PROJECT:  MOMBASA – MARIKANI ROAD UPGRADING PROJECT
COUNTRY:  KENYA

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT SUMMARY

Date: October 2014

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ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

SUMMARY

Project Name: Mombasa – Mariakani Road Upgrading Project
Country : Kenya
Project Number: P-KE-DB0-021

1. Introduction

The Government of Kenya, through the Kenya National Highways Authority (KeNHA) has proposed to carry out improvements on the Mombasa to Mariakani section of the A109 road. The proposed improvements will include dualling of the sections that are currently single carriageway and constitute constrictions to free traffic flows. The A109 Mombasa-Mariakani Road Section is situated in Mombasa and Kilifi Counties of Coastal Kenya. The project road is approximately 41km and forms part of the 500 km Mombasa-Nairobi highway. The project road starts at the junction of Kenyatta Avenue (A109) and Digo Road (A14) within Mombasa City. It runs in a northerly direction through Changamwe, Miritini, Mazeras, Mariakani, before terminating 1km after at Mariakani Weighbridge.

The Feasibility Study, Preliminary and Detailed Designs and the Environmental Impact Assessment were contracted to AECOM RoA (PTY) Ltd in association with Cape Consult and Aquaclean Services Ltd. The proposed road section is faced with the challenge of rapid increase in traffic volumes including light vehicles and heavy trucks. Over the years, the proposed project road corridor has experienced intensive land use changes and developments without matching maintenance and expansion of the road. For this reason, the current capacity of the road is overwhelmed leading to persistent traffic congestion with far reaching social inconveniences, economic losses, safety risks and environmental degradation. It is for this reason that KeNHA has identified the road as deserving rehabilitation and expansion.

According to the Environmental Management and Co-ordination Act, (EMCA) 1999 of Kenya and the Environmental Impact Assessment and Audit Regulations, the proposed road construction project falls within the activities that require a mandatory EIA. Likewise, according to AfDB’s Integrated Safeguards System Policy, the project is classified under Category 1, and therefore requires the preparation of an ESIA as well as a standalone ESMP. This ESIA Summary has been prepared from the project documents in accordance with AfDB’s Environmental and Social Assessment Procedures (ESAP). In addition, over 200 persons will be involuntarily displaced by the project. A full Resettlement Action Plan (RAP) has been prepared and is included as Annex 1.

2. Project Description and Justification

Mombasa – Mariakani (A109) Road is a 41km stretch running from Digo Road on the island through Kenyatta Avenue, Makupa causeway, Changamwe, Miritini, Mazeras and ends 1km after the Mariakani weighbridge. The project traverses Mombasa and Kilifi Counties. The existing single carriageway sections of the road are narrow and in poor condition and therefore a big impediment to flow of traffic experienced between Mombasa and Mariakani. According to the design, the project is divided into sections as follows:
Section 1 - Moi Avenue/Digo Rd roundabout to Ronald Ngala (B8): This section runs from Km0+000 to Km2+000, and lies within Mombasa City Central Business District (CBD). The Section is a 2x2 lane dual carriageway. The Lane width varies from 8 – 11m with a 3m central median. The central median contains a number of services including street lights, power lines, data cables and underground service lines. 600mm wide paving blocks have been laid on either side of the median to act as pedestrian walkway. There is a possibility of a third lane which is currently used for on-street parking. The design proposes 3x3 lanes, pavement rehabilitation and strengthening be carried out as well as new pedestrian walkways and storm water drainage. A design speed of 50 km/h has been considered for this section. The alignment basically follows the existing one.

Section 2: Ronald Ngala to Makande Rd: This section runs from Km 2+000 to Km 3+100, and is situated, within the Mombasa City Central Business District. Therefore all the parameters mentioned for section 1 also apply for section 2.

Section 3: Makande Rd to Changamwe Roundabout: The Section is an existing dual carriageway and runs from Km3+100 to Km5+900. The Mombasa – Nairobi railway line runs parallel to the Nairobi bound Carriageway between Km3+300 to Km4+000 (700m) with the distance between the edge of the carriageway and the rail track hardly 3m in some sections. The Nairobi bound carriageway also passes over the 100m Makupa Causeway Bridge between Km3+650 to Km3+750. The Mombasa bound carriageway is constructed on a fill over the causeway.

Due to the railway line constraint, it has been recommended that the 2x2 dual carriageway be maintained through the causeway section. Pavement rehabilitation and strengthening shall however be applied. The design speed has been maintained at 50km/h with the centre line maintained through the causeway median. An additional lane has been proposed for the section from km4+100 to Km5+836, resulting in 3x3 lanes. A 3m raised central median shall be paved with intermittent gaps to allow for tree planting. The Mombasa-Nairobi railway line crosses the project road at Km5+010 (overpass bridge) and at Km5+570 (underpass bridge).

Section 4: Changamwe roundabout to Kwa Jomvu Junction: The section runs from Km5+900 to Km11+500. From Km5+836 to Km6+600, the existing road is a dual carriageway with 2x2 lanes. Km6+600 to Km11+350 is a single carriageway. A 3x3 lanes dual carriageway has been proposed for the entire section. A central median of 3m has been proposed with additional slip lanes at main junctions including Km 6+400, LHS to Oil Refinery and Km 7+100 LHS to UNSOA compound. The Mombasa-Nairobi railway line passes below the project road at Km7+300. A new bridge has been proposed at this location. The section is considered a Peri-urban area with a design speed of 50km/h recommended.

Section 5: Kwa Jomvu junction to the Southern Bypass Interchange: The section runs from Km11+000 to Km16+000. The existing road is a single carriageway between Km11+350 to Km14+780 and dual carriageway between Km14+780 to Km15+815. A 2x2 lane dual carriageway has been proposed for this section with a raised 3m central median. A reinforced concrete New-Jersey central barrier has been proposed for the central median between Km14+780 to Km15+815. The section between Km15+100 to Km15+815 shall be covered under the Southern bypass scope of works.

Section 6: Southern Bypass Interchange to Kaloleni Junction at Mazeras: The Section runs from Km 16+000 to Km 20+700. The section is currently a 2x2 lane dual carriageway. The
Central median is 3m and a reinforced Concrete New Jersey barrier has been recommended for the entire section. The section between Km15+815 to 16+460 shall be covered under the Southern Bypass scope of works. The terrain can be classified as rolling. A design speed of 80km/h has been proposed for this section.

Section 7: Kaloleni Junction at Mazeras to Mariakani (End of the Project): The section runs from Km 20+700 to Km41+638, which is the end of the project a short distance after the Mariakani Weigh-Bridge. The existing road is a single carriageway recently reconstructed. The section is to be dualled with the construction of a new 2-lane carriageway on the Right Hand side of the existing carriageway. The terrain can be classified as flat and the road section is rural. A design speed of 100km/h has therefore been proposed for this section. The minimum horizontal curve radius is 600m and the horizontal geometry has achieved this throughout the road section.

Interchange and Junctions

There are three main interchanges as follows:

Changamwe Roundabout: A grade separated interchange has been proposed at Changamwe roundabout to allow for free-flowing condition for all traffic movements especially Mombasa – Nairobi and Mombasa – Airport directions which constitute a large proportion of the traffic movements.

Mikindani Junction: At Km8+535Junction to Mikindani, a grade separated junction has been proposed to reduce conflicts between traffic turning right into Mikindani and through traffic.

Kwa Jomvu Junction: The existing at-grade junction causes significant reduction in the capacity of the junction with A109 road. It causes long delays and has a high accident potential. This is compounded by the numerous trucks and tractors with containers making right turn at the junction on their way to deliver containers to the yards in the area. A grade separated junction has been proposed to improve safety and traffic flow into A109 road.

Other major junctions have been designed to include deceleration and acceleration lanes to allow for safe Right-turning movements as follows: Km6+400 LHS – Junction to Oil Refinery; Km7+100 LHS – Junction to UNSOA; Km20+570 RHS – Junction to Kaloleni (Mazeras); Km35+260 RHS – Junction to Kaloleni (Mariakani). A number of U-Turn locations have also been provided for along the project road.

Pedestrian Bridges and Walkways

To ensure safety of pedestrians, a number pedestrian Bridges have been proposed at the following locations: Km3+100 (Makande Road Junction); Km5+950 (Changamwe); Km8+600 (Mikindani junction); Km20+600 (Mazeras); Km35+300 (Mariakani).

New pedestrian walkways have been proposed for the Town sections of Mombasa, Changamwe, Miritini, Mazeras and Mariakani. In addition, pedestrian walkways have been proposed on both sides of the Causeway Km 4+100 to Km 5+800 and only on the RHS (Mombasa-bound Lane) between Km 3+100 and 4+100.
Pedestrian crossing ramps have also been proposed, especially in the city centre where there is no space for footbridges. Proposed crossing ramps are to be designed as marked humps with at Mwembe Tayari areas (KM1+000), Sabasaba Junction, Makupa Roundabout and Makande junction.

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

The Environmental Management and Coordination Act (EMCA), 1999 provides for the establishment of a legal and institutional framework for the management of the environment and for matters connected therewith and incidental thereto. Just as in the new constitution, Part II of EMCA confers to every person the right to a clean and healthy environment and to its judicial enforcement. The new Constitution and EMCA therefore obligates the project’s Executing Agency and Contractor to work in a clean environment and not to contravene the right of any person within its zone of influence, to this entitlement. EMCA has provided for the development of several subsidiary legislations and guidelines which govern environmental management and are relevant to the project implementation. These include;

![Project Location Map](image-url)
- The Environmental (Impact Assessment and Audit) Regulations, 2003 Legal Notice No. 101;
- The Environmental Management and Coordination (Waste Management) Regulations, 2006 Legal Notice No. 121;
- The Environmental Management and Coordination (Water Quality) Regulations, 2006 Legal Notice No. 120;
- The Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 Legal Notice No. 61;
- The Environmental Management and Coordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006 Legal Notice No. 160;
- The Environmental Management and Coordination (Fossil Fuel Emission Control) Regulations, 2006 Legal Notice No. 131;
- The Environmental Management and Coordination (Controlled Substances) Regulations, 2007 Legal Notice No. 73.

Kenya’s key environmental assessment and monitoring agencies include the following:

- The National Environment Council: The Council is responsible for policy formulation and directions for the purposes of developing the EMCA. The Council also sets national goals and, objectives, and determines policies, and priorities for the protection of the environment.
- The National Environment Management Authority (NEMA): NEMA is responsible for general supervision and, co-ordination of all matters relating to the environment and is the principal instrument of government in the implementation of all policies relating to the environment. The authority is also responsible for monitoring compliance with all the NEMA regulations.
- The Standards and Enforcement Review Committee (SERC): NEMA through EMCA has established standards for the various environmental parameters that require management and these include the water quality standards, noise and vibration control standards, and the waste management standards, amongst other. SERC, through the Compliance and Enforcement Department of NEMA monitors the compliance level of the project to ensure environmental control standards are implemented. The committee also follows on complaints reported by the public.
- The County Environment Committees: These committees contribute to decentralization of activities undertaken by NEMA and thus enable local communities to have access to environmental management information. The committees also conduct quick site visits and review environment related reports of the projects and on occasions could attend site meetings.

The Occupational Safety and Health Act, 2007, is an Act of Parliament to provide for the safety, health and welfare of all workers and all persons lawfully present at workplaces, to provide for the establishment of the National Council for Occupational Safety and Health and for connected purposes. The Act applies to all workplaces and workers associated with it; whether temporary or permanent. The main aim of the Act is to safeguard the safety, health and welfare of workers and non-workers. It is thus recommended that all Sections of the Act related to this project, such as provision of protective clothing, clean water, and insurance cover are observed so as to protect all from work related injuries or other health hazards.
There are sectoral legislation and regulations relating to various environmental aspects and that are relevant to the road project that were reviewed, including international treaties and agreements that Kenya has ratified and these have been included in the ESIA Report. In addition, the African Development Bank’s Integrated Safeguards Policy has been applied in the preparation of the ESIA and RAP studies.

4. Description of the Project Environment

Bio-physical Environment

Topography: Mombasa County is within coastal lowland rising gently from flat zones of between 6 – 50m above sea level and becoming undulating westwards on the mainland to about 100m above sea level at Mariakani area.

Rainfall: The coastal region receives an average annual convectional and bimodal rainfall of about 900mm with a marked decrease in intensity in the north and into the hinterland. The average annual mean rainfall in Mombasa District ranges from 400mm to 1,100mm. The rainfall pattern is influenced by proximity to the Indian Ocean, relatively low altitudes, temperature and trade winds with the seasons being more pronounced in the south. Long rains occur between the month of April and June (peak in May), while the short rains occur from October to December.

Temperature: The annual minimum temperatures in the project area range between 22.5˚C and 24.5˚C while the maximum temperatures vary between 26˚C and 30˚C along the coastal belt. The district is generally hot and humid all the year round with a relative humidity of about 60% along the coastal belt due to the high evaporation rate and availability of surface water.

Geology: The geology of the Kenyan coast is dominated by rifting and breakup of the Paleozoic Gondwana continent and the development of the Indian Ocean. The Proterozoic gneisses of the Mozambique belt form the basement of an intracratonic basin, filled with continental permo-Triassic classics. The geology of the project area mainly comprise: (i) the flat coastal plain which includes; the Island division; (ii) the broken severely dissected and eroded belts that consist of the Jurassic Shale overlain in places by residual sandy plateau found in Changamwe division; (iii) the undulating plateau of sand stone that is divided from the Jurassic belt by a scarp fault.

Soils: Mombasa soils are varied both physically and chemically depending on their geographical location. There soils found in the project area include: (i) Soils developed on higher level lagoon deposit (Kilindini sands, these are light soils with very low fertility, they are excessively drained and very deep. These soils are found at Port Reitz and Changamwe areas; (ii) Soils in the mangrove swamps (Makupa area), they are poorly drained soils, very deep and excessively saline, the soil texture is medium to heavy; (iii) Soils developed in shales, they are well drained to imperfectly drained, they are shallow to moderately deep soils found near Mtwapa to the North and Mazeras to the North west.

Mineral Resources: The project area is reportedly endowed with limited mineral deposits. Among the minerals present in Kwale County include Titanium (found around Mdumba and Ngulwa areas), Lead, Zinc and Copper (found in Dumbule, Mwale and Mkarigbe).
Gemstones are usually found in Kuranze, Chidi and Mtsungu areas while Silica sand is found in Dalgabe, Ramisi and Msabweni areas and Barite in Lungalunga. Economic deposits of building sand are found in most of the riverbeds and particularly in Ramisi, Matuga, Tiwi and Msambweni. Mazeras sandstone slabs cover a large section of Kinango District commonly extracted and used for construction purposes, found on the western end of the project.

**Water Resources**: Mombasa County is among the major urban cities in Kenya faced with serious scarcity of clean drinking water, there are no sources of fresh water in the area. The main water supply for Mombasa and the surrounding areas is mainly from the Mzima springs located 300 Km from the Chyulu Hills, Baricho and Sabaki well field in north coast and also Tiwi Boreholes in south coast. Mzima pipeline and Marere Pipeline are the main transmission systems interacting with the project. The challenge on water is as a result of absence of permanent surface water sources, increased population growth, rapid urbanization and industrialization activities and poor maintenance of the existing water supply.

**Hydrology and Drainage**: Indian Ocean is the largest water mass in the area and influences the general surface drainage pattern with all land sloping towards the ocean hence all the surface run-off is expected to drain to the sea through the natural drainage systems. However, due to the dense human settlements and activities of the natural drainage systems have been interfered with resulting in frequent flooding.

**Ecology of Makupa Causeway**: Makupa Causeway runs midway between Port Reitz Creek (the harbor side) and Tudor Creek to the north. Mwache, Mambone and Chasimba rivers feed into Port Reitz Creek from as far as Taita and Shimba Hills bringing in huge loads of silt. Kombeni, Tsatu and Mtsapuni seasonal rivers flows into Tudor Creek though the catchment is much smaller. The creek is characterized by mangrove systems harboring pockets of ecological areas. The importance of mangrove systems is in the provision for fish and shrimps breeding and nursery grounds as well as establishing the shoreline for mitigation against coastal erosion.

**Air Quality**: While noting the particulate matter levels are below the occupational health standards (10mg/m3), there are notable levels along the corridor within the urban and high economic activity areas. There are lower levels in isolated sections of the corridor with low population and human activities including the end of the project road and the weighbridge areas with an average of 3 – 4.5mg/m3. Sections of the corridor with high human habitation and economic activities, and particularly the Miritini area into the city centre displays high concentration of particulate matter ranging between 6.5 – 7.3mg/m3 in the city centre. A significant of the particulate matter is associated with traffic on poor road surfaces.

The CO2 is the dominant pollutant along the corridor and its trends follows the same pattern as the particulate matter, i.e. low along high speed sections (25 – 50mg/l) and notable along sections with slow moving vehicles. There is an extra high level of CO2 at Mariakani and Kokotoni (200mg/l) and other sections near petrol stations. This is associated with slow moving trucks while the medium levels (75 – 100mg/l) including city centre locations with interchanges and junction where there is heavy and slow moving traffic. It was also noted that the rate of dispersion is lower in parts of the city.

Sulphur Dioxide (SO2) levels are extremely low across the corridor (ranging from 0.01mg/l – 0.14mg/l) while the outer sections reports less than 0.1mg/l. Other gases including Carbon Monoxide (CO), Volatile Organic Carbons (VOC) and Nitrogen Oxides (NOx) are all below
detection levels. These results were obtained through a single measurement session. An intensive monitoring may be required to establish long term trends.

Significant drop in vehicular emissions is predicted on the improvement of the road surface. Notable reductions are noted in CO2, Hydrocarbons, and Nitrogen Oxides. This reduction is associated with efficiency in vehicle operations, including travel speeds and time spent on the road section. Particulate matter and Lead tends to remain the same.

**Noise Characteristics:** At locations with slow speeds, the noise levels are generally low, though the level of light high speed traffic influences noise levels upwards. With cross section noise profile of 57 – 76dBA is within the established maximum level of allowable accelerating traffic noise of 84dBA, but higher than indoor occupational health standards for hospitals, schools and residential facilities. Improved road will facilitate faster moving vehicles and hence slightly elevated noise levels.

**Utilities:** There are overhead power transmission lines along the entire route into the substations and to consumer areas. Most of the lines runs along the road reserve with a few crossing. In additions, sections of the road (Digo Road – Changamwe – Miritini have underground power cables, mainly along the median and roadsides close to the carriageway.

Mzima pipeline is the second biggest and supplies to Mombasa, Voi, Maungu, Taru, Mariakani, Mazeras and Kaloleni regions. The main water pipeline runs along the road reserve and the reticulated water network crosses the road. Mombasa has two main sewerage treatments at Kizingo and Kipevu. The functional sewerage treatment plant is the Kipevu which serves residents of Changamwe, Port Reitz, Magongo and Jomvu areas. Some of the sewerage network cross the road.

**Socio-Economic Environment**

Mombasa – Mariakani road can be socially and economically divided into two main sections as follows:

- **Urban/Peri-urban sections covering Mombasa island from Digo road through Changamwe to Jomvu as well as the urban centers of Mariakani and Mazeras.** The sections are characterized by commercial activities, small scale trading, heavy industries (steel makers, Doshi, Mabati Rolling Mills, Nyumba and Kaluworks among the many) and residential (Changamwe, Mikindani, Kwa Jomvu and Bangladesh slum among others).
- **Rural sections from Mazeras and all sections from the suburbs Mombasa city through Mazeras to Kokotoni to Mariakani.** These are characterized with huge tracts of empty land, livestock keeping and scattered homesteads. However, observations show an emerging trend in land development along the corridor mainly commercial.

**Population Distribution:** According to the 2009 Kenya population census, the three counties traversed by the project road had a total population of 2,699,036 persons (Male 1,338,447 and Female 1,360,589). Most of the population in Mombasa County is concentrated in the urban areas while in Kwale and Kilifi, majority of the population is rural and concentrated in high potential areas.
Settlement Patterns: Settlement patterns within the project area are mainly influenced by the infrastructure network (roads, water availability, telecommunications and electricity), access to employment opportunities, land tenure as well as cheap housing and agricultural potential (dictated by nature of soils) and the coast line. High population densities are found in the Mombasa metropolitan areas of Island, Changamwe, Bahari and the Jomvu, as well as Mariakani and Mazeras towns including their immediate neighbourhoods.

Labour and Employment: Kenya is often faced with challenges in meeting the country’s employment needs. Unemployment Rate in Kenya increased to 40 percent in 2011 from 12.70 percent in 2006 for the people aged 15-64 years. 67 percent of the unemployed in the country are the youth. Access to jobs is essential for overcoming inequality and reducing poverty. The unemployed are therefore among the most vulnerable in society and are prone to poverty. In the project sub-counties, the activity status of the population aged 15 years and above indicated that 40% of the population in 2009 was employed, 9% were seeking work and the rest (51%) were categorized as economically inactive. The highest portion of the employed were those in Mombasa (45%) compared to 36% in Kaloleni. Kaloleni had 57% of its population being economically inactive compared to 45% in Mombasa.

Health and HIV/AIDS: There are several hospitals and health facilities in Mombasa County and along the road corridor. According the data availed by the Ministry of Health, the prevalence of HIV and AIDS in Mombasa County is 6.5% and 3% in Kilifi. Survey on HIV/AIDS prevalence in the country as per Counties released by the Government through the Commission for Revenue Allocation (CRA) revealed that the total number of people living with HIV/AIDS in the two project Counties was 101,200 (77,100 in Mombasa County and 24,100 in Kilifi County). The new infections in Mombasa County in 2011 were 4,930 while in Kilifi there were 1,600 new infections. The HIV prevalence rate is highest among married couples, a finding that experts believe has been fuelled by rampant infidelity in marriages. Under the proposed roads project there is therefore dire need for control of the spread of HIV/AIDS through a strong sensitization programme.

Land Use: Land use in Mombasa County is diverse depending on the physical location. The major land use is residential development, industrial development, transport and communication, extractive, institutional and for commercial and service purposes among others. Most of the public land is mainly used for institutions development such as religious, health educational, military and the community facilities such as social halls, public gardens, show ground and sports ground. The project road corridor is a mix of residential, commercial and industrial establishments. Several Container Freight Stations have been established along the corridor creating the current traffic situation.

Trade and Industry: The industrial land is not defined although Changamwe division is mainly considered as an industrial area which has several industries such as Kipevu power generation and the Kenya Oil refinery company. The commercial services are mainly within Mombasa island characterized by shops, open air markets, hotels, vehicle parking areas, commercial buildings(go downs, construction yards, show rooms) among others.

Mombasa – Mariakani Highway has served as the main corridor along which many manufacturing firms have established their processing plants and warehouses. The main establishments along the project corridor include Athi River Mining Cement Factory, Mabati Rolling Mills, Pwani and Kapa Oil Refinery. There are a number of organizations, SMEs,
youth and women groups who are engaged in Commercial Crafts some as exporters selling on order basis and others as local entrepreneurs selling to tourists.

Tourism: Tourism is very important for the country and especially for Mombasa County. It creates opportunities for employment in the service industries associated with it, such as transport, entertainment and advertising. The warm temperatures in most parts of the region attract tourists making tourism the mainstay of the economy in the Coastal region. In addition, the counties’ coastal shore is re-known for its vibrant 24 hour entertainment that includes both family entertainments (water parks, cinemas, bowling, sports (water sports, mountain biking and go-skating), restaurant and night life. Other attractions include historical sites such as the Mnarani ruins that dates back to between the fourteenth and seventeenth century; Indian Ocean, Rabai Church, Old Mombasa Town and Fort Jesus.

Mining: Kilifi County is rich in minerals; mainly titanium and iron ore, that have spurred extensive industrial mining activities. Other minerals extracted include barites, galena, rubies, pozzolana, gypsum and limestone. Salt mining and sand harvesting have been carried out over the years to take advantage of the sandy, salty waters.

5. Project Alternatives

The rehabilitation and upgrading of Mombasa – Mariakani road will follow the existing corridor to the extent possible with dualling, widening and junctions improvement as well as drainage enhancements. The alternatives considered for the project, therefore, were mainly based on the design options and economic implications as opposed the alignment.

Alternative 1 No Project Option: This implies that the road be left as is such as to undergo repairs of the pavement. This implies no investments but the existing maintenance budgetary allocation will be adopted for the road corridor. With this option, the current challenges facing the A109 road section including traffic congestion, drainage problems, road safety risks and other associated problems facing social and economic setting along the corridor will continue. This alternative is not desirable given the proposed developments in Mombasa and the Government Vision 2030.

Alternative 2: The proposal is to construct a concrete road surface for Km 0+000 – KM15+500 (i.e. Digo Road – Miritini) where heavy traffic and industrial activities is experienced. The rest of the road section (Miritini at KM15+500 to Mariakani at KM 41+700) will be designed for stabilized Asphalt for as the traffic count shows lesser traffic.

Alternative 3: The proposal to design Asphalt concrete surface pavement all the way from KM0+000 – KM 41+700 (Digo Road to Mariakani).

Alternative 4: Construction of concrete pavement on the heavily loaded road sections (mainly Changamwe – Miritini areas and sections of the meandering slopes towards Mazeras) and then asphalt concrete for the rest of the road section (Miritini area to the end of the project at Mariakani Weigh Bridge) including the service roads and NMT sections.

Alternative 4 has been selected for further development into detailed design. Other alternatives considered included selection between signalized roundabouts at Changamwe and Kwa Jomvu two level grade separation or three level grade separation. The two level grade separation at both Changamwe and Kwa Jomvu has been selected as it improves traffic.
flow through the junction but with lower impact in terms of land requirements and drainage management when compared to the three level junction.

6. Potential Impacts and Mitigation Measures

Positive Impacts

Facilitation of Regional Trade: The project road is an important section of the Northern Corridor (NC) which links the port of Mombasa in Kenya with the land linked eastern and central African countries of Uganda, Rwanda, Burundi and the Democratic Republic of Congo (DRC). The proposed rehabilitation and expansion of Mombasa – Mariakani Road is a national is also a flagship project under the Kenya Vision 2030 and has economic benefits to the country as well as the neighbouring countries in the region. At the local level, the road expansion will address the persistent traffic congestion between Miritini and the City Centre (where at time it runs into hours) through streamlining the flow of heavy traffic. It is worth noting that the road is the only gateway into the City of Mombasa to the western mainland.

Emission Reduction / Climate Change Mitigation: It is commonly known that as traffic congestion increases, CO2 emissions (and in parallel, fuel consumption) also increase. In general, CO2 emissions and fuel consumption are very sensitive to the type of driving that occurs. Traveling at a steady-state velocity results in much lower emissions and fuel consumption compared to a stop-and-go driving pattern. By decreasing stop-and-go driving that is associated with congested traffic, CO2 emissions can be reduced.

The HDM emissions model was used to calculate the expected impact of the proposed upgrading alternatives on the total vehicle emissions across the corridor. The model is based upon relationships between fuel consumption and exhaust emissions. The main advantage of this approach is that where fuel consumption is calculated in a detailed way, for example modeling the effect of road condition, gradient, engine function and so on, changes in fuel consumption are related directly to changes in road condition. The detailed results are summarised below:

Table 1: HDM4 Emissions Analysis Summary

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</table>
While showing the effects on all gaseous emissions, attention is on Carbon Dioxide (CO$_2$) due to its implications on the climate change scenarios. It is clear that all three alternatives are expected to cause a significant decrease in the vehicle emissions ranging between 26% to 45% and will, therefore, be extremely beneficial from an environmental point of view. Emissions of CO$_2$ will have a reduction of between 1.8M tones and 1.97M tones (between 38% – 43% reduction). This is a direct indication of the benefits associated with Climate Change mitigation.

*Reduced Congestion and reduced pollution*: Reduced congestion on the road section, especially the Changamwe – Miritini Section, has unique benefits that include low total consumption of fuel that directly reduces emissions of carbon and the associated gases and so to greenhouse effects (in addition to carbon, other emissions reduced will include Nitrogen oxides, sulphur oxides, hydrocarbons and particulate matter as illustrated above).

*Employment Opportunities*: The construction works will contribute towards poverty reduction in the affected areas through increased disposable incomes realized from employment of skilled and unskilled local labour. The estimated number of employment opportunities of up to 3,000 persons through the project implementation period, spending by the road contractor(s) as well as road users on purchase of supplies (consumables and road construction materials, e.g. gravel, etc) and accommodation services.

*Reduced Travel Time*: Upon completion of the dualling project anticipated benefits will include travel time especially between Mombasa and Miritini and vice versa (especially the section between Changamwe and Miritini – commonly famous for long traffic congestions) as well as the approach to the Mariakani Weighbridge will be greatly reduced through improved traffic flow. This will arise from enhanced value of time from efficient movement.

*Non Motorised Traffic Lanes and Improved Road Safety*: The proposed project has a Non-Motorized Transport (NMT) Component along the corridor. The component is integrated to enhance safety of the pedestrians and other road users. Walkways are considered along the entire new alignment with clear separation from the main carriageway. There will also be a lane dedicated for cyclists and cart pushers. This will improve road safety and reduce the amount of money spent on transport by the workers, small business operators, school children, the disabled and other people willing to walk to work places. Pedestrian crossings including foot bridges and underpasses will ease safe movement and usage of the road by a majority of the residents, especially school children, the elderly, women and the disabled people.
Cumulative Impacts

Improvement of the project road has been identified to have overall positive impacts to social and economic aspects and notable improvement on the environment. Other transport related interventions in the same region include the Construction of the Southern Bypass (Dongo Kundu) from Miritini to the New Port Terminal, Dualling of Magongo Road from the Airport to Kwa Jomvu, the proposed Standard Gauge Railway and other link roads in Mombasa will effectively enhance the positive impacts and exacerbate the negative impacts. The cumulative impacts could be described as follows; (i) Overall reduction in travel time in Mombasa; (ii) Improved efficiency at Mombasa Port; (iii) Efficient access to social facilities, schools, hospitals, airport; (iii) significant reduction in vehicular emission and improvement of air quality; (iv) Improved safety on the road network in Mombasa and (v) increased employment opportunities for the host community.

The potential cumulative negative impacts will include; (i) Increasing demand for road construction material – aggregate, gravel, water, sand, yet there is scarcity of road construction material in Mombasa; (ii) Increased expenses in infrastructure development due to long distance haulage of construction material; (iii) Creation of multiple construction camp sites for each project putting pressure on land and other social services in Mombasa; (iv) Development of more settlements and commercial premises along the road corridor therefore increasing demand for water, power, sanitation in Mombasa. To mitigate these impacts, Mombasa County Government is being supported by various International Financial Institutions to develop and implement various masterplans including; Drainage and Stormwater Management Masterplan by the World Bank; Transportation Masterplan by JICA, Water Transport Study. There is need for an Integrated Urban Development Plan to minimize impacts.

Negative Impacts

Land Take and Loss of Business: The Resettlement Action Plan has been developed and a summary of the Plan is included in the Annex of this ESIA Summary. The RAP study identified that the project will require 25ha of land take (acquisition); 673 informal traders currently trading on the road reserve will need to relocate from the road; and 3 worship places constructed on the road reserve will need to be relocated. KENHA shall ensure that all PAPs are compensated fairly and promptly prior to commencement of civil works in accordance with the RAP approved by the financiers.

Traffic Management: Construction focusing on the project road and the intersections will generate traffic problems which will require good traffic management planning to ameliorate. Currently due to lack of enough truck parking facilities, trucks park on the road reserve. Traffic management planning for the construction phase shall include the preparation of detailed phased construction plans which will guide traffic flow during each stage of construction, in order to keep traffic flowing. The movement of heavy vehicles bringing in materials shall be accompanied by alert vehicles. The contractor shall ensure that effective road signs have been placed at all key spots including diversions.

Material Sites: Six potential borrow sites and five potential hardstone quarries have been identified. These sites are located some distance from the project road. According to the NEMA requirements, separate ESIA studies will be required for each material sites selected by the Contractor. The road corridor is a water stressed area. Construction water sources have
been identified at ponds in Kokotoni area. For potable water at construction camps, the Contractor will need to negotiate with the utility providers or identify suitable groundwater sources for water abstraction.

**Risks of Accidents:** Increased traffic volume and activities during construction and operation are likely to cause accidents. The mitigation measures proposed include (i) approximately 6 foot bridges have been designed to be constructed along the corridor at Shimanzi Junction, at Changamwe Roundabout; at Mikindani / Kwa Jomvu area; Mazeras town and Mariakani town (ii) a road safety awareness campaign will implemented during and after construction, targeting all the local communities, including transporters, road users, school children, teachers, parents, patients, and hospital staff (iii) Road Safety signage shall be provided during construction and operation.

**Occupational Health and Safety Considerations:** The Contractor shall develop a Health and Safety Plan for staff/workers and community health and safety of people living nearby or potentially affected by the project road. The considerations of environmental health and safety shall include (i) an assessment of traffic accident hazards, including spillages of transported substances into drainage and emergency response planning; (ii) provisions for pedestrian and non-vehicular traffic during construction periods; (iii) training and awareness programs for community in road safety (especially in schools); (iv) occupational health and safety of the construction staff (v) securing of excavations and trenches and (vi) safety equipment and signage during construction and operation of the road project.

**Generation of Noise and Vibrations:** Noise and Vibration are expected during construction due to machinery operation and transport activities. There are many types of foundation vibration sources caused by construction works, and they are mainly caused by piling foundation works, foundation improvement works, land compaction operation, and the operation of heavy transport vehicle. The increased noise and vibrations will cause agitation, impair communication or weaken foundations of existing buildings leading to cracking walls.

The impact to the public due to increased level of noise and vibrations during construction will be mitigated by ensuring adequate maintenance of the vehicles, including proper fine tuning of engines. In addition, all equipment shall be fitted with exhaust mufflers. The Contractor will need to undertake assessment of building structures within the work areas with respect to their capacity to withstand compaction vibrations. The contractor shall not be allowed to carry out construction works close to residential areas during the night. As for construction workers, all workers working in severe noise environment such as the quarries and crushers, shall be equipped with ear plugs.

**Increased transmission of HIV/AIDS:** During construction, interaction between workers, the residents and truckers may exacerbate the spread of HIV/AIDS and other sexually transmitted infections. The Contractor’s workforce will be sensitized with regard to behaviour and conduct, and an HIV/AIDS Awareness Campaign will be implemented.

**Disruption of Public Utilities:** Various public utilities like water pipes, sewerage systems and power lines cross or run close to or in the median of the road. During construction, these utilities are likely to be affected by the construction activities. The water pipe lines especially Mzima Pipeline is likely to be disrupted making the water supply service unavailable to the host population. The Contractor will need to prepare a utility relocation plan and liaise with the utility providers to ensure minimal damage and disruption of services.
**Pollution of Water Resources:** Construction across Makupa Causeway has to be undertaken carefully. Pollution may result from construction materials (concrete, fill material etc), including hazardous materials (motor oil, paint, bitumen etc) spillage into the creek. The contractor shall implement the following measures: undertake construction works at the Causeway during dry season and avoid stockpiling of materials or wastes at the shores of the creek, and ensure no leakage from equipment working around the causeway.

**Generation of Wastes:** Construction activities at the sites will generate significant amount of wastes: solid wastes such as plastic containers, used tyres, used printer cartridges, metal parts, plastic and cable, batteries, and liquid wastes such as used motor oil, and sanitary wastes. The main issues will be disposal of the wastes. These wastes shall be responsibly disposed of in accordance with NEMA waste Management guidelines and at Mombasa and Kilifi County approved sites. Once the project is completed, all work areas and offices, storage and repair sites, and other temporary installations must be cleaned and restored. A rehabilitation plan must be prepared and approved by the Supervising Engineer, that ensures that damaged areas are rehabilitated and the sites are compatible for potential future uses.

7. **Complimentary Initiatives**

**Landscaping and Trees Planting program:** The project shall support the efforts of Mombasa County Government through planting of trees and shrubs to beautify the city, replace trees that may be cut down during construction, protect the road reserve; and planting trees that will contribute towards sequestering carbon emissions. The ESIA currently recommends that some of the trees shall be planted on the median of the dual carriageway. KENHA will engage a Landscape Architect to develop a suitable design and specifications for the urban and peri-urban road setting tree planting program.

**HIV/AIDS Awareness and Prevention:** The project has included in its design implementation of a sensitization and awareness activities to cater for the prevention of the spread of HIV/AIDS, STI and avoidance of drug and substance abuse. There shall be the establishment of at least one wellness center at the proposed truck parking location at Miritini or Jomvu. The design and operation shall benefit from the experience of National Aids Control Council (NACC) at the Wellness Centre at Kenya Ports Authority. In addition, NACC shall facilitate formation of a Technical Working Groups (TWG) for implementation of this component, identification of potential service providers and drawing up of TORs. The TWG would be both at headquarters and at county levels (Mombasa and Kilifi). In either case, KeNHA would be expected to play a leading role in establishing the TWGs so that the service provider starts work ahead of the main Contractor.

**Gender Considerations at Construction Sites and RAP implementation:** On gender sensitization, efforts shall be put in place to ensure that both men and women take part in project preparation and implementation. Distribution of jobs during construction shall be guided by the national policy of at least 30% to be women employed. In addition, the contractors and employers shall be obliged to develop a code of conduct to ensure no abuse takes place at the working areas. Appropriate facilities including rest places and ablution facilities shall be provided for both women and men. The National Gender and Equality Commission (NGEC) shall work with KeNHA to ensure appropriate messages and procedures are followed by the service providers in this respect. Of importance is gender sensitization during implementation of the RAP to ensure rightful owners of properties are
compensated and that for family assets, both wife and husband are availed with full information and payment procedures.

**Training and Capacity Building for local unemployed youth:** Given the feedback from the ESIA studies that Mombasa has an acute problem of youth unemployment resulting into unbecoming behaviors, the project has included as part of the activities a training program to be implemented by one of the local technical and vocational training institutes. The program shall be on a self-selection basis and shall be short term. The plan is to commence with the training program ahead of commencement of construction works to give first hand opportunity to the trainees to get jobs. In addition, the training program shall include modules that will go beyond construction trades but those that would be sought by the labor market. In order to ensure gender equality, the participants shall have to be at least 50% women youth.

**Development of Roads Sub-sector Guideline on Gender Mainstreaming:** The Bank’s Ten Year Strategy emphasizes gender mainstreaming and being able to monitor outcomes intended in the uplifting of both men and women. The National Gender and Equality Commission (NGEC) which, among others, is charged with the responsibility of monitoring and reviewing Government’s institutions performance on gender inclusion is developing sector specific indicators. Since the AfDB is expected to report on the same but that NGEC has not yet developed such indicators for the road transport sub-sector, the project has set aside resources to assist NGEC to come up with such indicators and guidelines as part of the Gender and Inclusion Monitoring Framework. In this process NGEC shall provide technical support in working with KeNHA and the identified service provider to develop the indicators and guidelines.

**Roadside amenities including parking areas:** The project shall consider including provision of access and paving of roadside amenities and truck parking at designated sites. However concrete sites and size of locations have not yet been identified and agreed upon with the appropriate authorities. Indications have been provided that the Northern Corridor Project in collaboration with NTSA have allocated land at the Miritini Motor Vehicle Inspection Unit which could be designated for truck parking. The intention is for the project to compact and pave the sites and in collaboration with the local authorities who should prepare a site physical plan and operate the sites. Experience from other countries show that cost effective structures have been created from refurbishing unused freight containers. Similarly, Mombasa County is already constructing modern kiosks for allocation to youth traders. Priority for allocation of space shall be to youth and female traders, maintaining gender equity, who shall have been vacated from the project road. Amenities to be included at these sites shall include solid waste bins, potable water sources, rest places, restaurants, toilet facilities, shops/kiosks and HIV/AIDS, STI, and drug abuse information booths, etc.

**Road Safety Campaigns:** The project shall carry out awareness and educational campaigns on road safety. The service provider shall ensure that all road users and operators are educated about the road use and behavior on the road both during construction and operation. Of importance is adequate signage especially during construction which will have to be emphasized in the traffic management plan and use of diversions and alternative routes by motorists. Pedestrians will have to be educated about the importance of crossing roads at designated crossing points and use of foot bridges to avoid accidents. Particular sensitization programs will be for schools along the road corridor and motor cyclists.
8. Expected Residual Effects and Environmental Hazard Management

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

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

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

9. ESMP Implementation and Monitoring Program

The purpose of environmental and social monitoring is to quantitatively measure the compliance of the contractor on the implementation of the proposed environmental and social mitigation measures as well as the effectiveness of the mitigation measures. The environmental monitoring program will operate through the preconstruction, construction, and operation phases. It will consist of a number of activities, each with a specific purpose, key indicators, and significance criteria.

The following aspects, each having a specific purpose, defined key indicators, and significance criteria, will require monitoring: (i) Air Quality and dust emission; (ii) Noise and vibrations; (iii) Restoration of borrow sites and quarries; (iv) Prevention of pollution of surface water especially Makupa Causeway; (v) Disruption of public utilities (domestic water supply, sewerage, power lines); (vi) Disposal of wastes; (vii) Compensation of properties; (viii) Road safety; and (ix) HIV/AIDS prevalence rates.

The monitoring of implementation and effectiveness of mitigation measures will be carried out by an Environmental and Social Officer (ESO), who will be part of the road construction supervising consultant. The ESO will have the following specific responsibilities: (i) to meet twice per month with the consultant and contractor to discuss work requirements, compliance issues, and environmental matters; (ii) to inspect various aspects of the work area and equipment for general housekeeping, dust, fume, noise and compliance with spill prevention
plan; (iii) to monitor environmental parameters for comparison with available or proposed standards.

The ESO will provide reports on environmental compliance during implementation as part of their monthly, quarterly progress reports and annual environmental monitoring reports to NEMA and the financiers. Depending on the implementation status of environmentally sensitive project activities, the regulatory agencies and NEMA will perform annual or biannual environmental reviews in which environmental concerns raised by the project will be reviewed alongside project Implementation. The responsibility for mitigation monitoring during the operation phase will be in the hands of the Contractor for the first five years and thereafter KENHA.

The total cost of the ESMP is estimated at KShs. 132 Million. Details of the cost items and the estimate are presented below;

<table>
<thead>
<tr>
<th>Description of activity</th>
<th>Estimated Cost (KES)</th>
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<td>Consultation expenses</td>
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<tr>
<td>Waste management plans</td>
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<td>Social engagement plans,</td>
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<tr>
<td>Material sites restoration</td>
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<tr>
<td>Health and Safety impacts mitigation</td>
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<tr>
<td>Socio-economic restoration activities</td>
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<tr>
<td>Vegetation cover restoration</td>
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<tr>
<td>Decommissioning of construction installations</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>132,000,000</strong></td>
</tr>
</tbody>
</table>

10. Public Consultation and Public Disclosure

Public and Stakeholder Consultations were carried out at different levels. There were Stakeholder Forums at Mombasa Beach Hotel on 14 May 2014, 26 June 2014 and 15 October 2014. The Stakeholders Forums had representatives from Mombasa County Government, NEMA, Northern Corridor Transport and Trade Facilitation Authority, Kenya Airports Authority, the various associations representing transporters in the counties and the road corridor, the local administration from the affected counties of Mombasa and Kilifi, various NGOs and CBOs.

In addition, four Focus Group Discussions meetings were conducted from 14th to 16th May and on 10th June 2014 at various venues. The meetings, were preceded by mobilization through the county government. These sessions were used for sensitization, information sharing and soliciting comments from the participants as well as enhancing project ownership among the general public. The meetings involved participation of leaders and their communities along the road corridor through their key local leaders and the Administration.
There were eight (8) public consultation meetings organized at various venues along the project corridor between 11 June 2014 and 20 June 2014. Notices to the public were posted in the media between 1 and 2 weeks prior to the meetings with clear schedules and details of the venues and timelines. The meetings were facilitated by the consultants but chaired by the local administration and chiefs.

The meetings were well attended and had representation by both men and women. In general, there was broad support for the project as it is viewed that the project road dualling is long overdue, given the rapid increase of container traffic in Mombasa Port. Among the key issues that arose from the discussions included: (i) The County Government expressed desire to be involved at a very early stage in the project planning to ensure minimal disruptions in operations around the city. (ii) The County Government also expressed the desire to integrate the evolving infrastructural development around the city and particularly on the streamlining of public transport and goods movement patterns – design of walkways, drainage systems and footbridges. (iii) Representatives from the Airport indicated that the design and associated installations across the flight corridor should minimize potential conflicts with the safety of aircrafts whose touchdown is only a short distance from the road. Approval by KAA and KCAA would be necessary on proposed installations along the section. (iv) It is important to identify if there are any conflicts with potential archeological sites along the corridor including special cultural sites, grave yards, old historic sites, etc.; (v) Land acquisition is a major issue in road development. The Developer (KeNHA) was asked to ensure timely and adequate compensations for the affected landowners; (vi) The need for integration of security considerations in the design and construction stages of the project; (vii) Consider possibility of dedicated lanes for the trucks in some sections such as between Mariakani town and the Mariakani weighbridge to ensure free flow of other traffic.

11. Conclusion

While appreciating the benefits and positive impact associated with the project, there are negative impacts that need to be addressed and mitigated during the construction and post-construction phases. The key conclusions and recommendations from the ESIA Study include;

- There is broad support of the proposed project road improvement by a majority of the residents and stakeholders. This arises from the frequent traffic congestion along the project road leading to high travel times and loss of man-hours and associated social and economic implications. Benefits established under this study ranges from regional and national (goods transit to other parts of the country and the neighbouring states) and local (travel time reduction, road safety enhancement, environmental pollution control, security response improvement).

- Encroachments into the road reserve is limited to commercial and small scale traders, mostly with temporary structures and limited permanent structures (there are no notable residential features within the road reserve). The affected persons have been identified through a RAP process for appropriate relocation mechanisms.

- The road section harbours public amenities including water pipelines, power lines (underground and above ground), sewer systems, communication lines, drainage systems, etc. it is expected that some of the service lines will be affected during the
construction phase. However, a Service Providers forum will be established under KeNHA with a view to identifying collaborative mechanisms of dealing with the services relocation and a development of a Utilities Relocation Plan.

- Environmental issues are mainly on environmental health and environmental pollution as opposed to physical environmental destruction due to the urban nature of a larger part of the road. Aerial emissions, noise and vibrations, waste management and safety are the key environmental concerns during the project implementation. Appropriate mitigation measures have been provided under the ESMP for integration during the construction period.

- Due to the location of the project road, construction materials will be sourced outside the project areas. The potential sources have been identified through the design process, the Contractor(s) still have an obligation to identify specific sources. In this regard, it is noted that site specific ESIA studies will still be required for approval of the material sites chosen by the Contractor(s).

- Involvement of the stakeholders and public during the project implementation, and particularly during the construction and early stages of the road use is necessary to ensure minimized social impacts. A Stakeholder Engagement Plan shall be developed by the Supervising Engineer during Mobilization.

- Due to high unemployment among the Youth in Mombasa, a Capacity Building Program to upgrade skills and prepare youth to provide services in construction shall be incorporated in the project to complement the Mombasa County Youth Employment Project currently being implemented by the UK’s Department for International Development (DFID).

- The Contractor(s) will be expected to develop construction environment and social management plan in line with the one developed under this report for purposes of supervision and continuous monitoring.

- As part of the beautification of the road, a comprehensive landscaping component shall be integrated into the project implementation.
1. Introduction

The Government of Kenya, through the Kenya National Highways Authority (KeNHA) has proposed to carry out improvements on the Mombasa to Mariakani section of the A109 road. The proposed improvements will include dualling of the sections that are currently single carriageway and constitute constrictions to free traffic flows. The project road traverses an area that is both urban character and highly built-up and with residential neighbourhoods of high and medium density housing; commercial activities and low level industrial activities with conspicuous storage facilities. The second section of the project road traverses an area that is predominantly peri-urban with two trading centres at Mazeras and Mariakani that straddle the project road. African Development Bank (AfDB) has expressed interest to finance the proposed Road Project. This summary therefore provides highlights on project description; the project location and affected sites; objectives of Resettlement Action Plan; public consultations; legal and institutional framework; social economic survey and PAP census; eligibility criteria; potential impacts and mitigation measures; income restoration program; implementation arrangements; implementation process; RAP implementation activities and schedule; grievance redress mechanism; costs and budget; monitoring and evaluation; and conclusions and recommendations.

2. Project Description

The project road is approximately 41km stretch with asphalt concrete surface, mainly 2-lane single carriageway with two sections that are dual carriageways. The project road is characterized by very heavy traffic with traffic jams in sections with limited capacity. The project road is part of the Northern Corridor and connects through Nairobi to the countries within the Great Lakes Region, Sudan and Ethiopia. The A109 Mombasa-Mariakani road is situated in Mombasa and Kilifi Counties of Coastal Kenya. The project road is approximately 41km and forms part of the 500 km Mombasa-Nairobi highway. The road starts at the junction of Kenyatta Avenue (A109) and Digo Road (A14) within Mombasa City. It runs in a Northerly direction through Changamwe, Miritini, Mazeras, Mariakani, before terminating just past Mariakani Weighbridge.

The main economic activities include tourism, shipping, commerce and subsistence farming. The project road experiences traffic congestions in most sections which have a large influence to the flow of the high traffic experienced between Mombasa and Mariakani. A summary of the scope of works is dualling of section up to Mariakani weighbridge; rehabilitation of the existing carriageways; grade separation at the current Changamwe...
roundabout; improvements in urban drainage, service roads and pedestrian walkways; construction of pedestrian footbridges at key centres especially Shimanzi Junction, Miritini Interchange, Mikindani Junction, Mazeras, and Mariakani; and replacement of flex beam guardrails on the median of Miritini – Mazeras section with RC Median.

3. The Project Location and Affected Sites
The project road is located within the Counties of Mombasa and Kilifi but the eastern part of Kwale County (Kasemeni Division) is within the immediate impact of the road. The road provides currently the only connectivity to Moi International Airport on the West Mainland of Mombasa, Mombasa Port berths expansion on the West Mainland into Mwache Creek and the interior of the Kenya and greater region. Among the areas traversed by the project road or are adjacent to the road are shown in the table below:-

**Administrative Units traversed By the Project Road**

<table>
<thead>
<tr>
<th>County</th>
<th>Sub-County</th>
<th>Location</th>
<th>Sub-Location</th>
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<tbody>
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<td>Railway</td>
<td>Railway</td>
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<td>Changamwe</td>
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<td>Mitangoni</td>
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<td></td>
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<td></td>
<td>Mariakani</td>
</tr>
</tbody>
</table>

*Source: Provincial administration; 2014*

4. Objectives of Resettlement Action Plan
The objectives of Resettlement Action plan are:

a) To raise awareness of the project and its consequences among the public in general and those who will be directly affected by it in particular;

b) To estimate the cost necessary for compensation, resettlement and land acquisition;

c) To prepare Resettlement Action Plan (RAP) that sets out strategies and schedules to mitigate adverse effects. The RAP sets the parameters and establishes entitlements for project affected persons (PAPs), the institutional framework, mechanisms for consultation and grievance resolution, the time schedule, budget and proposed monitoring and evaluation system. The agreed entitlement package includes both compensation and measures to restore the economic and social base livelihoods and wellbeing of those affected, respectively.
A detailed social assessment was carried out for the people found trading or living within the road corridor as defined by the boundary posts erected by the road authority. An Entitlement Matrix has been prepared to define categories of PAPs and types of mitigation measures. The scope of the resettlement action plan will ensure that all guiding principles of the various lenders are adhered to. Specifically, The African Development Bank’s Operational Safeguards Policy on Involuntary Resettlement stipulates that the borrower shall prepare a full resettlement action plan for any project that involves the displacement of a significant number of people (200 or more persons) with the attendant loss of assets, access to assets or reduction in their economic and livelihood; and that compensation shall be based on full replacement costs.

5. Public Consultations

An effective resettlement planning requires continuous participation and thorough consultations with a wide range of project affected persons and stakeholders in the general area of the project. These include individuals or groups who will be positively or negatively affected by the project including potential host communities.

Comprehensive consultations have been held with various stakeholders and the project affected persons from the reconnaissance stage through the public consultations, the project affected persons census along the road; a socio-economic survey and an assets inventory. The consultations held along the road corridor were aimed at seeking views of the local communities along the project road on various aspects of the design. Secondly, the public forums served to create awareness to the local community and particularly the potential project affected persons on how the project would impact on their daily lives during and after the improvement. The communities were encouraged to form Interim Committees (Ad-Hoc) inclusive of the potential project affected persons, the youth and women in consultation with the Chiefs of their areas to engage in internalizing the proposed project.

Prior to conduct of the socio-economic survey, meetings were held with the government officials and other opinion leaders among the community to sensitize them on the project and its effects on the socio-economic aspects of the community. The issue of the project affected persons as a result of the project was highlighted and the participants appraised on the mitigation measures availed by the project.

Public consultations were held at various locations as determined by administrative boundaries for ease of administration and management of the stakeholder composition and record keeping for future reference and analysis. The list of public officers and civil society to be involved in the process was exhaustively compiled. A special forum was arranged for the Civil Society groups and the vulnerable groups including youth, women and people with disabilities.

6. Legal and Institutional Framework

The RAP is prepared in accordance with the Kenya Government legislations and AfDB guidelines and safeguard policies that govern preparation of Resettlement Action Plans. The relevant national legislations and AfDB policies and guidelines considered among others are as follows:

a) The Constitution of Kenya 2010;
b) Land Act No.6 of 2012;
c) The Prevention, Protection and Assistance to Internally Displaced Persons and Affected Communities Act, 2012;

d) Land Adjudication Act; Cap 283

e) HIV/AIDS Prevention and Control Act (Act No.14 of 2006);

f) Urban Areas and Cities Act, 2011;

g) Kenya Roads Act, 2007;

h) Traffic Act Cap.403 ;

i) Public Roads and Roads of Access Act, Cap 399;

j) Physical Planning Act Cap 286;

k) AfDB Integrated Safeguards Policy 2013;

l) AfDB Gender Policy, 2001 ;

m) Bank Group Policy on Poverty Reduction , 2004;


7. Social Economic Survey and PAP Census

A comprehensive census of the project affected persons with a socio-economic status survey and an assets inventory, is an important component in the planning for resettlement of the affected persons. The project road corridor traverses the well planned urban setting within Mombasa Island where the road reserves are dedicated in the urban plans for road purposes. Areas of West Mainland (Changamwe-Miritini) are haphazardly developed with mixed developments and the road corridor is not well delineated. The road corridor between Miritini and Mariakani is rural in character except at the trading centres of Mazeras and Mariakani. Fifty (50) interviewers accompanied by the Village Leaders identified through the Office of the Chief were engaged to conduct the census of the PAPs and the concurrent socio-economic survey of the project affected persons. The socio-economic survey on the people within the road corridor between Mombasa Island (Digo Road Junction) and Mariakani Weighbridge was conducted between 14th-19th, July 2014. 323 interviews were conducted along the Road corridor and 488 asset owners were identified and the assets separately recorded from the socio-economic record.

Emphasis was placed in the interviews to determine the vulnerable groups comprising of people with disabilities, elderly persons, orphans, female-headed households and the youth. From the data collected along the road corridor, 6 main sources of livelihoods were identified from the household responses. The dominant income generating activities along the proposed corridor include business and wage employment both in the formal and informal sectors. Various descriptions of what the people along the corridor do for a living were indicated and a total of 38 activities were mentioned by the respondents although all fell into six major categories. The income generating activities were categorized into six (6) main activity categories as shown below:
Occupation of the people within the road reserve

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business/ Traders</td>
<td>187</td>
</tr>
<tr>
<td>Wage employment</td>
<td>12</td>
</tr>
<tr>
<td>Farming</td>
<td>15</td>
</tr>
<tr>
<td>Skills/ Construction</td>
<td>19</td>
</tr>
<tr>
<td>Food and catering</td>
<td>8</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>68</td>
</tr>
</tbody>
</table>

On the basis of the initial findings from the census data of the PAPs along the proposed road alignment, a sample survey was conducted covering the PAPs. Land that was found vacant was included in the assets inventory as the owners would also constitute part of the PAPs. This was conducted to collect data on their socio-economic profile and discern the main source of livelihood and other supplementary sources of income.

The cut-off dates for the project affected persons census and assets inventory was agreed to be 30 July 2014. It was also agreed at the consultative forums that the Ad hoc Committee would continue to sensitise the people and those who did not meet the cut-off date would be dealt with in their claims the grievance redress process by the Committee.

8. Eligibility Criteria

For the proposed road Project the following groups are entitled to compensation and/or assistance under the project:

- **Project Affected Persons (PAPs)** - These include people and households regardless of their ownership status as squatters etc., that will face their livelihoods adversely affected and/or lose their right or title on land, house, habitat, water resource or any asset possessed, due to the project implementation.

- **Project Affected Families (PAFs)** – All members of a project affected household residing under one roof and operating as a single economic unit, who are adversely affected by the project or any of its components.

- **Significantly Project Affected Families (SPAFs)** – The affected families who lose all of their land and residences because of the project intervention.

- **Displaced Family** – Any tenure or interest holder on a property and his/her family members, who on account of acquisition of the property for the project purpose becomes a displaced person.

- **Squatters** – People who have occupied land for purpose of their livelihoods violating the law and are not entitled to compensation for lost land under this policy. But if displaced they are entitled to resettlement assistance.

- **Vulnerable Groups** – Distinct groups of social and economically distressed people who might suffer disproportionately from the effects of displacement. These may be ethnic minority, women and child-headed households, impoverished youth, the most poor (based on the poverty line), the disabled, elderly and landless/families.
9. **Potential Impacts and Mitigation Measures**

**Negative Impacts**

The proposed improvement of the road that will entail road widening to accommodate additional lanes will accentuate displacement of people who have depended on the road corridor for their livelihoods. Following the census carried out, 488 households will be impacted representing 1352 PAPs owning 394 structures, 39 fences, 97 trees and 3 prayer houses. Others to be affected will include people with land ownership claims whose land will be compulsorily acquired for incorporation of road junctions. Some of the envisaged negative impacts along the road corridor segments will include:

- Loss of assets such as business structures, property walls/fences;
- Loss of means of livelihoods and
- Loss or compromised means of access to social amenities and homes.

**Mitigation for Negative Impacts**

a) **Loss of Assets**

In the implementation of the road improvement and up-grading to dual carriage-way, it is estimated that 673 informal businesses (Hawkers) will be displaced from the road reserve and will require to be assisted to relocate to sites provided by the County Government and KeNHA will assist with supporting accesses. The County Governments of Mombasa and Kilifi have been consulted over the matters and as potential members of the Project Management Unit and Resettlement Committee. Secondly, they are mandated under the law to control and regulate trading activities within their areas of jurisdiction. Development and management of markets is the responsibility of a County Government including the licensing of business activities.

During consultations with the County Chief Officers in June 2014, it was impressed upon the Chief Officers in the County Governments that the traders who are within the road reserves will require to be relocated to the existing markets at Mazeras and Mariakani when the road project starts. They were requested to consider integration of the market up-grading with the proposed improvements to optimize access and use of the market spaces that most hawkers had abandoned in preference for the road reserve along the highway for sustainability.

Some of the trading activities along the road corridor were considered not possible to be accommodated by the Counties in the market facilities and were requested to identify appropriate sites that would accommodate the displaced persons. These activities include: garages, furniture shops, building materials and hardware, car sale yards, car wash, metal fabrication and lorry parks within the road reserve. The PAPs have been engaged in discussing the options available for their relocation.
The details of the impacts to the project affected persons are shown in the table below.

**Entitlement Matrix**

<table>
<thead>
<tr>
<th>Type of Impacts</th>
<th>Eligibility</th>
<th>Responsibility</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>Any land parcels to be acquired from the legally registered title or lease holders outside the 60m road reserve or where the road corridor is narrower than 36.58m.</td>
<td>KeNHA and National Land Commission</td>
<td>Land parcels will be affected along the project road. The total area amounts to approximately 25.0ha of land. This includes parcels within the road reserve and purportedly registered.</td>
</tr>
<tr>
<td>Buildings/Boundary walls</td>
<td>Structures, and Where partially acquired and/or the boundary walls affected as result of acquisition of vacant space</td>
<td>KeNHA and National Land Commission</td>
<td>Where the walls constitutes part of the legal property affected by acquisition for land. On affected public land, restoration of assets is preferred in lieu of monetary compensation</td>
</tr>
<tr>
<td>Loss of Incomes and Livelihoods</td>
<td>Assistance to relocate from RoW to new sites.</td>
<td>PAPs, County Governments and KeNHA.</td>
<td>673 Informal business activities will be affected by the displacement within the road reserve.</td>
</tr>
<tr>
<td>Places of Worship</td>
<td>All religious organizations with legitimate ownership to the space will get assistance to relocate from RoW to new sites.</td>
<td>KeNHA, County Governments of Mombasa and Kilifi and National Land Commission</td>
<td>3 places of worship along the road.</td>
</tr>
<tr>
<td>Loss of trees and crops</td>
<td>All the trees in the assets inventory considered as individual asset</td>
<td>KeNHA, Ministry of Agriculture and Forests, National Land Commission</td>
<td>The Ministry of Agriculture and Forest Department determines the value payable for loss of trees and crops by zone</td>
</tr>
<tr>
<td>Loss or compromised access to public facilities and business premises</td>
<td>The public and individuals who become inconvenienced by the road improvement</td>
<td>KeNHA</td>
<td>Alternative means of access will be incorporated in the design. Under the corporate social responsibility, KeNHA will provide suitable intervention</td>
</tr>
</tbody>
</table>
10. Income Restoration Program

The objective of income restoration activities is to ensure that no PAP shall be worse off than he or she was before the project. Restoration to pre-project levels of income is an important part of rehabilitating individuals, households and socio-economic and cultural systems in affected communities.

There are two types of Resettlement programs that aim at preventing impoverishment and restoring incomes and livelihoods of PAPs; land-based programs that provide the displaced person/family with alternative land and non-land based income generating activities such as small business, enterprise development, vocational training, employment, credit, etc., which will help the PAPs to restore any lost income opportunities, or improve their income generating capacity.

For the PAPs along the Mombasa-Mariakani Road Corridor, the second resettlement program is most appropriate since the land they are occupying is not theirs and therefore they will not lose land but the businesses and structures they have on it. The identified opportunity therefore is to ensure that the PAPs who get spaces in the formal markets benefit by use of the already available infrastructure. The following options will be applied as income restoration measures in the project.

a) Provision of vocational training;
b) Encouraging and assisting the PAPs to form self-help groups;
c) Creation of awareness to access credit facilities; and
d) Improvement of sites for carrying out business activities.

A comprehensive training programme of the PAPs shall be done to assist them in resettlement. The overall objective is to provide counselling and promote business development and growth, employment creation and poverty alleviation. The proposed training program is aimed at building their capacities through economic empowerment, self-development, and improved environmental management. It is hoped that the beneficiaries will acquire skills to enable them move on and relocate businesses elsewhere, open new businesses and enhance their management and businesses practices for the sustainable development of their enterprises.

11. Implementation Arrangements

The Ministry of Transport and Infrastructure through Kenya National Highways Authority (KeNHA) shall be the overall supervisor of the resettlement process. Arrangements shall be made whereby KeNHA shall be responsible for the disbursement of funds to the PAPs through Resettlement Committee (RC). The RC shall consist of not more than 15 members as shown in the Table below. The project Resident Engineer and a Contractors’ representatives shall be co-opted members of the Resettlement Committee once the Contract falls in place.

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Organization</th>
<th>Appointing Office/Authority</th>
<th>Number of Appointees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kenya National Highways Authority</td>
<td>Director General</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>County Governments of Kilifi and</td>
<td>County Engineer</td>
<td>1</td>
</tr>
<tr>
<td>S/No.</td>
<td>Organization</td>
<td>Appointing Office/Authority</td>
<td>Number of Appointees</td>
</tr>
<tr>
<td>-------</td>
<td>--------------------------------------------------</td>
<td>------------------------------------------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>1</td>
<td>Mombasa</td>
<td>Director Social Services</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Director County Planning</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Administration</td>
<td>County Commissioner</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Ministry of Lands, Housing and Urban Development</td>
<td>National Lands Commission, Chairman County Land Management Board</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Community Based Organisation</td>
<td>Chief Officer of One Identified Organisation</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Representatives of PAPs</td>
<td>Representatives elected by PAPs by location including vulnerable groups</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

NGOs with experience in social development and poverty alleviation programs and a verifiable track record should be included as partners in the resettlement plan implementation. Selected NGOs should be engaged to support site-level resettlement plan implementation in coordination with RC personnel.

12. Implementation Process

Kenya National Highways Authority (KeNHA), County Government of Mombasa and Kilifi, Ministry of Lands, Housing and Urban Development shall through Resettlement Committee (RC), oversee the implementation of RAP. Among the responsibilities of the Committee are:

(a) To ensure that appropriate agencies that are mandated to plan and implement compensation, income restoration, and rehabilitation programs are identified as early as possible in Project preparation;
(b) To ensure compliance with the Resettlement Plan and Environmental Management plan; and
(c) To acquire the required land and pay compensation to the PAPs during the pre-construction period, and taking over the completed facilities for operation and maintenance during the post-construction period.

The following four components will form part of Implementation of RAP:

(a) Notification;
(b) Verification of properties of affected persons and estimation of their type and level of losses;
(c) Preparation of entitlement persons for Land Acquisition; and
(d) Relocation and resettlement of the PAPs.

13. RAP Implementation Activities and Schedule

Once the Resettlement Plan obtains approval from the government/funding body and implementation budget is secured, the implementation of RAP will proceed in the following sequence:

1. KeNHA, County Governments and Ministry of Lands, Housing and Urban Development shall establish a Resettlement Unit by constituting the members as shown in table above;
2. Training of the RC staff on Project-associated resettlement and rehabilitation responsibilities;
3. Selection of NGOs/CBOs working with the affected community;
4. Grievance redress through grievance committee;
5. Implementation of RAP - Disbursement of compensation (allowances and assistance), Income Restoration, Resettlement activities;
6. Removal of private properties (salvage) and reconstruction of residential and business structures.

The time scale for the core activities of the resettlement process is estimated to take fourteen (14) months although the key structures and committees will remain in place until the end of the project implementation. This takes into account important variables such as conflicts / grievance resolution and any other unforeseen circumstances.

**RAP Implementation Schedule**

<table>
<thead>
<tr>
<th>Calendar Year</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time in months</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>A Schedule for Informal Sector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Inventory Survey (Census) for PAPs</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Working Group / Task Team Set-up</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Notice &amp; Agreement with PAPs</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Implementation of Resettlements &amp; Compensations</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Clearance of Road Reserve (Demolition &amp; Levelling)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Grievance Redress</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vocational Training for PAPs</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Monitoring (Quarterly Report to KeNHA/GoK)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Additional Budget Allocations</td>
<td></td>
</tr>
<tr>
<td>B Schedule for Formal Sector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Working Group / Task Team Set-up</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Road Reserve Confirmation Survey &amp; Installation of Beacons</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Asset Inventory / Evaluation</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Notice &amp; Agreement with PAPs</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Implementation of Compensations &amp; Land Title Transfer</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Clearance of Road Reserve (Demolition &amp; Levelling)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grievance Redress</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Monitoring (Quarterly Report to KeNHA/GoK)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Additional Budget Allocations</td>
<td></td>
</tr>
</tbody>
</table>
14. **Grievance Redress Mechanism**

In order to deal with the grievances that may arise during the implementation of RAP, there is need to incorporate a grievance redress process within the RC. The grievance redress process will be carried out by a sub-committee within RC which will hear the complaints and provide solutions, and reduce unnecessary litigation by resolving disputes through mediation. Project Ad hoc Committees have been already formed at locational level to prepare and enlighten the communities on the project impacts and negotiate with the project proponent on any matter that may be of interest at the implementation stage. These are envisaged to transform themselves and contribute membership to the GRC and the RC.

The PAPs shall play a role in the committee through representatives headed by a Chairperson elected by the PAPs who will carry out the following as regards redressing grievances:
(a) Hear the grievances of the PAPs and provide an early solution to those they are able to;
(b) Immediately bring any serious matters to the attention of the RC; and
(c) Inform the aggrieved parties about the progress of their grievances and the decisions of the RC.

Grievance Redress Sub-Committee shall be formed within the RC. This shall address the following main issues:-
(a) Register the grievances raised by the PAPs; and
(b) Address the grievances forwarded by the RC/PAPs representatives.
Grievance Redress Sub-Committee shall try as much as possible to arrive at a compromise for complaints raised. This may be obtained through series of conciliation, mediation and negotiation exercises conducted with the PAPs. If PAPs accept the recommendations made by the committee, the committee along with PAPs representative in the committee will hold mediations meetings at the appointed places and time.

**Grievance Redress Mechanism**
Dispute procedure

Once a complaint is received at the project office, it is registered and given a reference number for ease of following up. The Office will evaluate the application and determine whether the issue can be handled administratively or the Committee has to meet over the matter. Where the Committee has to be convened, all its proceedings are recorded and minutes prepared of the deliberations. The minutes have to be confirmed at the next meetings and authenticated by the full sitting. All the signed minutes and the resolutions of the GRC are implemented as agreed and without delay so as not to impact negatively on the project implementation plan. Some issues may arise in-course of the project implementation and these are dealt with as they arise. In the event that the grievance cannot be resolved by the various committees, the aggrieved may elect to seek redress from the court of law.

15. Costs and Budget

The total cost to mitigate the social impacts for the road sections is as shown below. The budget to mitigate the impacts and offer support for restoring livelihoods. The values indicated are estimates, the government valuer will ascertain the values and revise accordingly shortly before any definite compensation can be processed.

<table>
<thead>
<tr>
<th>Item for Compensation</th>
<th>Unit measure</th>
<th>Amount (KShs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value of land</td>
<td>Ha.</td>
<td>500m</td>
</tr>
<tr>
<td>Value of Structures/Buildings</td>
<td>M²</td>
<td>36m</td>
</tr>
<tr>
<td>Value of trees/crops</td>
<td>Age</td>
<td>10m</td>
</tr>
<tr>
<td>Public facilities</td>
<td>M²</td>
<td>15m</td>
</tr>
<tr>
<td>Accommodation/Transport allowance</td>
<td>7m</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>563m</td>
</tr>
<tr>
<td>15% (disturbance)</td>
<td></td>
<td>84.5m</td>
</tr>
<tr>
<td>Total compensation cost- (KShs)</td>
<td></td>
<td>647.5m</td>
</tr>
<tr>
<td>Cost for RAP implementation</td>
<td></td>
<td>30.2 m</td>
</tr>
<tr>
<td>Grand Total</td>
<td></td>
<td>677.7 m</td>
</tr>
</tbody>
</table>

16. Monitoring and Evaluation

A Monitoring and Evaluation (M&E) program is required to be developed to provide feedback to Project management that will ensure that the programs remains on schedule and successful. Monitoring provides both a working system for effective implementation of the RAP by the Project managers, and an information channel for the PAPs to assess how their needs are being met. Monitoring shall be conducted in two ways: by an external expert and internally by the RC.

An agency will carry out monitoring and evaluation of RAP implementation. The agency shall begin the work right from the implementation of RAP and will meaningfully and realistically monitor and evaluate the resettlement programs on a periodic basis so that all the
vital activities are successfully implemented. Monitoring and evaluation will be useful in formulation of corrective measures by identifying the problems and difficulties faced by the PAPs and bringing them to the notice of the RC.

The committee shall carry out the following:

- Verify results of internal monitoring by RC;
- Assess whether resettlement objectives have been met; specifically, whether livelihoods and living standards have been restored or enhanced;
- Assess the resettlement efficiency, effectiveness, impact and sustainability, drawing lessons for future resettlement activities and recommending corrections in the implementation process; and
- Ascertain whether the resettlement entitlements were appropriate to meet the objectives and whether the objectives were suited to PAPs conditions.

The agency shall be knowledgeable in matters relevant to the activity and shall serve for the full duration of the project with an extension of period to carry out a final audit as specified in the schedule or as may be revised in future.

17. Conclusions and Recommendations

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