Environmental and Social Impact Assessment and Resettlement Action Plan Summary

for the proposed

Rehabilitation of Serenje-Mpika Road (T2)

August, 2017

Prepared for
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ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT SUMMARY

Project Title: North-South Corridor Transport Improvement Project (Serenje-Mpika Section)
Project Number: P-ZM-DB0-004
Country: Zambia
Department: Regional Department, South Division: RDGS.3

INTRODUCTION

The Serenje–Mpika Road forms a part of the Zambian Great North Road (T2) that is a section of international routes i.e. the Trans-Africa Highway and the North-South Corridor (NSC) which is a joint COMESA/East African Community/South African Development Corporation (COMESA/EAC/SADC) Aid for Trade initiative. Its primary aim is to reduce the time, and cost of transport along this priority Corridor which links the port of Dar-es-Salaam in Tanzania to the Copper-belt (Southern DR Congo and Northern Zambia) and connects to the southern ports of South Africa specifically the port of Durban. The Corridor system, with its spurs, services eight (8) countries -Tanzania, DR Congo, Zambia, Malawi, Botswana, Zimbabwe, Mozambique, and South Africa. The project has been endorsed by the SADC/EAC/COMESA Tripartite that aims to improve the regional transport infrastructure with a view to supporting economic and social development programs along the Trans-Africa Highway/North-South Corridor.

The project road was originally constructed as a bitumen surfaced road in 1970s and is now beyond its design life, notwithstanding the emergency and periodic maintenance interventions. It has received a number of rehabilitation and periodic maintenance since its initial construction, commencing with emergency maintenance between 1995 and World Bank funded periodic maintenance between 1998 and 2000. This intervention provided a limited design life intervention, with focus on partial reconstruction for severally deteriorated sections and double seal treatment for most sections. Follow up maintenance was not fully undertaken, and consequently in 2011 Government of Zambia (GRZ) commissioned two emergency repair works contracts for the section. The poor condition of the road would be detrimental to the movement of goods and services, and therefore intervention driven by ensuring that the critical route does not present a transit bottleneck for trade in the region. The Bank is already financing the Chinsali–Nakonde section (approved July 2015) while the appraisal for the Mpika–Chinsali section is advanced with EU/European Investment Bank (EIB) support. The Serenje–Mpika (238km) section is complementary to these.

POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

Policy Framework: The GRZ National Environmental policy emphasizes the need for Zambia to pursue development on a sustainable path implying the need for sound environmental and natural resources exploitation and management. Other policy instruments of relevance to this road project include; the Zambia Vision 2030, Guidelines for Road Rehabilitation Environmental and Maintenance Work, 1997, National Resettlement Policy Guidelines, the National Gender policy 2015, the National HIV/AIDS/STI/TB policy 2007 and the National Population Policy 2007. The Road Development Agency (RDA) Strategy Plan for 2012-2016 and the Zambia Land Policy 2015. These amongst others, provide
sectoral frameworks for the mainstreaming of their thematic areas into the planned rehabilitation of road project.

Legal Framework: Legislations governing environmental issues in Zambia and of relevance to the road project include: The Constitution of Zambia (Amendment) Act, 2016; the Environmental Management Act 2011, the Forestry Act, 2015; the National Road Fund Agency Act No. 13 of 2002, Road Development Agency Act No. 12 of 2002; the Occupational Health and Safety Act No. 36 of 2010; s the Employment (Amendment) Act, 2015, and the Local Government Act Cap. 281 of the laws of Zambia and the Lands Acquisition Act Cap. 189. These legal instruments outline compliance requirements during the various stages of implementation of this road project.

ESIA requirements: According to AfDB Environmental and Social Assessment Procedures of 2015 places projects that are financed by the Bank into four broad categories based a combination of considerations. These projects categories are; Category 1, 2, 3 and 4. With specific reference to the Serenje-Mpika road, since it involves major rehabilitation works and stretches over 238km and affects well over 200 PAPs, the project is a Category 1 type which requires a detailed ESIA to be conducted before its implementation.

Similarly, the Zambia EIA Regulations under Part II Clause 7 (2) (a) stipulates that, an ESIA is required for any project specified in the Second Schedule of the Regulations. Furthermore, the Second Schedule of the Regulations, under Item 2 on Transportation subsection (a) specifies that “all major roads outside urban areas, the construction of new roads and major improvements over 10km in length. Based on this, the road project qualifies for an ESIA to be conducted since it’s 238km long.

Applicable AfDB Policies: The Bank has published its Integrated Safeguards System (ISS) which is designed to promote the sustainability of project outcomes by protecting the environment and people from the potentially adverse impacts of projects. The ISS embodies the Integrated Safeguards Policy Statement and five Operational Safeguards. The Bank’s Operational Safeguards include:

a. Operational Safeguard 1: For environmental and social assessment and covers aspects of project categorization and environmental and social assessment requirements;

b. Operational Safeguard 2: Consolidates the policy commitments and requirements set out in the Bank’s policy on involuntary resettlement;

c. Operational Safeguard 3: Is focused on Biodiversity and ecosystem services which aims to conserve biological diversity and promote the sustainable use of natural resources;

d. Operational Safeguard 4: Addresses pollution prevention and control, hazardous materials and resource efficiency covering a range of key impacts of pollution, waste, and hazardous materials including greenhouse gas accounting; and

e. Operational Safeguard 5: With a focus on labor conditions, health and safety requirements for workers’ conditions, rights and protection from abuse or exploitation.

These bank policy instruments have informed the ESIA process for the Serenje-Mpika road project to ensure the project is both environmentally and socially sound meeting not only national environmental requirements but also, international commitments.

Administrative Framework: Some of the key institutions in the proposed road project include:
a. **Zambia Environment Management Agency-ZEMA:** a statutory agency for the protection of the environment and with reference to the road project, the ZEMA has the overall responsibility of approving and monitoring the project’s compliance in line with its Decision Letter Conditions as well as other standards relating to environment;

b. **Road Development Agency-RDA:** a semi-autonomous government entity responsible for the administrative control, planning, development and maintenance of all roads and related structures including bridges in Zambia. RDA’s Environmental and Social Management Unit (ESMU) will be responsible for monitoring compliance both construction and operation of the road project;

c. **National Road Fund Agency-NRFA:** Principally, it is to secure and manage the funds in a cost-effective manner so as to ensure timely routine and periodic maintenance of the core road network; and

d. **Road Transport and Safety Agency:** Has the oversight role in terms of traffic regulation, ensuring the road safety engineering and amongst others, safety campaigns through education and publicity.

Others include Ministry of Works and Supply which is a lead sector Ministry for land valuation affairs (evaluation of Government property), Ministry of Lands and Natural Resources which is lead agency on environment affairs, Ministry of Transport and Communication and Ministry of Housing and Infrastructure Development, the National HIV/AIDS Secretariat, lower administrative entities such as Provisional Administrative Structures (especially the Provisional Committees), the Chiefdoms, the NGOs and CBOs are key in the road project.

**PROJECT DESCRIPTION AND JUSTIFICATION**

**Project Description**

Currently, Serenje-Mapika road was originally built to a Class IA bitumen type with two lane flexible pavement. The existing pavement generally consists of double bituminous surface dressing with some sections with reseal or “cape seal” on top, 150mm cement stabilized base course and 150mm granular sub-base. Its carriageway width for most of the length is in the range of 5.8-6.1m wide. However, due to poor maintenance regime, the road has rapidly deterioration with some sections of the road disintegrating, posing a risk of complete failure in the near future. In addition, there several edge breaks which have reduced the original width of the lanes. The road project is planned to be a full pavement reconstruction involving Asphalt wearing course. Strengthening in some sections shall include an asphalt overlay to existing pavement and using 50-70mm asphalt concrete. The intervention shall include partial widening to achieve width of 7m for carriageway and to provide the 2.0m wide shoulders.

**PROJECT ACTIVITIES**

The project will involve mainly three activities summarized as follows:

i. **Pre-construction Phase**-which includes feasibility and detailed engineering studies as well as ESIA and RAP. The designs are currently being finalized;
ii. **Construction Phase**-This will involve construction of the road pavement and bridges/culverts. The component of consultancy services consists of design review and construction supervision of civil works; and

iii. **Post-construction phase**-This phase will cover inspection and technical audits in addition to operation and maintenance of the road. Sensitization of the road users and installation of other accident intervention measures may also take place during this phase.

**PROJECT JUSTIFICATION**

The justification for the planned rehabilitation of Serenje-Mpika is premised on the following:

The Serenje–Mpika Road forms part of the Zambian Great North Road which is a section of international routes i.e. the Trans-Africa Highway and the North-South Corridor (NSC) which is a joint COMESA/EAC/SADC Aid for Trade initiative whose primary aim is to reduce the time, and cost of transport along this priority Corridor which links the port of Dar-es-Salaam in Tanzania to the Copperbelt (Southern DR Congo and Northern Zambia) and connects to the southern ports of South Africa specifically, the port of Durban. The Corridor system, with its spurs, services eight (8) countries-Tanzania, DR Congo, Zambia, Malawi, Botswana, Zimbabwe, Mozambique, and South Africa.

**The project is envisaged to improve the living standards** and expand the productive capacity of the population in this region by contributing to improved access to the transport services thereby attaining sustainable, safe road network that facilitates economic growth and the improvement lives in Zambia at large. **Contribution to poverty reduction**, Zambia being a landlocked country needs to ensure better connectivity for its population access to market outlets for its increasing commercialized agriculture. This emphasis on access requires a deliberate initiative in allocating resources mainly for infrastructure investments with more focus on roads which connect the country to areas with high agricultural potential (such as northern Zambia) through roads with cross-border trade opportunities as Serenje-Mpika. No doubt, more success in agribusiness, including agro-processing will thrive on lower costs of operation including transport as envisaged in this project. **In addition, the road goes through high agricultural productivity** in the Districts of Nkushi, Chitambo and Mpika which are among the main producers of export crops such as maize and wheat as such, the road will provide improved transportation of agricultural produce to markets internally and for export in the region to Tanzania and to markets in Lusaka and beyond south.

**With reference to tourism support, the road will improve access** to the tourists’ sites such as Nachikufu caves 55km south of Mpika, Chipoma Falls on R. Lubu and Lwitikila Falls (15km from Mpika) close to Isoka towards Chinasali areas. Other areas of tourist interest include; North Luangwa and South Lwangwa, Lumimba and Lavushi Manda National Parks. In addition, there are a number of Game management areas close to the road corridor of Serenje-Mpika road. In all the road will support the growth of the tourism sector. **Furthermore, the planned rehabilitation of road the will result in a fairly smooth** pavement surface as opposed to its current uneven surface in a number of sections which has led to accidents especially for the heavy trucks whose trailers lose control after suddenly going over potholes or uneven such surfaces.
DESCRIPTION OF THE PROJECT ENVIRONMENT

Physical Environment: Topography: Serenje areas of the road project are at an altitude of 1120m above mean sea level (amsl). The Muchinga escarpment dominates the landscape on the southeast while the rest of the district is composed of scattered hills and a soft undulating valley in the southern part. From Serenje, the project road follows the Muchinga Escarpment which borders the project area on the right-hand side (mostly eastern side). The Muchinga Escarpment rises to 1800m masl along the edge of the main Zambian Plateau, which is around 1500m near Mpika. The town of Mpika is at an elevation of 1440m masl.

Climate: The area between Serenje and Mpika 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.

Geology: The geology of the project area consists of quartzite in Serenje for about 6km which is followed by coarsely non-pyroclastic biotite granite and porphyritic granite until about 2km after Nakampati stream. The geology then changes to gneiss. The porphyroblastic granite reappears near Lake Lusiwasi for about 15km before reverting to gneisses for a short distance. The Kanona Formation near Kanona consists of schistose gneisses and schists. The road from Kanona passes through gneissose granite and near Chilonga Mission is Chilonga formation consisting of pelites.

Hydrology: The road project areas are rich with perennial streams with the main Congo–Zambezi watershed running west-east cutting the areas in half, hence, main river systems drain north and south. The Luombwa River which flows in the north rises at the western end of the watershed, crosses the Katanga and joins the Luapula River. Its tributaries are Kasanka and Munte rivers. A large reservoir called Lusiwasi is located within 40m from the road at Chitambo Mission junction (at 77+000km). Rivers in the east of Mpika run from the Muchinga Escarpment and flow via the Luangwa and Zambezi rivers into the Indian Ocean.

Surface water quality: The surface water quality samples were collected from the following rivers; Mulu, Lubumbala, Masanta, Mansana and Kalulu along the road alignment and the tests were done using standard scientific methods. The results from the tests showed that, by large, the water bodies within the proposed project area are relatively unpolluted with exception of microbiological aspects for some sources, the water conforms to the World Health Organization (WHO) Guidelines and Zambian Standards for drinking water. This is expected as all of these water bodies drain an environment that is literary free from anthropogenic activities. The pH of the water bodies during the period of the study ranged between 7.04 to 7.47.

Soils: From an environmental standpoint, the soils are relatively stable under the natural woodland. They are, however, easily susceptible to physical degradation if subjected to disturbances like excavation and cultivation which points to the need for measures to control erosion during and after excavations soils are exposed following excavations works.

Biological environment
Flora: The vegetation type between the Serenje–Mpika Road is the typical Miombo woodland which is of two storeyed with mainly an open and light crown of semi-evergreen to deciduous trees between 15-21m high. Dominant trees are mainly species of Brachystegia, Isoberlinia, Julbernardia and Marquesia macroura with Pericopsis angolensis, Anisophylea boehmii, Erythrophleum africanum and Parinari curatellifolia as common associates. The road also goes through sections of the Serenje Forest Reserve, Kanona Forest Reserve and Mpika Forest Reserve all of which are dominated by Brachystegia–Julbernardia tree species. The dominant grasses along the road are of Hyparrhenia, Andropogon and Loudetia species. The dominant trees are mainly species of Brachystegia and Julbernardia with Pericopsis angolensis, Anisophylea boehmii, Erythrophleum africanum, Parinari curatellifolia as common associates. **It is important to note that, though the road project will follow its existing alignment without any re-alignments or land uptake hence, there will be minimal impacts on the vegetation resources in any protected areas. In addition, the preparation of asphalt will be done by use of motorized internal heating system without any use of open fire using firewood which would bring about cutting of vegetation.**

Fauna: Based on information from Zambia Wildlife Authority (ZAWA) officials in both Serenje and Mpika (especially across protected areas of Lavushi Manda National Park) it is clear that, most of the wildlife in areas through which the road passes is restricted outside the 50m road corridor. Rarely does wildlife especially large mammals stray in the busy road corridor with a lot of human disturbance. However, based on the interviews, the following groups of wildlife are commonly seen by the locals and wildlife authorities: *Cercopithecus pygerythrus* (Vervet Monkeys), *Otolemur crassicaudatus* (African Hare), *Paraxerus cepapi* (Bushbaby), *Potamochoerus porcus* (Bush Pig), *Sylvicapra grimmia* (Common Duiker). Others include reptiles such as *Kinixys spekii* (Tortoise), *Python sebae natalensis* (African Python) and *Bitis arietans arietans* (Puff Adder). **This wildlife is of least conservation concern in terms of not being rare, endangered or vulnerable as per the IUCN Red Data Lists implying implementation of the project will not have any adverse direct and indirect impacts on wildlife resources.**

Social-economic environment

Population: The 2010 Census puts the total population of the Serenje district at 62,327. Of this population, 31,315 were females while 31,012 were males. The population figures indicate that the district had slightly more females than males. The total number of households according to the same document 11,996 putting the number of inhabitants per household at about (5) five. No gender disaggregation of the households is available. For Mpika, its population is at that time put to at 211,425 with an average annual growth rate of 3.8%. Of this population, it is estimated that only about 30% resides in the urban areas while the remaining 70% is in the rural areas.

Land administration and land use

**Statutory (leasehold) land tenure system:** Under this system, land is vested in the President and alienation by the President on behalf of the people of Zambia through the Commissioner of Lands. Local Authorities are delegated with powers to administer land on behalf of the Commissioner of Lands, to applicants and recommend suitable developers to the Commissioner for approval. The Commissioner of Lands must approve these recommendations from Local Authorities before land can be developed.
Traditional (customary) land tenure statutory: Under this system, land is held in common ownership by the community in perpetuity. It is transferable following family or community traits but cannot be sold and its occupancy rights and administration are under the Chief. The Commissioner of Lands cannot alienate land situated in this area unless with consent from the local Chief. This is the predominant land administration system in the project areas since most of the land falls within chiefdoms. However, the Law provides for the conversion of customary land into statutory land. In this case, the Council or developers first seek authority from the chief to acquire land from the chief’s area which is later recommended to the Commissioner of Lands for approval.

Economic activities

Agriculture: There are three types of registered farmers in the districts and they are: commercial farmers who are farmers who have more than 10ha of land under cultivation and there are 6 such type of farmers in the district. The others are the emergent farmers who cultivate between 2-10 ha of land. The other category are small scale farmers who typically cultivate less than 2ha of land. This group comprises the remaining number of registered farmers. Generally, these are resource poor and usually cultivate their land by hand.

Livelihoods Activities and Strategies: 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 with observed resurgence in the production of traditional crops.

Income composition: Results of the baseline survey show that, a majority of households in the project area earn less than ZMW300 per month, with a significant number of the 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.

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). 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. Only 60% of households owned an average of two consumer durable items.

Gender equality: No doubt like many rural parts in Africa, the areas of Serenje-Mpika equally experience glaring gender disparity with women taking on many livelihood ventures and the
households levels. Women are key in household farming, roadside trading to earn additional income for the families and are responsible for the welfare and health of the children. From discussions during the ESIA, the women have few employment opportunities in rural areas especially in road projects as compared to men. To address this disparity and scale up women empowerment, GRZ has in place a National Gender Policy as a tool to guide mainstreaming gender interventions into the development process and planning into the sectors of economy. The gender policy is to facilitate Zambia’s gender mainstreaming programs in all sectors of the national economy. In line with these, RDA has embarked on mainstreaming gender into its policies, plans and activities though the framework tools for this process are at their formative stages. RDA has also two staff i.e. sociologists in its Environmental and Social Management Unit who handle gender issues in its road projects in terms of monitoring compliance and operations of the contractors in line with national gender guidelines. At the district levels, through Community Development Departments together with the NGOs, there are deliberate steps to promote women based organizations in development work and in Mpika and Serenje districts, they have Food Security Pack Programme (FSPP) to address food vulnerability at households. Therefore, in the Serenje-Mpika road project, RDA proposes to ensure that, the contractors set aside at least 20% of road work/activities to be undertaken by women especially controlling traffic, masonry works in terms of stone pitching, surveying, clerical based work, medical services and working in contractors’ canteen. For their effective involvement, the contractor is to put in place support facilities to enhance their participation such as separate toilets for male and female workers, observe the GRZ 120 calendar maternity leave and 5 days for paternity leave and some sheds for children amongst others.

**Traditional and religious practices:** The family structure within this group is based on monogamous, matrilocal marriage where the husband migrates to settle in the wife’s birth place. However, the trend is slowly changing with cases of patrilocal marriages where the wife relocates to the husbands’ birth place becoming more widespread. The project areas as is in Zambia, a number of traditional ceremonies the most celebrated ceremony in the district among the Lala people is Chibwela Mushi, which brings together the Lala people of Serenje and the Swaka of Mkushi. Celebrations are held every September in Mkushi district. Traditional ceremonies in Mpika district are practiced annually in commemoration of some historical events. The major traditional ceremonies are Chinamanongo by the Bisa speaking people under Senior Chief Kopa and Malaila ceremony spearheaded by Chief Nabwalya.

**Historical and archeological sites:** Nachikufu caves. Nachikufu Cave, Mpika District thought to be some 18,000 years old rock paintings at 12°15' S 31°10' E. This is one of the archaeological sites of significance which has the potential to attract both domestic and foreign tourists. It is located 2.2km off Serenje-Mpika road. The cave is an ancient artifact where the Stone Age people lived. It has some schematic paintings of archeological significance. Government maintains it as a cultural and historical heritage site. On average, annually, the site reportedly receives over 500 foreign visitors leave alone schools and local tour groups. In Serenje, major archaeological sites include the Nsalu caves, the Kundalila falls, the Sancha rock, and the David Livingstone memorial site which are all located some distance from the road.

**HIV/AIDS prevalence:** Based on UNAIDS Report of 2014, Zambia now has a generalized epidemic, with HIV spreading throughout the population as opposed to being concentrated in specific populations. Adult HIV prevalence peaked in the 1990s, and was estimated at 13.3% in the Zambia
Demographic and Health Study (ZDHS) 2013-14 with prevalence in women higher than in men (15.1% compared to 11.3%). However, trends indicate a continuous drop in HIV prevalence at a national level. Provincial prevalence levels range from 7% to 21% (2007). The Northern and Northwestern Provinces have reportedly the lowest HIV prevalence levels as compared to other regions (UNAIDS, 2014).

ANALYSIS OF ALTERNATIVES

The plan to rehabilitate Serenje-Mpika road is an integral part of the RDA’s Strategy Plan 2012-2016 taking into account its centrality to the country’s quest to eliminate trade bottlenecks and hindrance to access regional markets in the wider COMESA, SADC and EAC regions. This implies that, the rehabilitation of this road will improve connectivity between Zambia and northern trade partners in the north and, south of the country. Therefore, the Analysis of the Alternatives has focused on the implementation modalities of the road project taking into account, a combination of factors such as environmental, social and economic dimensions. In addition, it is important to note that this is already an existing paved road which only requires rehabilitation. Based on the above, the following Alternatives were considered during the ESIA:


b. Alternative 02: Routine Maintenance Option.

c. Alternative 03: Paving with Asphalt to class 1.

*The Do-Nothing Scenario:* this Scenario implies that, the Serenje-Mpika road would remain without any rehabilitation or maintenance interventions which will leave the road in worse condition with continued deterioration characterized emergence and rapid development of gaping potholes in the carriageway as well as deterioration of its drainage infrastructures alongside loss of road safety furniture thereby making it risky for public use. On the basis of these, the Do-Nothing Option was dropped from further consideration as it is not within GRZ aspirations as enshrined in the RDA strategy plan.

*The Routine Maintenance Option:* this was considered in terms of annual maintenance costs computed based on an “ideal” maintenance schedule rather than a “minimum” or “absolute minimum” schedule which presumes that, the road will always be maintained in a good condition. From the Feasibility Study of 2013, it is concluded that, the road pavement surface has greatly deteriorated and is generally weaker which merits major rehabilitation involving over-lay of asphalt and strengthening. Against this, both the position of RDA and the findings of the Feasibility Study all concur that, maintenance is not a technically and economically viable option for Serenje-Mpika road section as is already the case with Chansali-Nakonde and Chinsali-Mpika sections all along the same highway which have been set for rehabilitation. Therefore, this Option was equally dropped from further consideration.

*Rehabilitation with Asphalt:* It is therefore proposed to rehabilitate the road by surfacing using crushed stones which are bonded using asphalt. The surfacing will be made from already mixed crushed stones and asphalt (hot mix) which will then be applied on the road base. The bonding between the road base and the surfacing will be enhanced by tack coat which will be spread on
the road base before the surfacing material is applied. This was taken as a preferred Option/Alternative in implementing the road project.

POTENTIAL IMPACTS AND MITIGATION/ENHANCEMENT MEASURES

Positive Impacts
The major positive environmental and social impacts anticipated as a result of the project are:

a. The road project will improve regional connectivity, as the road forms part of a major highway linking Zambia to Tanzania in the north while in the south, the road links with routes to as far as Zimbabwe and South Africa which in a way will improve trade in the COMESA/SADC regions;

b. Enhanced Economic Activity, once the road is rehabilitated, the road will lead to improved access to markets and also open up business opportunities for the local people in its vicinity hence, better livelihoods will be experienced at household levels;

c. Income from construction materials-road construction will require supply of gravel and stone aggregate. Other materials such as lime, bitumen, water, cement and steel especially for bridges. Procurement of these resources will be sources of income to suppliers and owners of land where quarries will be sourced;

d. The northern region where the road project falls is considered the food basket in Zambia as such, the road will improve transportation of agricultural produce to markets in the neighboring countries especially Tanzania. The project area also has potential to develop its livestock industry especially on the Nkushi-Chitambo section of the road;

e. It will also create employment opportunities, and it is estimated that, about 800-1,200 persons mostly within the communities will be employed on the project alongside other experts in highway engineering, surveyors and inspectors;

f. Improvement of the road will have positive, significant and long-term local, national and regional socio-economic impacts. These include: reduced vehicle wear/tear; reduced travel time; safer journeys with reduced accident risk. Accident rates will likely change following improvement in road geometry and pavement. Rehabilitation the project road will improve visibility, reduce braking distances and have road signs installed where none existed; and

g. Furthermore, the road will lead to improved tourism as it connects to some tourist sites such as Nacikufu caves (some 55km to Mpika), Chipoma Falls on R. Lubu towards Chinsali and Lwitikila Falls (15km from Mpika) close to Isoka towards Chinasali areas. Other areas of tourist interest include; Nsalu caves, the Kundalila falls, the Sancha rock, and the David Livingstone memorial site.

Negative Impacts
It is anticipated potential project negative impacts include:

a. Impacts relating to surveying and mapping of the route will likely cause anxiety and speculation amongst the communities. This is to be mitigated through community sensitization programmes outlined in the RAP;

b. The road works will be undertaken while the road remains open to traffic which possess a number of risks to the travelling public and to the workers. It is important, works should be scheduled bearing in mind the need to ensure road remains open and safe to traffic;
c. **Risks of potential slope failures** in hilly areas of can be a challenge to road use during road operations. This is to be mitigated through grass planting, use of gabion boxes to stabilize slopes, and good engineering measures to establish stable slope;

d. **Disruption of roadside trade activities** which can arise through relocation of roadside makeshift kiosks in Pensulo, Luapula Junction, Kapengwe, Muso and Kalonje growth centers. This will impact on mainly women who are operators of such business enterprises and this is to be mitigated through advance notification for project affected persons to relocate and there will be adequate, fair, and prompt compensation for such PAPs as provided in the RAP;

e. **The impacts on public water sources** especially bore holes in two locations in the road reserve. However, the water sources will not be impacted because the rehabilitation works will be restricted to the existing carriage-way though those PAPs will be notified and sensitized about the road project as well as on measures for the protection of water sources;

f. **Dust and air emissions** from earthworks and operating plant and equipment and it is to be managed through routine sprinkling of water on cut and open surfaces during earthworks;

g. Impacts on land will include erosion and soil loss, degradation through, loss of land and changes in land use, due to surface runoff and general loss of vegetation.

h. A potential influx in the population to the area for various jobs in the area can be associated with risky behaviors among the people with increased risk of STDs/STIs including HIV/AIDS on both the workers and the communities. This is to be mitigated through engaging an HIV/AIDS service provider to supply condoms, sensitize the communities and the workers on both HIV/AIDS and associated illnesses such Tuberculosis (TB). This can further be mitigated by giving priority to the recruitment of workers from the neighboring communities as opposed to importing labor from distant areas thereby increasing risks of HIV/AIDS infections in the workers and communities in the project areas;

i. **Asphalt plant operation impacts** - re-surfacing of 238km road will require considerable quantities of bitumen. Its preparation, storage and application could have socio-environmental impacts. If firewood is used in heating bitumen, considerable cords of wood would be necessary representing a significant loss of vegetation for the entire road length. For the foregoing reasons and the fact that alternative heating fuel other than wood is highly recommended to be adopted in the project and this impact is of moderate nature;

j. There are **potential impacts relating to management and disposal of asphalt** that will be scarified and removed from the carriageway during rehabilitation works. It is proposed that, such material be pulverized and used as sub-base purposes on the road;

k. **Occupational health safety risks for workers** - Road works will have the occupational health and safety risks with potential to cause serious injuries to workers; burns (handling hot bitumen, welding/hot works, etc.); electrocution; 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. Significance of this impact is deemed as major and the workers should be provided with Personal Protection Equipment - PPEs;

l. **Issues of borrow pits**, establishment of access routes and subsequent opening of borrow pits represent large negative impacts of the project. Before exploitation of the borrow pits is undertaken, the contractor will secure lease from the landlords for borrow areas. Stock pile cut to spoil materials from the borrow pits in the vicinity of the pits and with the approval of the Resident Engineer (RE) such materials be used in restoration at the end of the project;

m. **Stone quarries and crushing units**: will require independent ESIsAs which should be approved by ZEMA before embarking on the stone processing works;
n. **PAPS affected by the road rehabilitation project:** it is estimated that, about 371 heads of households will be affected in terms loss of residential structures, commercial buildings, combined commercial and residential structures. For these, an indicative RAP compensation cost of ZMW 9,199,365 (USD 1,022,151.66) will be required to pay the PAPs. However, these figures both for the properties and compensation will need to be updated during design review of the road project to get the exact figures to conclusively guide the compensation process in accordance with GRZ land acquisition laws;

o. **Haulage of earth 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, excessive dust in dwellings poses a short-term health impact. This should be mitigated through routine sprinkling of water on access routes and erecting speed control devices to check speed limits;

p. **Storage of construction materials** - During the construction period, there will be a need to stockpile and store assorted materials at or near the construction site so as to ensure easy and uninterrupted access to supplies. This will lead to pollution of land and watercourses by spilling and wash away of materials.

q. On the **management of cut to spoil**, the equipment works areas and its general civil works is expected to generate sizeable volumes of cut to spoil materials. The supervising consultant should approve disposal sites for cut to spoil materials not to be disposed on the road reserve, forests or wetlands along the road;

r. In order to address **gender concerns** in the project, there should be a specialist to conduct sensitization campaigns to create awareness on gender mainstreaming in the project;

s. **Loss of vegetation:** to be mitigated through beautification drives through tree planting in urban areas, restricting vegetation clearance to areas for works sites;

**t. As for physical cultural resources**, the ESIA has prepared a Chance Finds Procedure to guide recovery and management of any accidental excavations of archaeological resources in the road project; and

u. **Risks of the new road effect leading to accidents** - It is likely that, once the road is rehabilitated, drivers on a newly improved road will be tempted to over-speed what is popularly referred to as “new road effect” which usually happens in the first months of commissioning a new road and is associated with frequent road accidents. It is noted that, the Road Transport and Safety Agency will step up vigilance on the rehabilitated road to ensure the road users observe the set mandatory 100km/hour speed limit.

**Mitigations Enhancement Measures**

The ESIA has outlined a number of positive as well as positive impacts for mitigating negative impacts. However, these measures can further be augmented through a number of measures such as:

- **Information Disclosure about the project:** The project is envisaged to employ close 800 people during its implementation which will be a large positive impact in terms of poverty reduction at household levels. In order to enhance this impact, and provide information on available job opportunities to the wider community, it is proposed that, the project
works closely with the District Labor Officers in the districts of Serenje, Chitambo and Mpika to disclose available employment opportunities through accessible and credible media outlets which will increase the wider public access to information on employment opportunities in the project;

b. **In addition, both the contractors and the Supervising Engineers** should have in their teams Environmental/Social Management Specialists whose roles will be to guide and oversee the implementation of the mitigation measures proposed in this ESIA. For the contractor, the Environmental/Social Specialist ought to be a full-time employee on the project. Furthermore, these Specialists should also be attending project monthly site meetings so as ably articulate environmental and social issues in the project during discussions and proving in-put into follow-up actions;

c. It is also important to ensure that, **environmental and social mitigation costs in are integrated into the bills of quantities (BoQs)** as articulated in the ESIA as well as ESIA Decision Letter issued by ZEMA. Such costs should include; measures for soil erosion control, tree planting and re-grassing, dust control measures, provision of PPEs to the workers, storm water control, mobilization and awareness sensitization, and HIV/AIDS interventions;

d. It is also recognized that, the road project ought to conduct **Environmental Audits** according to the timelines set out by ZEMA. The Audit should also take into account, compliance requirements of AfDB as well. The Audit will highlight levels of compliance in the project and propose corrective measures; and

e. The Need to prepare specific plans to further address impacts that are likely to be triggered by the project. In particular, the project will likely trigger issues of HIV/AIDS, gender concerns, grievances arising from a number of aspects, traffic management, labor management and occupational health safety amongst others. The contractors such plans for approval of RE. The Plans include; Construction Environmental and Social Management Plan (CESMP), Traffic Management Plan (TMP), HIV/AIDS Management Plan, Gender Mainstreaming Plan, Emergency Response Plan, and OHS Plan.

It is important that, the contractor prepares these plans in line with the specifics of the project to give them the matching details to ensure they will be responsive to issues in the project triggered by its implementation.

**COMPLEMENTARY INITIATIVES**

During the ESIA study, it was observed that, women selling fresh fruits, tomatoes, cassava, dry fish and potatoes as well as other boiled food stuffs at the roadsides mainly in Pensulo, Muso roadside markets and in Luapula Junction along Serenje-Mpika road do operate under very hard conditions in that, they have shelters, no public toilets and during harvest periods they sell their food items to the travelers late in the evening much as the markets have no electricity. In addition, some of them come to the markets with their young children who equally suffer under harsh weather conditions of scotching sun or rain. Furthermore, since their markets are located in lay bays/bus stops, sometimes passengers abroad the buses get out of the buses and help themselves in nearby bushes within these markets a situation which further aggravates the public
health risks of these women including the wider the wider public in the vicinity. It is also noted that, there is no storage room for merchandize at the end of the day work.

It is proposed that, the road project considers building two roadside markets at Luapula Junction and at Muso lay by stage in Chitambo. These two areas by the time of this report were not involved is marketing of charcoal which the ESIA considers acceptable criteria of selecting the beneficiary groups. Secondly, the number of participating women in each of the groups ranges from 30-70 members and they have some leadership in place which needs to be streamlined before constructing the markets.

The ESIA has proposed the road project could construct some roadside shelters and stalls, separate public toilets for men and women, storage rooms for the merchandize and solar lighting. This intervention is deemed viable in that, on a number of occasions commuter buses and taxis stop over for a while to load passengers and during that time, the women get opportunities to sell their food items to the travelers. However, details of the shelters will further be refined during the Project Appraisal phase.

Other complementary initiatives include:

a. Tree Planting: as part of road corridor beautification ventures especially along trading/urban centers as part of the beautification drives in the road corridor;

b. 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 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 Road Transport and Safety Agency, and the Police.

c. Malaria and HIV/AIDS/STI Awareness Campaign: are the most prevalent health concerns of the population and the project has incorporated in its design, awareness and prevention programs against the spread of HIV/AIDS and STI/TB. RDA will develop ToRs for recruitment of Service Providers. To ensure sustainability of programs and activities, RDA will impress it upon the service provider to engage various networks at provincial and district levels (i.e. District and Provincial HIV/AIDS Task Forces alongside some NGOs.

d. Gender Mainstreaming: In line with the Bank’s policy on Gender, the project will mainstream gender and ensure equal opportunities between men and women in project planning, implementation and benefits in line with the following principles: (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.

ENVIRONMENTAL HAZARD MANAGEMENT

Some road rehabilitation activities will likely involve handling, storage and use of some hazardous materials which can have adverse health and safety impacts to the workers and the wider environment. In order to manage such risks and associated hazards on this road project, the following measures are proposed and are to be put in place by the contractor:

a. handling hazardous material through a competent licensed handler;

b. having in place, Emergency Response Plan in case of fires, accidents and general rescue strategy for the workers on the project;

c. exercising a code of conduct that minimizes risks on the site, for instance, unnecessarily carrying naked flames, restricted cigarette smoking in all premises in the project;

d. having contacts of ambulance services from nearest health facilities which must be known by management staff;

e. the Zambia Police Fire and Emergency Rescue services telephone contacts be available and known by all road project workers;

f. there should be a modestly equipped First Aid Kits in the project;

g. the road project clinic should be manned by at least a senior nursing officer but periodically visited by a medical officer; and

h. continuous re-training and mock-drills on emergence response measures and actions.

Environmental and Social Monitoring Program

The primary oversight to ensure mitigation actions are implemented will rest with the RDA’s Directorate of Planning specifically, Environmental and Social Management Unit (ESMU). ZEMA on the on the hand will be seeking primarily from RDA to what extent the road project is complying with environmental and social requirements as detailed in their Decision Letter. 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 will oversee the work of the contractor by recruiting an Environmental Specialist who is to guide the contractor’s fulltime Environmental Officer in undertaking his/her own responsibilities, including reporting.

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 Labor shall also undertake external monitoring of labor issues and occupational health and safety compliance. The OHS Department has the mandate 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 on-site discussions with PAPs amongst others. Monitoring will be undertaken monthly over the construction period. On the part of the Bank, there will scheduled Supervision Missions whose composition will include an Environmental and Social Consultant who will be interested in compliance aspects and whether agreed mitigation and complementary initiatives are being implemented.
Some of the key indicators to be monitored in the project will include:

a. Sensitization meetings planned and held;
b. PAPs compensated;
c. Operations of the Grievance Redress Mechanism;
d. Soil erosion and sedimentation control measures put in place;
e. Number of rehabilitated and graded sites at quarries, borrow pits;
f. Gender mainstreaming activities planned and implemented;
g. HIV/AIDS sensitization programme put in place and how they are implemented;
h. Traffic control measures;
i. Progress in implementing complementary initiatives;
j. Noise and dust control measures put in place; and
k. PPE and their usage by the road project workers.

IMPLEMENTATION SCHEDULE AND REPORTING

Measures outlined in the ESIA will be implemented under the overall road project implementation schedule as all most of the environmental and social interventions will be incorporated into the project design and implementation. The reporting on the implementation process and progress of the ESIA provisions will be done in line with the overall project framework and any environmental and social aspects requiring actions will be addressed by the Project Coordination Unit (PCU) and the Bank. On the side of the Bank, there will be scheduled supervision missions whose composition will include an environmental and social specialist who in particular will offer additional support to the EMSU on matters of environmental monitoring and reporting.

PUBLIC CONSULTATION AND PUBLIC DISCLOSURE

Public consultations

Public consultations were undertaken at various levels in order to elicit the perceptions of the different stakeholders on the impacts of the road project. During the ESIA study, discussions were held with district officials in the project district headquarters at Serenje, Nkushi, Chitambo and Mpika while informal discussions were held with beneficiaries along the road. The key stakeholders consulted during the ESIA included: District Commissioners and District Administrative Officers (DAO), officers responsible for lands, forestry, gender, and labor officers among others. Consultations were also held with the PAPs to inform them mainly about the project land requirements, resettlement principles and processes. These meetings were also used to get wider public input from both primary and secondary stakeholders. The meetings were conducted at Serenje, Kanona, Lapula, Nkushi, Kapengwe, Kalonje, Muso, Chilonga and Mpika areas. The objective of consultations was to disseminate information, identify and address legislative, community and environmental concerns and seek information on appropriate mitigation for project negative impacts.

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 while the Project Affected Persons were mainly concerned about
compensation aspects. Though these findings and observations reveal that, the wider population and the PAPs are largely in favor of the project, effort need to be made by RDA and the District administration to sensitize and mobilize the PAPS so that they can sustainably benefit from the road project. Of concern is the need to assist PAPs on strategies of managing and utilizing compensation packages for improvement of their livelihoods and replacement of lost assets to the road project.

**Public Disclosure**

RDA submitted the ESIA report to the ZEMA for their review process. It is provided that, a first draft which was reviewed by ZEMA and comments submitted to RDA for improvement of the document. Up on revision of the draft, RDA resubmitted 12 copies of the revised ESIA to ZEMA alongside its soft copy. It is noted that, before submitting a revised version of the ESIA, RDA first paid a submission fees which is a percentage dependent on the value of the project. ZEMA put a notice announcing the ESIA and the project in the newspapers and inviting the public to comment on the report. Upon completion of the review, ZEMA will issue a Decision Letter with conditions which the project has to observe during its implementation.

This ESIA will be disclosed both in-country in one or two of the local dailies, in RDA’s website and at the Bank’s Public Information Centre in compliance with relevant GRZ regulations and the Bank Operational Policies. RDA will provide copies of the respective ESIs and RAPs or disclosure at the Bank PIC for public access. The ESIA and RAP summaries will be disclosed in the Bank Infoshop for 120 days since it is a Category 1 project.

**INSTITUTIONAL ARRANGEMENTS AND CAPACITY BUILDING REQUIREMENTS**

By mandate, ZEMA will be responsible for review and approval of both the ESIA and RAP reports thereafter, issue Decision Letters, with conditions. ZEMA will also play a key role in the supervision and compliance monitoring of road project in liaison with the district cater-taker environment officers (in the absence of District Environment Officers at districts levels) in Chitambo, Serenje and Mpika. The Ministry of Works and Supply who amongst others, is responsible for all land matters in the country will, through the Chief Government Valuation Officer (CGVO) be responsible for approval of RAP Valuation Report. In addition, RDA’s Environmental and Social Management Unit (ESMU) will assume the responsibility of ensuring that, the project implementation complies with the environmental and social requirements as will be detailed in the contract documents.

Furthermore, the National Road Fund Agency (NRFA) will be responsible for mobilization and provision of funds for timely maintenance of the Serenje-Mpika road after its rehabilitation. On the other hand, Road Transport and safety Agency will assume the responsibility for safety campaigns and enforcement of road traffic safety regulations which will go a long way to curb road carnage once the road is rehabilitated. On matters of HIV/AIDS mainstreaming into the project, the District HIV/AIDS Task Force and the District AIDS Coordinating Advisor together with the National AIDS/TB/STI Council will advise on an appropriate HIV/AIDS Service Provider who will undertake HIV/AIDS awareness and sensitization, conduct Voluntary Counseling and Testing (VCT), distribution of condoms and supply Anti-Retro-viral Treatment (ARVT) those workers and members of the public in the vicinity of the project that test positive to HIV/AIDS. The Contractor on his part will be
responsible for planning, implementing and reporting on mitigation measures during the execution of the project works.

It is important to note that, during implementation of the road project, the oversight compliance role will rest with RDA EMSU implying the staff ought to be well placed both technically and logistically to accomplish this role. Though the Unit is staffed with four specialists, they need to supported in terms of skills development and logistics. The Staff in the Unit will require some short-term specialized trainings in areas such as: mainstreaming climate change into the development process; gender, OHS and HIV/AIDS mainstreaming; Strategic Environment Assessment (SEA/SESA); project monitoring, evaluation and reporting. These trainings can be arranged within the region in centers such as ESAMI, Swaziland and South Africa. Operationally, support in terms of additional two 4WD vehicles is deemed adequate to facilitate the unit operations.

COSTS OF ENVIRONMENTAL MITIGATION AND MONITORING PLAN

The overall cost of implementation the ESMP including Environmental and social monitoring is estimated to cost **USD 1,177,000**. This cost covers aspects such as; building for RDA Environmental and Social Management Unit, road safety campaigns, HIV/AIDS, OHS and gender mainstreaming, as well as tree planting, environmental audits amongst others as detailed in ESMP in the ESIA.

CONCLUSION

a. The planned rehabilitation of the Serenje-Mpika road is of importance to GRZ as it part of its main highway linking the country with neighboring to the COMESA/EAC/SADC road corridor route. As such, it is central in terms of national and regional trade facilitation. No doubt, in view of its regional connectivity, the road is an important trunk road which should be in good all-weather motorable condition;

b. The road will trigger both short and long-term positive impacts to the population in its corridor and beyond and improve living standards and household incomes;

c. During its implementation, to a large extent, road works will be limited to existing carriageway with envisaged limited displacement of communities in its road reserve and those who will be impacted by the road project will move back on to available land upon compensation; and

d. The study has put in place an Environmental and Social Management Plan and an Environmental Monitoring Plan to address the management of the identified environmental issues in the road project. The plans are explicit in terms of roles and responsibilities as well as budgetary requirements for their operationalization. It is therefore incumbent upon RDA as a lead implementing agency to ensure the plans are fully implemented to ensure compliance and sustainability of the road project.

e. The project has some of its aspects such materials extraction sites, water abstraction sites, sites for setting up of campsites whose locations during the time of the ESIA were not yet well established. It is recommended that, at the start of road works, activities to be undertaken in such areas or those activities as a whole need to have their independent ESIA conducted and approved by ZEMA; and

f. Inevitably, the project will likely lead to some environmental and social impacts which need to be mitigated during project implementation. This means, there should be deliberate effort to recruit matching experts to oversee compliance with environmental and social
requirements in the project in line with its ZEMA Decision Letter conditions and the environmental and requirements AfDB.

15. References
1. Draft ESIA Chinsali-Nakonde Road project. Consultancy Services for Techno Studies, Detailed Engineering Design and Preparation of Tender Documents for the Rehabilitation of the Chinsali-Nakonde Road (T2) Draft ESIA Report;
2. AfDB 2013, Integrated Safeguards System. Safeguards and Sustainability Volume 1- Issue 1

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ANNEX

RESETTLEMENT ACTION PLAN SUMMARY

Project Title: Improvement of North-South Road Corridor; Serenje-Mpika Section (238km)

Project Number: P-ZM-DBO-004
Country: Zambia
Sector: Transport and Infrastructure
Project Category: 1

1. Description of the project, project area and area of influence: The Government of the Republic of Zambia, through the Roads Development Agency (RDA) requests for financial support from the African Development Bank (AfDB) for the rehabilitation of the Serenje-Mpika Road (238km), in the Northeastern part of the country. The proposed section is of significant importance as it forms part of the North-South Transport corridor (T2), connecting Zambia with the port of Dar-es-Salaam in Tanzania to the Copper-belt (Southern Democratic Republic of the Congo and Northern Zambia) and connects to the southern ports of South Africa specifically the port of Durban. Overall population in the project area is estimated at 480,245 people. The project’s main components are: 1) Civil works for improvements of the Serenje-Mpika section (238km); 2) Consultancy services; 3) Institutional support and capacity building; 4) ESMP and RAP implementation.

2. Potential impacts: Main impacts will result from Component 1 – Civil works for the 238km of the road. Despite the fact that the technical intervention will follow the existing alignment this will be accompanied with the removal of structures that are currently located within the road reserve areas of 100m in rural areas and 36m in urban/built up areas. The road stretch has structures on both sides of the road that include residential houses, small shops, outside kitchens, churches and village markets. These structures are expected to be relocated outside the road reserve upon the payment of compensation to the affected property owners. The total number of affected entities is 371. For compensation, the majority of the project affected persons (PAPs) expressed preference for cash to enable them develop new structures within their current locations but away from the road reserve.

3. Socio-economic Profile: Zambia population is 13 million according to the 2010 population census but it is projected that by January 2017 the population will be 16 million. As of beginning of 2017 the population distribution was 46.7% for under 15 years (3,970,182 males and 3,943,512 females), 50.8% for the population were aged between 15-64 years (4,329,217 males and 4284967 females) and 2.9% of the population is over 65+ years (181408 males and 241595 females). Rural population accounts for 75%. The project section is located within three (3) District councils namely Mpika, Chitambo and Serenje with a total population estimate of 480,245 by January 2017. 60% of the population in the project area are within a reproductive age (18-45 years), 22% are old age (65+) and youth are 18% (0-17 years). From the survey, it was noted that majority of PAPs (78%) are within the adult age of 30 to 60 years while 20% are youth ranging from 18 to 29 years. The main economic activities of the people in the project area are subsistence farming and small-scale business. The subsistence farming involves mainly maize and cassava production
while small scale business is mostly confined to small shops dealing in groceries. Others are involved in the sale of beer in local bars.

**PAPs Characteristics:** PAPs earn their livelihood mainly from agricultural activities, small scale trading or in transportation as bicycle riders or car/truck drivers. It was also noted that the population is suffering from the consequences of poverty that include: insufficient availability of food; poor housing; inadequate access to health care; lack of access to potable water; and inadequate access to education. A majority of PAPs are illiterate; a few stopped school at primary level of education.

**Households:** There are 223 households out of which 84 (38%) are headed by women and 139 (62%) by men. A household size ranges between 6-10 family members. Majority of PAPs were found semi-literate as they could not communicate in formal language (i.e. English). Most of the affected household heads are married (66%); 4.3% are single; while 2% are widowed and the remaining 28% their marital status could not be ascertained. The most common disease in the area is Malaria while HIV/AIDS and other STDs are also prevalent.

**Vulnerable people:** No disabled persons were identified as being directly affected. The persons that may be vulnerable are the aged who are however being looked after by members of their families.

4. **Organizational responsibility:**
(a) The main actor for the resettlement and compensation issues in the road sector in Zambia is the Roads Development Agency (RDA) under the supervision of the line Ministry of Housing and Infrastructure Development which is responsible for policy formulation. The RDA will coordinate and implement the RAP through the Environmental and Social Management Unit. The Ministry of Finance through the National Road Fund Agency (NRFA) will mobilize the required funds for the payment of compensation to the PAPs. The Ministry of Works and Supply through the Government Valuation Department shall play a critical role in ensuring that PAPs properties have been fairly valued especially when grievances arise from the PAPs. The Zambia Environmental Management Agency (ZEMA) will play the oversight role of ensuring that the environmental laws are adhered to during the RAP implementation process. District Councils and Traditional Leadership will be responsible for the mobilization of community to ensure their full participation and support to the road project as well as the resolution of any resultant conflicts.

5. **Community Participation**
Consultations with communities were held through participatory approaches. Consultative meetings were held in Serenje, Chitambo and Mpika District through face-to-face interview with PAPs from 3rd to 6th August 2017. Through these interactions the PAPs were informed about the proposed road project and the need for the relocation of structures from the road reserve areas.

**Community members’ Concerns:**
Communities especially PAPs are positive with the upcoming road improvement project. PAPs are aware of their status as encroachers of the ROW. Concerns raised during face-to-face interview include: (1) when the project improvement will commence (b) when the compensation payments would be effected (2) Employment opportunities for local community (3) Safety improvement due to anticipated increase in traffic volume; (4) possibility of insufficient monetary compensation to allow them to re-establish their affected structures outside the road reserve.
For compensation, the majority of PAPs expressed preference for cash compensation rather than in kind. Besides, they prefer to relocate to nearby location to avoid disturbance of established social network between households or neighboring communities.

**Communal services:** From the Socio-economic survey, it was noted that few community structures will be affected including village markets and churches. For that reason, there will be minor disturbance on delivering of community services to the villagers along the road section.

6. **Integration with host communities**
Relocation of PAPs in groups to new host communities is not envisaged. Majority of PAPs indicated preference to remain in the neighborhood of their current communities.

7. **Property Acquisition Survey**
An assessment of the value of the assets to be affected by improvement of the road section was conducted from 4th to 6th August 2017. The survey was conducted jointly by the staff from RDA, the hired Consultant and local leaders with the purpose of getting cost estimates for compensation payment. However, the RDA will procure the Consultancy services for detailed assessment and valuation of the affected properties within the road reserve by the end of 2017.

**Valuation:** In order to allocate a monetary value, compensation will be calculated on the basis of full replacement cost and resettlement assistance as required by the AfDB and Zambia National legislation on Valuation and Compensation. Compensation will be paid out to PAPs soon after loan approval and should be completed for the whole road section before the Contractors take over site possession. Funds will be part of the project cost but paid for by Government as part of its financial contribution to the project.

8. **Eligibility**
Any person who will suffer a loss or damage of asset, trade or access to productive resources as a result of improvement of the proposed road project and especially as a result of new road reserve of 100m and 36m at the Township centers will be considered eligible for compensation and/or resettlement assistance.

Table 1: **Summary of Assessment of Properties**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description of item</th>
<th>Total Amount (ZMW)</th>
<th>Total in USD Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stand Alone Residential houses</td>
<td>3,941,700.00</td>
<td>437,966.67</td>
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<tr>
<td>2</td>
<td>Combined Residential and Commercial Structures</td>
<td>1,218,000.00</td>
<td>135,333.33</td>
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<td>3</td>
<td>Stand Alone Commercial Structures</td>
<td>2,177,500.00</td>
<td>241,944.44</td>
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<tr>
<td>4</td>
<td>Community Structures</td>
<td>230,500.00</td>
<td>25,611.11</td>
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<tr>
<td><strong>B.</strong></td>
<td><strong>Grand Total</strong></td>
<td>7,567,700.00</td>
<td>840,855.56</td>
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</table>
9. **Legal framework**
The RDA’s Guidelines for involuntary resettlement dated November 2003, is the first policy document that aims at ensuring that persons who suffer displacement and resettlement arising from road rehabilitation activities can be compensated adequately for their losses at full replacement costs. The guidelines outline the roles and responsibilities by various stakeholders in the planning, implementation, monitoring and evaluation of resettlement activities. The guidelines are in tandem with the African Development Bank Operational Policy on Involuntary Resettlement and existing national legal provisions. Since the project will be financed by African Development Bank, the AfDB’s guiding principles and the Involuntary Resettlement Policy (OS 2) will be taken into account.

10. **Grievance Redress Mechanism**:
During the implementation of the RAP, it is anticipated PAPs will/may raise complaints that will require immediate resolution for the smooth implementation of the RAP. The following grievance redress mechanism will be put in place:
   a. A PAP will either communicate his/her grievance verbally or in written form to the Village Headman.
   b. If the matter is not resolved by the Village Headman, it will be referred to the District Grievance Redress Committee (DGRC) that is composed of various stakeholders in each of the respective districts as detailed in the RAP document; The DGRC is expected to resolve the disputes within 30 days.
   c. A dispute that will not be resolved by the DGRC will be referred to the Environmental and Social Management Unit (ESMU) at RDA for a resolution. ESMU is expected to resolve the matter within 7 days;
   d. A dispute that will not be resolved by the ESMU will be referred to the Director Planning and Design at RDA for a resolution. The Director is expected to resolve the matter within 7 days;
   e. A dispute that will not have been resolved by the Director of Planning and Design will be referred to the Director and Chief Executive Officer of RDA for a resolution within 7 days; and
   f. In the event that a resolution fails with the Director and Chief Executive Officer, the PAP will be free to seek legal redress in the formal court system.

11. **Monitoring and Evaluation**
RDA will be responsible for internal monitoring and evaluation of the RAP. The external monitoring and evaluation will be done by respective District and Provisional Authorities. The Environmental and Social Management Unit will prepare Monitoring and Evaluation reports.

<p>| Table 2: Implementation Schedule |</p>
<table>
<thead>
<tr>
<th>S/N</th>
<th>Task</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Prepare a Compensation Schedule.</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>RDA-ESMU</td>
</tr>
<tr>
<td>2</td>
<td>Formation of DGRC</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>RDA-ESMU</td>
</tr>
<tr>
<td>3</td>
<td>Disclosure of compensation entitlements to the affected PAPs and the payment modalities.</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>RDA-ESMU</td>
</tr>
<tr>
<td>4</td>
<td>Collection of missing National Registration Card (NRC) information and any possible name adjustments of the PAPs.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>RDA-ESMU</td>
</tr>
<tr>
<td></td>
<td>Task Description</td>
<td>Responsibility</td>
<td>Verification cabbage</td>
<td>Verification red</td>
<td>Verification green</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-----------------------</td>
<td>------------------</td>
<td>--------------------</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Addressing grievances raised by the PAPs.</td>
<td>RDA-ESMU, RDA Management and the Local Administrative Structures, Valuation Consultant, Government Valuation Department</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Effecting amendments to the Valuation Report arising from tasks/activity 3 and 4 above.</td>
<td>RDA-ESMU, Valuation Consultant</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Make arrangements with a local Bank to facilitate payments to the PAPs that may not be in a position to open their own bank accounts.</td>
<td>RDA-Finance department</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Apply for compensation funds from the National Road Fund Agency (NRFA) as per the prepared compensation schedule.</td>
<td>RDA-ESMU, RDA-Finance department</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tr>
<tr>
<td>9</td>
<td>Payment of compensation to the affected PAPs.</td>
<td>RDA-ESMU, RDA-Finance department and Local Bank</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>10</td>
<td>Notification of PAPs/community regarding the demolition of affected structures.</td>
<td>RDA-ESMU, RDA Management and the Local Administrative Structures, Valuation Consultant, Government Valuation Department</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
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<tr>
<td>11</td>
<td>Demolition of affected structures and land acquisition.</td>
<td>RDA-ESMU, PAPs</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>12</td>
<td>Replacement of affected community facilities (e.g. boreholes)</td>
<td>RDA-ESMU, RDA-Construction department, Contractor</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Performance monitoring</td>
<td>RDA-ESMU, AfDB and Local Government Authorities</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>14</td>
<td>External evaluation</td>
<td>AfDB and Local Government Authorities</td>
<td>✓</td>
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</tr>
</tbody>
</table>
Table 3: Estimated RAP costs and budgets

<table>
<thead>
<tr>
<th>Item</th>
<th>Description of item</th>
<th>Total Amount (ZMW)</th>
<th>Equivalent Amount in USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stand Alone Residential houses</td>
<td>3,941,700.00</td>
<td>437,966.67</td>
</tr>
<tr>
<td>2</td>
<td>Combined Residential and Commercial Structures</td>
<td>1,218,000.00</td>
<td>135,333.33</td>
</tr>
<tr>
<td>3</td>
<td>Stand Alone Commercial Structures</td>
<td>2,177,500.00</td>
<td>241,944.44</td>
</tr>
<tr>
<td>4</td>
<td>Community Structures</td>
<td>230,500.00</td>
<td>25,611.11</td>
</tr>
<tr>
<td>5</td>
<td>Borrow Pits +Camp Sites</td>
<td>100,000.00</td>
<td>11,111.11</td>
</tr>
<tr>
<td>6</td>
<td>RAP and ESMP Implementation</td>
<td>500,000.00</td>
<td>55,555.56</td>
</tr>
<tr>
<td>7</td>
<td>Transport for the relocation of PAPs shifting to new location</td>
<td>556,500.00</td>
<td>61,833.33</td>
</tr>
<tr>
<td>8</td>
<td>Transport for the collection of payments by the PAPs.</td>
<td>37,100.00</td>
<td>4,122.22</td>
</tr>
</tbody>
</table>

A. Sub total | 8,761,300.00 | 973,477.77 |

8 Administrative cost (5%) | 438,065.00 | 48,673.89 |

B. Grand Total | 9,199,365.00 | 1,022,151.66 |

Conclusion

The project is highly anticipated by communities, local authorities and government at large. No person had expressed objection to the road improvement project, but that those affected requested timely and fair compensation for the assets that will be lost. Since the project will likely be financed by the African Development Bank, policies of both the Government of the Republic of Zambia and those of the Bank shall be applied to ensure affected persons are not made worse-off due to the project. All affected persons shall have been relocated or compensated before works were to begin. Accordingly, revised compensation schedules and updates to available information shall be taken into consideration closer to making pay-outs to ensure PAPs obtain realistic prices reflecting value of their assets.