



**AFRICAN DEVELOPMENT
BANK GROUP**

PROJECT: EBONYI STATE RING ROAD PROJECT

COUNTRY: FEDERAL REPUBLIC OF NIGERIA

**ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) SUMMARY
JULY 2018**

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ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) SUMMARY

Project Title: **EBONYI STATE RING ROAD PROJECT**

Project Number: **P-NG-DB0-014**

Country: **FEDERAL REPUBLIC OF NIGERIA**

Sector: **PICU**

Project Category: **1**

1. INTRODUCTION

The transport sector has been identified as one of the key sectors that will contribute towards social and economic development and the attainment of the country's Vision 20:2020 (NV 20:2020) for a place among the Top 20 World Economies, directly and indirectly. Directly, the sector provides off-farm employment opportunities to the poor, whilst indirectly it plays a complementary role in stimulating production activities and improvement in the social services. In order to play the supporting role for poverty reduction, the country has drafted a National Transport Policy (TSP) which needs to be ratified. The TSP reflects the objectives of the NV 20:2020, the Economic Recovery and Growth Plan (ERGP (2017 – 2020)), and now the Results Based Country Strategy Paper (CSP 2013-2017). The development of the transport sector in Ebonyi State is guided by the Ebonyi Transport Policy whose infrastructure strategy is to construct new roads and rehabilitate existing ones to improve the quantity, quality, competitiveness and access to markets.

The primary objective of the project is to provide improved and sustainable access to economic opportunities and social services, and to enhance the capacity of relevant government institutions to deliver development targets, thereby enhancing the socio-economic development of the state. Moreover, at completion, the road is expected to serve as an international link between Ebonyi State and the Republic of Cameroon, and inter-state access between Ebonyi, and Benue and Enugu States. It thus has enormous potentials for increasing economic activities capable of enhancing income earning capacity, revenue and employment generation for the region. The proposed corridor is intended to serve as link connecting farming communities in about eight (8) out of the thirteen (13) Local Government Areas of the State with a combined population of 1,221,436, over 70% of the state population. The road will therefore serve almost all of Ebonyi State residents and their economic activities.

The Project has been assigned a Category 1 based on the AfDB ISS and ESAP and it requires a Full ESIA/RAP and standalone detailed ESMP. The ESIA and ESMP for this project was prepared for Ebonyi State by NATURAL ECO CAPITAL LIMITED based on the Environmental Impact Assessment (EIA) Act No. 86 CAP E12 LFN 2004 and AfDB requirement standards. It reflects the current impact on the physical, biological and socio-cultural environment based on the current road design.

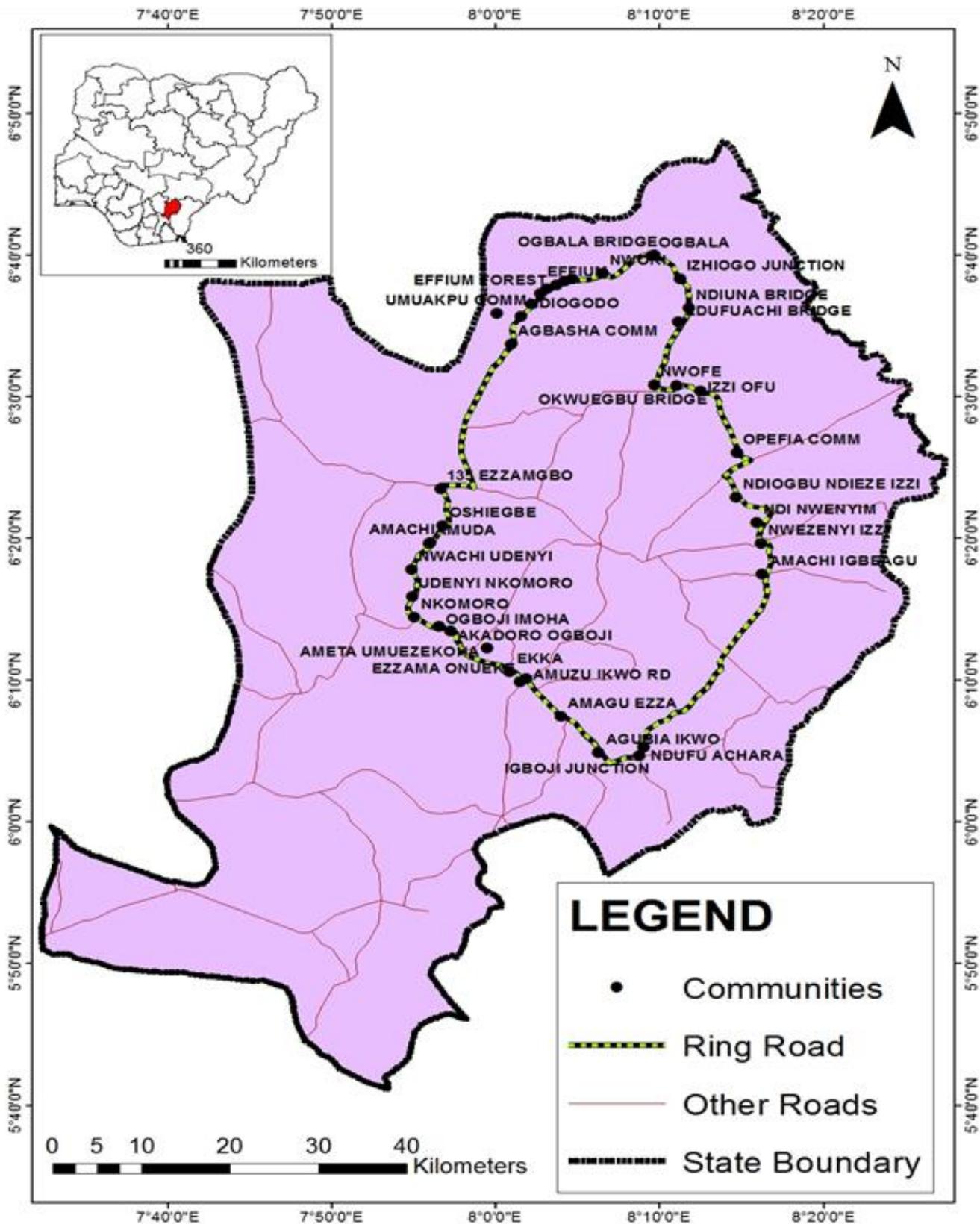


FIGURE 1: LOCATION OF THE PROJECT

2. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

The ESIA for the proposed Ebonyi State Ring Road project will be conducted within the policy, legal and institutional framework of the Federal Republic of Nigeria, EPA, Ebonyi State, AfDB, IDB and relevant international environmental conventions and standards.

2.1 National Legislation and Policy

2.1.1 Constitution of the Federal Republic of Nigeria (1999)

This serves as the national legal order, which recognizes the importance of improving and protecting the environment, and makes provision for it. Section 20 makes it an objective of the Nigerian State to improve and protect the air, land, water, forest and wildlife of Nigeria. Section 12 establishes, though impliedly, that international treaties (including environmental treaties) ratified by the National Assembly should be implemented as laws in Nigeria. Section 33 and 34, which guarantee fundamental human rights to life and human dignity respectively, have also being argued to be linked to the need for a healthy and safe environment to give these rights effect.

2.1.2 National Policy on Environment

The National Policy on Environment, 1989 (revised 1999), provides for “a viable national mechanism for cooperation, coordination and regular consultation, as well as harmonious management of the policy formulation and implementation process which requires the establishment of effective institutions and linkages within and among the various tiers of government – federal, state and local government”. Prior to the launching of this policy, there was no unified coordination of activities of the 3 tiers of government responsible for the environment.

2.1.3 Environmental Impact Assessment (EIA) Act No. 86 CAP E12 LFN 2004

This act stipulates that the public or private sector of the economy shall not undertake or embark or authorize projects of activities without prior consideration, at an early stage of their environmental effects. Procedurally, before commencement of an ESIA, the FMEnv issues a letter of intent on notification by the proponent, to approve the terms of reference and ensure public participation. The ESIA Act requires that development projects be screened taking cognizance of the nature, size, and sensitivity of the proposed project environment as well as the potential impacts of the project. Based on the screening, a full, partial, or no ESIA may then be required, according to the following categories: Category I: projects that require a full ESIA; Category II: projects that may require only a partial ESIA, which will focus on mitigation and Environmental planning measures, but if located near an environmentally sensitive area then a full ESIA is required; and Category III: projects considered having “essentially beneficial impacts” on the environment, thus only an Environmental Impact Statement is prepared. The proposed project has been assessed as Category II by the FMEnv based on the site visit/verification conducted on the February 11, 2018 by the representatives of Regulators. (Appendix 1.1).

2.1.4 Guidelines on Environmental Audit (1999 updated in 2010)

This made it mandatory for existing industries to carry out environmental audit that involves systematic, documented, periodic and objective evaluation of how an existing industrial facility with its management and equipment are complying with regulatory standards.

2.1.5 Land Use Act of 1978, CAP 202, LFN 2004

The Land Use Act places the ownership, management and control of land in each state of the federation in the Governor. Land is therefore allocated with his authority for commercial, agricultural and other purposes. The Land Use Act of 1978 states that ‘... It is also in the public interest that the rights of all Nigerians to use and enjoy land in Nigeria and the Natural fruits thereof in sufficient quality to enable them to provide for the sustenance of themselves and their families should be assured, protected and preserved’. This implies that acts that could result in the pollution of the land, air, and waters of Nigeria negates this decree, and is therefore unacceptable.

2.1.6 The Harmful Waste (Special Criminal Provision Etc) Act 1988, CAP H1, LFN2004

The Harmful Waste Act prohibits, without lawful authority, the carrying, dumping or depositing of harmful waste in the air, land or waters of Nigeria. The following sections are notable: Section 6 provides for a punishment of life imprisonment for offenders as well as the forfeiture of land or anything used to commit the offence; Section 7 makes provision for the punishment accordingly, of any conniving, consenting or negligent officer where a company commits the offence; and Section 12

defines the civil liability of any offender. He would be liable to persons who have suffered injury as a result of his offending act.

2.1.7 National Environmental Standards and Regulations Enforcement Agency

The Federal Government in line with Section 20 of the 1999 Constitution of the Federal Republic of Nigeria established the National Environmental Standards and Regulations Enforcement Agency {NESREA} as a parastatal of the Federal Ministry of Environment.

The bill for an act establishing the agency was signed and published in the Federal Republic of Nigeria Official Gazette No.92, Vol. 94 of 31st July 2007, By the NESREA Act; the Federal Environmental Protection Agency Act Cap F 10 LFN 2004 was repealed. NESREA has responsibility for the protection and development of the environment, biodiversity conservation and sustainable development of Nigeria's natural resources in general. NESREA has the mandate to enforce compliance with laws, guidelines, policies and standards on environmental matters as follows:

- Section 7 provides the Agency authority to ensure compliance with environmental laws, local and international, on environmental sanitation and pollution prevention and control through monitoring and regulatory measures.
- Section 8 (1)(K) empowers the Agency to make and review regulations on air and water quality, effluent limitations, control of harmful substances and other forms of environmental pollution and sanitation.
- Section 27 prohibits, without lawful authority, the discharge of hazardous substances into the environment.

The Act also enables the Agency also: Prohibit process and use of equipment or technology that undermine environmental quality; and Conduct field follow-up of compliance with set standards and take procedures prescribed by law against any violator.

NESREA has, over the past years, provided at least 24 regulations gazette as supplementary in its Act. Some of these include:

- National Environmental (**Surface and Groundwater Quality Control**) Regulations, S. I. No. 22 of 2011
- National Environmental (**Sanitation and Wastes Control**) Regulations, S. I. No. 28 of 2009
- National Environmental (**Ozone Layer Protection**) Regulations, S. I. No. 32 of 2009
- National Environmental (**Noise Standards and Control**) Regulations, S. I. No. 35 of 2009

2.1.8 Nigerian Urban and Regional Planning Act, CAP N138, LFN 2004

Aimed at overseeing a realistic, purposeful planning of the country to avoid overcrowding and poor environmental conditions

- Section 30 (3) requires a building plan to be drawn by a registered architect or town planner.
- Section 39 (7) establishes that an application for land development would be rejected if such development would harm the environment or constitute a nuisance to the community.

Section 72 provides for the preservation and planting of trees for environmental conservation.

2.2 International Policies and Standards

2.2.1 AfDB Policies and Requirement Standards

The consultant has taken into account the International environmental and social requirements of the project financing institutions; these include the African Development Bank policies. The Social and Environmental assessment of the project was therefore carried in accordance with the AfDB policies and guidelines as follows: Policy on Environment (2004); Involuntary Resettlement Policy (2003); Policy for Integrated Water Resources Management (2000); Handbook on Stakeholder Consultation and Participation (2001); and the AfDB Bank Group Policy on Disclosure and Access to Information (May2011).

The AfDB's Integrated Safeguard System sets out the five Operational Safeguard requirements that AfDB projects have to comply with; OS1 on Environmental and Social Assessment; OS 2 on Involuntary Resettlement; OS3 on Biodiversity and Ecosystem Services; OS4 on Pollution Prevention and Control, Greenhouse gases, Hazardous Materials, and Resource Efficiency; and OS5 on Labour Conditions. The project triggers the five operational safeguards as outlined below.

- OS 1: Environmental and Social Assessment: since the project requires Environmental and Social Assessment of anticipated impacts, including on cultural heritage and vulnerable groups and requires public consultation, grievance procedures. The project has prepared Detailed ESIA studies and a standalone ESMP and RAP that includes Stakeholder Engagement and Grievance Redress Mechanism.
- OS 2: Involuntary Resettlement: Land Acquisition, Population Displacement and Compensation: the project will have physical and economic displacement of more than 200 people and a RAP has been prepared by the project to avoid and minimise impacts and compensate for the impacts.
- OS3: Biodiversity Conservation and Ecosystems: The project will impact biodiversity through clearance of vegetation and degradation of water resources due to construction Activities. This OS has not been triggered since the road is an existing road.
- OS 4: Pollution Prevention and Control, Greenhouse Gases, Hazardous Materials and Resource Efficiency: Has not been triggered but the ESMP includes measures for avoiding and preventing pollution and ensuring water efficiency during construction.
- OS 5: Labor Conditions, Health and Safety: Employment of workers will trigger this OS. The ESMP includes mitigation of occupational health and safety impacts and contractor management.

2.2.2 Other International Standards Applicable to the project

The following are other international conventions policies and standards that are applicable to the project:

- United Nations Principles on the Human Environment
- Rio Declaration on Environment and Development
- United Nations Framework Convention on Climate Change
- International Labour Organisation Conventions
- Ramsar Convention
- The African Convention of the Conservation of Nature and Natural Resources
- The United Nations Convention to Combat Desertification (UNCCD)
- The Convention for the Protection of the World Cultural and Natural Heritage
- The Basel Convention - Convention on the Control of Trans-boundary Movement of Hazardous Wastes and their Disposal
- The Bamako Convention on Hazardous Wastes within Africa
- World Bank Environmental Health and Safety Guidelines

3 PROJECT DESCRIPTION AND JUSTIFICATION

3.1 Description of the Project

The proposed intervention location is an existing road located in Ebonyi State. The existing Abakaliki Ring road is a single carriageway, 2-lane road of about 180km in length. The road traverses seven (7) of the thirteen LGAs of Ebonyi State namely Abakaliki, Ebonyi, Ezza South, Ezza North, Ikwo, Izzi and Ohaukwu.

The road takes off in the form of a Cross (T) - junction from Ezzamgbo at a location called Izhiamgbo or 135. This location is about 350 to 500 meters from the entrance gate of the Ohaukwu local government secretariat. This take-off point is on the federal Highway linking Enugu to Abakaliki (Highway A343). From this location the road traverses a distance of approximately 180 (One hundred and eighty) kilometres, before terminating in another section of Ezzamgbo. As presently planned, the road is a 13.7m wide single carriageway of 2 – lane asphalt concrete surfacing, with average of 2.8m wide bituminous shoulders on either side. It is also envisaged to have 1.2m drainage system (side drains) with clearance edge of 2m on either side of the road. At the construction stage of the road the main activities will involve the rehabilitation / expansion of the existing road into a standard one carriageway, 2 – lane road finished with asphalt over lay over the road pavement.

The road traverses some seasonal streams/rivers. Based on stability assessment by the project management and their engineers the existing bridges are considered stable enough and do not require any work. However, boxes/culverts have been proposed to be constructed at various locations along the proposed road based on the designed engineers' hydrological and hydraulic analysis which determined storm water flows, velocities and depths which has been used to select the structures for the designs.

Maintenance of the road will involve repairs to failed sections and ensure road conditions are returned to almost near designed conditions ensuring safety for the traffic and human populace that ply the road.

3.2 Justification for the project

The ring road if reconstructed will;

- Promote economic development, extend trade, and improve state's competitiveness through an efficient and affordable integrated transport system.
- Encourage and remove all barriers towards the private sector participation in the development, provision, maintenance, operation, and upgrading of transport infrastructure and services;
- Promote the use of public transport over private cars.
- To create flyover intersection to reduce accidents and save travel time.
- Promote a culture of maintenance and continuous upgrading of transport infrastructures and services.
- Promote competition and efficiency and cost reduction of transport services in Ebonyi state. Improve the safety, security, reliability, quality and speed of movement of goods and people, at state and local government and community levels.
- Develop transport infrastructure that ensures environmental sustainability and internationally accepted standards;
- Support LGAs and the state capital territory in the development and promotion of urban transport systems and local government developing and promoting rural accessibility.

Plan for the integration of 13 LGAs headquarters with light gauge railway programme and to later integrate this to the national railway programme.

4 DESCRIPTION OF THE ENVIRONMENT

4.1 Physical Environment

Ebonyi is located in southeastern Nigeria between longitudes 7° 30' and 8° 30'E and latitudes 5 ° 40' and 6 °54'N. With a land area of about 5,935 sq. km, Ebonyi State is popularly known as the 'Salt of

the Nation' apparently because of the large deposits of salt water in the state. The State shares a border with Benue State to the North, Enugu State to the west, Imo and Abia States to the south and Cross River State to the east. The proposed project corridor cuts across seven of the thirteen local government areas. The circular road is a State road linking series of agrarian communities and villages along Ezzamgbo - Onueke - Noyo - Effium - Ezzamgbo junction road intersect on Abakaliki - Enugu Federal Highway. The road also intersects the Abakaliki - Afikpo - Okigwe Road at Onueke town. Similarly, the road intersects the Abakaliki - Ogoja Federal Highway at Noyo town. The road traverses seven (7) of the thirteen LGAs of the State - Abakaliki, Ebonyi, Ezza South, Ezza North, Ikwo, Izzi and Ohaukwu. Five of the seven local government areas account for 36% of the total land area of the state of which two are the largest in the state, in terms of land mass namely: Ikwo and Ohaukwu.

4.1.1 Air Quality and Noise

The levels of suspended particulate matters range from 26 to 60 μ g/m³, and the values are below the threshold limits set by the Federal ministry of Environment (FMEnv). Air quality along a road corridor is influenced by transport activities in addition to agricultural and other residential related noise such as the use of electricity generators in some locations. With the low traffic volumes plying the route comprising partly of heavy trucks who convey mined resources such as lead or sand, vehicular emissions are expected to be relatively low in most parts but slightly higher at urban centres.

The noise values fall within the Federal Ministry of Environment (FMEnv) limits of 50 to 60dB(A) for residential areas.

4.1.2 Topography

Ebonyi State lies in an area of moderate relief (between 125 and 245m above sea level). The highest parts of the state are around Afikpo, with elevation of about 170m above sea level. Sandstone ridges form the topographic highs.

4.1.3 Climate and Hydrology

The State has tropical climate marked by two distinctive seasons, the dry and rainy season begins in April and last till October. Rain falls in many months of the year though traditionally, onset of rains in the project area actually starts around April and ceases about November. Temperature values are high throughout the year over the project environment. Mean maximum ambient temperature values range between 32oC in February and 28oC in July and September, while minimum temperatures range between 29oC in March and 27oC in August.

The mean annual wind speed vary between a narrow range of 4.0 and 6.2 m/s. Speeds are higher between July and August, the period of August break. Conversely, at the peak of the rainy season in September and October, wind speeds are lowest, measuring between 4.1 and 4.2 m/s.

Drainage is controlled by the Cross River and its tributaries, especially the Aboine drainage system. Areas of moderate relief are often characterised by an intermediate condition of erosion between the extremes in areas with high relief on one hand and low relief on the other hand where the underlying shales are easily eroded. Ebonyi State experiences moderate sheet erosion, except in areas like Afikpo and Izzi where erosion is more pronounced (**Adeyinka ,2016**).

4.1.4 Ground Water Resources

The water quality results of the groundwater sample were within regulatory limits. The water quality indicators of temperature, pH, conductivity, dissolved oxygen, Total Dissolved Solid (TDS), Color, Turbidity, Sulphate, Phosphate, Nitrate, Iron, Copper, Chromium, , Zinc, Nickel, Total hardness were all within acceptable levels. The ground water samples were slightly alkaline and varied in pH from 7.26 – 8.18. The electrical conductivity values were low varying from 85.0 to 148.0 S/cm at the sampling stations indicating a fresh water conditions. The turbidity values were only marginal in terms of the water use for domestic purposes. They varied from 0.0 – 22.42 NTU compared to WHO (1984) standard of 15.0 NTU. The concentrations of BOD (0.86 – 1.60 mg/l) and COD (6.4 to 18.4 mg/l) were low indicating non-contamination of the groundwater by extraneous sources of organic carbon. This is confirmed by the low levels of total hydrocarbon in the groundwater (<0.01ppm). Heavy metals were either not detected or were in concentration within the regulatory limits. The groundwater microbial analysis results indicated a range of 1.82 x 10³ – 2.8 x 10³ cfu/ml for total heterotrophic bacteria. The hydrocarbon utilizing bacteria range from 1.47 x 10² – 2.22 x 10³ cfu/ml. The total heterotrophic fungi ranged from 0.14 x 10³ – 2.01 x 10³ cfu/ml. The numbers of hydrocarbon utilising fungi range from 1.0

$\times 10^1 - 1.42 \times 10^2$ cfu/ml. The coliform count in the groundwater ranges from 4 – 13 MPN/100ml; highest values recorded in GW1.

4.1.5 Surface Water Resources

There are surface waters channels (rivers) identified for which a number of 11 bridges have already been constructed / existing on the corridor. These rivers appeared to be seasonal as the water in them were dried up during the dry season sampling campaign (Plate 4.2) with the exception of Ebonyi River, Akagoro Nwakpa and Iboko rivers in Ezza had some little water in them during the field work. The pH values for this study ranged from 7.10 – 7.48, indicating a slightly alkaline situation in the studied area. Turbidity values range from 34.0 – 78.20 NTU. Electrical conductivity values were between 135.0 μ S/cm and 286 μ S/cm respectively. The conductivity and TDS values indicate a freshwater environment. The salinity of an aquatic environment is a function of its Chloride content. The concentrations of chloride were low for this study (18.76 mg/l to 22.8 mg/l) also indicating a fresh water condition. Nitrate values were low (4.30 mg/l to 7.2 mg/l). Phosphate 2.0 g/l – 7.20 mg/l ions were recorded in this study. The heavy metal concentrations were generally low except for Calcium, Magnesium and Sodium, whose concentrations range from 98.60-144.00 mg/l, 88.40 – 130.70 mg/l and 158.0 – 186.0 mg/l respectively. Hydrocarbon Content (THC) concentrations were 1.48 mg/l and 3.35 mg/l respectively and these may be from biogenic sources.

4.1.6 Geology/Soils

The study area is underlain by shales of the Abakaliki formation of the Albian Asu River Group. Approximately 90% of the proposed ring road is underlain by Abakaliki shale and the Proposed Ring Road is largely on the shale and limestone environment with a bit of it touching the shale and mudstones area. The project site area is made up mainly of hydromorphic soils which consist of reddish brown gravelly and pale coloured clayey soil. The soil is rich for agriculture and it supports the growth of yam, cassava, maize, rice, etc.

4.2 BIOLOGICAL ENVIRONMENT

4.2.1 Flora

The existing vegetation in the project area is largely secondary in nature and typifies a derived savannah with abundance of grasses and herbs and few clumped or scattered trees, especially in the swampy forest region. The rainforest of southeastern Nigeria are among the richest anywhere in Africa, with very high species diversity in many taxonomic groups and numerous endemic species and subspecies, the region is widely recognized as a biodiversity ‘hotspot’ of global significance. Habitat diversity is also high, ranging from swamps in the Ebonyi estuary to montane vegetation. However, the forests and their wildlife within this region are subject to intense and growing pressure from the surrounding human population, and in particular from hunting for the commercial bush-meat trade.

The vegetation around the Ezzamgbo area is evergreen and is regarded as the last stronghold of tropical rain forest in Nigeria (Eniang et al. 2008). The area is noted for high species diversity (Reid 1989; Oates et al 2001. Eniang *et al.* 2008) reported that despite this great diversity and richness, the area is prone to degradation through human activities, ranging from poaching, agriculture, and logging to unguided exploitation of Non-Timber forest products (NTFPs)

4.2.2 Fauna

The rainforest of southeastern Nigeria are among the richest anywhere in Africa, with very high species diversity in many taxonomic groups and numerous endemic species and subspecies, the region is widely recognized as a biodiversity ‘hotspot’ of global significance. Habitat diversity is also high, ranging from swamps in the Ebonyi estuary to montane vegetation. However, the forests and their wildlife within this region are subject to intense and growing pressure from the surrounding human population, and in particular from hunting for the commercial bush-meat trade.

The following wildlife animals were recorded during the surveys: 11 mammal species; 7 bird species; 8 reptilian species; and 8 insect species. The following two species of mammals were the only IUCN Red listed endangered species (EN) to be found in the project area: *Cercopithecus mona* (EN), and *Gorilla gorilla* (Critically endangered). The construction works will be carried out within existing road

therefore impacts can only arise through hunting and poaching and loss of habitat through deforestation after road development.

4.3 SOCIO-ECONOMIC ENVIRONMENT

This section provides a summary of the existing socio-economic conditions in the vicinity of the RoW before the start of the Project. This is based on a desk study and socio-economic studies and interviews carried out in the project impact area.

4.3.1 Population

According to the Nigeria 2006 Population Census, Ebonyi State has a population of 2,176, 947 spread across 5,935 square kilometers. In 2016 using a projected population growth rate of 2.5%, the population of Ebonyi State was 2,880,400 making it one of the smallest State in Nigeria. In the absence of base year figures of the population of the communities (2006 census), a field estimate obtained from the host communities show the populations to be 131,100. Table 4.13 shows the respective population based on projected population growth. The proposed project cuts across and encircles seven Local Government Areas (Abakaliki, Izzi, Ebonyi, Ohaukwu, Ezza North, Ezza South, Ishielu & Ikwo LGAs) of Ebonyi State, thus covering approximately 62% of the total LGAs in the state. The ring road therefore effectively serves 62% of the total population of the state as estimated by Ebonyi State Planning Commission for 2016 fiscal year. The communities directly affected by the project have as estimate of 131,100 populations, making up of 12.44% of the total population of the affected LGA.

The average age of the respondents was 32.6 ± 11.4 with a range of 18-85 years. It is noteworthy to say that almost half of the respondents are within the 35-44 years age bracket. This indicates a very young, active and productive group of the labour population being dominant along the project corridor. 65% of the respondents were male, while the remaining 35% were females. Majority (78%) of the respondents are married and 10% of the respondents were single, and others (widows and widowers) represented 12% of the respondents. Fig 4.10 also shows that respondents having 3 to 4 children and 5 to 6 children were predominant 26%. 14% of the respondents also had 1 to 2 children and 6 children and above. 11% of the respondents had no children.

4.3.2 Economic environment

The people of Abakaliki and their neighbors were predominantly farmers who took advantage of the abundant and fertile to produce rice, fruits, vegetables, livestock and non-food items like limestone, rocks and gravel – all of which are abundant throughout the area. Agriculture is a major industry in Ebonyi State. An estimated 85% of the population earn their living from one form of agricultural activity or another. Livestock farming is also popular in Ebonyi State. This includes the traditional rearing of animals such as goats, pigs, chicken, cows, horses and pets. There is cattle ranching in Onicha, Ohaozara and Ishielu LGAs. The socioeconomic surveys show that majority (63%) of the respondents were farmers, 18% were traders, 8% were self-employed, While 5% of the respondents are civil servants as identified among other occupation in the project corridor. 26% of the respondents earn monthly income of between N15, 001– N30,000.00 per month, followed by those with an income of N1,000.00-15,000.00 and 30,001-60,000.00 (23%) each, and then Above 60,000.00 (19%).

Civil service employees in the communities are limited mostly to teachers, LGA workers, state civil servants and health workers. The identified activities are mainly primary production activities like farming, fishing, hunting and tapping and production of palm wine. Commerce and provision of services like petty trading, artisanship practices and employment in the civil/public services were also identified. In addition, trading in palm oil, plantain, garri, vegetables etc had also been a significant livelihood activity in the study area. The women also exploit the mangrove forest for firewood and other non-timber forest produce (mushroom, wild fruits and vegetables etc.). The major female activity is however marketing of products. Residents commonly engage in more than one livelihood activity. Engaging in multiple livelihood activities provides household members complementary sources of income.

The State has several factories including rice mills, quarry factories, a fertilizer blending plant, poultry and cement factories. The state is blessed with mineral resources such as lead, limestone, zinc and marble. Ebonyi is called “the salt of the nation” for its huge salt deposit at the towns of Okposi and

Uburu. Angela Akanwa et al (2017) noted that over time it has experienced a considerable increase in quarrying operations with about 400 private operators producing over 100,000 metric tons of stone materials per annum (Ministry of Solid Minerals, 2007). This has brought about economic benefits as employment, direct contracts, purchase of locally-produced goods, foreign exchange earnings and development projects in the host communities where the stones are quarried (Sosa et al., 2001, Bradshaw, 2005 and Bridge, 2008).

4.3.3 Political and Social Institutions

For Political reasons, the three Senatorial Zones have representatives at the National Assembly at the Federal level just as there is also the State Assembly with honourable members representing respective constituencies. The Local Government Areas (LGAs) of Ebonyi State have Chairmen who are responsible to the Executive Governor of the State. The leadership organization is such that the executive, legislative and judiciary functions of the government are well integrated.

At the informal level, there is the traditional administration is headed by the H.R.H in the communities and Chief or village heads at the kindred level. The village heads function to ensure peace and justice in the area and also exercise administration and judicial authority over their community. The traditional heads are elected from eligible males. Eligibility is determined by age (minimum of 35 years) and standing/integrity. Additionally, the candidate must come from particular families, considered royal families. Occupants hold office for life except deposed by the community. They could be deposed by the community if they are believed to be working against the community's interest, if he commit a heinous crime or became incapacitated by ill health. The Chief are appointed by their respective villages to oversee the affairs of the village and represent them in community matters. Chiefs are also all adult males and they remained in office for life, except removed by their kindred. The roles of these organs of society are clearly defined and there were no indications of role conflicts. These organs could play significant roles in information dissemination and community mobilization before, during and after the proposed project.

4.3.4 Education

The study revealed that 29% of the respondents had primary education, 36% had secondary education while 21% had tertiary education. 6% of the respondents had no formal education.

4.3.5 Health

Ebonyi State government has consistently pursued a policy of good health for all. Ebonyi has two major hospitals – Ebonyi State Teaching Hospital and the Federal Medical Center – both in Abakaliki. The State also has three general hospitals located in Onueke, Onicha and Enohia Itim (near Afikpo). In addition to the government owned hospitals and health centres, there are other medical centres owned and managed by voluntary organizations, especially missionary agencies. These are complemented by several private hospitals and clinics in various towns and villages. The State also has three schools of nursing at Uburu, Afikpo and Edda.

The common health problems among the population are Malaria (76.7%), and Typhoid (14.2%). The survey shows that the prevalent water borne diseases in the communities as reported by the respondents are diarrhea (34%), typhoid (38%), abdominal pains (19.76%), Blood in faeces mixed with mucus (15.5%), blood in urine (hematuria) 10.26%, and yellowness of the eyes (23.8%). Members of the communities are health conscious as they readily seek medical attention from the health institutions available within and outside the communities when they fall sick

4.3.6 Water Sanitation and Electricity

Public water and electrification are very much dysfunctional in the communities. Majority of the communities are using dug well in the project area. But several water bore holes have been constructed in the communities but most of them are not working largely because the water produced is deemed unfit for consumption by communities' residents, usually because of colouration. Similarly, most of the communities have electrification facilities but do not have electricity because there are no functional transformers. Some of these transformers break down often and maintaining them has been a major problem for these communities.

There are no sanitary waste facilities other than dump sites. For instance, in the largest city of the state, Abakaliki, there are a number of dumpsites for waste disposal. About 65.74% (majority) of the respondents dump the wastes they generate in their houses in the bins (strategically placed in the communities) provided by agencies authorized by government to dispose of them. On personal cleanliness and hygiene the respondents claimed to have good hygiene practices and good sanitation in the communities. Most respondents (90%) claimed to wash their hands before and after meals and after going to toilet.

4.3.7 Transportation

The main means of transportation among communities in the study area is by road with the use of cars, keke, motorcycle and bicycles. The people in Nwezenyi also travel to neighbouring Ogi by road using bicycle. Most households have access to motorcycles and bicycles which they used to go about their daily business especially farming. Many feeder roads link the ring road from villages and communities. They are of varied sizes and nature. Some are waterlogged during rainy season and dusty during dry season, some are straight while some are windy. Some are tarred while some are untarred. Some are wide while some are narrow.

4.3.8 Housing

During the survey, thatched and mud houses are spotted in interior villages along the ring road corridor in more developed areas such as Ezzamgbo, Onueke, Ndufu-Echara, Nnoyo, Nwezenyi, Effium. Houses of prominent and rich community members are basically made of modern infrastructures varying from aluminium, zinc and asbestos as the roofing sheets, plastered wall, ceramic and casted stones as wall type and German flooring, tiles and cement plastered as the flooring pattern among the houses in the communities. Additionally, there is a positive correlation between housing type and income. While only 1% claimed that the proposed ring road construction will affect their building or business, 4% don't know if their asset will be affected, while 94% of the respondents were of the view that the proposed project will not affect their buildings at all.

4.3.9 Ethnicity and Religion

Residents of area are mostly Christians. There are various Christian denominations with worship places spread across the community. Christian denominations in the community include Catholic Church, Angelical church of Nigeria, Living Faith Church, and Christ Assembly. The main Christian festivals of Christmas and Easter are celebrated across the communities. Traditional worship practices are carried out by few adherents mostly the elderly and major communal deities and shrines are located in the study area. 90% of the residents are Christian adherents, while 7% and 3% are Moslems and traditional worshippers respectively.

4.3.10 Socio-Cultural Aspects

Abakaliki is the capital of Ebonyi State and the largest town in the State. It is located at the intersection of Enugu, Afikpo and Ogoja Roads. Before it became state capital in 1996, Abakaliki was the headquarters of the Old Ogoja Province. The original inhabitants of Abakaliki were primarily the Izzi, a predominantly agrarian Igbo-speaking people. With time, people from neighboring villages including the Ezza, Ikwo, Onicha and Ngbo people, as well as migrants and traders from other towns gradually settled in Abakaliki.

Socio-cultural demands and the demands of living with people from different backgrounds have helped shaped society's moral codes and norms. This condition has given rise to prohibition of some perceived harmful practices with a view to ensuring security of life and property and fostering harmonious co-existence and habitation. These prohibited practices include desecration of shrines and places of worship, committing suicide, having sexual intercourse with a married woman who is not one's wife and cannibalism. The communities expect all residents to abide by the society's moral code. Residents generally abide by these restrictions because the communities enforce them and they also believe that violation attracts dire consequences. These may lead to banishment or warrant performance of expensive appeasement and cleansing rituals on offenders.

4.3.11 Infrastructure and Social Services

Available infrastructural framework of the study area is dominated by social amenities. The social amenities consist mainly of education, water supply and electrification facilities while the physical

amenities comprise mainly of jetties and telecommunications facilities. Table 1 indicates the available infrastructure in the communities along the corridor.

Table 1: Infrastructure and Social Services in the Project Impact Areas

| Community | Transportation | Education | Water / Sanitation | Telecommunication |
|-----------|----------------|-----------|--------------------|-------------------|
| 135 | Yes | Yes | Yes | Yes |
| Onueke | Yes | Yes | Yes | Yes |
| Nwezenyi | Yes | Yes | No | Yes |
| Iboko | Yes | Yes | Yes | Yes |
| Ezzamgbo | Yes | Yes | Yes | Yes |

4.3.12 Gender aspects

In Ebonyi, women are involved in agricultural practices such as clearing, ridges preparation, planting and harvesting. However, some women own parcels of farmland, either by inheritance or purchase. The women and youth groups play important roles in the communities, and serve to bring their members together as well as intervene in their welfare. The women's primary role is to advise the CDU and council of Chiefs on matters concerning women in the communities. During the survey it was noted that culturally women could not, lead the communities, head the key organs of traditional administration, seat or participate with the men in taking community decisions. They had their separate meetings and their decisions were transmitted to the CDUs and traditional councils. This cultural inhibition is a clear indication of gender inequality in the communities. The project will put in place measures to ensure that the different gender and vulnerable groups are not differentially impacted by the project and that there are benefit enhancement measures that are gender sensitive and inclusive of vulnerable groups. Distribution of jobs during construction shall aim at allocating at least a 25% quota to women willing and able to work at the construction site. The contractors and employers shall be obliged to develop a code of conduct to ensure that no abuse takes place at the work place. Appropriate facilities including rest places and ablution facilities shall be provided for both women and men.

5 PROJECT ALTERNATIVES

Alternatives are different means of completing the project while still meeting the purpose of the proposed activity. Furthermore, the alternatives analysis is intended to address other means of completing the proposed project that could avoid or minimize adverse impacts that would be associated with the project. Project alternative options have been comparatively evaluated in this section. Key considerations for each project option evaluated are the implications of the proposed project activities or absence of it on various aspects such as:

- Safety and Security - this includes potential safety and security exposures and expenses that are associated with the proposed project with due consideration to the work location, personnel and activities.
- Environment - release of emissions and discharge of substances into the environment in the course of work, the impacts on various environmental aspects, and likelihood of avoiding these by not going ahead with the proposed project.
- Social - the influence of the proposed project and related activities on standards of living and general quality of life. It also includes possible conflicts that may arise due to influx of people and the consequent social changes that may arise.
- Public Health - the possibilities of improved or degenerative health conditions as people congregate within and around the proposed project site and environs.
- Economics - likely costs and gains of investment, construction, operations and maintenance of the proposed plant and associated facilities, as well as the additional costs or savings due to the option under consideration.
- Effectiveness in meeting the proposed project objectives - core project objectives includes infrastructure development drive by the various ties of Government of Nigeria.

- Regulatory, corporate and stakeholder requirements - this considers government, legal, corporate and stakeholders' expectations. It also includes permits, licenses and monitoring requirements.
- Technical feasibility - ease and acceptability of proposed construction technology with respect to existing technologies.
- Synergy - ability of the option to provide better access through which the road passes.

5.1 "NO ACTION" ALTERNATIVE

This implies that the proposed road project will not be implemented. In adopting this option, no potential benefits associated with the project will be achieved. Hence, this will defeat the stakeholders' benefit and render the resources so far expended on the project wasteful. However, this option will completely avoid the short term negative impact associated with the project; though, the many positive impacts and benefit of the project will be denied; also the fact that all the short term negative effects can be reasonably mitigated makes this option not acceptable.

5.2 "REHABILITATION OF EXISTING ROAD"

Delayed Project Option

This option implies postponing the implementation of this project. This may be necessary under certain circumstances such as civil unrest, antagonistic public opinion, government policy, prevailing socio-economic condition or other force majeure. While analysing this option, none of the listed circumstances existed. Preliminary planning activities of the project carried along relevant stakeholders which made the desirability of the project apparent. Worth noting is the fact that the host community, local and state government support the proposed project. Additionally, unpredictable inflation and other cost which are time bound might increase the overall cost of the project if delayed. More so, it will delay the benefits accruable from the project. From the foregoing, it is apparent there is no need for delay.

Construction of the Proposed Road (The Acceptable Option)

The ring road if reconstructed will promote economic development, extend trade, and improve state's competitiveness through an efficient and affordable integrated transport system.

Site Location Option

Having considered the construction of the road as the most viable and preferred option, it is therefore pertinent to ensure an appropriate location. The important factors that influence the site selection for this project include:

- Increase travel efficiency and productivity
- Improve the quality of the environment
- Improve the quality of life and social standard
- Increase and spread economic activity throughout the villages and towns connected.
- Remove poor safety and security records on the road that affect travelers journeying on it.
- Remove undue stress for travelers.
- Afford comfortable ride for those who take the route
- Provide adequate facilities in terms of sidewalks which is simply non-existing;
- Reduce carbon footprint and increase general environmental aesthetics due to adequate maintenance of the road and provision of greenery on the corridor which could readily absorb carbon.

Considering the above factors, it is apparent that the chosen location is economically, socially and technically viable.

5.3 JUSTIFICATION FOR THE CHOSEN PROJECT ALTERNATIVE

Reconstruction and paving of the Ebonyi State Ring road would ensure that the road is more motorable, fully responsive to the terrain and climatic conditions and have low life-cycle costs. The project would improve access to transport services for the State and Federal Government. It will thus improve farm to

market linkages as well as farm-gate prices, and uplift the quality of life of the people of the project area. Thus the advantages to be derived from the re-construction alternative far outweigh the disadvantages of the “No Project Development Option”. Although there are environmental and social implications associated with the improvement alternative, appropriate mitigation measures stipulated in the ESMP and implementation of the RAP would avoid, minimize and compensate for them. The accrued benefits to be derived from this option socially, environmentally, and economically; now and in the long term far supersede all other options.

6 POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

The project is anticipated to have both positive and negative impacts. However the positive impacts are expected to outweigh the negative impacts. Below are the anticipated positive and negative impacts.

Table 2 : Potential Environmental and Social Impacts of Ring Road Rehabilitation

| :Potential Environmental and Social Impacts of Ring Road Rehabilitation | | | | | | | | | |
|---|--|---|----------------------|---------|----------|-----------------------|----------------------|------------|----------------|
| Project Phase | Project Activity | Description of Impact | Impact Qualification | | | | | | Overall Rating |
| | | | Beneficial | Neutral | Negative | Short term < 3 months | Long term > 3 months | Reversible | |
| Mobilization/ Preconstruction | Construction of camps for personnel Construction of yard for equipment and offices | Biophysical Site clearance for camps and yard for equipment Impact on air, soil and water Socio-Economic Socioeconomic impact based on new influx of people | + | | | S | | R | |
| | Movement of goods, workers, Equipment, etc | Biophysical Increase in noise nuisance | | | - | S | | R | L |
| | | Reduction in air quality | | | - | S | | R | L |
| | | Socio-Economic Increased pressure on existing infrastructures e.g. housing | | | - | S | | R | L |
| | | Employment | + | | | | | | L |
| | | Health And Safety Increase in road traffic volume and risk of accidents/injury | | | - | S | | R | L |
| | | Increase in respiratory diseases | | | - | S | | R | L |
| | | Movement of heavy equipment to worksite may pose danger to public | | | - | S | | R | L |
| Construction | Re-establishment of RoW Removal of vegetation/ Land use along the road alignment Opening of trail Stockpiling of construction materials & material Use Slope Stability/ Earthworks (cut and fill equalization) Quarries and borrow pits Fuel consumption Spoil and construction | Biophysical Air Pollution: Construction-related dust generation, Batching plants and asphalt plant operations, Material dump sites, Vehicular emissions and haulage of materials Solid Waste: Generation of debris from demolitions, spoils and domestic refuse Water resources & Pollution: The hydrological regime of streams along the road corridor will be affected during the construction work and water quality will be altered. Wetlands: Siltation and oil pollution may affect the wetlands. Construction activities should be carefully monitored. Fauna: Animals and birds will be disturbed by the clearing activities and their homes/nesting sites may be destroyed. Noise and dust pollution will occur during construction activities. Clearing should be done with utmost consideration for the wildlife species. Wildlife: construction workers poaching and trading wildlife Vegetation/Flora: Clearing of vegetation will be necessary for the road realignment. | | | - | | L | R | H |
| | | | | | - | | L | R | H |
| | | | | | - | | L | R | L |
| | | | | | - | S | | R | L |
| | | | | | - | S | | R | L |
| | | | | | - | S | | I | H |
| | | | | | - | S | | R | M |

| :Potential Environmental and Social Impacts of Ring Road Rehabilitation | | | | | | | | | | | |
|--|--|--|----------------------|---------|----------|-----------------------|----------------------|------------|----------------|--------------|---|
| Project Phase | Project Activity | Description of Impact | Impact Qualification | | | | | | Overall Rating | | |
| | | | Beneficial | Neutral | Negative | Short term < 3 months | Long term > 3 months | Reversible | | Irreversible | |
| | waste disposal Work/ Labour camp operation - | Natural vegetation is not regarded as having any special conservation significance. However, clearing activities could encourage soil erosion. Unnecessary clearing of vegetation should be avoided. | | | | | | | | | |
| | | Material Source: | | | | | | | | | |
| | | Hazardous Materials: Contamination of the immediate surroundings due to handling and Storage | | | - | S | | | R | | L |
| | | Soil Degradation & Landscape Damage: Creation of Excavation sites and triggering erosion. However, materials are sourced from third party quarries. Damage to abutting land use to construction line | | | - | | L | | R | | M |
| | | Noise: increases during construction and ground vibration due to construction operations | | | - | S | | | R | | M |
| | | Hydrology/ Flooding/Drainage: Alteration of the hydrology of the area because due to the flat nature of the terrain, the road level will need to be raised in many areas. Hence, runoff will be channeled through culverts. This will be a temporary problem occurring during the construction works. | | | - | S | | | R | | H |
| | | Socio-Economics | | | | | | | | | |
| | | Land use pattern along the road alignment: Alignment likely to displace persons and assets | | | - | S | | | | I | M |
| | | Aesthetics/Visual intrusion: During construction visual intrusion will be affected due to road works and traffic and likely to increase landscape scars along the road alignment. In addition if the construction spoils are disposed of improperly, the ground vegetation would be destroyed which will be visible from a distance | | | - | S | | | R | | H |
| | | Cultural, historical or traditional sites: There are sites of cultural, historic or traditional value that would be affected by the road upgrading works i.e. the grave yards | | 0 | - | | L | | | I | 0 |
| | | Agricultural activities: During construction, little or no change is expected with regard to agricultural activities. | | | - | | L | | | I | L |
| | | Settlements/ Induced settlements: During construction, a pool effect is likely to occur for would be petty traders to the road side | + | | - | | L | | | I | M |
| | | Employment opportunities: The project will provide temporary employment for many of the local people for example as casual laborers during construction works and allow for the trade of food and basic supplies to workers. | + | | | | L | | | I | H |
| | | Gender: Impacts on the vulnerable groups | | | - | | L | | | I | H |
| Cultural Resources | | | - | | L | | | I | L | | |
| Traffic: Disruptions and Diversion Impacts, Road Closure and Detours | | | - | S | | | R | | L | | |
| Workmen/Contractor camp: Presence of the camp is likely to lead to an increase in water usage putting a strain on the local | + | | | S | | | | I | M | | |

| :Potential Environmental and Social Impacts of Ring Road Rehabilitation | | | | | | | | | | | | |
|---|---|---|----------------------|---------|----------|-----------------------|----------------------|------------|--------------|----------------|---|---|
| Project Phase | Project Activity | Description of Impact | Impact Qualification | | | | | | | Overall Rating | | |
| | | | Beneficial | Neutral | Negative | Short term < 3 months | Long term > 3 months | Reversible | Irreversible | | | |
| | | communities. Solid waste disposal and sanitation problems will be an issue. | | | | | | | | | | |
| | | Health and Safety | | | | | | | | | | |
| | | Road safety: During construction, there will be some danger to pedestrians and cyclists along the existing road, but this can be mitigated with awareness campaigns and road signs. | | - | | S | | | R | L | | |
| | | HIV/AIDS and STIs: HIV/AIDS and STIs and increase in vector borne diseases such as Malaria due to stagnant water creation by stock piling and disturbance of the drainage system | | | - | S | | | r | M | | |
| | | Public health interference: Exposure to accidents, dust, noise, etc | | - | | S | | | R | L | | |
| | | Occupational health and Safety Workers exposed to accidents, dust, etc | | - | | S | | | R | L | | |
| | | Workers and Camp: Provision of potable and sanitation facilities and lay down areas; minimum wage; sexual harassment and forced and child Labour by sub contractors | | - | | S | | | R | M | | |
| Demobilization | Demolition and Removal of camps, cabins, equipment etc | Noise level and dust generation | | | - | S | | | R | L | | |
| | | Revegetation | + | | | | L | | R | H | | |
| Operation | Vehicular movement, passenger patronage and maintenance | Solid waste generation and impact on disposal facility | | | - | S | | | R | L | | |
| | | Sanitary waste generation and impact on disposal facility The waste generated here is from workers on the campsites and has minimal impact | | | - | S | | | R | M | | |
| | | Noise level and dust generation | | | - | S | | | R | M | | |
| | | Revegetation | + | | | S | | | R | L | | |
| | | Increase in noise nuisance | | | - | | L | | | I | L | |
| | | Reduction in air quality | | | - | | L | | | I | L | |
| | | Biophysical | | | | | | | | | | |
| | | Climate Change due to GHG Emission | | | - | | L | | | R | L | |
| | | Soil Degradation and Soil/Groundwater contamination | | | - | | L | | | R | L | |
| | | Flooding | | | - | | | | | R | L | |
| | | SOCIO-ECONOMICS | | | | | | | | | | |
| | | Improved and reliable journey times on corridor by public | + | | | | | L | | | I | H |
| | | Environmental Justice | + | | | | | L | | | I | H |
| | | Poverty alleviation and welfare improvement of people | + | | | | | L | | | I | H |
| | | Job Creation and Business opportunities/Economic enhancement | + | | | | | L | | | I | H |
| | | Pressure on existing infrastructure | | | - | S | | | | R | L | |
| | | Stress on existing security structures | | | - | S | | | | R | L | |
| Improvement of existing infrastructure | + | | | | | L | | | R | H | | |
| Transport affordability with constant and easily understandable fares | + | | | | | L | | | R | H | | |
| Agricultural activities: the improved road would encourage agricultural activity between communities. | + | | | | | L | | | I | H | | |
| Growth of Businesses and Market Centres as economic activities will increase along the corridor due to enhanced transportation which will attract ventures | + | | | | | L | | | I | H | | |
| Improved Tourism Opportunities likely to increase the number of annual visitors to the corridor areas due to low costs of transport, comfort and reliability provided by a new all-weather road. | + | | | | | L | | | I | H | | |

| :Potential Environmental and Social Impacts of Ring Road Rehabilitation | | | | | | | | | | |
|--|------------------|--|----------------------|---------|----------|-----------------------|----------------------|------------|----------------|--------------|
| Project Phase | Project Activity | Description of Impact | Impact Qualification | | | | | | Overall Rating | |
| | | | Beneficial | Neutral | Negative | Short term < 3 months | Long term > 3 months | Reversible | | Irreversible |
| | | Revitalization of the Agricultural Production in Rural Areas due to all-weather road which motivate people to engage in more agricultural production and ensure quick produce evacuation with less post harvest losses | + | | | | L | | I | H |
| | | Reduction in Freight Haulage and Transportation Time Efficient movement of goods and people will translate to effective human resource management. Access to remote areas will be improved especially where the line is passing and where raw materials/ goods will be sourced from | + | | | | L | | I | H |
| | | Traffic Congestion - Road Closure and Detours | | | - | | L | R | | L |
| | | Revitalization of the mining sector - Cheaply transported minerals will encourage more patronage and boost local economy as all-weather road will motivate people to engage in more mining activities | + | | | | L | | I | H |
| | | Increase in Property Value - Residents who own property in towns and areas along the road corridor will experience increase in the value of their properties due to the emergence of new businesses. | + | | | | L | | I | H |
| | | Reduced Transport Costs of Goods - Transport costs of goods are expected to drop and this will improve local trade | + | | | | L | | I | H |
| | | Social Benefits - Through social responsibility arrangements, the project may intervene on social facilities including schools, health centres and water supplies along the road, | + | | | | L | | I | H |
| | | Emergence and Growth of New Towns - Growth of businesses, market centres and other essential services will be witnessed along the new road leading to growth of the local economy | + | | | | L | | I | M |
| | | Waste generation and impact on disposal facility | | | - | | L | R | | L |
| | | Visual Aesthetics | + | | | | L | R | | L |
| | | Encroachment due to unmanaged settlement, construction along the RoW. | - | | | | L | R | | H |
| | | Conflict due to Local people excluded from project activities & Promises made to local people during feasibility and planning phases | | | | | | | | L |
| | | HEALTH AND SAFETY | | | | | | | | |
| | | Enhanced Public Safety and security on corridor | + | | | | L | R | | H |
| | | Injury/fatalities in workforce/communities | | | - | | L | R | | H |
| | | Road Accidents | | | - | | L | R | | H |
| | | Increase in road traffic volume, accidents/injury | | | - | | L | R | | H |
| | | Fire and other Emergencies - | | | - | | L | R | | L |
| | | PUBLIC AND OCCUPATIONAL HEALTH AND SAFETY | | | | | | | | |
| | | Road safety: High-speed driving, Deteriorated road surface, Road Sections with multiple tracks/off-road driving could increase accidents | | - | | S | | R | | H |
| | | Public health interference: | | - | | S | | R | | L |

| :Potential Environmental and Social Impacts of Ring Road Rehabilitation | | | | | | | | | |
|---|------------------|--|----------------------|---------|----------|-----------------------|----------------------|------------|----------------|
| Project Phase | Project Activity | Description of Impact | Impact Qualification | | | | | | Overall Rating |
| | | | Beneficial | Neutral | Negative | Short term < 3 months | Long term > 3 months | Reversible | |
| | | Dust generation | | | | | | | |
| | | Occupational health and Safety Exposures – workers | | - | | S | | R | L |

Climate Change Impacts

Involuntary resettlement

Majority of the affected asset 88% are trading structures/shops, 4% of the affected structure are residential, and other 8% are few business grounds. The major type of loss suffered along this corridor will be residential as Figure 2 shows that 38% of the respondents, will be affected in this way, 27% of the loss will be commercial, while agricultural loss will be 21%. Industrial and other losses will be 7% each. The respondents indicate that the category of loss of the project affected persons would be more of rent, customers and income placed at 25% respectively

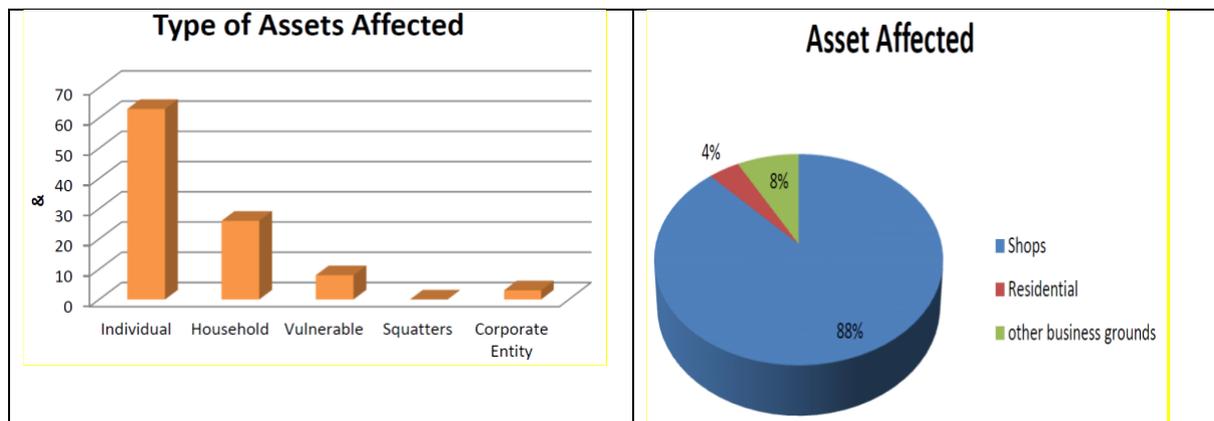


Figure 2: Type of Affected Persons and Asset

In the event of displacement, the respondents that preferred to be resettled within the same community were 41%, another 41% of the respondents preferred to be resettled in any other community as long as it was suitable, and 18% were not particular whether they were resettled in the same community or a different community as long as they were resettled. When asked the preferred choice of compensation, majority (64%) of the respondents want to be compensated with cash grant equivalent to loss while (9%) want to be provided with kind for kind. The remaining 27% are interested in other forms of compensation such as new structures, occupying same location after construction.

Cumulative Impacts

Cumulative impacts in this report refer to changes to the environment (biophysical and social) that could result are caused by the proposed project activity in combination with other past, present and future human activities. The concept of cumulative effects here holds that while impacts could be small individually, the overall impact of all environmental and social changes affecting the receptors taken together could be significant. When a resource is nearing its tolerance threshold, a small change can push it over.

Although the envisaged cumulative/secondary impacts arising from the proposed rehabilitation of the road corridor is considered minimal, however, the cumulative impacts may arise through "spin-off" actions that may add to the existing impact generated by the various activities along the corridor. In deed the corridor will have a pull-effect in some of the nodal communities.

7.0 ENHANCEMENT/MITIGATION MEASURES AND COMPLEMENTARY INITIATIVES

This section contains a description of mitigation measures for significant impacts, and measures for enhancing the beneficial effects. The project will implement the detailed Environmental and Social Management Plan (ESMP), which has been developed for the project. The ESMP will ensure compliance with applicable environmental standards during the construction of the road. The Contractor (s) will be required to develop a Construction ESMP (CESMP) to ensure compliance with the AfDB requirement standards and applicable national regulations before construction works begin.

Table 3: Summary of proposed Enhancement and Mitigation Measures

| Proposed Enhancement and Mitigation Measures | | |
|--|---|---|
| S/No | Issue | Codes of Conduct by SPMU & Contractor |
| 1 | Land Use | <ul style="list-style-type: none"> ➤ Plan road alignment to minimize loss of resources and compensation of affected persons and assets. ➤ Demarcate RoW to avoid encroachment and enforce relevant regulations. |
| 2 | Resettlement | <ul style="list-style-type: none"> ➤ Ensure resettlement of people and shifting of properties and utilities is in consonance with the RAP |
| 3 | Material sites & Use | <ul style="list-style-type: none"> ➤ Inform people living at/near the sites that the sites have been selected for materials exploitation. ➤ Plan access to sites and control/restrict access with the use of barricades such as fencing. ➤ Control earthworks and ensure proper management of excavation activities ➤ Rehabilitate before abandonment |
| 4 | Slope Stability | <ul style="list-style-type: none"> ➤ Extract carefully and secure the top soil within 25 cm from the surface. ➤ Keep optimum balance in extraction and filling of soil works. ➤ Geo-hazardous assessment and mapping ➤ Use designated disposal site and avoid sidecasting of spoil ➤ Provide proper drainage ➤ Use bio-engineering on exposed slopes |
| 5 | Pollution/Vehicular Emission | <ul style="list-style-type: none"> ➤ Water at regular intervals during the day for dust during construction near homes and settlements ➤ Enforce speed limit of vehicles and construct the road according to volume and size of traffic movement. ➤ Enforce speed limit of vehicles. ➤ Maintain traffic size movement. ➤ Discourage use of horns. |
| 6 | Wildlife | <ul style="list-style-type: none"> ➤ Avoid as much as possible areas with high biodiversity. ➤ Ensure efficient movement of machinery and other traffic. ➤ Control poaching activities and regulate movement of labor force and their dependents, if any into the forest area. ➤ Forestry Department should be involved in monitoring the activities of the construction workers and officials to minimize wildlife harassing, trapping and poaching. |
| 7 | Stream diversion/blocking and water quality | <ul style="list-style-type: none"> ➤ Avoid diversion and blocking ➤ No Water logging ➤ Avoid contamination of surface water bodies resulting from runoffs ➤ No siltation of surface water resulting from uncontrolled runoff from storage piles of construction |
| 8 | Changes in hydrology | <ul style="list-style-type: none"> ➤ All pavement and drainage structures be done properly, using a mixture of concrete structures and vegetation (bioengineering) |

| Proposed Enhancement and Mitigation Measures | | |
|---|---|--|
| | /impeded Drainage, Soil erosion | <ul style="list-style-type: none"> ➤ Control earthworks and install erosion control measures ➤ It is strongly recommended that the cross drainage outlets must be channeled to the confirmed natural drains. ➤ If horizontal slope exceeds 5%, construction of flow control device necessary every 20m |
| 9 | <i>Landscaping and Trees Planting program/ Aesthetics</i> | <ul style="list-style-type: none"> ➤ Landscape road corridor and road reserve (setback) with local species of vegetation (shrubs and grasses) to beautify and contribute to sequestering carbon emissions ➤ Landscape all disturbed areas (pits, deviations, embankments, camp and material mining sites) using native species of grasses that can withstand the weather phenomena. ➤ Maintain the landscapes ➤ Use minimum and efficient use of wood products for construction. ➤ Initiate plantation at damaged and damage prone areas. ➤ Increase liability of local forest user groups. ➤ Avoid protected areas or densely forested areas and where such damage cannot be avoided but can be minimized through re-plantation of indigenous species and greenery development. |
| 10 | <i>Traffic and Road Safety Plan</i> | <ul style="list-style-type: none"> ➤ Install warning signs and speed bumps on approach to the towns and settlements ➤ Provide parking bays for heavy goods vehicles and public transport vehicles ➤ Enforce speed limits and the Highway Code ➤ Carry out awareness and educational campaigns on road safety. ➤ Ensure that all road users and operators are educated about the road use and behaviour on the road both during construction and operation. ➤ Ensure adequate signage especially during construction is placed strategically for traffic management, diversions and alternative routes by motorists. ➤ Educate Pedestrians on importance of crossing roads at designated crossing points and use of foot bridges in the event they are provided to avoid accidents. ➤ Carry out special sensitization programmes where there are schools that require students to cross the road corridor |
| 11 | <i>STI & HIV/AIDS Awareness and Prevention</i> | <ul style="list-style-type: none"> ➤ Sensitization and awareness campaign in the communities along the project road ➤ Preventives measures like use of condoms, voluntary testing ➤ Carry HIV/AIDS & STI with drug and substance abuse sensitization and awareness activities ➤ Establish wellness centres at truck parking locations that will be established along the road |
| | Disposal of Construction Wastes | <ul style="list-style-type: none"> ➤ Selected spoil dumping sites should be used. ➤ After disposal, the area should be leveled and compacted. ➤ Conserve the soil by planting indigenous plants including grasses. ➤ Wastes could also be used as leveling materials along the roadside ➤ Sufficient measures will be taken in the construction camps i.e. provision of garbage bins and sanitation facilities. If septic tanks are installed, waste will be cleared periodically |
| 12 | Garbage or Solid Wastes/ Disposal of Sanitary Wastes | <ul style="list-style-type: none"> ➤ Dispose-off periodically from labour camps ➤ The Contractor to develop waste management plans and provide appropriate facilities for their operations ➤ Prepare signed agreements with landowners where spoil earth is to be disposed indicating conditions and responsibilities for restoration and management, ➤ The spoil disposal sites should be approved by the regulators before dumping commence ➤ Consider re-use of used/waste asphalt concrete for public access roads in the neighbouring urban areas ➤ Proper sanitation area needs to be demarked. ➤ Check for hygiene of work force. |
| 13 | Construction Camps (Public health and occupational safety) | <ul style="list-style-type: none"> ➤ Sufficient measures will be taken in the construction camps i.e., provision of garbage bins and sanitation facilities. ➤ If septic tanks are installed, waste periodically. ➤ Special attention shall be paid to the sanitary condition of camps. ➤ Garbage will be disposed of periodically. ➤ Sensitization campaign on STDs & AIDS will be mandatory at the camps and in the community. |
| 14 | <i>Roadside Amenities</i> | <ul style="list-style-type: none"> ➤ Consider provision 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. ➤ 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 where facilities such as kiosks will be built. |

| Proposed Enhancement and Mitigation Measures | | |
|---|----------------|--|
| | | <ul style="list-style-type: none"> ➤ 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, STIs, and drug abuse information booths, etc. |
| 15 | Climate Change | <ul style="list-style-type: none"> ➤ Ensure pavement improvements is able to account for adaptation measures that does not have favour for higher temperature ➤ Enhance resilience to precipitation and flooding and factor in the broader impact of road disruptions to determine whether or not adaptation makes good economic sense. ➤ Do appropriate greenery with local species of plants Ensure adequate road maintenance to reduce changing climate on the road ➤ Ensure continual management of the greenery |

8.0 MONITORING PROGRAM

Environmental and Social Monitoring Plan provides specific means to ensure that the activities of the project during construction and operation comply with the applicable environmental and social standards and practices. In order to effectively and efficiently implement this ESMP, a system for monitoring and auditing has been built into the overall management plan. The Environmental and social monitoring activities shall be based on direct or indirect indicators of emissions, and resource use applicable to the road project. Monitoring frequency shall be sufficient to provide representative data for the parameter being monitored. Monitoring shall be conducted by trained individuals who can carry out the monitoring and record-keeping effectively using properly calibrated and maintained equipment. External Monitoring will be carried out by the Federal Ministry of Environment .

Table 4: Environmental and Social Monitoring Plan Construction Phase (Pre- Construction)*

| Environmental Monitoring Plan Construction Phase (Pre- Construction) | | | | | | |
|---|---|--|--|---|--|-----------------|
| S/No | Activity/Issue | Mitigation Measure Implementation | Monitoring Activity | Frequency | Monitoring Responsibility | Budget * |
| 1 | Erection of contractor construction camp | <ul style="list-style-type: none"> • Contractor to identify suitable camp site in consultation with SPMU/ relevant MDAs • Contractor obtain approval for camp site from members of the public/Local government | <ul style="list-style-type: none"> • Retain a record of discussions • Retain a record of approval | <ul style="list-style-type: none"> • After each discussion • Once | FMEnv SMEnv SPMU/Contractor | |
| 2 | Materials testing | <ul style="list-style-type: none"> • SPMU to include requirement for independent materials testing in contracting documents • SPMU to ensure that Contractor complies with requirements | <ul style="list-style-type: none"> • Retain copy of contracting documents with the requirement • Check record of materials testing | <ul style="list-style-type: none"> • Once • When materials are delivered | FMEnv SMEnv SPMU Site Engineers | |
| 3 | Operation of Contractor construction camp | <ul style="list-style-type: none"> • Inclusion of requirement for regular watering of camp site and construction sites in contracting documents • Contractor to implement approved Contractor work plan • submit monthly reports on Contractor implementation of approved work plan and mitigation measures • Establish and maintain public complaints register • Include the following requirements for worker facilities in contracting documents <ul style="list-style-type: none"> - Covered rubbish bins for scraps - Adequately stocked first aid medical kits - Trained person to provide first aid assistance if required | <ul style="list-style-type: none"> • Retain copy of contracting documents with the requirement • Maintain record of implementation activities • Daily monitoring • Ensure all complaints are recorded in the register • Maintain a record of working hours • Maintain a record of discussions with local members of the public in relation to requests for extension of working hours • Maintain a record of any agreements for extension of working hour | <ul style="list-style-type: none"> • Once • Daily during dry weather condition • Daily • Monthly • As required • Once | FMEnv SMEnv SPMU Contractor SPMU Site Supervisor | |

| Environmental Monitoring Plan Construction Phase (Pre- Construction) | | | | | |
|---|---------------------------|---|--|--|---|
| | | <ul style="list-style-type: none"> • Include requirement in contracting documents for Contractor to provide facilities for disposal of solid and liquid wastes • Contractor to undertake regular disposal of solid and liquid wastes undertake frequent regular monitoring to ensure compliance with requirements | <ul style="list-style-type: none"> • Retain copies of contracting documents with requirement • Retain copies of waste disposal docketts • Maintain a photographic record of disposal activities • Maintain documentary record of monitoring activities | <ul style="list-style-type: none"> • As required • As required • Daily and weekly | |
| 4 | Heavy machinery operation | <ul style="list-style-type: none"> • Ensure contracting documents include specifications relating to type, weight and operation of heavy machinery | <ul style="list-style-type: none"> • Retain copy of contracting documents on project files • Include reference in acceptance advice • Maintain record of inspections and public complaints | <ul style="list-style-type: none"> • Once • Once • Weekly | SPMU/Contractor |
| 5 | Excavation generally | <ul style="list-style-type: none"> • Include requirement in contracting document for Contractor to remove and dispose of surplus material at approved sites • Include the following requirements for Contractors in the contracting documents: <ul style="list-style-type: none"> - Provide temporary services acceptable standard where required - Undertake permanent repair works for disrupted services within specified times - Provide warning and safety signs in local language at excavation sites - Provide PPE for site workers | <ul style="list-style-type: none"> • Maintain photographic and documentary record of Contractor material disposal activities • Retain copy of approved list on project files • Retain copy of contracting documents on project files • Retain copy of contracting documents on project files • Maintain duplicate copies record of Contractor performance • Maintain photographic and documentary record of Contractor performance | <ul style="list-style-type: none"> • Daily • Once | FMEnv SMEnv SPMU SPMU/Contractor |

| Environmental Monitoring Plan Construction Phase (Pre- Construction) | | | | | |
|---|---------------------------------------|--|--|---|--|
| 6 | | <ul style="list-style-type: none"> • Ensure that requirements relating to spill management and debris are included in contracting documents • Ensure that Contractor addresses spill management and debris removal as criteria for acceptable Contractor work plan • Ensure that Contractor to promptly attend to any spills | <ul style="list-style-type: none"> • Retain copy of contracting documents on project files • Maintain photographic and documentary record of Contractor performance | <ul style="list-style-type: none"> • Once • Daily | FMEnv SMEnv SPMU/Contractor |
| 7 | Social issues | <ul style="list-style-type: none"> • Continual undertake public consultation • Conclude all resettlement issues that may arise • SPMU to include requirement for continual stakeholder consultations and public enlightenment in contracting documents | <ul style="list-style-type: none"> • Retain copies of minutes of discussions | <ul style="list-style-type: none"> • After each discussion | FMEnv SMEnv SPMU/Contractor |
| 8 | Health and Safety Issues | a) SPMU to include requirement for contract document need for contractor to mount in advance of the construction work awareness campaign relevant to health and safety and adequate road signs to warn pedestrians and motorists of construction activities, diversions, etc. provided at appropriate points. | <ul style="list-style-type: none"> • Retain copy of contracting documents on project files • Maintain photographic and documentary record of Contractor performance | <ul style="list-style-type: none"> • Once | FMEnv SMEnv SPMU/Contractor |
| 9 | Traffic Safety and Traffic Management | a) SPMU to include requirement for contract document need for contractor b) to ensure public safety, and meet traffic safety requirements for the operation of work to avoid accidents. c) be responsible for the safety along the corridor related to the site, d) provide and maintain necessary barricades, suitable and sufficient flashlights, flagmen, danger signals, and signs. e) Submit weekly activities schedule and the locations of his work along the | <ul style="list-style-type: none"> • Retain copy of contracting documents on project files • Maintain photographic and documentary record of Contractor performance • Records of accident plan • | <ul style="list-style-type: none"> • Once | FMEnv SMEnv SPMU/Contractor |

Table 5: Summary of Environmental and Social Monitoring Plan during Construction and Operation

| Component | Parameters | Method & Where | Frequency | Responsible* | Cost (N) |
|------------------|--|--|--|---|-----------------|
| Material sites | No of people living at/near the sites have been information No of sites excavated | Evidence of meeting/records filed visual assessment of site During and a | Before excavation during construction and after abandonment | FMEnv SMEnv SPMU/Contractor | 0.1m |
| Air quality | Dust | Visual Observation at location of activities | Everyday during construction | FMEnv SMEnv PMU/Contractor | 0.25 |
| | PM, SO ₂ , CO, NO _x , CO ₂ | Ambient air monitoring using standard method of sampling and analysis at established sampled locations for the baseline data | During construction and any other item incident relating to pollution are noticed (where visual observations indicate unpleasant scenario) | FMEnv SMEnv PMU/Contractor | |
| Noise | Level (dB-A) | Disturbance/pinch | Everyday during construction | FMEnv SMEnv Contractor | 0.05m |
| | Level | Sensor measurement at established sampled locations for the baseline data | annually | FMEnv SMEnv PMU/Contractor | |
| Erosion | Top soil movement/ground cutting Control and retention of disturbed soil at earthwork | Visual assessment | Routinely during construction | FMEnv SMEnv Contractor | 0.1m |
| Water Quality | Turbidity | Standard method of sampling and analyses at established sampled locations for the baseline data | Where it is established that construction caused impact | FMEnv SMEnv Contractor/ Consultant | 0.2m |
| | | | Annually | FMEnv | |

| Component | Parameters | Method & Where | Frequency | Responsible* | Cost (N) |
|--------------------------|---|---|---|--|----------|
| | | | | SMEnv PMU/ Consultant, | |
| Soil Quality | pH, Conductivity, Heavy Metals, TOC, Total Hydrocarbons, Cations | Sampling and analyses at designated locations | <ul style="list-style-type: none"> • monthly during construction; • Quarterly during the first 3 years of operation; • Biannually Subsequently | FMEnv SMEnv PMU | 0.32m |
| Retention pond & erosion | No of blockage of drainage and hindrance to free of storm water flow, No of erosion sites by the road side | Visual Assessment | During operation/maintenance phase routinely | FMEnv SMEnv Contractors/PMU | 0.25m |
| Vegetal Cover | Lawn/vegetation growing well & maintained | Visual assessment | Routinely | FMEnv SMEnv Contractors/PMU | 0.15m |
| General Waste Management | Reduction, Segregation protocols, proper handling, storage, treatment, and transportation Contractor to develop waste management plans and provide appropriate facilities during operation | Visual Assessment, General Aesthetics, hazard free environment along the corridor | Routinely, Daily | FMEnv SMEnv Contractor/HSE Officer | 0.1m |
| Training | Responsible HSE behaviour and culture | General HSE Awareness and specific training for workers | Routinely and as need arises | FMEnv SMEnv PMU Contractor/HSE Officer, consultant, management | 1.5m |

| Component | Parameters | Method & Where | Frequency | Responsible* | Cost (N) |
|--|---|--|------------------------------------|--|-----------------------|
| Socio-economics including displacement | Project benefit opinions, Lifestyle, no of livelihoods opportunities created, income, gender characteristics, no of women participating in watershed management programs, etc | Questionnaires, direct observations and interviews. | Once in two years | FMEnv SMEnv PMU | 1.05m |
| Land use changes | Emerging land use trends along the road during construction and operation | Absence of encroachment No of fines, changing social and economic development | | FMEnv SMEnv PMU | 0.1m |
| Climate Change | GHG Emission | Inventory | Once in three years | FMEnv SMEnv PMU | 0.5m |
| Health & Safety | Incidents | Hazard assessment | Before Start of work and routinely | FMEnv SMEnv Contractor/PMU Management | 0.7m |
| Environmental & Social Audit | Assessment of Mitigation, monitoring & Other management measures | Presence of Audit Report | Once in two years | FMEnv SMEnv SPMU working with Consultant | 10.0m |
| TOTAL | | | | | N14,000,000.00 |

8.1 Internal Monitoring and Reporting

Monitoring data shall be analyzed and reviewed at regular intervals and compared with the operating standards so that any necessary corrective actions can be taken. As part of monitoring programme, visual inspections and quality monitoring for light attenuation shall be conducted daily, for instance, during construction. Inspections oversight shall rest with the PMU supported by the Ministry of Works with local knowledge, policies and procedures.

However, the Safeguard Officer of the PMU shall ensure routine inspections, monitoring and reporting requirements are carried out and complied with even by the Contractors throughout the project cycle. The Contractors' project manager/site supervisor shall ensure that monitoring activities and reporting are being implemented during construction and rehabilitation. All inspection details should be formally documented, filed and made available for inspection as required by PMU and relevant authorities.

8.2 Evaluation and Audit

In order to ensure that adequate measures are taken to address impacts that are unfolding aside from the one identified in these reports and other safeguard reports prepared paripassu; there shall need for environmental and social audits. Any changes and review of the ESMP need to be reflected in the information in the current ESMP about the road corridor, pollution controls and/or programme and systems. Each of these will therefore also need to be updated. A copy of the revised version will be sent to relevant regulatory authorities and lenders on a case by case basis. Actions shall be directed at correcting any non-conformity without delay as reflected in quarterly progress and monitoring reports.

In specific terms, environmental audit shall be geared towards achieving the following:

- Compliance with all necessary codes, standards and procedures
- Compliance with regulatory requirements;
- Identification of further actual and potential environmental and social problems;
- Examination of line management system, operations, monitoring practices and data procedures and plans;
- Ascertaining and Checking the predictions in this ESIA Report and ensuring that recommendations are being implemented; and
- Recommendation of areas of improvement in operation management.

9.0 PUBLIC CONSULTATION AND DISCLOSURE

9.1 Public Consultation

Stakeholders, for the purpose of this project were defined as all those people and institutions that have an interest in the successful planning and execution of the project. This includes those positively and negatively affected by the project. The wide range of stakeholders identified ranged from members of the local communities with limited levels of education and specific cultural values to others with relatively high levels of education, skills and understanding. Specifically, the key stakeholders identified and consulted in the area included leaders in the communities, individual people who own asset that will be directly or indirectly affected and business owners. These consultations enabled interested and affected parties to contribute their concerns (views, and opinions on the proposed development) which might have been overlooked during the scoping exercise. A synopsis of the views of the project affected people as well as representatives of counties through which the project traverses were interviewed in predicting impacts and the development of the ESMP. Table 6 contains the schedule of the public meetings held across the corridor

Table 6: Schedule of Public Meetings Held

| S/N | Communities Met | Date | Issues Discussed |
|-----|--------------------------|----------------|--|
| 1. | Amaike, 135 (Ohaukwu) | 11/02/ 2018 | Traditional governance, belief systems, environmental problems and community efforts at solving them, perceptions and concerns about the proposed project, suggested mitigation and enhancement measures, community, needs of the project in the community, and development prospects. |

| | | | |
|----|---------------------|------------|---|
| 2. | Umuagara (Ezzamgbo) | 11/02/2018 | Overview of the project and the ESIA study, social structures, infrastructural network, livelihoods, environmental problems and community efforts at solving them, perceptions and concerns about the proposed project, suggested mitigation and enhancement measures, community, needs and development prospects. |
| 3. | Igbeagu (Nwezeyi) | 12/02/2018 | Traditional governance, belief systems, environmental problems and community efforts at solving them, perceptions and concerns about the proposed project, suggested mitigation and enhancement measures, community, needs of the project in the community, and development prospects. |
| 4. | Ezzama (Onueke) | 12/02/2018 | Livelihoods, income levels and expenditure patterns, employment situations in households. Perceptions, concerns and expectations of women about the proposed project. The H.R.H of the community replies that the community is not aware of the project and other project in the LGA they are not consulted for the input in the project. |

Table 7: Summary of Outcome of Public Consultations

| <i>Stakeholders</i> | <i>Response/How Project Address the Issues</i> |
|--|---|
| <p><i>Expectations of the People about proposed Project:</i></p> <ul style="list-style-type: none"> We are happy that the project is becoming a reality. We thank the governor for his good works. Job creation for persons especially the unemployed youths in communities at the execution phase of the project. Alleviation of the transportation challenges in the State as well as the communities. Increase in economic activities in the communities after project execution. Let the project be executed with quality and speed. The community also hopes and prays that the project is a success so that they can bring their agricultural products to markets where they can sell them profitably. Please, we are ready to do anything required to facilitate the release of this fund. We shall give maximum cooperation to the construction company especially in terms of security. | <ul style="list-style-type: none"> <i>The Governor shall be notified of your praise</i> <i>Adequate supervision by all responsible stakeholders will ensure quality road</i> |
| <p><i>The Expressed Fears of the People</i> Despite the high expectations of the net benefits of the project to the communities, some fears were expressed. These include among others;</p> <ul style="list-style-type: none"> Given that the project will result in job creation, priority should be given to the affected community members With influx of persons into the communities, there might be a corresponding increase in vices such as drug abuse and alcoholism, violence, sexual vices (which will cause the rapid spread of sexually transmitted diseases (STDs) such as HIV/AIDS, Syphilis, etc.) and criminal activities among the younger folks. There will be increase in cost of living as a result of increase in demand for food and essential services due increase in the population of the communities as a result of the establishment of the proposed project Let the project be executed with quality and speed. Will the youth be incorporated in the project by the contractors? Will the youth be incorporated in the project by the contractors? Will PAPs be resettled be the commencement of the project or after? If street light, water line and other infrastructure destroyed during road construction, will they be replaced after? We do not envisage any hazard. When will the project start? | <ul style="list-style-type: none"> To ensure best practice in terms of management of environmental and social issue that would emanate from the project that is why this ESIA is being carried out with responsibility outlined for all relevant stakeholders Priority shall be given to the affected community members in terms of employment in project execution Awareness creation shall be created with regard to HIV/AIDS and other social ills with proper decorum in project implementation All affected assets and persons shall be recorded and on the basis of this adequate mitigation measures shall be devised in managing all the challenges |
| <p><i>Requests of the Communities</i></p> <ul style="list-style-type: none"> The youths should be considered first during employment at all stages of the establishment of the project. Provide infrastructural facilities that are inadequate. Where ever, the economic wellbeing of members of the communities will be adversely affected, adequate compensation should be paid to guard against conflicts. | <ul style="list-style-type: none"> Qualified community members (skill and unskilled shall be given priority \ The road is one of the projects the Government is embarking on. Other infrastructural facilities shall follow |

Overall there is broad community support for the project as long as the project benefits enhancement and mitigation measures for negative impacts are implemented.

Public Disclosure

The Project ESIA and RAP will be disclosed according to Federal Republic of Nigeria and Ebonyi State Laws and in accordance with AfDB requirement standards. The ESIA and RAP summaries will be disclosed on AfDB Website at least 120 days before the project is taken to board.

9.2 Stakeholder Engagement Plan

The ESMP Communication Plan refers to specific guidelines and protocols consistent with the principles of participation that will govern the project and which will be reflected in the Stakeholder Engagement Plans. The communication and engagement systems will be guided by the following aspects: establishment of feasible participation mechanisms prepared with the basic objectives of transparency, responsibility of delivery of public service and an anticorruption approach; promotion of arenas of dialogue based on realistic and objective data avoiding the creation of expectations that cannot be met; shall ensure inclusiveness of the most vulnerable groups, such as women, young persons, children, older persons and indigenous communities. A key element of sustaining stakeholders' support in any project execution is to consult and communicate with the stakeholders effectively and to engage them as early as possible with the project which has been done in the course of preparation of this safeguard instruments.

Table 8: Summary of proposed Stakeholder Engagement Plan (SEP)

| Activity | Stakeholders / Community | Frequency / Timeline |
|--|---|---|
| <i>Pre-Construction / Prior to Project Commencement</i> | | |
| Project email, postal address and contact details | All stakeholders | Once-off establishment |
| Briefings | State Government , Local Government, Bank | As required, subject to the approvals process |
| Site tours | Regulators, Site Committee, community, Bank, etc | As required |
| Personal meetings | Targeted stakeholders | As required |
| Community Sessions | Residents of affected areas/ Community and interest groups | As required, subject to approvals route and feedback from the community |
| Develop and disseminate Feedback and Complaints Mechanism and communications procedures | All stakeholders | As required, subject to any updates on the Project |
| Briefings, Site Tours and Community Sessions - for development of the Rehabilitation and Closure Plan | Government authorities, Local communities, • Additional relevant stakeholders | Prior to Work Plan approval |
| Disclosure of Safeguard Reports | Area of project influence | As required by Federal Ministry of Environment |
| Review of ESIA Report | | As required by Federal Ministry of Environment |
| <i>Construction and operations</i> | | |
| Ongoing community liaison | Local community | Ongoing |
| Project updates | All stakeholders | Monthly |
| Responding to issues and inquiries as per Feedback and Complaints Mechanism | All stakeholders | Ongoing / as required |
| Annual reporting | All stakeholders | Annually |

9.3 Grievance Redress Mechanism

The project shall set up a Grievance Redress Mechanism to address any grievances and complaints from PAPs and Stakeholders. Any environmental or social grievances/incidents shall be documented. The report shall be transmitted to the relevant authority by the PMU, where necessary/applicable. The reporting shall be with a view to taking appropriate mitigation measures. All complaints received should be investigated and a response (even if pending further investigation) is to be given to the complainant within 5 days.

The following information must be provided:

- Time, date and nature of the grievance/incident/report;
- Type of communication (e.g. telephone, personal meeting);
- Name, house location and contact telephone number of person making the complaint. If this person wishes to remain anonymous then “not identified” is to be recorded;
- Details of response and investigation undertaken as a result of the incident/complaint;
- Name of person undertaking investigation of the incident/complaint;
- Corrective action taken as a result of the incident/complaint.

The report shall be rendered for both internal (in-house) uses all phases of the project for internal and external (public) consumption through the regulators. Grievance Redress Committees shall be established within the affected communities in the project impact areas consisting of key stakeholders including PAPs and vulnerable groups

10 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

10.1 ESMP Implementation Plan

The ESMP is a plan of action for avoidance, mitigation and management of the negative impacts of the project. The ESMP has been developed with project knowledge and information available to date. As project commencement and scheduling plans are developed and changed, components of the ESMP will require amending. Environmental and Social Management Plan (ESMP) is instituted for the proposed project to ensure that impact are avoided and mitigation and corrective and remedial measures are implemented. The ESMP is designed to commit SPMU and the Contractor (s) to operate with little or no long term negative impacts on the project. This ESMP shall be updated and revised on a regular basis throughout the project’s life cycle and the Contractors will be required to develop and implement a Construction Environmental and Social Management Plan (ESMP) before construction works. This is therefore a working document, which can be updated whenever new information is received or site conditions change.

10.2 Contractor Management

The range of contractors’ environmental and social management responsibilities include managing their direct, indirect and cumulative impacts of their activities from construction as well as impacts of their workforce and compliance with health, safety and labour requirements. The contractors in this project will be required to develop before construction works a CESMP that includes a HSE plan and specific sub-management plans stipulated in the ESMP that will be implemented through the construction and decommissioning phases of the project. In addition they will be expected to comply with specific Project HSE policies, regulations and standards through a self-verification programme by: Undertaking Pre-construction Surveys and HSE assessments to identify and manage HSE risks and impacts; performing Contractor HSE inspections and audits; performing Contractor HSE Monitoring and reporting; and putting in place measures to put in place corrective and remedial measures for non-conformance and have an incident notification and Emergency and Risk Response Management Plan. Ministry of Works and Transportation and the SPMU shall have the responsibility to ensure that the Contractor complies with all environmental and social safeguard requirements. They shall ensure that monitoring and reporting arrangements for the contractors as stipulated in the ESMP are being implemented as part of compliance with the applicable national and AfDB E & S requirement standards. The EPA will

externally monitor contractors' compliance with the applicable requirement standards stipulated in the permit.

10.3 ESMP Implementation Schedule and Budget

Table 9: ESMP IMPLEMENTATION SCHEDULE

| S/N | Activity Description | Responsible | Pre-Construction | Construction | | | | | | Post Construction (Operation) |
|-----|--|---|------------------|--------------|--|--|--|--|--|-------------------------------|
| | Disclosure of Environmental Assessment Report | Ministry of Works and Transport/ FMEnv | | | | | | | | |
| 2. | Allocating Budget for ESMP | Ministry of Works and Transport | | | | | | | | |
| 3. | Appointing Support Staff for ESMP | Ministry of Works and Transport | | | | | | | | |
| 4. | Review and Approval of Contractor's ESMP and Safety Plan | Ministry of Works and Transport | | | | | | | | |
| 5. | Finalizing site and layout plan of construction plan | Ministry of Works and Transport | | | | | | | | |
| 6. | Implementation of Mitigation Measures | Ministry of Works and Transport, Environmental Consultant & FMEnv | | | | | | | | |
| 7. | Supervising ESMP Implementation | Ministry of Works and Transport & Environmental consultant | | | | | | | | |
| 8. | Environmental Auditing | Ministry of Works and Transport, Environmental Consultant & FMEnv | | | | | | | | |
| 9. | Monitoring & Reporting on ESMP Implementation | Ministry of Works and Transport, Environmental Consultant & FMEnv | | | | | | | | |
| 10. | Environmental Training | Ministry of Works and Transport, & Environmental Consultant | | | | | | | | |

To effectively implement the environmental and social management measures necessary budgetary provisions have been made for this ESMP. The cost have been estimated and included in the overall ESMP budget as indicated in below:

Table 10: ESMP Budget

| ESMP Indicative Budget | | | |
|-------------------------------|---|--|----------------------|
| S/No | Element | Responsible | N |
| 1 | Mitigation Measures | PMU, Contractor, MH, MoE & MoW | 21,100,000.00 |
| 2 | Special Initiatives for ESMP Implementation | | 5,000,000.00 |
| 2 | Monitoring & Audit | Contractors/Site Committee members/PMU | 14,000,000.00 |
| 3 | Training | PMU , Contractor/HSE Officer, consultant, management | 1,600,000.00 |
| Sub-total | | | 41,700,000.00 |
| 10% contingency | | | 4,170,000.00 |
| Grand total | | | 45,870,000.00 |
| | | | |

10.4 SUMMARY OF THE ESMP

Table 11: Project ESMP and Estimated Costs

| S/No | Activity/Issue | Objective of Management plan for compliance | Action Party | Remarks |
|------|---|--|------------------------|---------|
| 1 | HSE MS Plan | <ul style="list-style-type: none"> Ensure Health, Safety & Environmental Management that systematically ensure hazards and effects that may affect or arise from the project activities are carefully managed Specify points at which HSE studies and activities such as reviews, audits, etc. are required. A tracking system for all the recommendations from this ESIA and other studies properly documented and such documents maintained throughout the project's lifespan. Ensure Contractor adhere to the plan (See Appendix 7.1) | FMEnv SMEnv SPMU | |
| 2 | Air Quality Management Plan | <ul style="list-style-type: none"> Only equipment fitted with or designed to reduce emissions that meet regulatory limits shall be used for all operations. Contract specifications for contractors include dust control measures. Hauling trucks carrying sand bound for the project site will be completely covered and secured to avoid dust emission. Minimize the effect of dust on the surrounding environment resulting from earth mixing sites, asphalt mixing sites, dispersing coal ashes, vibrating equipment, temporary access roads, etc. to ensure safety, health and the protection of workers and members of the public in the vicinity of dust-producing activities. During the performance of the work and any operations appurtenant thereto, carry out proper and efficient measures, such as sprinkling with water or other means, whenever necessary to reduce the dust nuisance, and to suppress dust. | FMEnv SMEnv SPMU | |
| 3 | Noise Abatement Management Plan | <ul style="list-style-type: none"> Adhere to national permissible noise levels and ensure construction workers comply. Noise levels emanating from machinery, vehicles and noisy construction activities (e.g. excavation, blasting) are kept at a minimum for the safety, health and protection of workers within the vicinity of high noise levels and nearby members of the public | FMEnv SMEnv SPMU | |
| 4 | Contractor Adherence to Management Plan | <ul style="list-style-type: none"> Give legal status to the ESMP by being referred to or incorporated into contractual documents. Make Contractor: <ul style="list-style-type: none"> Comply with the ESMP for the works he is responsible for informing himself about the ESMP, and preparing his work strategy and plan to fully take into account relevant provisions of the ESMP. Prepare method statements indicating the period within to maintain status on site after completion of civil works to ensure that significant adverse impacts arising from such works have been appropriately addressed. Adhere to the proposed activity implementation schedule and the monitoring plan/strategy to ensure effective feedback of monitoring information to project management so that impact management can be implemented properly, and if necessary, adapt to changing and unforeseen conditions. Implement all measures necessary to avoid undesirable adverse environmental and social impacts wherever possible, restore work sites to acceptable standards, and abide by any environmental performance requirements specified in an ESMP. | FMEnv SMEnv SPMU | |

| S/No | Activity/Issue | Objective of Management plan for compliance | Action Party | Remarks |
|------|--------------------------------------|---|------------------------|---------|
| 5 | Materials Excavation, Movement & Use | <p>Excavation, Earth Burrowing, etc.</p> <ul style="list-style-type: none"> • Prevent and minimize the impacts of quarrying, earth burrowing, piling and building of temporary construction camps and access roads on the bio physical environment, including protected areas and arable lands, local members of the public and their settlements. In as much as possible restore/rehabilitate all sites to acceptable standards. • At the end of the construction phase, landscaped and rehabilitated to acceptable standards. The stated areas shall be first landscaped, dressed with topsoil and covered with tree planting, field sods or grass seeding. <p>Material Excavation and Deposit</p> <ul style="list-style-type: none"> • The Contractor shall obtain appropriate licenses/permits from relevant authorities to operate quarries or burrow areas. • The location of quarries and burrow areas shall be subject to approval by relevant local and national authorities. • New extraction sites: • Shall not be located in the vicinity of settlement areas, cultural and historical sites, wetlands or any other valued ecosystem component, or on high or steep ground or in areas of high scenic value. • Shall not be located in archaeological areas. Excavations in the vicinity of such areas shall proceed with great care and shall be done in the presence of government authorities having a mandate for their protection. • Shall not be located in forest reserves. However, where there are no other alternatives, permission shall be obtained from the appropriate authorities and an environmental impact study shall be conducted. • Shall be rehabilitated areas with minimal vegetation cover such as flat and bare ground, or areas covered with grass only or covered with shrubs less than 1.5m in height, are preferred. • Clearly demarcate and mark boundaries to minimize vegetation clearing and to avoid any unnecessary damage on other resources. • Stockpile areas shall be located in areas where trees can act as buffers to prevent dust pollution. Perimeter drains shall be built around stockpile areas. Sediment and other pollutant traps shall be located at drainage exits. • The Contractor shall deposit any excess material in accordance with the principles of these general conditions, and ESMP, in areas approved by relevant authorities. • Areas for depositing hazardous materials such as contaminated liquid and solid materials shall be approved by the Safeguard Unit and appropriate local and/or national authorities before the commencement of work. Use of existing, approved sites shall be preferred over the establishment of new sites. <p>Use of Materials</p> <ul style="list-style-type: none"> • The contractor, in as much as possible, shall use local materials to avoid importation of foreign material and long distance transportation. | FMEnv SMEnv SPMU | |
| 6 | Soil Erosion Prevention | <ul style="list-style-type: none"> ○ To the extent practicable, the Contractor shall rehabilitate all sites progressively so that the rate of rehabilitation is similar to the rate of construction. ○ Always remove and retain topsoil for subsequent rehabilitation. Soils shall not be stripped when they are wet as this can lead to soil compaction and loss of structure. ○ Topsoil shall not be stored in large heaps. Low mounds of no more than 1 to 2m high are recommended. ○ Re-vegetate the stockpiles with recommended grass species to protect the soil from erosion, discourage weeds, and maintain an active population of beneficial soil microbes. ○ Locate stockpiles where they will not be disturbed by future construction activities. ○ The contractor shall reinstate natural drainage patterns where they have been altered or impaired. | FMEnv SMEnv SPMU | |

| S/No | Activity/Issue | Objective of Management plan for compliance | Action Party | Remarks |
|------|--------------------------------------|--|---------------------------------|---------|
| | | <ul style="list-style-type: none"> ○ The contractor shall collect toxic materials from construction areas and keep them protected in designated sites until proper disposal. Backfill excavated areas with soils or overburden that is free of foreign material that could pollute groundwater and soil. ○ Identify potentially toxic overburden and screen with suitable material to prevent mobilization of toxins. ○ Ensure reshaped land is formed so as to be inherently stable, adequately drained and suitable for the desired long-term land use, and allow natural regeneration of vegetation. ○ Minimize the long-term visual impact by creating landforms that are compatible with the adjacent landscape. ○ Minimize erosion by wind and water both during and after the process of reinstatement. ○ Compacted surfaces shall be deep ripped to relieve compaction unless subsurface conditions dictate otherwise. ○ Re-vegetate with plant species that will control erosion, provide vegetative diversity and, through succession, contribute to a resilient ecosystem. The choice of plant species for rehabilitation shall be done in consultation with local research institutions, the Forestry Department, and the local people. ○ Contractors will ascertain that all raw materials, including sand, aggregates and other construction materials are sourced from approved sites. ○ As contractors' obligation, the contract will specify provision for erosion control, spillage prevention during construction, and ensuring effective re-vegetation. | | |
| 7 | Water Resources Management | <ul style="list-style-type: none"> ● The Contractor shall, at all costs, avoid conflicting with water demands of local members of the public. ● Abstraction of both surface and underground water shall only be done with the consultation of the local community and after obtaining a permit from the Water Works. ● Abstraction of water from wetlands shall be avoided. Where necessary, permission has to be obtained from relevant authorities. ● No construction water containing spoils or site effluent, especially cement and oil, shall be allowed to flow into natural water drainage courses. ● Waste water from washing out of equipment shall not be discharged into water courses without pre treatment. ● Site spoils and temporary stockpiles shall be located away from the drainage system, and surface runoff shall be directed away from stockpiles to prevent erosion. ● The contractor shall ensure the existing water flow regimes are maintained and/or re-established where they are disrupted due to works being carried out. ● The contractor shall take all possible steps to prevent pollution. ● Bitumen, oils, lubricants and waste water used or produced during the execution of works will not be released directly into water without prior treatment and also ensure that stagnant water in uncovered burrow pits is treated in the best way to avoid creating possible breeding grounds for mosquitoes. | FMEnv SMEnv SPMU | |
| 8 | Greens Management | <ul style="list-style-type: none"> ● Construction contractors will undertake planting of approved plant species all disturbed areas completely after construction phase. | FMEnv SMEnv SPMU | |
| 9 | Social Issues management Plan | <ul style="list-style-type: none"> ● Compensation of all Affected Persons ● Address all contentious issues adequately and sufficiently ● Reach out to all relevant stakeholders ● Adherence to agreement reached with the communities | FMEnv SMEnv SPMU | |

| S/No | Activity/Issue | Objective of Management plan for compliance | Action Party | Remarks |
|------|----------------------------|--|------------------------|---------|
| 10 | Traffic Management Plan | <ul style="list-style-type: none"> Follow Road Safety Policy and Plan Use signboards and other public information mechanisms to inform the public in advance of construction work, scheduled closure or diversion. | FMEnv SMEnv SPMU | |
| 11 | Public safety and health | <ul style="list-style-type: none"> As necessary, construction barriers will be erected for safety and to direct pedestrian traffic safely around the construction site. All open ditches, barricade, barriers and other potential hazards at the worksite will be marked with bold and visible tapes to ensure avoidance of accidents. Where a contractor is negligent in the provision of safety instructions and warnings, the contractor will be held accountable for accidents that occur on such project site and areas of influence. | FMEnv SMEnv SPMU | |
| 12 | Emergency/Contingency Plan | <ul style="list-style-type: none"> Demonstrate that all actual or potentially significant hazards and potential impacts of the project activities have been identified, the associated risks evaluated and understood, and that controls and recovery measures to effectively manage these risks and impacts are in place on site. | FMEnv SMEnv SPMU | |
| 13 | Waste Management Plan | <p>Overall Waste Management</p> <ul style="list-style-type: none"> Avoidance and reuse of materials described as waste “Cradle to grave” approach shall be employed for the management of all wastes and hazardous materials that may be generated during project activities. The standard to guide this approach shall be based on Federal Ministry of Environment Guidelines, and other National and International Standards with respect to; Emissions, Discharge of effluents into the environment, and discharge of solid wastes into water or land. Ensure continuity and clarity in management practices, with clear plans and policies for the proper management and disposal of wastes. <p>Worksite/Camp Site Waste Management</p> <ul style="list-style-type: none"> All vessels (drums, containers, bags, etc.) containing oil/fuel/surfacing materials and other hazardous chemicals shall be banded in order to contain spillage. Used oil and hydraulic fluid generated on the construction sites must be collected in a closed container and stored temporarily in a safe place and sent to an authorized recycling depot. All drainage and effluent from storage areas, workshops and camp sites shall be captured and treated before being discharged into the drainage system in line with applicable government water pollution control regulations. The contractor shall take all possible steps to prevent pollution of the environment of the vicinity of the site and shall comply with applicable laws, orders and regulations in force in Ebonyi State Construction waste shall not be left in stockpiles along the road, but removed and reused or disposed of on a daily basis. If disposal sites for clean spoil are necessary, they shall be located in areas approved for landfill and where they will not result in material being easily washed into drainage channels. Whenever possible, spoil materials should be placed in low lying areas and should be compacted and dressed with top soil and then planted with species indigenous to the locality. The contractor shall provide all sanitary facilities (e.g. garbage collection and disposal, drinking water facilities, etc.) in construction workers' camps. <p>Disposal of Unusable Elements</p> | FMEnv SMEnv SPMU | |

| S/No | Activity/Issue | Objective of Management plan for compliance | Action Party | Remarks |
|------|--------------------------------------|--|------------------------|---------|
| | | <ul style="list-style-type: none"> Unusable materials and construction elements such as electro-mechanical equipment, pipes, accessories and demolished structures will be disposed of in a manner legally approved manner. Unsuitable and demolished elements shall be dismantled to a size fitting on ordinary trucks for transport. | | |
| 14 | Training Plan | <ul style="list-style-type: none"> Site workers trained in the various HSE management programmes, plans and procedures to empower all employees on the need to take personal responsibility of HSE issues. Enlighten visitors and members of the public using the corridor/to the site | FMEnv SMEnv SPMU | |
| 15 | Security Plan | <ul style="list-style-type: none"> Handle security related incidents effectively to identify, evaluate and manage the risks to personnel and property due to malicious practices, crime, etc. Ensure security arrangements in conjunction with the members of the public and law enforcement agents | FMEnv SMEnv SPMU | |
| 16 | Corporate Social Responsibility Plan | <ul style="list-style-type: none"> Public enlightenment on various aspects of health issues that contribute to the well-being of the members of the public, on preventive measures such as immunizing the vulnerable population, and educating people about diseases, how they are contacted, and how to avoid them by using treated water, practicing “safe sex”, and keeping living areas cleaner. | FMEnv SMEnv SPMU | |
| 17 | Communication Plan | <ul style="list-style-type: none"> An effective two-way communication of HSE issues shall be maintained to include awareness programme to motivate staff and contractors. Appropriate communication methods shall be employed to effectively promote HSE and create awareness e.g. minutes of meetings, openly displayed plans and performance targets, HSE performance board. | FMEnv SMEnv SPMU | |
| 18 | Decommissioning Plan | <ul style="list-style-type: none"> Recognition of the need to decommission the project at the end of its operational life. HSE Guidelines and Standards for Abandonment shall be adhered to strictly at the decommissioning/abandonment stage of this project. This, amongst other issues shall take into cognizance the need to be safety conscious and environment friendly especially with equipment removal and movement. | FMEnv SMEnv SPMU | |
| 19 | Auditing and Review Plan | <ul style="list-style-type: none"> Carry out actions directed at evaluating status of activities and correcting any non-conformity with delay. Procedure or guidelines for audits/reviews shall be prepared in accordance with regulatory requirements. | FMEnv SMEnv SPMU | |

11.0 INSTITUTIONAL CAPACITY AND STRENGTHENING PLAN

11.1 Institutional Roles and Responsibilities

To achieve the success of this ESMP and indeed the overall project outcome, the SPMU (PMU) is the implementing body, supervised by the **Ministry of Works and Transportation, with the** mandate to :co-ordinate the project programmes and actions; plan, coordinate, manage and develop the various project activities; prepare plans for project management and development. Nevertheless, to achieve this made, the PMU shall liaise with the various levels of government and other identified stakeholders. These stakeholders and their institutional roles and responsibilities regarding the implementation of the ESMP are presented below.

Table 12: Institutional Responsibilities

| Institutional Responsibilities | | |
|--------------------------------|--|--|
| S/No | Category | Roles & Responsibilities |
| 1. | SPMU | <ul style="list-style-type: none"> Implementing authority Ensure all environmental and social commitments are implemented during the life cycle of the project Ensure adequate implementation and compliance of this ESMP by all parties Ensure the smooth and efficient implementation of the project's various technical programmes Cooperate through a Steering Committee that provides guidance to the technical aspects of all project activities; Maintain and manage all funds effectively and efficiently for the projects Appoint Environmental and Social Safeguard officer who have the responsibility to ensure compliance with this ESMP and other safeguard documents training schedule on environmental matters. Issues on the environment shall be a line responsibility |
| 2. | Ministry of Works and Transportation | <ul style="list-style-type: none"> Co-ordinate all policies, programmes and actions of all road construction across the States Ensure that the project is carried out in a sustainable manner. Ensure adherence to in all undertakings |
| 3. | Federal and State Ministries of Environment, | <ul style="list-style-type: none"> Fundamental as the lead environmental regulator and oversees compliance with requirements in the Country and State. Play lead role in the implementation of the ESMP in granting consent. Provides monitoring or supervisory oversight during construction and operation Ensure adherence to this ESMP and applicable standards, environmental and social liability investigations, Monitoring and evaluation process and criteria |
| 4. | Ministry of Lands, Survey and Urban | <ul style="list-style-type: none"> Compliance overseer at State Level, on matters of Land Acquisition and compensation and other resettlement issues, |
| | Other MDAs | <ul style="list-style-type: none"> Come in as and when relevant areas or resources under their jurisdiction or management are likely to be affected by or implicated projects such as utility. Participate in the processes and in project decision-making that helps prevent or minimize impacts and to mitigate them. Provide consent or approval for an aspect of the project that requires such; Allow impact to a certain extent or impose restrictions or conditions. Monitor or supervise during construction and operation in an area of concern or interest to them. |
| 5. | AfDB and IsDb | <ul style="list-style-type: none"> Ensure Compliance with National and International Requirement Standards Monitor Implementation of the ESMP and RAP during project Implementation Cycle Review Quarterly Monitoring Reports and Recommend additional or corrective measures for ensuring compliance and E & S performance. Undertake project supervision missions to ensure compliance |
| 6. | Contractor | <ul style="list-style-type: none"> Compliance to BOQ specification in procurement of material and construction and adherence to the ESMP and good practice Entrusted with the task of construction and main player responsible for implementing the ESMP during the construction phase especially. Develop specific work instructions in tune with the S and take ownership Enforce and carry relevant section of the ESMP integrated into the tender documents as a set of environmental specifications. Adopt practices which are more suitable or specific to the nature and type of actual works to be undertaken considering the possible/potential risks/hazards involved with regard to proposed mitigation measures. Appoint HSE Officer primarily responsible for daily inspection and monitoring of this ESMP implementation. Submit report on the monitoring to SPMU and Ministry of Works and Transportation weekly Provide adequate onsite waste collection bins, ensure proper disposal, not to litter and not to create environmental nuisance; Instruct employees in the purpose of the ESMP and need to ensure conformance <p>Develop a Construction Environmental Management Plan with sub management plans before construction works starts e.g. Oil spill and control management plan, health and safety management plan, risk management and emergency response plan, waste management plan, erosion control management plan</p> |

| | | |
|------|-------------------------------------|--|
| 7. | Site Engineers/Supervisors | <ul style="list-style-type: none"> Provide oversight function during construction to ensure adherence to good practice and the ESMP |
| 8. | Trade Association/CDAs/CSOs | <ul style="list-style-type: none"> Assisting in their respective ways to ensure effective response actions, Provide support with scientific researches to proponent, contractors and other stakeholders that ensure sustainable environmental and social strategies and rehabilitation techniques are adopted Providing wide support assistance helpful in management planning, institutional/governance issues and other livelihood related matter, Project impacts and mitigation measure Ensure Community participation by mobilizing, sensitizing community members; |
| 9. i | Direct and Other Stakeholder/Groups | <ul style="list-style-type: none"> Ensure social values are not interfered with. Identify issues that could derail the project Could complain about project project execution manner . Support project impacts and mitigation measures, Awareness campaigns |
| 10. | Local Community | <ul style="list-style-type: none"> Assist and Liaise with other stakeholders to ensure proper siting and provision of approval for such sites Support with provision of necessary infrastructures and engage/ encourage carrying out comprehensive and practical awareness campaign for the proposed projects, amongst the various relevant grass roots interest groups. |
| 11. | Local government | <ul style="list-style-type: none"> Support in monitoring project execution within their domains to ensure compliance with this ESMP and other relevant requirements Engaged and encouraged to carry out a comprehensive and practical awareness campaign for the project, amongst the various relevant grass roots interest groups. |

1.2 Capacity Building and Institutional Strengthening

Table 13: Proposed Capacity Building and Institutional Strengthening Activities

| Training Modules on Environment and Social Management | | | | | | |
|---|--|--|-------------------------|-------------------|---|----------|
| Programme | Description | Participants | Form Of Training | Duration/Location | Training Conducting Agency | Cost (#) |
| Sensitization Workshop | Introduction to Environmental and Social Management | Engineers and Environmental/Safeguard Unit, Procurements & other relevant groups | Workshop | ½ Working Day | Environmental & Social Specialists of Design Consultant/External Agency engaged for capacity building | 250,000 |
| Module I | Introduction to Environment: Basic Concept of Environment, Environmental Regulations and Statutory requirements as per Government | Engineer/MoW | Lecture | ¼ Working Day | Environmental & Social Specialists of Design Consultant/External Agency engaged for capacity building | 150,000 |
| -Module II | Environmental Considerations in projects Management: Environmental components affected by project, Environmental Management Good Practices, Stakeholder and Community project Participation | Engineers/ MoW (Technical unit), Community leaders/NGOs | Workshop | 1 Working Day | Environmental & Social Specialists of Design Consultant/External Agency engaged for capacity building | 300,000 |
| Module III | ESMP and its integration into Designs: Methodology of Assessment of Pollution Monitoring, Methodology for site selection of waste disposal areas, e.t.c. | PMU Engineer, Contractors/MoW, | Lecture and Field Visit | ½ Working Day | Environmental & Social Specialists of Design Consultant/External Agency engaged for capacity building | 200,000 |
| Module IV | Improved Coordination with other MDAs: Overview of PMU Projects, Environmental & Social Impacts, Statutory Permissions – Procedural Requirements, Co-operation & Coordination with other Departments | Officials of MoE and other line MDAs | Workshop | 1day | Environmental & Social Specialists of Design Consultant/External Agency engaged for capacity building | 300,000 |
| Module VI | Civil works for Road Construction in environmental management practices: | Officials of MoW, and other line MDAs | Workshop | ½ day | Environmental & Social Specialists of Design | 200,000 |

| Training Modules on Environment and Social Management | | | | | | |
|---|---|---|------------------|-------------------|---|---|
| Programme | Description | Participants | Form Of Training | Duration/Location | Training Conducting Agency | Cost (#) |
| | Roles and Responsibilities of officials/contractors/consultants towards protection of environment and Implementation Arrangements Monitoring mechanisms | | | | Consultant/External Agency engaged for capacity building | |
| Module VII | Monitoring and reporting system Community Participatory Monitoring and Evaluation | Engineers, MoW, & relevant MDAs, Community leaders | Workshop | ½ day | Environmental & Social /External Agency engaged for capacity building | 100,000.00 |
| Module VIII | Alternative income generation program -income generating activities with [adequate] commercial potential in the agricultural and non-farm sectors. | Community liaison and support professional, site committee members, local government staff, etc | hands-on | To be determined | Environmental & Social /External Agency engaged for capacity building | Seen as part of the normal operation cost |
| Total | | | | | | 1,600,000.00 |

12.0 CONCLUSIONS AND RECOMMENDATIONS

12.1 Conclusion

The findings of the environmental and social impact assessment (ESIA) concludes there is an overall positive socio-economic and environmental impact of rehabilitation of the ring road. The ESIA has also developed an Environmental and Social Management Plan (ESMP), which incorporates various mitigation measures that will eliminate or reduce the potential impacts of the proposed project implementation on the environment. The CESMP that will be developed and implemented by the Contractor will ensure that appropriate mitigation and support measures are implemented both during construction and operation phases of the project. Mitigation measures were subsequently developed for adverse impacts based on industry best practice, available technology and HSE considerations. The social impacts of land take and resettlement will be mitigated by the RAP that has been developed and will be implemented before construction works start. The Environmental Impact Assessment of the road project showed that the project will have significant economic benefits in the local, state and national economy. The project also indicated positive impact on the socio-economic life of the people by way of skilled and unskilled employment and provision of social amenities. Increase evacuation of food from rich rural agricultural areas of Ebonyi State will impact positively on the national, State and local economy as well as on the internal revenue base of the State. The economic gains of the proposed project to the economy of Nigeria cannot be overemphasized. However, there will be some temporary (short-term) negative impacts particularly on the soil and air quality and occurring mostly during the construction activities.

Therefore the following conclusions can be made:

- The proposed project is quite desirable because of its obvious economics, health and social benefits, which are considered to out-weigh the negative environmental and social impacts.
- Impacts on other environmental resource and the social environment are considered minimal and localized in nature.
- Appropriate institutional framework, working with relevant regulatory authorities shall be set up to implement the mitigation measures recommended while the proposed monitoring programmes shall be set in motion as soon as possible.
- The ESMP shall be implemented and maintained throughout the duration of the project with the adverse impacts mitigated to as low as reasonably practicable levels. Impact mitigation monitoring shall also be carried out with the involvement of regulators to check compliance with the ESMP.
- The proposed project can be executed within the ambit of sustainable development and this indeed forms the basis for the actual project implementation

There is need to ensure that there is adequate and effective ESMP implementation and monitoring during project implementation ensuring compliance to the mitigation and management measures outlined, so that the project will have a positive impact on both the bio-physical and socio-economic environment of the project area. It is recommended that based on lessons learnt from the previous phases; monitoring results should inform corrective and remedial actions for any identified non-compliance with the applicable national and AfDB requirement standards and that these measures are enforced.

12.2 Recommendations

The following recommendations are made:

- The road project should ensure that they comply with the applicable requirement standards, national, AfDB requirements and International Standards.
- The ESMP/CESMP implementation and monitoring program should be adhered to by the Contractors, under the supervision of the Ministry of Works and Transportation the SPMU (PMU); Environmental and Social Expert throughout the Project Cycle.
- Ministry of Works and Transportation and SPMU (PMU) should ensure collaboration and liaise with the other institutions/ enforcement agencies and all relevant stakeholders to ensure effective implementation of the ESMP and RAP both at national and local levels

13.0 REFERENCE AND CONTACTS

References

African Development Bank's *Integrated Safeguards System 2013 adopted in 2014*

African Development Bank's *Environmental and Social Procedures (ESAP)*

Environmental and Social Impact Assessment (ESIA) for Ebonyi State Abakariki Ring Road Rehabilitation Project, July 2018. Prepared by Natural Eco Capital Limited for Ebonyi State Government under Ministry of Works and Transport and State Project Management Unit

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