

Language: English

Original: English



PROJECT: MULTINATIONAL: NACALA ROAD CORRIDOR - PHASE II

COUNTRY: REPUBLIC OF ZAMBIA

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT SUMMARY

Date: April 2010

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ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) SUMMARY

Project Name: Multinational: Nacala Road Corridor Phase II
Country: Zambia
Project Number: P-Z1-DB0-063

1 Introduction

1.1 The African Development Bank (AfDB) has been requested by the Government of the Republic of Zambia to finance a portion of the Great East Road (T4) from Luangwa Bridge to Mwami border which is a section of the Nacala Road Corridor (designated by SADC) which stretches from the Port of Nacala in Mozambique through Lilongwe in Malawi to Lusaka in Zambia. Hence it should be noted that this project is referred to as Nacala Road Corridor Phase II following on the first phase which is a road section in Mozambique between Nampula and Cuamba and a section in Malawi (the Lilongwe Bypass) already funded by AfDB and JICA, respectively. The project being considered for funding now by the AfDB and focus of this Summary is the Nyimba to Sinda road section covering a distance of 114.7 km. The ESIA report, however, was prepared to cater for the entire 360 km road in Zambia from Luangwa Bridge through Nyimba, Petauke, Sinda, Katete, Mtenguleni, Chipata to the border with Malawi at Mwami. The majority of the remaining 245.30 km will be funded with assistance from the European Union and European Investment Bank. From Luangwa the road continues for another 232 km to Lusaka, the capital of Zambia.

1.2 Since this is a major road outside urban areas with proposed major improvements over 10 km in length, the Second Schedule of the Zambian Environmental Impact Assessment Regulations S.I. No. 28 of 1997 under the heading Transportation, means that the proposed project requires an Environmental Impact Assessment. Furthermore, according to the AfDB's Environmental and Social Assessment Procedures (ESAP), the project is classified as Category 1 and therefore calls for a full Environmental and Social Impact Assessment (ESIA) to be carried out. This summary, therefore, presents the assessment of the road and attaches an Annex of the ESIA Summary a Summary of the Resettlement and Compensation Framework. The Summary presents a Description and Justification for the Project; Policy, Legal and Administrative Framework; Description of Project Environment; Project Alternatives; Potential Impact and Mitigation/Enhancement Measures; Environmental Management Plan; Monitoring Program; Public Consultations and Disclosure; Conclusion; References and Contacts; and as an Annex the RAP Summary.

Initiative (SDI) to develop adequate reliable cost-effective efficient and seamless transport systems to enable the region to be a competitive investment area.

2.2.2 This road section of the Nacala Corridor links Malawi with the Durban-Harare-Lusaka-DRC axis of the North-South corridor. The improvement of the Nacala Road Corridor through Malawi and Mozambique will offer Zambia an alternative to the traditional Beira, Durban and Dar es Salaam export routes some of which are becoming congested. Sugar and cotton are two principal commodities considered most likely to divert to Nacala from the North-South corridor ports of Beira and Durban. The upgrading of the corridor will facilitate trade between the three countries, promote integration and provide a shorter and easier access to the Indian Ocean for Zambian exports.

2.2.3 Built at the end of the 1960's/early 1970's the Luangwa-Mwami section of the Nacala Road Corridor (360 km) no longer complies with SATTC geometric standards and does not meet the needs of a strategic corridor carrying fast moving heavy traffic. Since its construction, traffic has increased and the types of vehicles operating on the road have changed. Population has quadrupled since independence. The reinstatement of the eastern section of the road to a consistent safe and sustainable condition will make it fulfill its function as part of the North-South and Nacala regional transport corridors. In addition to its regional strategic function, the road links Zambia's Eastern Province, one of the most fertile and productive in the country, to Lusaka.

3 Policy, Legal and Administrative Framework

3.1 The study has been guided by the AfDB's Policies on Environment and Involuntary Resettlement, and has been prepared in accordance with the legal framework on Environmental Management enshrined in the Environmental Protection and Pollution Control Act, Cap 204 of the Laws of Zambia and its subsidiary legislation, the Environmental Impact Assessment Regulations S.I. No. 28 of 1997. The road project is part of a regional corridor with potential cumulative environmental and social impacts.

3.2 Other national policies on environment, land, transport, wildlife, forests, water and culture relevant to this project have also been considered, as also various international treaties and conventions on natural resources that Zambia has ratified. The following policy and legal instruments are highlighted to bring to light the framework in which, the planned project will be implemented:

- The Environmental Protection and Pollution Control Act (EPPCA),
- The National Parks and Wildlife Act
- The Town and Country Planning Act, came into force in 1962
- The Forest Act, passed in 1974,

- The Water Act
- The National Heritage and Conservation Act
- The Land Act of 1995
- Lands Acquisition Act No. 2 of 1970.
- The Mines and Minerals Act Cap 32 of 1976
- The Roads and Traffic Control Act,
- The Local Government Act
- The Public Health Act
- The Factories Act
- The Petroleum Act
- The Energy Regulation Act.

3.3 **International Conventions and Protocols**

- Convention on Wetlands of International Importance
- Convention on the Protection of World Cultural and Natural Heritage
- United Nations Framework Convention on Climate Change
- Convention on Biological Diversity
- United Nations Convention to Combat Desertification

4 Description of the Project Environment

4.1 **Physical**

4.1.1 Topography and geology: The Nacala Road Corridor Phase II traverses the steeply sloping landscape of the Luangwa escarpment between the Luangwa Bridge and Kacholola. Beyond Nyimba district, the road cuts across a flood plain that is low lying till it reaches Chipata district, which is hilly and mountainous in some parts. The altitude of the area traversed by the road ranges from 300m at the Luangwa River to 1,200m on the plateau.

4.1.2 Hydrology and Climate: The Luangwa River with its tributaries and Lukusashi River, are the major rivers that drain the Eastern province. The Luangwa catchment is part of the Zambezi River Basin, and flows southwards to the east into the Indian Ocean. The Province experiences subtropical climate, with hot wet summers from November to April and a cool dry season from May to November. The mean annual temperature ranges from 22-35°C. There is no systematic information collected regarding air quality and ambient noise levels adjacent to the existing road. However, considering that there are no major industries in the area and traffic volumes are relatively low, it is reasonable to assume that air quality is generally good and ambient noise levels are below the widely accepted guideline level of 65 dBA.

4.2 Biological

4.2.1 Vegetation: Vegetation is generally influenced by soil type, climate, topography and the type of land use. Brachystegia (Miombo) woodland is dominant on the plateau and the escarpment between Luangwa river and Nyimba. While Mopane woodland though it ideally grows extensively on clay soils, spreads from Nyimba lowlands to Katete and partly on hills along the escarpment. Typical Mopane gives very little grass cover and is dominated by low rainfall species. Associated with flat topography and therefore most farming activity in the province is Savannah woodland also known as Munga woodland. This may also occur in patches with alluvial soils of riverine origin or along streams. Riparian vegetation occurs along streams and minor rivers which have alluvial soils, and prone to annual flooding. Grasslands in this region are mainly attributed to agricultural practices; otherwise, Natural grasslands occur in small patches mostly those with high water table also referred to as *dambos*.

4.2.2 Wildlife: In the escarpment area large mammals (mostly Baboon, Velvet Monkey; Kudu and small antelope; and Leopard and smaller predators), are occasionally seen and are in very small numbers. Indigenous elephant and buffalo are almost entirely limited to the relatively inaccessible Luangwa escarpment. Elsewhere in the T4 corridor, extensive agriculture and high population densities have closed historic seasonal and food-related large mammal corridors and local hunting has removed most species. Small mammals especially species of rodent are still relatively abundant.

4.2.3 The Nile crocodile, terrapins and monitor lizards are mostly found in the Luangwa River but rare elsewhere along the eastern road corridor. A variety of arboreal and terrestrial snake species occur throughout the area but many of these are thought to be becoming increasingly scarce as human population densities increase and agriculture becomes more widespread.

4.2.4 Because of the seasonal nature of many of the rivers and streams in Eastern Province fish distributions are localized. The Luangwa River forms the only significant source of traded fish, although aquaculture is increasingly important in dambo areas and along major streams and rivers. The Nacala Corridor does not contain any designated Important Bird Areas. Nevertheless, the diversity of the Luangwa escarpment makes it an important and increasingly threatened range area for large raptors (Martial, Tawny, Bateleur, Black-breasted, Brown and Western-banded Snake Eagles) and the larger Goshawks and Sparrow- Hawks, that all depend on viable populations of the larger small mammals, snakes and other reptiles. All main roads pose threats to birds that favor the night-time warmth of bitumen pavements especially the uncommon and seasonally migrant

Pennant-winged Nightjar. The large open road reserve also offers opportunities for bird predation particularly by the Cape and Spotted Eagle Owls.

4.2.5 The North and South Luangwa National Parks in the province are tourist attractions as the two parks have a wide range of animal species. Stakeholders expect an increase in tourism operations following improvements to the road.

4.3 Social, cultural and economic environment

4.3.1 Land Use: Most of the land intersected by the Nacala Road Corridor in Eastern province is under the traditional tenure system with occupancy and user rights allocated by the Chiefs. Tenure and ownership of a piece of land under traditional rule takes place through cultivation or inheritance.

4.3.2 Land is used primarily for cultivation purposes. Between the Luangwa Bridge area and Kacholola there is almost no significant agricultural activity. The native forests here are thus significantly less disturbed than elsewhere. Agricultural activity (subsistence farming and cash crops) and cattle grazing is common between Kacholola and Mwami. The area from Luangwa Bridge to Kacholola is under traditional land tenure. Most of the population of the 8 districts of the Eastern Province is concentrated along the road corridor (Chipata, Katete and Petauke), and intersections with its feeder roads. This accords the population easy access to good infrastructure, social services and opportunities for commercial activity. The Luangwa Bridge to Nyimba section is sparsely populated as the area is generally not suited to human occupation. From Nyimba district onwards cluster settlements and villages are seen on both sides of the road with Kacholola, Kagoo, Minga, Sinda, Kalindawalo and Nsanjika being the most sizeable.

4.3.3 Economy and Employment: Agriculture is a predominant economic activity for the majority of the population in the project area since it has soils that are suitable for major crops like maize, cotton, groundnuts, sunflower, tobacco, soya bean and rice. Other non traditional crops like okra, beans, paprika, sweet-potatoes, onions, tomatoes, eggplant, sweet-corn, bananas and cucumbers are also major sources of income. Livestock rearing is also very predominant and supplements farming activities. The most common livestock include cattle, goats, pigs, and chickens. Cotton ginneries along the road and agro-processing plants of maize, groundnuts, and milk are also sources of employment to hundreds of people. Small scale and unregulated mining of gemstones is done in the project area in Nyimba and Petauke. There is also potential for the mining of agricultural lime at Nyimba and copper and gold in Petauke. In Katete, phosphate and precious stones deposits have been found, but mining has not yet developed. Quarrying of rock for building and road construction is carried out on an ad hoc basis.

4.3.4 Health and sanitation: In the urban and peri-urban areas, piped water into dwellings is still limited, with an average of 16 persons per connection. Most rural dwellers draw water from non-improved and unprotected sources such as streams and shallow wells in dambo areas. In many cases people have to travel long distances to fetch water, the burden being borne by women and children. Many of these water sources are also drinking points for wildlife and domestic animals. The illnesses occurring most frequently in the province are malaria, diarrhea, and malnutrition related illnesses, upper-respiratory tract infections, AIDS and sexually transmitted infections. The current HIV/AIDS infection rate of 10% is lower than the national average of 14.5%. In the Eastern province the HIV prevalence rate is higher in women (11.9%) than in men (9.5). Flush toilets are mainly restricted to households in urban areas while people in rural areas use pit latrines or bushes. Diarrhea, recorded as one of the most prevalent diseases in the province, is indicative of poor sanitation, unhygienic environment and poor water supplies.

5 Project Alternatives

5.1 The project design carefully considered the intervention options analyzed by the Feasibility and Detailed Design study, i.e. AC vis-a-vis DBST interventions. The varying design characteristics and conditions of the road require different combinations of options for AC and DBST interventions to be investigated. The technical analysis on pavement design for the entire 360 km, taking into account social, economic, and environmental aspects, recommend an AC intervention in lieu of AC/DBST combination. The basis for the recommendations are: (i) compliance with the SATCC Code of Practice for Design of Road Pavements, which requires the use of an AC pavement for a road carrying the level of traffic forecast for the Project road; (ii) similar interventions on all sections will provide economies of scale thus potentially synchronizing the various civil works contract packages undertaken by funding provided by different development partners; (iii) favorable maintenance liabilities lower in AC option than in DBST option over the predicted 20 year design life; (iv) economies of scale on maintenance intervention strategies; and (v) support to sustainable regional development that facilitates meeting long term goals and objectives; and (vi) a marginal whole life capital cost difference of 5% between the AC and DBST options.

5.2 The ‘without project’ scenario would represent lost opportunities and would also:

- Promote ongoing depletion of natural resources to sustain livelihood;
- Increase wear and tear of vehicles and thus increase operational costs;
- Diminish purchase of agricultural produce from the Eastern Province, in turn discouraging production
- Reduce tourist travel to the region and thus reduce the concomitant benefits accruing to the local communities.

6 Potential Impacts and Mitigation/Enhancement Measures

6.1 Positive Impacts and enhancement: It is anticipated that the completed project will have generally positive social and environmental impacts.

6.1.1 Environmental: Provision of improved drainage will reduce erosion and flooding. However, the drainage system will periodically need to be cleaned to ensure adequate storm water flow and prevention of siltation and sedimentation in the watercourse. Good road condition and safer operating conditions would result in reduced vehicle fuel consumption and reduction in accidents.

6.1.2 Social: The project is expected to stimulate agricultural production and other economic development within the area of influence. Reduction in road user costs will encourage local traffic movements and encourage a shift in bulk export traffic from the North-South corridor. Reduction in accidents due to improved safety measures and re-engineering of dangerous bends and junctions will result in significant benefits, especially to pedestrians and cyclists who are currently victims in the majority of incidents.

6.1.3 The project will reinforce Zambia's links with Malawi and Mozambique thus helping promote regional integration and co-operation as expressed in SADC and COMESA protocols between Zambia and its neighbors.

6.1.4 The road improvement works will create employment opportunities for both men and women. The construction contract shall include a clause which requires the contractor to maximize hiring of locals, offering men and women equal opportunity, in order to impart maximum project benefit to the community.

6.1.5 Furthermore, the project presents considerable scope for women participation. In accordance with the SADC Gender Protocol on Women's Economic and Administrative Empowerment, the Road Development Agency (RDA) has included the requirement that civil works contractors should recruit at least 30% women of its labor force in its standard FIDIC contracts. It is, however, recognized that achieving a workforce of 30% women may not always be possible. RDA therefore encourages contractors to achieve a workforce comprising at least 15% female employees. As a means for attaining both the female employment quota and the requirement of participation by unskilled workers from local communities, the Project will carry out a sensitization and awareness raising activities, aimed at encouraging women and unskilled workers to seek employment at construction

sites. The contractor is also encouraged to procure supplies from local sources to the maximum extent possible in the circumstances.

6.1.6 Most village communities in the project area do not have access to safe water. It is anticipated that if the contractor's camp is located in an area with unsafe water, the contractor will be obliged to provide safe water in the camp site and the community will benefit from this facility at both construction and operational phases. This will also apply to situations where the contractor shall drill boreholes to source water for construction purposes. Under such circumstances, the contractor will be obliged to drill a borehole for communities' use as well.

6.2 Negative Impacts and mitigation: The rehabilitation of the Luangwa-Mwami section of the Nacala Road Corridor could potentially have a negative effect on the environment and the communities in the immediate surroundings of the construction site. Many of these impacts will arise not only at the construction site but also at quarries; borrow pits and material storage areas serving the project.

6.3 Environmental

6.3.1 Vegetation clearances and encroachment onto agricultural land will be inevitable during the widening/reshaping and construction of re-aligned sections of the road, establishment of the Contractor's construction camp site, opening up of borrow areas and construction of access routes to the borrow areas. To minimize vegetation clearance, diversion roads shall as much as possible be built within the road reserve and existing material production sites or degraded fields where no significant sensitive ecological system exists shall be used. Detour, access roads and equipment park site location outside road reserve areas shall be done in consultation with local people and take into account existing land use in settled areas.

6.3.2 If natural vegetation cover is removed such excavated grounds should be rehabilitated and restored by tree planting and compensation for the lost vegetation will be undertaken as shall be agreed between and forestry authorities. In order to limit vegetation and fauna depletion, the contractor shall also provide accommodation for the work force; create awareness among the workforce about forest fire risks and provide cooking fuel to the work force.

6.3.3 The construction phase may damage/destroy, pollute or block water courses and natural habitats through generated dust, noise, and spillage of dangerous materials and garbage. Safety checks should be "built-in" during project activities not to block water courses or damage adjacent land. The Contractor shall ensure that adequate waste disposal

and sanitation facilities are provided at construction camps. The contractor should also erect suitable signage and implement suitable dust and noise suppression measures. Deviations should also not be constructed in the vicinity of schools and clinics. Working hours should be limited to day light only and quarrying shall be done in conformity with the Mine and Minerals Act, No. 31 of 1995.

6.3.4 Substantial volumes of water will be needed for construction purposes. If some of the contractor's water requirements will come from the watercourses, it is likely to reduce water availability to existing downstream users during periods of limited flow. Exploitation of water sources for rehabilitation works shall be done with approval by the local authority and with consent from the local community.

6.4 Social

6.4.1 The influx of construction workers during project implementation carries a risk of increased STI and incidence of HIV/AIDS. Measures to mitigate this require working closely with respective government departments, local NGOs, and/or faith based organizations, and local communities involved in HIV and reproductive health. The Contractor in liaison with the National AIDS Council will appoint an experienced NGO to work with and sensitize workers and communities on health issues in general and in particular HIV/AIDS. Contractor is also required to have a Social, Health and Environmental coordinator.

6.4.2 An improved road will likely increase vehicular traffic and over speeding in busy sections of the road such as schools, churches, and trading centers thereby increasing risks of road traffic accidents to communities along the road. Such negative impacts should be mitigated to a large extent by engineering improvements to the road through increased width, provision of paved shoulders, lay byes, junction improvements, and separation of pedestrians and cyclists from motorized traffic in Chipata. However, the contractor should erect road signs with clear messages on the approach of possible dangerous sections. Humps and rumble strips should be constructed in busy areas such as trading centers, schools and markets. A road safety campaign will be implemented before the start of the project to inform residents and road users of the planned construction works, changes to traffic patterns (diversions or closure of roads or lanes) and the use of heavy construction equipment. A second campaign should be carried out during the project and a third launched soon after opening of completed road sections to inform school children about how to use the road safely, respect signs and road furniture etc.

Table: Mitigation and Compensation Cost Estimates

Description	Estimated Cost (EURO)
Resettlement & Compensation	95,583
ESMP Implementation & Baseline Survey	35,947
HIV/AIDS/STI/TB Prevention/Awareness	159,528
Road Safety	95,716
Total	362,951

7. Monitoring Program

7.1 The Environmental and Social Impact Assessment studies have included an Environmental and Social Management Plan (ESMP) comprising mitigation, monitoring and institutional actions which ought to be taken during the detailed design, preparation for implementation (preparation of tender documentation), construction and operation stages of the project in order to eliminate, reduce or offset the adverse environmental impacts. The plans are integral to the project, and aim at enforcing adherence by the contractor during the construction phase and the public during the operational phase to the set minimum environmental standards. They also measure success or failure of the laid down mitigation measures, spot unforeseen impacts and suggest immediate mitigation measures.

7.2 The major issues that need to be monitored include, but not limited to, land acquisition and restoration after completion of works, location and operation of material sources and hauling condition, establishment and operation of contractor's site facilities, soil erosion and siltation, drainage, water pollution, and impacts on water supply of existing users/competition for water, waste management or disposal, effects on flora and fauna, health and road and traffic safety issues.

7.3 Monitoring will be carried out as part of the project implementation to record the environmental status of the project at pre-defined times stipulated in the ESMP. The Director of RDA with the assistance of its ESMU is the entity responsible for ensuring that the requirements of the EMP are complied with. The RDA is required to certify to the regulatory bodies and the ECZ that relevant environmental safeguarding measures are being complied with during the project implementation.

7.4 It is recommended that one person from RDA be identified as the Environmental Representative to supervise and monitor ESMP implementation at project site level in close coordination with Engineer and Contractor. For stakeholder engagement and representation in the project implementation, it is proposed that a committee comprising

the Contractor, an RDA/ESMU representative and community members representing each district shall be established. The main objective of the committee will be to guarantee that the community is kept abreast of the implementation and that any conflict that may arise is resolved sooner rather than later. The committee shall meet at least once a month.

7.5 At field level the contractor's Environmental Officer will be responsible for implementing of mitigation measures. The Resident Engineer will supervise and ensure that joint (Engineer/Contractor) inspections are carried out as per requirements.

8. Public Consultations and Public Disclosure

8.1 During the ESIA study, the Consultant team organized provincial public meetings and held individual and group interviews with various stakeholders along the road to assess the socioeconomic and socio-cultural conditions of the project area. Interviews were conducted to assess affected parties' perceptions of the project.

8.2 Several meetings were held involving the main stakeholders in particular the affected villages living along the road's zone of influence and with relevant stakeholder district offices. A program to all the key stakeholders was drawn and the local leaders, the village heads, chairpersons and councilors were notified of the dates and times of the meetings in advance and were requested to help mobilize the people. A total of 20 meetings with communities and officials who were met either as individuals or as a group in the district offices were organized and held.

8.3 The study used a combination of field visits, community participation and consultation, Focus Group Discussions, meetings with representatives of district administrators and technical staff, and rapid appraisals which included: (i) daily activity profile, (ii) seasonal calendar, (iii) social mapping and (iv) observations.

9 Complementary Initiatives

- 9.1 The following accompanying measures are included in the project:
- HIV/AIDS awareness and prevention campaigns;
 - Road safety campaigns;
 - Tree planting (at sites requiring reinstatement);
 - Positive discrimination for employment of women (for specific tasks);
 - Development of water points for community use;
 - Resettlement and compensation of property damaged.

10. Conclusion

10.1 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.

10.2 Potentially negative environmental impacts are limited to the construction phase where they can be easily mitigated through implementation of a conventional Environmental Management Plan to control materials extraction and transportation, creation and operation of diversions and camp sites, use of water, and care for the workforce especially to minimize risk of HIV/AIDS transmission. Impacts during the operation phase are positive when compared with the 'without project' scenario and can be controlled through proper management and maintenance of the corridor.

11 References and Contacts

(i) Feasibility Study, Detailed Design and Tender Process Support (Component 1) for the “Rehabilitation of the Great East Road (T4)” in Zambia. Annex VI EIS Report, January 2010

(ii) Feasibility Study, Detailed Design and Tender Process Support (Component 1) for the “Rehabilitation of the Great East Road (T4)” in Zambia. Annex VII Gender Assessment and Integration Report, January 2010

(iii) Feasibility Study, Detailed Design and Tender Process Support (Component 1) for the “Rehabilitation of the Great East Road (T4)” in Zambia. Final Feasibility Study Report

(iv) Feasibility Study, Detailed Design and Tender Process Support (Component 1) for the “Rehabilitation of the Great East Road (T4)” in Zambia. Annex IX Road Safety Analysis Report

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ESIA SUMMARY ANNEX

SUMMARY: RESETTLEMENT AND COMPENSATION FRAMEWORK

Project Name: Multinational: Nacala Road Corridor Phase II
Country: Zambia
Project Number: P-Z1-DB0-063

1. Introduction and Project Description

1.1 The proposed road rehabilitation of the Nacala Road Corridor project relates to the upgrading of 360 km of the existing road from Luangwa Bridge to Mwami, which was originally built as a 6.1 m (20 ft) wide carriageway with 1.83 m (6 ft) wide gravel shoulders. The aim of the project is to upgrade the section of road in question and thus contribute to the establishment of a safe and sustainable core road network at national and regional level. The project provides for the strengthening of the pavement structure and for the surfacing and widening of the existing carriageway and construction of paved shoulders. The major project activities shall include extraction of materials, transportation of material, water and labor to construction sites, construction of new culverts, construction of drainage structures, and disposal of waste, spillage and earthworks.

1.2 As a result of surveys conducted during detailed design and Environmental Impact Assessment, there is remote likelihood that dwelling houses may have to be demolished hence calling for resettlement of project affected persons. Again, the road reserve is adequate in most cases for creating diversions during construction. On the other hand, it is likely that the contractor(s) will require the use of additional land on a temporary basis during construction which may cause the type of relocation of services and sources of income of affected communities. The sources of these impacts will mainly come from the need by contractor to create diversions and access to sources of building materials such as borrow pits. This Annex, therefore, summarizes procedures and practices in the framework through which the Road Development Agency and Government of Zambia follows in relocating and compensating project affected persons.

2. Objectives of the Resettlement and Compensation Framework

2.1 The main objectives are to:

- Enumerate the affected households, individuals and institutions;
- Identify any vulnerable Project Affected Persons (PAPs);
- Conduct inventory of all assets to be taken or destroyed;

- Valuate those assets at full replacement value and determine any supplementary payments e.g. unit price lists and itemized breakdowns of compensation offers and participation;
- Institute valuation negotiations and devise grievance procedure mechanisms;
- Include institutional arrangements not covered in the National Resettlement Policy Framework;
- Internalize monitoring arrangements;
- Draw a timeline for relocation and compensation before site hand-over; and
- Prepare a Budget for all activities.

3. Approach and Methodology

3.1 The methodology and approach adopted in preparing this framework is consistent with Zambia's Constitution (1991), the Land Acquisition Act (1995), the National Resettlement Policy Guidelines-Road Sector (2003) and the African Development Bank Policy on Involuntary Resettlement (November 2003). The required socio-economic assessment and valuation of property to be destroyed or relocated will be carried out in order to establish the number of households affected, loss of assets (buildings, fences, gardens, trees, crops, kiosks) and community infrastructure e.g. markets. This will be followed by an estimation of compensation due, based on the replacement cost.

4. Socio-economic Description of the Project Area

4.1 Administratively, Eastern Province is divided into eight districts, however the project road traverses four of them, namely, Chipata, Katete, Nyimba and Petauke. Chipata is the capital of the Eastern province with local government administered through district councils. Traditional authority is vested in chiefs who have authority over their Chiefdoms and below are villages headed by headmen/women preside disputes, land allocation, etc. Most of the land intersected by the Nacala Corridor Phase II in Eastern province is under the traditional tenure system. The population of Eastern province was estimated at 1,306,173 in 2000 of which 115,308 were urban and 1,190,865 were rural based; and a population density of 17.8 persons per square. The population of Eastern province was distributed in 254,603 households, of which 80% were male-headed and 20% female headed. Most of the population of 8 districts is concentrated along the Nacala Road Corridor (Chipata, Katete and Petauke). From Nyimba district onwards cluster settlements and villages are seen on both sides of the road with Kacholola, Kagoo, Minga, Sinda, Kalindawalo and Nsanjika being the most sizeable.

4.2 Regarding gender, the tribes are, with the exception of the Ngoni who are patrilineal, all matrilineal. With regard to inheritance, all tribes follow a patrilineal system, where belongings are passed from father to the son. Negative cultural beliefs and practices such as early marriage and property grabbing are a source of gender imbalances in the province. On average more women are illiterate than men as more boys than girls attend school. Women work is mainly unpaid. They tend to be confined to food

production, raising children and performing household chores. Most of men's work is paid although they are also engaged in food production for household maintenance. Polygamy is practiced amongst all tribes.

4.3 Agriculture is a predominant economic activity in Eastern Province which has suitable soils for crops like maize, cotton, groundnuts, sunflower, tobacco, soya beans and rice. Maize, sunflower, cotton and various non traditional crops like okra, beans, paprika, sweet-potatoes, onions, tomatoes, eggplant, sweet-corn, bananas and cucumbers are the major sources of income for the majority of the population in the project area. Farming in Eastern Province takes place at both commercial and subsistence levels, with most people on subsistence farming. To meet income needs, part of the surplus agricultural produce, especially maize, is sold on the local and informal markets along the main road to local buyers and more distant traders. The markets are a large part of the informal sector, are quite vibrant and absorb many women. Livestock rearing is very predominant in the project area, most commonly include cattle, goats, pigs, and chickens.

4.4 Non-Agricultural economic activities include: (i) tourism due to the presence of the North and South Luangwa National Parks which have 9 lodges and 20 camps; (ii) Light Industry and Food Processing e.g. cotton ginneries, maize, groundnuts and milk processors; (iii) Mining in tourmaline, agricultural lime, copper, gold, phosphate and gemstones; (iv) Trading and Periodic Markets There are very active trading activities along the roadsides and Saturday Markets which attract traders from Malawi and Mozambique; (v) Rail Network has been extended from Malawi to offering an opportunity of establishing an inland dry port at Chipata; (vi) Timber production is practiced on a commercial scale with mills at Sinda in the Chimtengo forest and Nyimba.

4.5 Overall poverty level incidence in Zambia is at 64% while that of Eastern Province is 67% for the totally poor, 20% extremely poor, 12% moderately poor and 1% non poor. Although poverty is a multidimensional and complex phenomenon and manifests itself in various forms making it difficult to define, a more complete picture of household welfare should consider safe water, sanitation, shelter, good health, education, household easy access in terms of affordability and distance to various economic and social infrastructures, such as schools, health facilities, markets and public transport as important facets of wellbeing.

4.6 Road safety records since 2006 suggest that the accident rate in Eastern Province has stabilized to around 40 accidents per 100,000 population (compared with 170 per 100,000 population for the whole country) and that the vast majority of accidents occur on the Nacala Corridor. In 2008, 707 recorded accidents resulted in 59 fatalities, which means, with an average daily traffic of about 475 vehicles between Luangwa and Mwami, there were 94 deaths per 100 million km, compared with around 1 and 2 deaths per 100 million km in developed countries. There is a virtual absence of speed limit and other danger warning signs east of Luangwa Bridge. As a result of shoulders being often

nonexistent or in very poor condition pedestrians and cyclists expose themselves to danger by mixing with the traffic in the narrow carriageway. These elements account for a high proportion of fatalities.

5. Potential Social Impacts of the Nacala Road Corridor Phase II Project

5.1 There are potential social impacts associated with the partial or total loss of agricultural/grazing land trees and crops. These will mostly be a result of the need to open up quarries, access roads and diversions. Mostly to impacted will be fields located in the road reserve, access roads and deviations, with the further impacts on family subsistence and income. Temporary access roads constructed across cultivated land may lead to long-term reduction in productivity as a result of soil compaction by haulage vehicles. In some built up areas such as Chipata there will be need to separate cyclist and pedestrian traffic from the mainline traffic which may require expropriation or relocation of existing patrimony or utility services such as electricity poles, water pipes, bill boards, and bus stops. Further destruction and relocation may be on gardens, trees, hawkers' stands and interruption of business in areas of regular markets, and services delivery.

6. Public and Stakeholders' Consultations

6.1 During the field visits the consultant team organized provincial public meetings and held individual and group interviews with various stakeholders along the road to assess the socioeconomic and socio-cultural conditions of the project area. Interviews were conducted to assess affected parties' perceptions of the project and allay fears that they may have with regard to any property damage, compensation and eligibility.

7. Policy, Institutional and Legal Framework

7.1 The Zambian Government does not have a resettlement policy per se, but the Road Development Agency has developed national policy guidelines to deal with resettlement and compensation issues applicable to development projects under the road sector. Use of the African Development Bank Policy on Involuntary Resettlement ensures compliance with the best international practices. There is in place an institutional and legal framework to ensure compliance with the above-mentioned policies. Besides the Road Development Agency, other institutions that are involved in resettlement issues are the Department of Resettlement, the Department of Infrastructure and Support Services, the Environmental Council of Zambia, the Ministry of Local Government and Housing and private sector and non-governmental organizations who play an advocacy role.

7.2 In cases of compulsory acquisition of property, the following Zambian laws will apply: -

The Constitution of Zambia (1991);
The Land Acquisition Act (1995);

The Public Roads Act (2002);
The Arbitration Act (2000);
The Zambia Wildlife Act (1998);
The Town and Country Planning Act (1995); and
The Housing (Statutory and Improvement Areas) Act (1974).

8. Implementation Arrangements

This chapter may be considered as a proposed implementation strategy that will meet the Resettlement Policy Framework. However, choosing of the appropriate implementation options should be done bearing in mind the available resource as well as preference of the affected people.

8.1 Organizational Responsibility

8.1.1 When implementing the resettlement program, it is imperative that roles and responsibilities of all the relevant stakeholders are clearly defined and outlined. Stakeholders in this document are defined as individuals or groups that are affected by or that are believed to be affected by the project; and individuals or groups that can play a significant role in shaping the project, either positively or negatively.

8.1.2 A coordinating committee at District level drawing its membership from local leaderships, affected community, relevant government departments and civil society will be responsible for coordinating the implementation of the program. This committee could also be used in the grievance redress system if need arises. This committee will act as a sub committee for the District Development Coordinating Committee (DDCC). The main focus of this committee should be:

- Monitor the disbursement of funds;
- Guide and monitor the implementation of resettlement program;
- Coordinate activities between the various organizations involved in resettlement;
- Monitor resettlement activities;
- Review progress reports and report to DDCC
- Serve as a pool of technical expertise for resettlement

8.1.3 For effective execution of these mandates, RDA should ensure that the capacity of this committee is built. The civil society in the area should be engaged into dialogue aimed at supplementing efforts of this committee especially in the area of livelihood restoration.

8.1.4 At community level, a sub-committee reporting to the coordinating committee and drawing its membership from the affected community, host community and local leadership should be formed and should be responsible for spearheading the actual

implementation of the resettlement plan. The committee is expected to play a pivotal role when negotiating for compensation on behalf of the affected people as well as monitoring the day to day implementation activities of the resettlement program. The main focus of this committee will include:

- Act as representative body for the affected community;
- Monitor the implementation of program at community level; and
- Negotiate for compensation on behalf of the affected community.

8.1.5 Like before, capacity of this committee should be built by RDA for easy articulation of issues pertaining to implementation of resettlement program.

Summary of roles for respective Key Stakeholders

No.	Key Stakeholder	Roles In RAP
1.	Donor	-Funding -Technical support for RAP implementation - External monitoring of RAP implementation
2.	RDA	-Mobilization of resources for resettlement program -Co-ordination of program implementation -Disbursement of compensation and other entitlements to the affected people
3	Coordinating Committee	-Monitor the disbursement of funds; -Guide and monitor the implementation of resettlement; -Coordinate activities between the various organizations involved in resettlement; - Review progress reports; and -Addresses grievance Serve as a pool of technical experts for Addressing Resettlement Issues
4	Sub -Committee	- Serve as a channel for grievance redress -Monitoring the day to day implementation activities -Negotiating for compensation - link for community to district office

8.6 Community Participation

8.6.1 The affected and host community should be involved at all levels of planning, implementation, monitoring and evaluation of the Resettlement Program. This will facilitate greater transparency and fair play in compensation procedures and encourage greater community involvement and ownership.

8.6.2 To ensure effective community participation, the following activities should be considered:

- a) Ensure all stakeholders understand the program process through on-going disclosure mechanism;
- b) Formation of a sub coordinating committee with representation from the affected and host communities as well as the local leadership as Councilors; and
- c) Establish the grievance redress mechanism

8.7 Integration of AP with Host Community

The community residing within or near the area for relocation of affected people is termed as host community. The host community can either welcome or resent the resettled community. To ensure smooth integration the following actions should be considered.

- Ensure full participation of host community at all stages of the program implementation
- Host community should have representation on the sub committee
- In case the project opts for group resettlement, there should not be pronounced disparity in the standard of houses between the AP and the host community
- Usage of social facilities should be extended to the host community

9. Eligibility and Entitlement Framework

9.1 Eligibility

The affected community is defined as those who stand to lose all or part of their physical and non-physical assets including social and cultural networks as a result of a the project. To be eligible to compensation, one should have formal legal rights to land or other assets or should prove informal occupancy (In case of illegal settlers).

9.2 Entitlement Matrix

Based on the adopted Policy Framework, outlined below is a summarized entitlement matrix for the AP. This matrix reflects all categories of affected people and all types of losses associated with each category.

Table of Entitlement Matrix

TYPE OF LOSS	APPLICATION	DEFINITION OF AP	ENTITLEMENT
Agricultural land	Land acquired by project road	Title holders/ Informal Occupant who can prove ownership	Equivalent Land or Compensation at full replacement cost
Residential land	Land acquired by project road	Title holders/ Informal Occupant who can prove ownership	Equivalent Land or Compensation at full replacement cost
Commercial Land	Land acquired by project road construction	Title holders/ Informal Occupant who can prove ownership	Equivalent Land or Compensation at full replacement cost
House	Houses on acquired land	Owners of houses	Replacement or Compensation at full replacement cost
Other Built Structures (fence, pit latrines, Depot wells, shops,	Built structures on acquired land	Owners of built structures	Replacement or Compensation at full replacement cost
Tenancy	Outstanding Rentals at the time of resettlement	Tenants	Reimbursement of rentals to enable tenant get accommodation elsewhere
Relocation Assistance	Displaced Households	Displaced Households	Allowance to enable displaced households to move to the new sites

10. Income Restoration Program

Income restoration program for the PAP should therefore focus on helping the displaced community restore the self-employment activities. NGOs dealing in livelihood strategies should be contracted to design and implement a livelihood restoration program for the AP.

11. Grievance Redress Mechanism

11.1 Grievances are a common phenomenon in involuntary resettlement which if not amicably and timely resolved inevitably give rise to local resistance, political tension and unnecessary delays in executing the project. Litigation in the court of law is one of the options for grievance redress. However, using such formal channels takes longer and may affect the pace of implementation of the program. It is therefore recommended that all efforts should be made by the project to resolve all grievances at project level without resorting to the Courts of Law.

11.1 Nonetheless, the RDA has instituted a multi-level process for resolving any disputes over asset inventories and valuations. First, on the premise that disputes are most amicably resolved informally at the local level, RDA will first work through its

Resettlement Coordinator to resolve disputes, which may be referred for resolution to the Local Steering Committee, and finally to the National Steering Committee. In the event that there is dissatisfaction from affected groups, the provisions of the Arbitration Act No. 19 of 2000 shall apply.

11.2 The Local Steering Committee shall be composed as follows:

- The Council Secretary, District Planner and Director of Works from the Local Authority,
- A leader of an NGO/CBO in the affected area or adjacent area if the area does not have an active NGO/CBO,
- A representative of traditional leadership in the area.
- Four (4) members from the affected community chosen by the general membership affected by the project,
- Representatives from particular government that may need to sit on the committee because of the mandate they hold,
- The Area Member of Parliament, and
- Resettlement Coordinator who shall be an ex-officio member of the committee and its secretary.

The Council Secretary shall chair the committee at this level.

11.3 The National Steering Committee shall be composed of:

- Two members from the Roads Department/Road Development Agency at the Assistant/Deputy Director level
- A representative from Department of Resettlement
- A representative from the Valuation Department
- A representative from the Ministry of Local Government and Housing
- A representative of a known Non-governmental organization
- An additional member from the Environmental Management Unit at senior level
- A representative of the PAP such as Area Member of Parliament and or Council Secretary
- As indicated the Resettlement Coordinator shall be the ex-officio member of the committee.

11.4 The chair for the committee shall be provided by one of the Assistant/Deputy Directors from the Roads Department. The vice-chair shall come from either the Department of Resettlement or Department of Valuation. The Committee shall decide on the number of times to sit but shall not be less than three sittings per year during the planning and implementation life of the resettlement project.

11.5 To avoid this, the following process should be considered.

- Allow the aggrieved person to lodge a complaint or claim to the sub committee. The sub committee should in consultation with the complainant clearly define the claim and forward it to the coordinating committee at district level.
- The coordinating committee should then consider such claims and their merits aimed at making a rational judgment. This should be done in consultation with RDA.
- If the aggrieved person is not satisfied with the decision of the coordinating committee. The complaint should be referred to the Court of Law for redress.

12. Compensation Estimates

The compensation cost for the section of the road to be financed by the AfDB includes land compensation, house compensation, crops and fruit trees compensation, and loss of income compensation. The estimated total compensation cost is Euro 95,583.

Item	Unit	Compensation Cost EURO
Garden	Ha.	15,335
Trees	Ha.	16,050
Annual/perennial crops	Ha.	22,469
Kiosk/hawker		32,099
Buildings		9,630
Total		95,583

13. Monitoring

13.1 Monitoring and evaluation should be done at two levels namely internal and external. Internal monitoring should mainly assess whether the implementation of the resettlement program is in accordance with the approved plans. This should be done on a quarterly basis and will involve the review of the actual implementation process, against the planned time schedule and budget; assessing how the operational channels of communication are working, whether compensation due to affected persons are being met and assessing the adherence to approved mechanisms. The coordinating committee should be responsible for the internal monitoring.

13.2 External monitoring and evaluation should assess the overall compliance of the resettlement to RAP and the African Development Bank Policies as well as indications of effectiveness of mitigation measures. AfDB should be responsible for external monitoring and evaluation. Alternatively an independent consultant should be hired to conduct

external monitoring on behalf of AfDB. This should be conducted annually until the objectives of resettlement are fully met.

14. Implementation Schedule

14.1 The implementation schedule should be devised in close collaboration with the key stakeholders and should take into account seasonal activities or events such as school calendar to minimize potential disruption of social activities. The schedule should be phased as outlined below.

- Announcement of cut-off date
- Detailed Socio-economic Survey for Designing M&E Indicators
- Census of all the affected Households
- Preparation of Detailed RAP
- Formation of Organizational Structures and signing of memorandum of understanding among key stakeholders
- Signing of contract with the NGO for Livelihood Restoration
- Compensating all affected Households/Preparation of the Habitants
- Relocation
- Construction of project Road

14.2 It should be stated that RDA would come up with feasible tentative schedules of the implementation schedule while Monitoring and Evaluation will be on-going commencing immediately after project implementation.

15. Budgeting

The budget should reflect all the aspects of resettlement. It should consider compensation for all immovable assets such as residential buildings, commercial structures, Fruit Trees, other immovable assets of value. Compensation for houses should be based on the actual valuation in order to determine the full replacement cost of the structures to be lost. The budget should also consider all costs for monitoring and evaluation as well as capacity building of the affected persons.