ensure that construction activities are planned to minimize sediment transport, for example, constructing bridges/box culverts in such places in the dry season.

Impacts of constructing drainage channels: Drainage is an important provision to the road to avoid deterioration by storm water. Drains will be designed and constructed to divert runoff from the carriageway discharging it onto adjoining land. This shall be done at non-erosive velocities to avoid gully erosion. Erosive storm water discharged onto land/ property adjoining the road can lead to gullies and land degradation; siltation of streams, swamps and rivers due to sediment deposition; and modification of natural drainage patterns.

Impact mitigation: RDA/Contractor shall (i) ensure that waterways leading into private property are grassed or similar provisions made to reduce erosive velocity of storm water; (ii) consider constructing stepped drainage systems in hilly areas to reduce storm water velocities; (iii) ensure that road design, to the extent possible, shall utilize the natural drainage patterns.

Traffic diversion: Road construction will necessitate diversion of traffic from sections being worked on to allow fast and safe road works. Diversions will cause temporary delays in transportation of goods and passengers, traffic congestion or accidents (especially for heavily laden trucks and trailers) along detour roads that may not have been constructed properly.

Impact mitigation: Wherever practical, the contractor shall provide communities with information and plans of intended diversions in good time. The diversions at all times shall be well maintained by the contractor; Speed calming measures and appropriate signage shall be provided on the diversions and the Works; where trenching is done, protection measures shall be provided.

Sourcing of road construction materials: The road project will utilize an estimated 500,000m³ of gravel and 120,000m³ of aggregate. Direct and secondary effects (noise, vibrations, dust, fly rock injuries, etc) associated with stone/ rock quarrying and excavation of gravel can pose negative and sometimes irreversible impacts. Gaping excavations due to unrestored pits cause visual impacts and scarring of landscapes besides posing public health and safety risks. Damage or cracks to dwellings near quarries due to blasting can be a considerable social impact to rural poor communities.

Impact mitigation: It shall be a contractual requirement for the contractor to integrate quarry restoration plans in the general project implementation. To this effect, the contractor shall ensure: (i) construction materials shall be procured from legal / licensed quarries, or, as a contractual obligation contractors shall restore all depleted quarry sites upon closure. (ii) Height and orientation of the quarry face is controlled if reinstatement is to be effective. (iii) Site restoration shall utilize native vegetation species and replanting undertaken during the rainy season to ensure high re-vegetation success. (iv) Surplus soil materials (spoil) from the road excavations shall be stockpiled at quarry sites to be used during site restoration. (v) Access roads to quarries if not needed by local communities shall be scarified and re-vegetated.

Haulage of construction materials: Road construction will necessitate transportation of materials from sources to worksites. Haulage of gravel and crushed stone (aggregate) from sources to road construction work sites will be associated with the following impacts: Staining of households and goods in roadside shops by dust, haulage traffic noise. Although never compensated, staining of trade commodities in shops (especially foodstuffs: salt, sugar, flour, etc) with dust translates into a financial loss for local business owners. Excessive dust in dwellings poses a short-term health impact. Haulage traffic noise is not expected to be a significant impact except near schools and health centres.

Impact mitigation: The contractor shall (i) suppress dust by watering the diversions whenever necessary. (ii) provide temporary road signage during construction and ensure drivers observe speed limits. (iii) deploy traffic guides/ flagmen, warning signs where necessary, such as on approach to trading centres and large settlements. (iv) provide speed reducing devices e.g. humps. (v) prohibit haulage activities at night to avoid accidents in high population settled areas. (vi) erect temporary signs along routes used by haulage trucks.

Storage of construction materials: During the construction period, there will be need to stockpile and store assorted materials at or near the construction site so as to ensure easy and uninterrupted access to supplies. This can potentially contaminate land and watercourses through spillage and wash away of materials. There is a potential pollution risk if construction materials (fuel, lubricants, and gravel) are not stored or handled properly. Spill accidents may cause contamination of watercourses or kill off vegetation and fauna. Inadequate management of storage areas can also result in material loss through spillages or washing away of stockpiles.

Impact mitigation: The Contractor shall (i) protect material stockpiles from stormwater erosion (e.g. by excavating a cut-off ditch around stockpiles to keep away stormwater). (ii) provide bunded storage for fuel. (iii) cover material stockpiles with fabric or other materials. (iv) avoid stockpiling material near waterways/wetlands or on slopes.

Impacts of Asphalt Plant Operation: Surfacing of the project road will require considerable quantities of bitumen. Its preparation, storage and application could have environmental impacts if firewood is used for heating. Littering due to poor housekeeping at the asphalt plant or improper disposal of unused bitumen and aggregates or bitumen spills would have the localised impact of contaminating soil and water.

Impact mitigation: RDA shall discourage contractors from using firewood for heating bitumen. The contractor shall; (i) collect leftover bitumen and aggregates properly keeping it for use on other sections of the road. (ii) use bitumen emulsion where feasible. In hilly areas with steep road gradients, cut-back bitumen shall be used. (iii) not discharge bitumen into road side drains. (iv) collect and store empty bitumen drums at equipment yards and not abandon them along the road.

Social ills of construction labour including crime & HIV/AIDS: In local communities, construction workers are thought to be richer with ready income to spend. This and influx of workers, typically young males seeking road construction job opportunities could lead to an increase in social pathologies such as alcohol or illicit drug abuse and prostitution. The risks include contraction of communicable diseases including HIV/AIDS. Vices such as drug abuse and prostitution would affect social coherence and security in project communities maligning the image and intent of an otherwise good project.

Impact Mitigation: Sensitization programs on HIV/AIDs shall be undertaken throughout the construction works.

Demolition of structures within the road reserve: -During road rehabilitation, some structures within the road reserve will be demolished. Demarcation of the road reserve as 100m for the rural sections and 36m for the Nakonde urban areas and the built areas of Kalunga market, shall result in loss of assets for 154 households with 862 affected persons. In addition some trees and crops within the construction corridor may also be affected. Most of the impacts related to demolition of structures will occur at trading centers of Mukulakupikwa, Chipunga market, Tuta, Kapililonga, Mukopo, Ndeke, Kanyela and Muputu.

Impact mitigation: RDA shall (i) provide equitable and timely compensation to all affected property owners. (ii) provide adequate vacation notice (according to regulatory requirements, this is 3 or 6 months) to affected people before construction commences. This will also allow affected property owners to plan appropriately or take any salvageable material from their demolished structures without delaying contractor's work. (iii) Institute a strong grievance committee so that complaints and dissatisfactions about the resettlement/ compensation process do not unduly delay contractors progressing works.

Occupational health safety risks for workers: Road works will have the following occupational health and safety risks with potential to cause serious injuries to workers: Burns (handling hot bitumen, welding/hot works, etc); Falls from working at heights or wet surfaces; Electrocuting; Noise and body vibration from equipment; Injury from fly rock e.g. at quarry sites or debris when demolishing affected buildings and accidents from construction vehicles. Lack of hand wash water and mobile toilet facilities at work sites could also pose considerable health risks to workers (and the local communities traversed). OHS impacts will potentially occur at any point during road construction and while some accidents could be minor, others might be grave leading to permanent disability or loss of lives of construction workers.

New road effect leading to accidents: Drivers on a newly improved road will always excitedly drive faster than is often safe: a phenomenon referred to as “new road effect”. This usually happens in the first months of commissioning a new road and is associated with frequent road accidents. Likely effects will be human and livestock accidents. Driving at unsafe speeds on a newly completed road would pose accident risks with possible loss of lives and goods.

Impact Mitigation: Road Safety Campaigns among the communities and road users shall be done prior to project completion.

7. COMPLIMENTARY 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.

Tree Planting: Tree planting will be integrated into the road project so that suitable areas in the catchment area are replanted with trees. This shall 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. RDA 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 RDA will impress it upon the service provider to engage the various networks at provincial and district levels (i.e. Provincial HIV/AIDS Task Force; Department of Gender; Corridor of Hope II, among others. These structures are 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.

Resettlement/Compensation (RAP): The details and estimates for Resettlement and Compensation are provided in the RAP report and summary in the Annex to this ESIA Summary.

8. ENVIRONMENTAL HAZARD MANAGEMENT

The rehabilitation of the T2 Road from Chinsali to Nakonde could entail occupational hazards/ risks and accidents especially involving motorised road construction equipment, asphalt plant and stone quarries. The following measures are proposed to control this risk:

Accidents from equipment: Only trained/ certified operators will operate motorised equipment. Should accidents occur on the construction sites or on the road during construction, the accident shall be immediately reported, recorded, investigated and measures to prevent recurrence shall be implemented.

Blasting explosives safety: the contractor will ensure the following: (i) Stone blasting is only done by licensed blasters; (ii) All explosives are delivered to quarry sites (under security escort as Zambia's security requirements demand) on the day of blasting and any remnants returned into security custody after blasting. (iii) After each blast, site inspection will be conducted for un-detonated explosives. (iv) Advance warning is given to local communities near quarry sites before a blasting episode. (v) After each blasting incident, inspection is conducted in communities around quarry sites to identify any offsite damage to private property, which shall be duly and equitably compensated. (vi) All workers shall be adequately protected from risk of fly rock and blasting noise.

Fire safety: Fire safety equipment and personnel will be provided in the workers' camp. Warning signs will be provided at areas of potential fire source, e.g. at fuel storage areas. Risk of burns/ scald at asphalt plant will be averted by contractors using only licensed operators following stringent safety guidelines and operation procedures. Operations involving hot bitumen shall be limited to daytime in adequate natural light.

Emergency Response Plan: The contractor will develop and maintain an Emergency Response Plan. This shall include provision of a medical clinic and a standby vehicle to immediately transport any accident victims to a nearby hospital (i.e. Chinsali, Isoka and Nakonde General Hospitals). First Aid facilities will be provided on construction sites, equipment yards and in camps.

Oil/ fuel spills: Accidental oil and/ or fuel spills would occur when the contractor's trucks or vehicles are involved in road accidents or negligence of staff while on duty. Accidents may be caused by improper use of equipment, mechanical faults in equipment or vehicles among others. Spills or leakages would result in contamination of soils and water resources with hydrocarbons. Hydrocarbons and

particulate matter if released into the soil will affect its productivity and pose a health risk to the community, animals and plants around. In water resources, it would affect the aquatic vegetation and fauna in addition to disrupting water supply to the community that rely on these water resources. No vehicle or equipment shall be allowed to be used if any oil or fuel leak is observed. The contractor shall have spill control equipment on standby both at the workers camp and the road construction site to ensure that any leakage or spill is contained and cleaned on time.

9. ESMP IMPLEMENTATION AND MONITORING

The primary oversight to ensure mitigation actions are implemented will rest with the RDA's Directorate of Projects working with the Environmental and Social Unit (ESU) under Directorate of Planning. Zambia Environmental Management Agency (ZEMA) from Head Office has regulatory supervisory and monitoring roles.

RDA shall require contractors to comply with the ESMP and assign a fulltime staff (Environmental Officer) to undertake environmental supervision during construction. RDA confers full mandate to the supervising engineering consultant (SEC) to supervise the road project on a day-to-day basis. The SEC oversees the work of the contractor by recruiting an environmental specialist, this specialist shall guide the contractor's fulltime Environmental Officer in undertaking his/her own responsibilities, including reporting.

Monitoring procedures will comprise; (i) Institution of a qualified environmentalist and social expert by the contractor and supervision consultant. (ii) Formulation of enforceable contractual terms to ensure that contractors implement the ESMP. (iii) Ensuring a project completion and handover process that will necessitate RDA and ZEMA approval for social-environmental aspects such as site restoration and removal of road construction waste.

Contractor(s): Upon project commencement, the contractor will prepare a site-specific Construction ESMP (CESMP) based on requirements of the ESIS and ZEMA approval. These include securing quarry licenses, permits for borrow sites and water abstraction permits. The CESMP will be reviewed and approved by the supervising consulting engineer and RDA. At project completion, the Contractors will prepare a final environmental implementation report to be approved by the supervising consultant, RDA and ZEMA.

The Supervising Consulting Engineer: Before construction, the supervising engineer will review the works contract and document environmental and social requirements, road safety, and quality assurance systems and plan the supervision functions to ensure that works are implemented while protecting the social and environment aspects. During the construction phase, the supervising engineer: (a) Monitors implementation of the CESMP and (b) prepares monthly and quarterly environment and social compliance reports, which are submitted for RDA consideration, as well as annual environment and social audit reports submitted to ZEMA. The Quarterly Reports shall be made available to the Bank for review.

ZEMA: During the construction phase, depending on the implementation status of environmentally and socially sensitive project activities, ZEMA shall a) commit and review annual or biannual environmental monitoring and b) give its opinion and recommendation in which environmental concern raised by the project reviewed alongside project implementation.

Compensation: For the compensation, RDA will monitor implementation with technical assistance of an independent consultant. Progress of land acquisition will be monitored by the RDA. The independent consultant will undertake quarterly review of implementation activities and submit bi-annual reports to the RDA which will review them and through supervision verify milestones, livelihood restoration until half a year compensation implementation.

Monitoring: Monitoring will verify if predicted impacts have actually occurred and check that mitigation actions recommended in the ESIA are implemented and check their effectiveness. Monitoring will also identify any unforeseen impacts that might arise from road project implementation. Monitoring will be undertaken by the RDA (ESU).

External Monitoring: External monitoring shall be done by the ZEMA according to their regulatory mandate prescribed in the Environmental Management Act of 2011. The Occupational Health & Safety (OHS) Department in Ministry of Labour & Social Security shall also undertake external monitoring of labour issues and Occupational Health and Safety compliance. The OHS Department has authority to inspect any facility for compliance with national requirements on safety in workplaces. Monitoring will be done through site inspection, review of grievances logged by stakeholders and ad hoc discussions with potentially affected persons. Monitoring will be undertaken monthly over the construction period.

Reporting: Detailed monthly and quarterly monitoring reports shall be compiled by the contractor's environmental officer under oversight of the supervising engineer (SCE). The reports will be based on records kept as per requirements of the contract to be signed. These detailed reports with evidence of compliance shall be prepared and appended to summary monthly reports.

Environmental mitigation, management and monitoring cost estimates

	Mitigation Measures	Quantity	Unit Cost (ZMW)	Total Cost
01	Compensation packages and Monitoring	Structures, trees & crops	Varying	5,983,579
02	Conservation projects, re-forestation, awareness & sensitization	36	Lumpsum	334,950
03	Road safety awareness & sensitization	36 months	Lumpsum	72,439
04	Public traffic flow management during construction	36 months	“	35,975
05	HIV/AIDS awareness and education including Gender awareness & Sensitization	36 months	“	2,190,000
06	OHS provisions for workers	36 months	“	60,365
07	Erosion and drainage control	36 months	“	73,780
08	Air and water quality monitoring	36 months	“	49,329
09	ESMP Management and Audits	36 months	“	182,926
10	Institutional Collaboration and Monitoring of ESMP	36 months	“	300,000

	Grand			9,283,343
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10. PUBLIC CONSULTATION AND PUBLIC DISCLOSURE

Public consultations were undertaken at various levels in order to elicit the perceptions of the different stakeholders with regard to the positive and negative impacts the project road. During the ESIA study, discussions were held with district officials in the three project district headquarters at Chinsali, Isoka and Nakonde, while informal discussions were held with road beneficiaries along the project road.

Consultations were also undertaken with the PAPs to inform them about the project components, processing stages, resettlement principles, strategies, safeguard provisions, Entitlement Framework etc. These meetings were used to get wider public input from both the primary and secondary stakeholders. The meetings were conducted at Mukulakupikwa, Chipungu and Vitondo areas on the Chinsali-Isoka section of the road. On the Isoka-Nakonde section of the project road, these community meetings were held at Kapililonga; Ndeke and Kanyela area.

The objective of consultations with stakeholders and regulators was to acquire and disseminate information, identify and address legislative, community and environmental concerns and to proffer appropriate mitigation options for all identified negative impacts.

In general, interactions with the communities were positive and there was widespread appreciation of the consultation process undertaken. Generally, people welcomed the project as it will bring infrastructural development and progress in the area. Most of the respondents in the project area have a positive outlook towards the rehabilitation of the project road. The youth in particular, are looking forward to employment opportunities during the construction phase and hence have a positive mindset about the development. The Project Affected Persons were concerned about compensation with expectations that compensation will be fair, just and timely.

These findings and observations reveal that all the population of the project-affected area are in favor of the construction works. However, efforts need to be made by the RDA and the District administration so that the local people, especially the youth, benefit from this developmental project. The communities were of the view that the project afforded considerable potential for providing significant socio-economic benefits and community assistance projects. However, their priority was to ensure that compensations are paid to those whose fields and houses are located within the proposed road reserve.

11. CONCLUSION AND RECOMMENDATION

The findings from the Environmental Impact Assessment show that although the proposed road upgrading project is expected to have a number of negative impacts on the environment, most of these are anticipated to occur during the construction phases and are mitigated in the overall road design. Generally, the proposed route is planned to follow existing alignments, thus the potential impacts are therefore reduced.

The assessment shows that although the project will have adverse impacts on the environment, most are such that they are easily containable within acceptable limits provided that the appropriate mitigation

measures are adopted. The assessment also shows there are many positive impacts of the project. On the whole, from the stakeholder consultation feedback there was broad support for the project.

The study has proposed an Environmental Management and Monitoring Plan (EMP) to address the management of the identified environmental issues associated with the project. The plan consists of implementing the listed components stated as follows: (i) Implementing the Impact Mitigation Plan; (ii) Monitoring the implementation of the ESMP.

The mitigation of the negative impacts on biophysical environment will be part of the road design. The negative social impacts will require some level of intervention such as: (i) Collaboration with local stakeholders to counter social upheavals; (ii) Sex education campaigns to fight HIV/AIDS threats; and (iii) Implementation of the Resettlement Action Plan.

The mitigation measures will require constant information flow and consultation with the stakeholders to ensure the least adverse socio-economic impact from the project. The project benefits outweigh the “no-development” scenario. The project is therefore being recommended for implementation provided the recommended mitigating measures are adopted and the Impact Mitigation Plan is implemented.

RESETTLEMENT ACTION PLAN SUMMARY
CHINSALI – NAKONDE ROAD REHABILITATION

Project Title:	Chinsali – Nakonde Road Rehabilitation Project (North-South Corridor)		
Project Number:	P-ZM-DB0-003	Country:	Zambia
Department:	OITC	Division:	OITC.2

1. Introduction

The Government of Zambia (GRZ) through the Roads Development Agency (RDA) is seeking funding from the African Development Bank (AfDB) to finance the rehabilitation of the T2 road from Chinsali to Nakonde (208.6Km) road section which is part the 611.5 km Serenje–Nakonde road proposed for full reconstruction. The project is to be implemented by the Road Development Agency (RDA). African Development Bank (AfDB) has expressed interest to finance the proposed Road Project. This summary therefore provides highlights on description of the project, project area and area of influence, potential impacts, organisational responsibility, community participation, integration with host communities, socio-economic studies, legal framework, grievance redress mechanism, institutional framework, eligibility, valuation of, and compensation for losses, implementation schedule, costs and budget, monitoring and evaluation, and conclusion.

2. Potential Impacts

During preparation of this RAP consideration was given to project components/ activities that would give rise to resettlement. These activities include the demarcation of road reserve being defined as 100m for the rural sections and 36m for the Nakonde urban areas and the built areas of Kalunga market. An expected 154 households with 862 affected persons shall be impacted. Most of the impacts related to demolition of structures will occur at trading centers of Mukulakupikwa, Chipunga market, Tuta, Kapililonga, Mukopo, Ndeke, Kanyela and Muputu. There will also be impacts emanating from siting and access to quarry sites and borrow sites. The following are the major impacts, which require compensation or resettlement assistance:

- Loss of residence- 44.
- Loss of Roadside Shops –103.
- Loss of land – 2 with title deeds and rest (42) on customary/communal land.
- Places of worship -1 Seventh Day Adventists Church.
- Impact on Vulnerable Groups- 16 (13 elderly, 2 blindness, 1 illness).

3. Project Description

Currently, the project road Chinsali to Nakonde is operational and built to a Class IA bitumen road with two lane flexible pavement. The existing pavement generally consists of double bituminous surface dressing, some sections with reseal or “Cape Seal” on top, 150mm cement stabilised base course and 150mm granular sub-base. The carriageway width for most of the length is in the range of 5.8 to 6.1 metre wide. However, lack of regular maintenance has contributed to the road’s accelerated

deterioration with some portions of the present road disintegrating, posing the risk of complete failure. There are generally edge breaks which reduce the original width of the lanes/travelled way.

The project will involve a full reconstruction of the pavement. The rehabilitation option will involve Asphalt Overlay to existing pavement and shoulders involving overlaying the existing pavement using 50 to 70mm asphalt concrete including partial widening to achieve an after works width of 7m for the travelled way, and further widening is required to provide the 2.0m wide shoulders. According to the Zambian “Public Roads Act, CAP 12 of 2002, the Chinsali-Nakonde Road requires a road reserve of 100m (i.e. 50m on both side of the existing centreline). Part III of this law prohibits road infringement by stipulating dimensions of road reserves within which no construction of any structures is allowed.

4. Organizational Responsibility

Several organizations shall play different roles in implementing the project, among which shall be:

(i) Road Development Agency (RDA) shall take the main responsibility of implementing the RAP in conjunction with respective district local governments (Chinsali, Isoka and Nakonde) Districts and traditional leaders.

(ii) The Ministry of Transport, Works, Supply and Communication is responsible for overall policy formulation and monitoring of the transport sector. The Ministry will play a role in ensuring the RAP guidelines are implemented through their representative in the RDA.

(iii) The Ministry of Lands, Natural Resources and Environmental Protection (MLNREP): The office of the General Surveyor in the MLNREP is responsible for approving the Valuation Roll.

(iv) District Councils and Traditional leadership will be responsible for local policy matters, economic development, resolving local conflicts and providing orderly leadership during implementation.

(v) Zambia Environmental Management Agency (ZEMA) is empowered under the EPPCA of 1990 and the Environmental Management Act (EMA), No. 12 of 2011 to see to it that Zambia’s environment is protected adequately.

(vi) The Contractor shall be responsible for managing the potential resettlement, environmental, socio-economic, safety and health impacts of workers and communities during implementation

(vii) RDA shall continue to engage with the stakeholders throughout the project cycle. There will be a communication strategy to ensure that stakeholders receive information on the progress of work and its implications, employment and others.

5. The Project Location and Affected Sites

The Serenje-Nakonde Road is part of the T2 international trunk road that runs from Lusaka to Nakonde on the border with Tanzania (see Map 2 overleaf). This is part of the Great North Road, running along the length of Africa from “Cape to Cairo”. The 611.5 km long Serenje–Nakonde Road was

selected for rehabilitation in a strategic economic analysis of the investments of the entire North-South Corridor carried out by Birmingham University in 2009. The Serenje-Nakonde Road was divided into three subsections for ease of implementation. These are:

- * Serenje-Mpika (238.3km),
- * Mpika-Chinsali (164.6km), and
- * Chinsali-Nakonde (208.6km).

This project focuses on the Chinsali-Nakonde section of the T2. The project road is located entirely in Zambia's newly created Muchinga Province, and runs in a north easterly - direction from Chinsali to Nakonde on the border with Tanzania. The road begins 100 m before the junction leading to Chinsali town, and ends at the gate of the southern entrance to the Zambian Border Facility. It traverses mostly flat terrain, with occasional rolling hills. There are very few steep sections along the road, the most notable being just before Nakonde town.

6. Objectives of Resettlement Action Plan

This RAP has been prepared consistent with the applicable laws in Zambia and the policy provisions of the Road Development Agency (RDA). In addition, the policy provisions of the African Development Bank (i.e. AfDB Policy on Involuntary Resettlement, 2003 among others) have also been considered. The policies for the RDA require that a RAP be prepared for all its road projects that anticipate land acquisition and displacement affecting shelter, livelihood and associated impacts. Basically, the RAP presents an inventory (register) of people likely to be affected by the rehabilitation of the T2 road from Chinsali to Nakonde and the proposed compensation and resettlement packages.

In view of the foregoing, the main objectives of this RAP were to:

- Raise awareness of the project and its consequences among the general public and particularly among those people who will be directly affected by the project;
- Carry out consultations with relevant stakeholders, including potentially affected persons and obtain their views and suggestions regarding social impacts of the proposed project and measures to cover the losses. The results of the consultations will be made available to all relevant stakeholders, including potentially affected persons through RAP disclosure;
- Prepare social profiles of PAPs through a socio-economic survey;
- Determine the extent of the impacts due to involuntary resettlement associated with the land acquisition for purposes of construction and alignment of the road, and put in place measures to mitigate those impacts. The impacts here are to do with land acquisition and the accompanying losses or interruption of livelihoods of the project affected people due to the construction activities related to the proposed roads; etc.
- Set out strategies to mitigate against adverse effects suffered by the project affected people (PAP) including provision of channels and platforms for negotiations;
- Quantify different categories of Project Affected Persons (PAPs) who will require some form of assistance, compensation, rehabilitation or relocation;
- Provide guidelines to stakeholders participating in the mitigation of adverse social impacts of the project;
- Prepare resettlement strategies including entitlement matrix and arrangements for implementation that would mitigate adverse socio-economic impacts and grievances; and

- Prepare strategies to mitigate adverse socio-economic impacts and possible grievances arising from resettlement.

7. Community Participation and Public Consultations

Consultations and dialogue with stakeholders including PAPs is very critical for successful resettlement and/or compensation of the affected. The process of consultations will continue until implementation of the RAP is completed. In the process of preparing this RAP, the Consultant undertook extensive consultations with the PAPs to update existing information. During these consultations the communities were encouraged to (i) be open and make known their concerns and claims; (ii) be free to access the formally established grievance process for lodging Complaints; and (iii) allow and give the necessary assistance to the M&E team. In finalization and preparation of the payment schedules and actual payment, RDA ESU personnel will continue to conduct a series of consultations and counselling of the PAPs and affected communities.

A diversity of community stakeholders including local leadership (chiefs, village headmen, etc), village elders, farmers, teachers, men and women were consulted in pre-arranged public meetings held in public institutions such as schools, markets and/or identified homesteads along the road corridor. The stakeholders were mobilized by chiefs and ward councillors. Teachers sent pupils to inform their parents of the planned meetings. Chiefs deployed their assistants and village headmen to make announcements about planned meetings. The objectives of the consultation meetings were:

- To enlist the support and cooperation of Government officials, politicians and other stakeholders;
- Create awareness of the proposed project especially to those who may be directly affected and those living within the proposed road reserve;
- Create awareness on the proposed road reserve;
- Explain to all stakeholders on the implications of a white X symbol marked on structures along the road corridor;
- To obtain stakeholders' responses, feedback and concerns on the project; and
- To obtain socio- economic and environmental information on the community.

Consultations were conducted from the month of November through to 15th December 2014 in each trading center of village along the road in form of open meetings open to all PAPs and stakeholders. Villages suitably located near each other were often consulted in a joint meeting. Notably, there was no restriction on women to attend consultation meetings, which in some places were attended almost in equal numbers by both men and women. In each district, consultants started with Local Government Officials before meeting communities. Throughout the discussions with the community members, a number of issues were raised. Concerns of all the communities consulted were however similar in terms of the extent of effect to their livelihoods, forms of compensation (whether cash or in kind), which among them would receive compensation.

8. Integration with host communities

The nature of works and the situation on the ground shall not necessitate any specific consultations with host communities or any environmental assessment. The affected households that will be required to move shall in most cases step back within their compounds or gardens and is not possible integrate within the same villages. This is as a result of the project being linear.

9. Social Economic Survey and PAP Census

The socio-economic survey carried out in the area describes salient characteristics of the households affected by the project. These include household size and composition, age, gender and education of the household head, household asset endowment and household income and income sources. In addition, information on quality of life indicators: food security, condition of the main house, water and sanitation and sources of cooking and lighting energy is provided. Further, access to infrastructural facilities and agricultural productive services are also explored.

Demographic characteristics show the average family size of the project area being 5.9 family members for the Chinsali-Isoka section and 5.9 family members for the Isoka-Nakonde. The PAPs household survey results showed that 84% of household heads were married, with 6.1 % of the heads being widows in Chinsali-Isoka as opposed to 4.5% of PAPs in the Isoka-Nakonde. The affected populations are quite young with 39% of the population being under 15 years of age in the Chinsali-Isoka section as opposed to 37% in the Isoka-Nakonde. Gender distribution shows an almost equal sex distribution with Chinsalei – Isoka representing male population of 49% and female 51%, while for Isoka – Chinsali males were 49.4% and female 50.6%. Male heads of households represented 81%.

Regarding education, the survey revealed that the majority of PAPs have had some formal education with approximately 45% having undertaken primary schooling, and less than 20% Secondary school (i.e. Grade 10-12). 17% of the affected households stated they did not have any formal education or that they didn't know their degree of education. The main diseases affecting the population in the project area were Malaria, followed by different types of diarrhoea. Nevertheless quite a significant percentage (23% in the Chinsali-Isoka and 30% in the Isoka-Nakonde) stated they had not had any diseases in the last one year. There was no mention of HIV/AIDS in either sections of the project road, which might suggest lack of information regarding HIV/AIDS or an unwillingness to discuss it because of the associated stigma.

With regards to the existing disabilities the household survey results showed that only around 4% of the PAPs in both sections of the project road suffered from a disability. The main disabilities mentioned were physical (46% for both sections of the road) followed by visual (27% and 13%) and Psychological/Mental disabilities (15% and 17% in the Chinsali-Isoka and Isoka-Chinsali sections, respectively).

10. Legal and Institutional Framework

Preparation of the RAP and resettlement and compensation procedures will be guided by the Zambian statutes. It should be noted that there is currently no specific law pertaining to

involuntary resettlement in Zambia. However, there are various pieces of legislation that provide guidance regarding legal provisions for resettlement. For Land Take and displacement of people, specific attention is drawn to two Zambian laws that will be applicable to land tenure, compensation and resettlement in this project, namely:

- Constitution of Zambia, Chapter 1 of the Laws of Zambia, Article 16
- Lands Acquisition Act Chapter 189.

- (a) *The Constitution of the Republic of Zambia*: The Constitution of Zambia, Chapter 1 of the Laws of Zambia, and Article 16 of the Constitution provides for the fundamental right to property and protects persons from the deprivation of property.
- (b) *Lands Acquisition Act Chapter 189*: Lands Acquisition Act Chapter 189 of the Laws of Zambia Section three of the Lands Acquisition Act empowers the President of the Republic to compulsorily acquire property.
- (c) *The Public Roads Acts*: The Public Roads Act, 2002 section 18 (3) gives authority to the Road Development Agency (RDA) to enter upon any land for purposes of extraction of materials for road formation.
- (d) *Arbitration Act*: The Arbitration Act No. 19 of 2000 (Arbitration Act) provides for arbitration in cases where the land owner/occupier does not agree with the amount of compensation being offered.
- (e) *Local Government Act, Chapter 281*: Local Government Act provides for a system of Local Governments based on the District, lower Local Governments and administrative units.
- (f) *The Land Act of 1995*: The Land Act of 1995 was enacted to guarantee peoples' right to land while enhancing development.
- (g) *The Town and Country Planning Act, Cap 285*: This Act provides for the control, use and change of land use zones and reservations for various purposes e.g. siting of work sites.
- (h) *The Housing (Statutory and Improvement Areas) Act (1974)*: Under PART VIII section 38 the Act states that subject to the provisions of this Act, and notwithstanding anything to the contrary contained or implied in any written law or any document, a council may in an improvement area, with the approval of the Minister.

11. Institutional Framework

In Zambia, there is no single agency that has the mandate for the planning and delivery of resettlement and compensation in cases where people are involuntarily displaced. It is however, agreed in principle that the developer (RDA) assumes the responsibility for delivery of entitlements even though a number of other organizations may be involved, mainly:

- ESIA and RAP Coordination Unit (ERCUC), which will be under the Environmental and Social Unit (ESU) of RDA;
- RDA Planning Department
- RDA Legal Department
- RDA Finance Department;
- Local Government Offices of Chinsali, Isoka and Nakonde;
- Grievance Redress Unit and
- Other service agencies (responsible for delivering entitlements and conducting activities specified in the RAP such as relocation, income restoration and monitoring).

The ESIA and RAP Coordination Unit (ERCU) will be purposefully created and will have the role of implementing the resettlement through its own network of field teams described below:

- Environmental and Social Unit (ESU);
- Compensation Payment Team;
- Property/Land Legal Team; and
- Community Liaison and Grievance Redress Team.

The Local government authority and the traditional leaders will act as observers in order to ensure that the process is conducted well and within the law. The community liaison officer will act as an observer and will receive any grievances/disputes that may arise during the process. The Community Liaison Team (including the Grievance Redress Officer) will ensure good project relations with both the PAPs and local residents of the affected areas. The community liaison team will be responsible for organizing meetings with PAPs in the locations to be resettled. This team will inform the PAPs and local residents about the resettlement and compensation process.

12. Grievance Redress Mechanism

Even with an adequate implementation of the RAP and a fair compensation, some PAP will still believe they were treated inadequately or unfairly. As a result, it is necessary to provide an accessible and credible means for PAPs to pursue any grievances, which will then decrease the likelihood of overt resistance to the project. Under the proposed grievance procedure if a PAP is dissatisfied with any resettlement issue, resettlement or compensation measure, the delivery of entitlements or even dissatisfied with the project he or she could voice a complaint in the first instance to the Grievance Officer of RDA (or the Community Liaison Officer) which would also inform the traditional leader, and the Provincial Local government officer. The grievance officer together with the Provincial local government officer and the traditional leader will try and solve the grievance within a period of seven working days.

If the problem is not solved it will be referred to the Senior Officer at the ERCU at RDA where amicable resolution will be sought between the ERCU and the PAP within another established period of fourteen days. Whenever the PAP has a land title and its dispute involves his land, if the complaint cannot be resolved through local mechanism, the grieving party is free to take the matter to court as a final resort. Compensation will be paid upon resolution of the grievance or dispute (see Figure below).

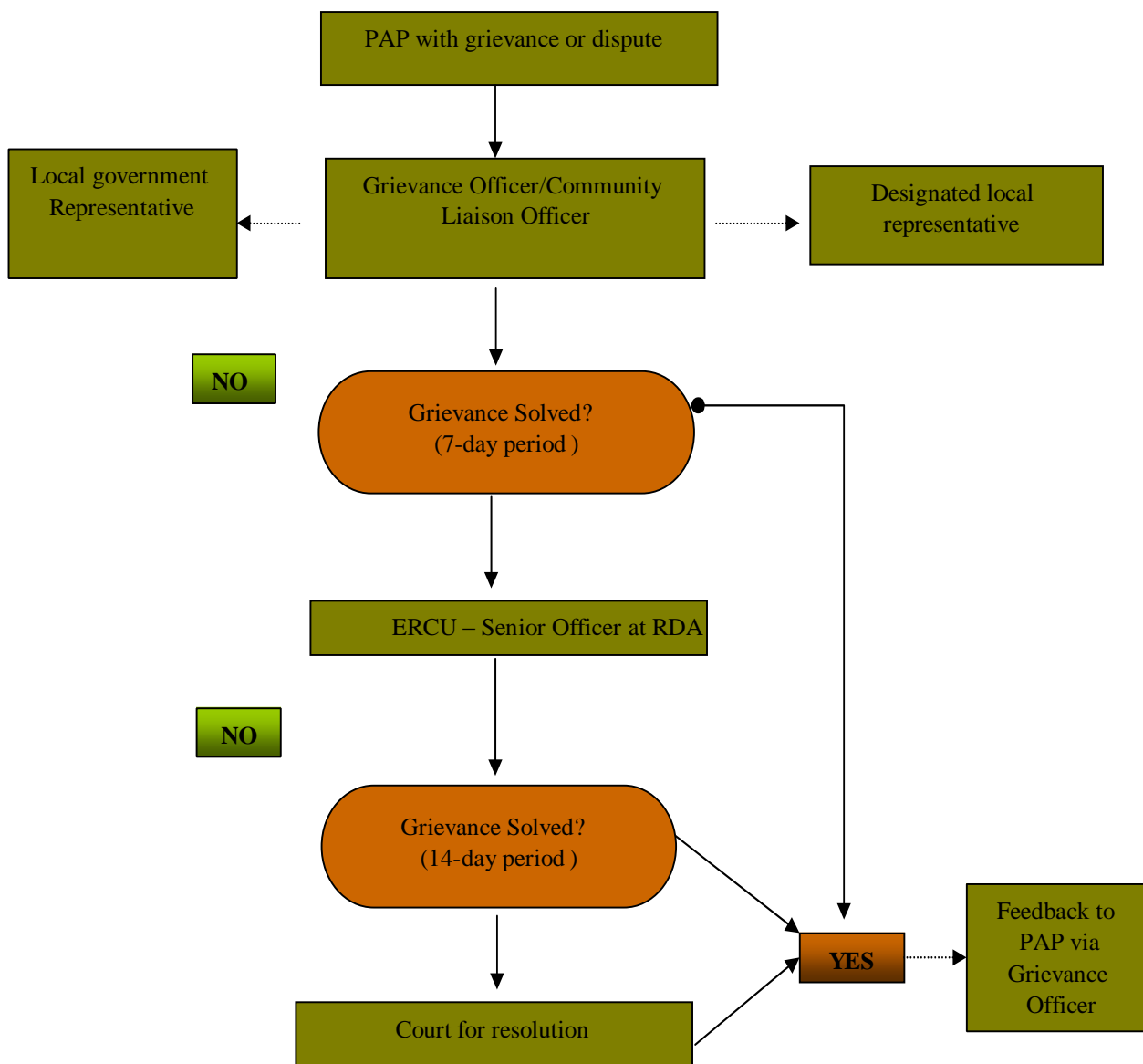


Figure: Grievance Redress Mechanism

13. Eligibility Criteria

Any person who will suffer loss or damage to an asset, business, trade or loss of access to productive resources, as a result of the project road as falling within the road reserve of 100m in the rural sections of the road and 36m in the built areas of Nakonde urban and Kalunga market will be considered eligible for compensation and/ or resettlement assistance. Eligibility will apply regardless of legality (with or without title deeds). Those eligible for compensations and assistance are occupants (tenants and leaseholders) and owners of properties that will be dislocated. The following categories are eligible for compensation:

- People who have been in the surveyed part of the proposed road reserve and working areas;
- Persons losing temporary or permanent access or rights to services;
- Persons losing business or residential property;
- Landlords owning only cultivated land that is affected by the road reserve;
- People whose structures are to be affected by the road reserve;

- People who rent land for cultivation (sharecroppers) and their crops or trees are to be removed or damaged due to land acquisition activities;
- PAPs with loss of economic trees; and
- Public or community facilities such as churches, schools and water sources.

The Public Roads Act of 2002 does not consider compensation for customary bare land within road reserve unless if there is development on a particular piece of land or land is on title deed (like land in Nakonde municipality).

The cut-off date for being eligible for compensation and/ or resettlement assistance was the 20th February, 2015, which is the last day during which the socio-economic survey and the property evaluation were completed. Sufficient public awareness of the cut-off date was given to the community through the community meetings organized by the ward councillors, senior headmen/headwomen and the respective district commissioners. However, If there will be a significant time lag (i.e. more than 2 year) between the completion of the census/valuation and implementation of the RAP, a provision has been put in place for a repeat census.

14. Valuation and Compensation for Losses

The valuation of assets was mainly based on the principles resulting from the provisions laid out in the Constitution of Zambia, Chapter 1 of the Laws of Zambia, and Article 16 of the Constitution, which provides for the fundamental right to property and protects persons from the deprivation of property. A full census of affected persons and survey/valuation of their assets was completed on the cut-off date by surveying /valuation team who worked with local leadership to verify the identity of affected persons (i.e. NRCs were photocopied) and their physical assets.

Assessments for both permanent and semi-permanent structures were based on direct replacement cost. Structures that were slightly affected on the verandas were taken as a whole house. A notice of at least six (6) months will be served to the affected persons to vacate the project corridor. Therefore, a statutory disturbance allowance of 15% of the total sum assessed was awarded in accordance with Section (10) of the Land Acquisition Act Chapter 189 of the Laws of Zambia.

During PAP consultation on mode of compensation, all preferred cash compensation for their affected property. Besides compensation, each project affected household will receive disturbance allowance of 15%. Payment procedure shall predominantly be in Cash for amounts of up to ZMW5,000; and for the bigger amounts by Cheque or Electronic Funds Transfer. As few of the affected households have bank accounts, they will be assisted to open accounts in a local bank before payment can be made. An amount of ZMW200 per household will be paid as transport allowance to nearest bank.

To avoid disturbance to sources of income, the project will PAPs replacement cost in advance to enable construction of new shop. PAPs will be allowed to continue operating in the existing shops as they build new shops using compensation funds. Sufficient time will be given for them to replace their business shops. As part of rehabilitation, PAPs who are willing and able to work in construction shall be accorded priority in recruitment. The project in addition, will provide some support allowances to the vulnerable or marginalized and seriously, project affected households.

15. Entitlement Matrix

The entitlement matrix that follows summarizes the main types of losses as described above and the corresponding nature and scope of entitlement.

Types of Loss	Definition of Entitled Person	Compensation Policy	Recommendations
<ul style="list-style-type: none"> Loss of land 	<ul style="list-style-type: none"> Occupants who are using land for crop farming Occupants with land title (or in the process of obtaining) for the land. Occupants that have proof of purchase of the land 	<ul style="list-style-type: none"> Provide cash compensation of the whole land at full replacement costs at current market value for traditional land 	<ul style="list-style-type: none"> Compensate land owners at full replacement costs at current market value for traditional land
<ul style="list-style-type: none"> Loss of Primary structures (shops, houses) & secondary 	<ul style="list-style-type: none"> Legal owner of the structures 	<ul style="list-style-type: none"> Cash compensation at full replacement costs with no deduction for depreciation or state of existing structure 	<ul style="list-style-type: none"> Project should build all structures for the 16 vulnerable households All structures for the vulnerable households must be completed before destruction of the existing structure Must be close to essential household resources such as sources of water.
<ul style="list-style-type: none"> Loss of Cultural Structures (E.g. Ndeke SDA Church) 	<ul style="list-style-type: none"> Legal owner of the structure 	<ul style="list-style-type: none"> RDA builds an equivalent structure with better material and/or bigger size 	<ul style="list-style-type: none"> All structures must be completed before destruction of the existing structure
<ul style="list-style-type: none"> Loss of Public Facilities 	<ul style="list-style-type: none"> Legal owner of the structure 	<ul style="list-style-type: none"> RDA to build equivalent public facilities with better material and/or bigger size 	<ul style="list-style-type: none"> All structures must be completed before destruction of the existing structure
<ul style="list-style-type: none"> Standing Crops 	<ul style="list-style-type: none"> Farmers who cultivate the land 	<ul style="list-style-type: none"> Compensation in cash for crops based on the existing pattern of productivity as well as average yield and current average market price. 	<ul style="list-style-type: none"> PAPs will be given sufficient advance notice regarding evacuation. Crops grown in the 2015/2016 farming season will not be compensated. The work schedule has to take into account the crop seasons to avoid work, if possible, during the harvest season.

Types of Loss	Definition of Entitled Person	Compensation Policy	Recommendations
<ul style="list-style-type: none"> Trees 	<ul style="list-style-type: none"> People who utilize the land where trees are located 	<ul style="list-style-type: none"> Compensation in cash based on type of tree, gross market value, and loss of production based on yield at full maturity, market price of crop and number of years required for a replacement plant/tree to reach a similar level of maturity. 	<ul style="list-style-type: none"> Only private owners of the trees shall be compensated for them.
<ul style="list-style-type: none"> Loss of land 	<ul style="list-style-type: none"> Occupants who are using land for crop farming Occupants with land title (or in the process of obtaining) for the land. Occupants that have proof of purchase of the land 	<ul style="list-style-type: none"> Provide cash compensation of the whole land at full replacement costs at current market value for traditional land 	<ul style="list-style-type: none"> Compensate land owners at full replacement costs at current market value for traditional land
<ul style="list-style-type: none"> Loss of Primary structures (shops, houses) & secondary 	<ul style="list-style-type: none"> Legal owner of the structures 	<ul style="list-style-type: none"> Cash compensation at full replacement costs with no deduction for depreciation or state of existing structure 	<ul style="list-style-type: none"> Project should build all structures for the 16 vulnerable households All structures for the vulnerable households must be completed before destruction of the existing structure Must be close to essential household resources such as sources of water.
<ul style="list-style-type: none"> Loss of Cultural Structures (E.g. Ndeke SDA Church) 	<ul style="list-style-type: none"> Legal owner of the structure 	<ul style="list-style-type: none"> RDA builds an equivalent structure with better material and/or bigger size 	<ul style="list-style-type: none"> All structures must be completed before destruction of the existing structure
<ul style="list-style-type: none"> Loss of Public Facilities 	<ul style="list-style-type: none"> Legal owner of the structure 	<ul style="list-style-type: none"> RDA to build equivalent public facilities with better material and/or bigger size 	<ul style="list-style-type: none"> All structures must be completed before destruction of the existing structure
<ul style="list-style-type: none"> Standing Crops 	<ul style="list-style-type: none"> Farmers who cultivate the land 	<ul style="list-style-type: none"> Compensation in cash for crops based on the existing pattern of productivity as well as average yield and current average market price. 	<ul style="list-style-type: none"> PAPs will be given sufficient advance notice regarding evacuation. Crops grown in the 2015/2016 farming season will not be compensated. The work schedule has to take into account the crop seasons to avoid work, if possible, during the harvest season.
<ul style="list-style-type: none"> Trees 	<ul style="list-style-type: none"> People who utilize the land where trees are located 	<ul style="list-style-type: none"> Compensation in cash based on type of tree, gross market value, and loss of production based on yield at full maturity, market price of crop and number of years required for a replacement plant/tree to reach a similar level of maturity. 	<ul style="list-style-type: none"> Only private owners of the trees shall be compensated for them.

16. Implementation Schedule

The compensation issues and rehabilitation measures will be completed before civil works start. Civil works contracts will not be awarded unless required compensation payment has been completed. RAP implementation schedule is given in Chart below.

Chart: RAP Implementation Schedule

Task No	RAP implementation Schedule	2015										2016		Responsible Agency	
		March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb		
1	Completion of Draft RAP														BICON (Z) LTD & RDA
2	Approval of Draft RAP														RDA & AfDB
3	Training of RDA & Other RAP Implementation Teams (ongoing)														BICON (Z) LTD & AfDB
4	PAP/community consultation (ongoing)														RDA-ESU/ Consultant
5	Notification of entitlements														BICON (Z) LTD & RDA
6	Payment of compensation														Compensation Team
7	Notification to PAPs/community of demolition of structures and land														Community Liaison Team/RDA-ESU
8	Demolition of old structures and land														RDA/ Contractors
9	Replace any community facilities (i.e. boreholes) destroyed as part of requisition														RDA/ Contractors
11	Grievance mechanisms and procedures (ongoing)														Community Liaison Team & RDA-ESU
12	Performance monitoring (Ongoing)														ERCU
	External evaluation (bi-annual for three years)														Independent Evaluator

17. Costs and Budget

The compensation rate was developed based on market survey. The structures were valued without deducting any depreciation in material use. The quality of the house and materials used were some of the factors taken into considerations. With regard to fruit trees an average unit rate of ZMW 130 was applied. Bananas were counted as per *clump*. The total estimated cost for the compensation payment for assets including structures, land, displacement, rehabilitation, monitoring of implementation and support allowances is Five Million, Nine Hundred and Eighty Three Thousand,

Five Hundred and seventy nine Zambian Kwacha (ZMW5, 983, 579) The table below gives the summary of assets.

Table: Compensation costs for RAP

S.No.	Description	No of Structures	Cost of Structures (ZMW)	15% Disturbance Allowance (ZMW)	Total Cost (ZMW)
1.	Residences	44	1,540,000	231,000	1,771,000
2.	Road Side Shops	103	1,865,000	279,750	2,144,750
3.	Wall Fences	7	175,000	26,250	201,250
4.	Hand (water) pumps	22	181,588	27,237	208,825
5.	Titled land	0.136 ha	104,594	15,689	120,283
6.	Fruit trees	1065	692,250	103,834	796,084
7.	Support for vulnerable	16	172,000	25,800	197,425
8.	<i>Subtotal</i>				5,439,617
9.	Monitoring Implementation (10%)				543,962
10.	Grand Total				5,983,579

18. 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 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. A qualitative and quantitative evaluations will be made to ascertain whether the resettlers and affected people achieve at the minimum their pre- project standard of living as a result of the livelihood restoration programme.

The objectives of the resettlement monitoring will be to verify that:-

- Activities described in the RAP are implemented fully and on time. These are holding stakeholder consultation meetings and training of the PAP's in survival activities;
- Eligible PAPs receive their full compensation entitlements within agreed time frames;
- RAP activities and compensation measures are effective in sustainable enhancing (or at least restoring) PAPs' living standards and income levels;
- Complaints and grievances lodged by PAPs are followed up and that where necessary, appropriate corrective actions are implemented; and
- If necessary, changes in the RAP procedure are made to improve delivery of entitlements to the RAPs.

A framework shall be developed which includes a review of financial disbursements, compensation complaints and grievance redress, adherence to compensation payment schedule and support of vulnerable households. Monitoring will be both internal monitoring by RDA and External evaluations by external consultants and other national stakeholders. In addition will be the completion audit.

A selected number of key indicators to be monitored include:

- 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.
- d) *Impact indicators* – will measure the key dimensions of impacts to establish whether the goals of the Resettlement Plan will be achieved.
- e) *Process indicators* – will measure and assess implementation processes.

19. Conclusions and Recommendations

It is the intention that this Resettlement and Action Plan will be implemented by compensating the individuals affected by the proposed road upgrading activities. The compensation and assistance allowances will enable the PAPs to relocate and pave way for the road construction. In compliance with both the national regulations and the AfDB policy and procedures, all PAPs will be resettled and compensated before the construction activities commence.