COUNTRY

FEDERAL REPUBLIC OF NIGERIA

FEDERAL MINISTRY OF FINANCE

PROJECT

ABIA STATE INTEGRATED INFRASTRUCTURE DEVELOPMENT PROJECT (ABSIIDP)

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT FOR THE ROAD REHABILITATION SUBPROJECT IN UMUAHIA, ABIA STATE

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ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT REPORT

FOR THE

ROAD REHABILITATION SUBPROJECT IN UMUAHIA,

ABIA STATE, NIGERIA

SUBMITTED TO THE
FEDERAL MINISTRY OF ENVIRONMENT, ABUJA

BY
THE ABIA STATE INTEGRATED INFRASTRUCTURE DEVELOPMENT PROJECT (ABSIIDP),
ABIA STATE

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LIST OF ACRONYMS

ABSIIDP	Abia State Integrated Infrastructural Development Project
AfDB	African Development Bank
AIDS	Acquired Immune Deficiency Syndrome (AIDS)
ASEPA	Abia State Environmental Protection Agency
CESMP	Construction ESMP
EHS-MP	Environment, Health and Safety Management Plan
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
FMEnv	Federal Ministry of Environment
FRN	Federal Republic of Nigeria
FRSC	Federal Roads Safety Commission
GRM	Grievance Redress Mechanism
ISS	Integrated Safeguards System
LFN	Laws of the Federation of Nigeria
LGA	Local Government Authority
MDA	Ministries, Departments and Agencies
MoW	Ministry of Works
N	Nigerian Naira
NESREA	National Environmental Standards and Regulations Enforcement Agency
NGO	Non-Governmental Organization
OS	Operational Safeguards
PAC	Project Affected Communities
PAPs	Project Affected Persons
PM	Particulate Matter
RAP	Resettlement Action Plan
RoW	Right of Way
SEP	Stakeholder Engagement Plan
SPIU	State Project Implementation Unit
STDs	Sexually Transmitted Diseases
US$	United States Dollars

1.0 Overview of the project

1.1 Background

The Abia State Government through the State Ministry of Works and Abia State Integrated Infrastructure Development Project (ABSIIDP) seeks to invest in the following six infrastructural subprojects in the State, namely:

- **19 priority roads in Umuahia, with a combined distance of 92 km;**
- 31 priority roads in Aba, with a combined distance of 199.69 km;
- One gully erosion control site in Umuahia;
- One erosion control site in Aba;
- One Waste Transfer Station in Umuahia; and
- One Integrated Waste Management facility in Aba.

This Environmental and Social Impact Assessment (ESIA) report covers the **19 priority roads in Umuahia, with a combined distance of 92 km** in length proposed for the rehabilitation, collectively described herein as "Umuahia Roads," in Abia State. Abia State lies between Latitudes 06° 00' and 04° 45' East and Longitudes 07° 00' and 8° 09' North of the Greenwich Meridian (Figure 1). The State which occupies a landmass of 5,833.77 square kilometres, is about 596 kilometres from Lagos and about 498 kilometres from Abuja.

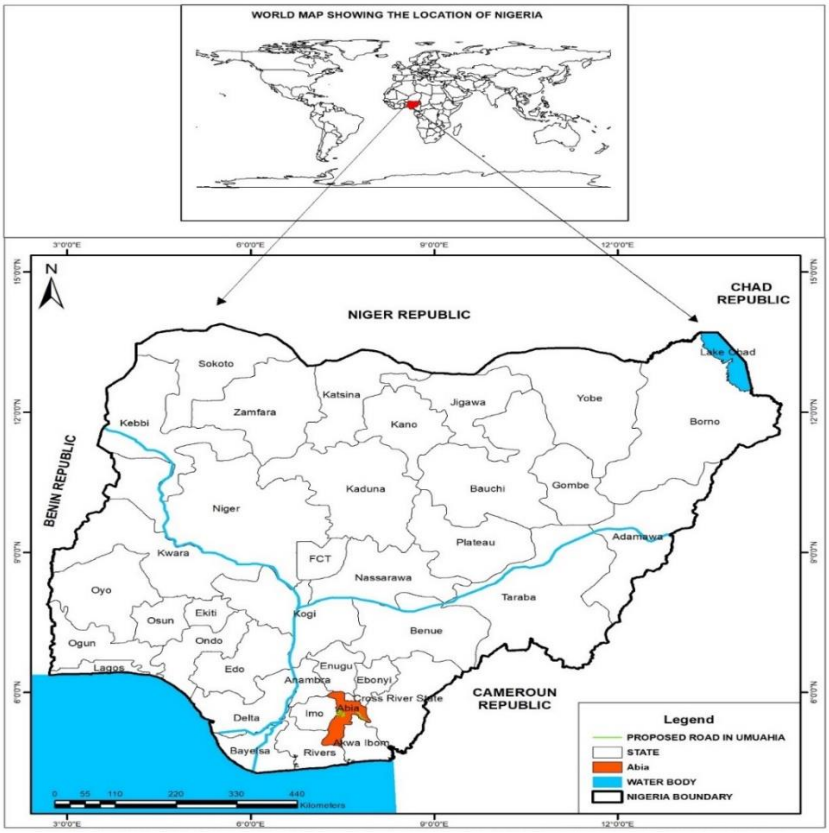


Figure 1: Map of Nigeria with Abia State

1.2 Proposed project activities

The proposed main components for the rehabilitation project will consist of bush clearing, land preparation, road surfacing (paved or graded), road reserve ("hard shoulder"), crossings (bridges, culverts), drainage and erosion control structures and safety and security measures (e.g., barriers and fencing). There shall also be the installation of ancillary facilities that include**:**

lay-bys or service areas, temporary construction facilities (e.g., workshops, laydown areas, working corridors outside the road reserve, workers' accommodation, and borrow pits), security posts and access roads within and between temporary facilities and the road being developed as well as landscaping features with signages and lighting.

1.3 Project alternatives

The project alternatives included the different means of completing the project while still meeting the purpose of the proposed activity. Based on the nature of the proposed project which entails rehabilitation of existing roads and construction of drainage infrastructure the following project alternatives or scenarios were given consideration: scenario 1: no action/do nothing option; scenario 2: delayed project option, scenario 3: construction of new roads, scenario 4: upgrading of the proposed roads and scenario 5: site location option.

These alternative options were comparatively evaluated based on various key aspects that include:

- **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;
- **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;
- **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 roads pass; and
- **Effectiveness in meeting the proposed project objectives** – immediate infrastructure that drives economic growth.

After a thorough analysis of all the Options, Scenario 4 was chosen as it was adjudged the most optimal in the light of the set criteria and will also meet timely implementation, considering the challenges the roads' situation give at present to the communities. The chosen locations are more economically, socially and technically viable and will provide adequate space for proposed project realignment, ease of land

acquisition, ensure minimum possible infringement and ease of land acquisition and has the feasibility to cater to the required traffic projection and connectivity

Although there are environmental and social implications associated with the improvement alternative, appropriate mitigation measures are stipulated in the Environmental and Social Management Plan (ESMP) of the ESIA and the Resettlement Action Plan (RAP) which would ensure minimization and compensation for the impacts. The RAP, prepared as a standalone, is complementary to the ESMP and focuses on managing involuntary resettlement or displacement that could result from the implementation of the proposed project. The ESMP consists of mitigation, monitoring, and institutional measures to be undertaken during implementation and maintenance of the project to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels.

1.4 Purpose and objectives of the ESIA

The primary purpose for the ESIA was to assess and predict potential adverse environmental and social impacts of the project and to develop suitable mitigation measures, which have been documented in the Environmental and Social Management Plan (ESMP) and Resettlement Action Plan (RAP).

The specific objectives of the ESIA included the following:

- Establishment of the existing state of the physical and social environment;
- Identification of the project-sensitive components of the existing physical and social environment within the project area and area of influence;
- Appraisal of the project activities during the phases (preparatory, construction, operations, and decommissioning) that may result in significant modification of any human or natural environmental resources;
- Identification of any impacts that cannot be avoided and recommendation of measures to ameliorate or mitigate the identified impacts;
- Establishment of an appropriate Environmental and Social Management Plan (the "ESMP") to verify and improve the accuracy of the ESIA predictions, control levels for the life of the project; and
- Preparation of a detailed ESIA report, presenting clear and concise information on the environmental and social impact of the proposed project activities.

1.5 Scope of the ESIA

The scope of the ESIA encompassed the identification of valued environmental components which describe the elements of the physical, biological, or socio-economic environment, including the air, water, soil, terrain, vegetation, wildlife, fish, birds and land use and persons that may be affected by the proposed project. The assessment was conducted in communities along the 19 roads proposed for construction in Umuahia North, Umuahia South, and Arochukwu LGAs, Abia State. The key stakeholders were made up of the 1655 survey respondents (Project Affected Persons (PAPs)) in the proposed Project Affected Communities (PAC).

1.6 ESIA preparation approaches

The ESIA Report was prepared in a manner consistent with applicable African Development Bank (AfDB) Integrated Safeguards System (ISS) and the Environmental Impact Assessment (EIA) Act No 86 (1992) of Nigeria (Act CAP E12 LFN 2004). The approach followed the path of screening and scoping exercise, literature review, stakeholder consultation and engagement, field visits, identification of potential impacts and mitigation measures and development of environmental and social management plan.

2.0 Description of the project location and main environmental and social challenges

2.1 Project location

The proposed 19 roads for the rehabilitation are located, essentially, within three LGAs (Umuahia North, Umuahia South and Arochukwu), in Abia State, South-East Nigeria (Figure 2). Abia State is in the south-eastern part of Nigeria with Umuahia as the State Capital. The State is known for its commercial activities centered at Aba, which was formerly a British Colonial Government outpost.

Figure 3 depicts the specific roads that will be rehabilitated. These peri-urban and urban roads have been categorised based on their current status (Appendix 1) as follows:

a. Earth roads (never been constructed);
b. Dilapidated roads (drastically damaged and need total overhauling for accessibility);
c. On-going intervention roads (construction started but never completed and are now terribly damaged); and
d. Constructed roads (either partially or fully constructed and need some additional road infrastructure).

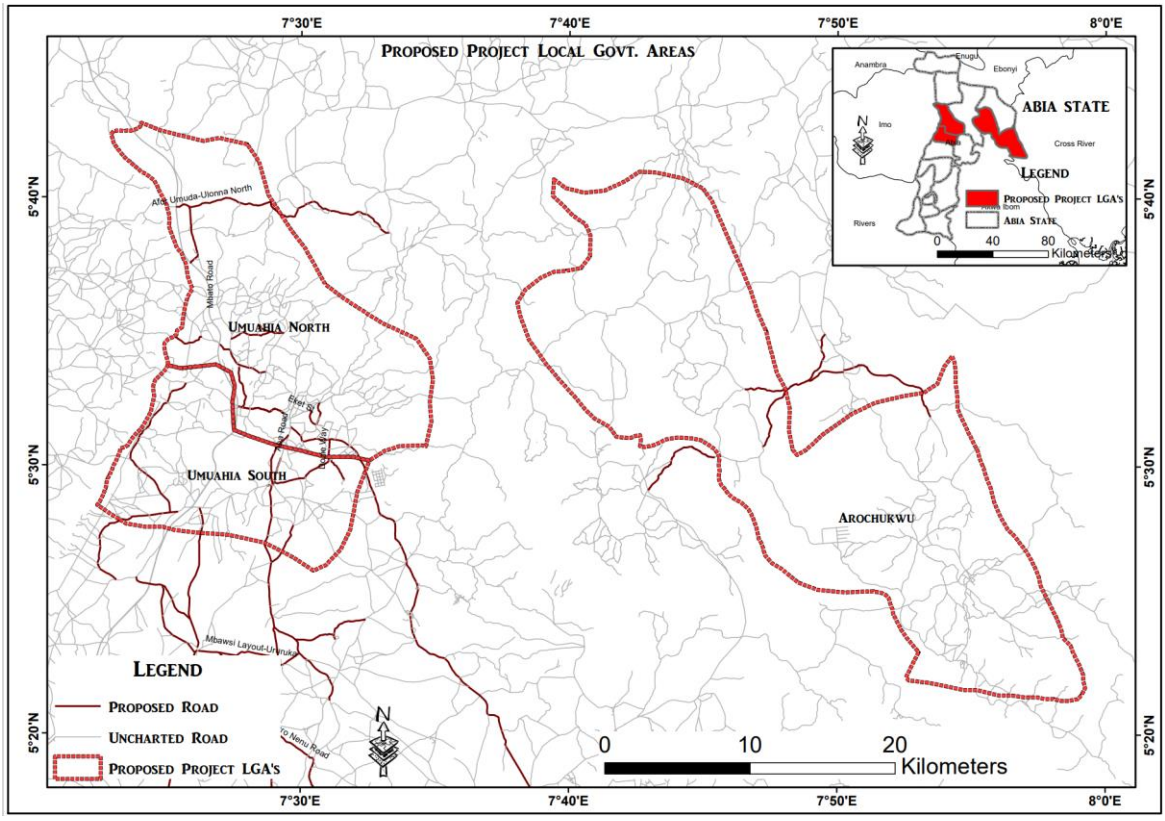
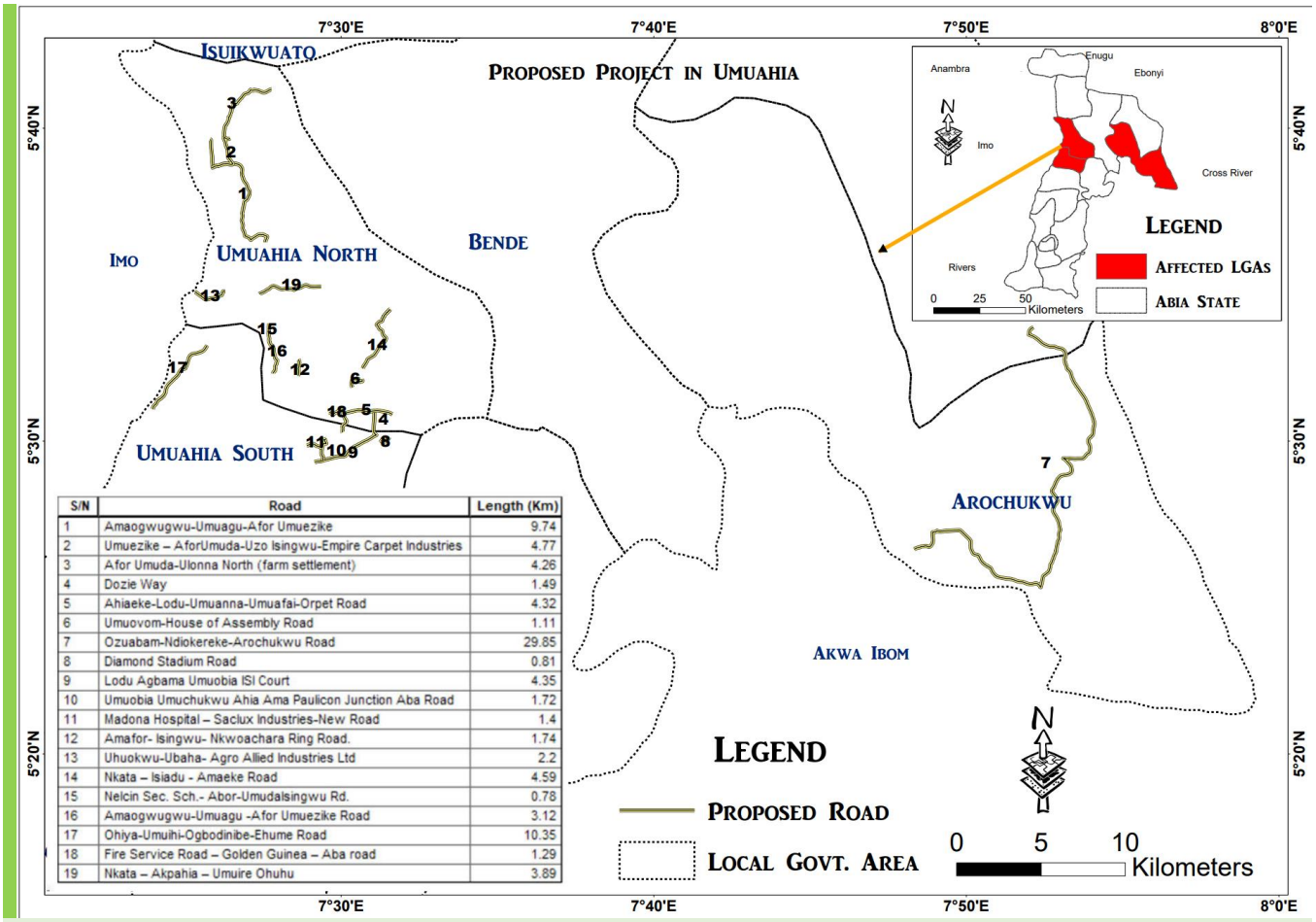


Figure 2: Map of Abia State with the LGAs for the Proposed Project



S/N	Road	Length (Km)
1	Amaogwugwu-Umuagu-Afor Umuezike	9.74
2	Umuezike – AforUmuda-Uzo Isingwu-Empire Carpet Industries	4.77
3	Afor Umuda-Ulonna North (farm settlement)	4.26
4	Dozie Way	1.49
5	Ahiaeke-Lodu-Umuanna-Umuafai-Orpet Road	4.32
6	Umuovom-House of Assembly Road	1.11
7	Ozuabam-Ndiokereke-Arochukwu Road	29.85
8	Diamond Stadium Road	0.81
9	Lodu Agbama Umuobia ISI Court	4.35
10	Umuobia Umuchukwu Ahia Ama Paulicon Junction Aba Road	1.72
11	Madona Hospital – Saclux Industries-New Road	1.4
12	Amafor- Isingwu- Nkwoachara Ring Road.	1.74
13	Uhuokwu-Ubaha- Agro Allied Industries Ltd	2.2
14	Nkata – Isiadu - Amaeke Road	4.59
15	Nelcin Sec. Sch.- Abor-Umudaisingwu Rd.	0.78
16	Amaogwugwu-Umuagu -Afor Umuezike Road	3.12
17	Ohiya-Umuihi-Ogbodinibe-Ehume Road	10.35
18	Fire Service Road – Golden Guinea – Aba road	1.29
19	Nkata – Akpahia – Umuire Ohuhu	3.89

Figure 3: Map of Abia state showing the roads location

As indicated in Figure 4, road transportation is the main transportation mode in the state and Figure 5: shows Umuahia Roads . The towns and communities served are indicated in (Figure 6) across the various LGAs.

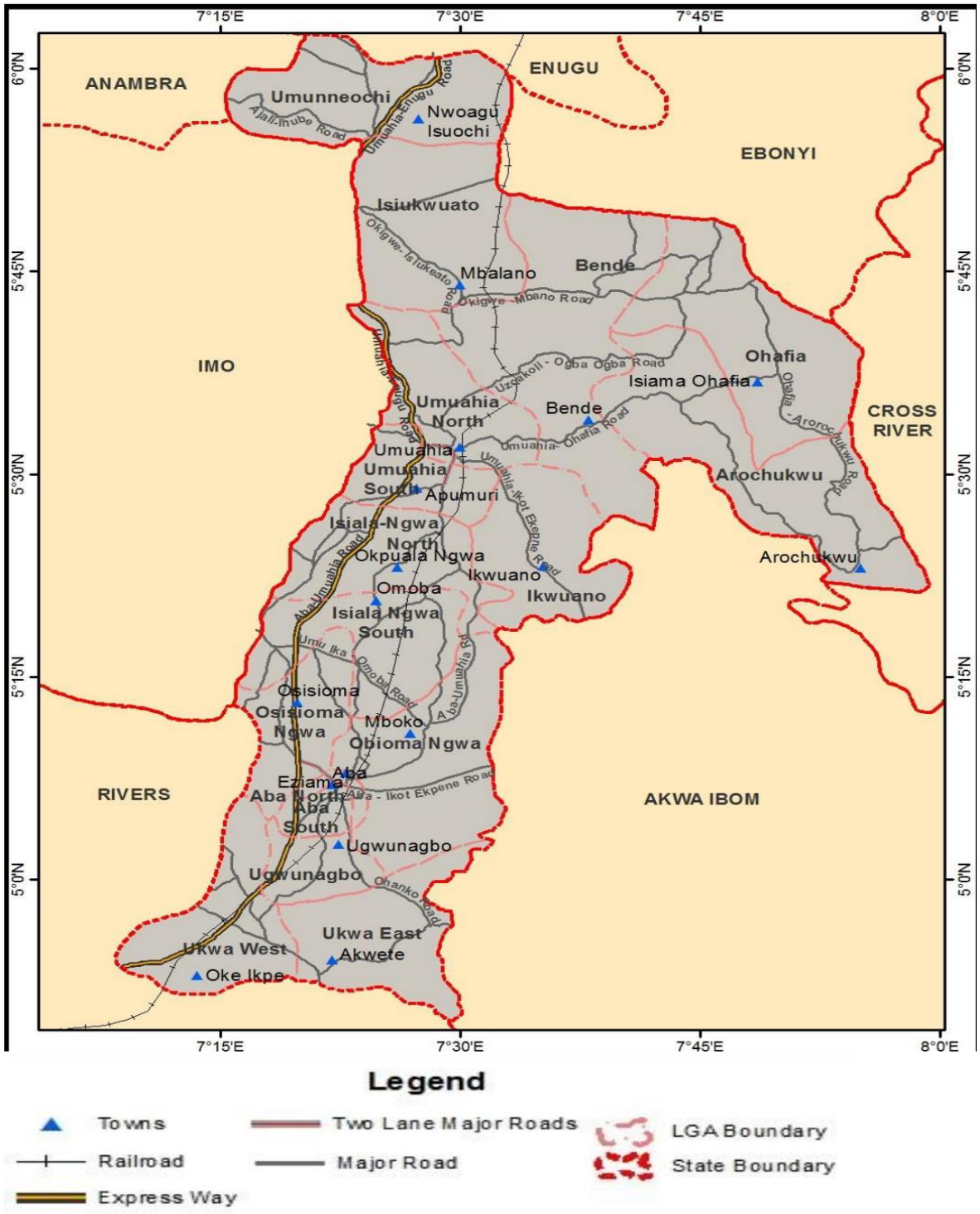


Figure 4: Transport Network of Abia State – *Source: NEWMAP, 2017*

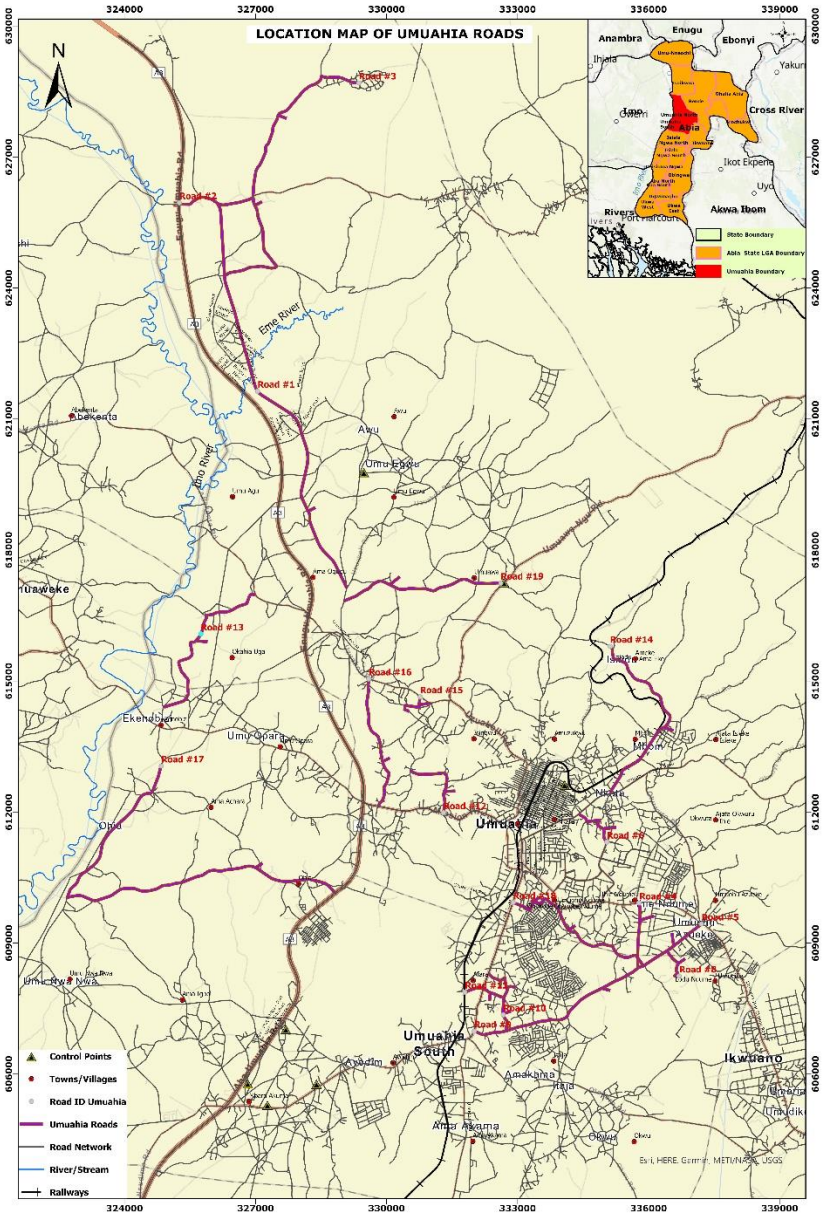


Figure 5: Umuahia Roads Network

Of all the towns and communities served by these roads (Figure 6), Umuahia North has the largest concentration of people in the zone of the proposed project. Umuahia, the state capital, is the administrative, educational and cultural centre of the state. In addition, the city is located at the centre of an extensive agricultural region which covers roost of the central part of Abia State. It is also strategically located along a well-established north-south trading and transportation route.

Umuahia is renowned for being a railway and agricultural market center, which attracts traders and farmers from neighboring towns to sell their produce, such as yams, cassava, corn (maize), taro, citrus fruits, and palm oil and kernels. There are industries that help drive its economy, such as the Golden Guineabrewery and a palm-oil-processing plant. Nigeria's National Root Crops Research Institute and and Michael Okpara

University of Agriculture at Umudike, are adjacent to the town. Umuahia also has several colleges including Trinity College (theological), Government College Umuahia, Holy Rosary Girls Secondary School and hospitals like the Federal Medical Centre, Umuahia (formerly Queen Elizabeth Hospital). Umuahia comprises two local government areas: Umuahia North and Umuahia South.

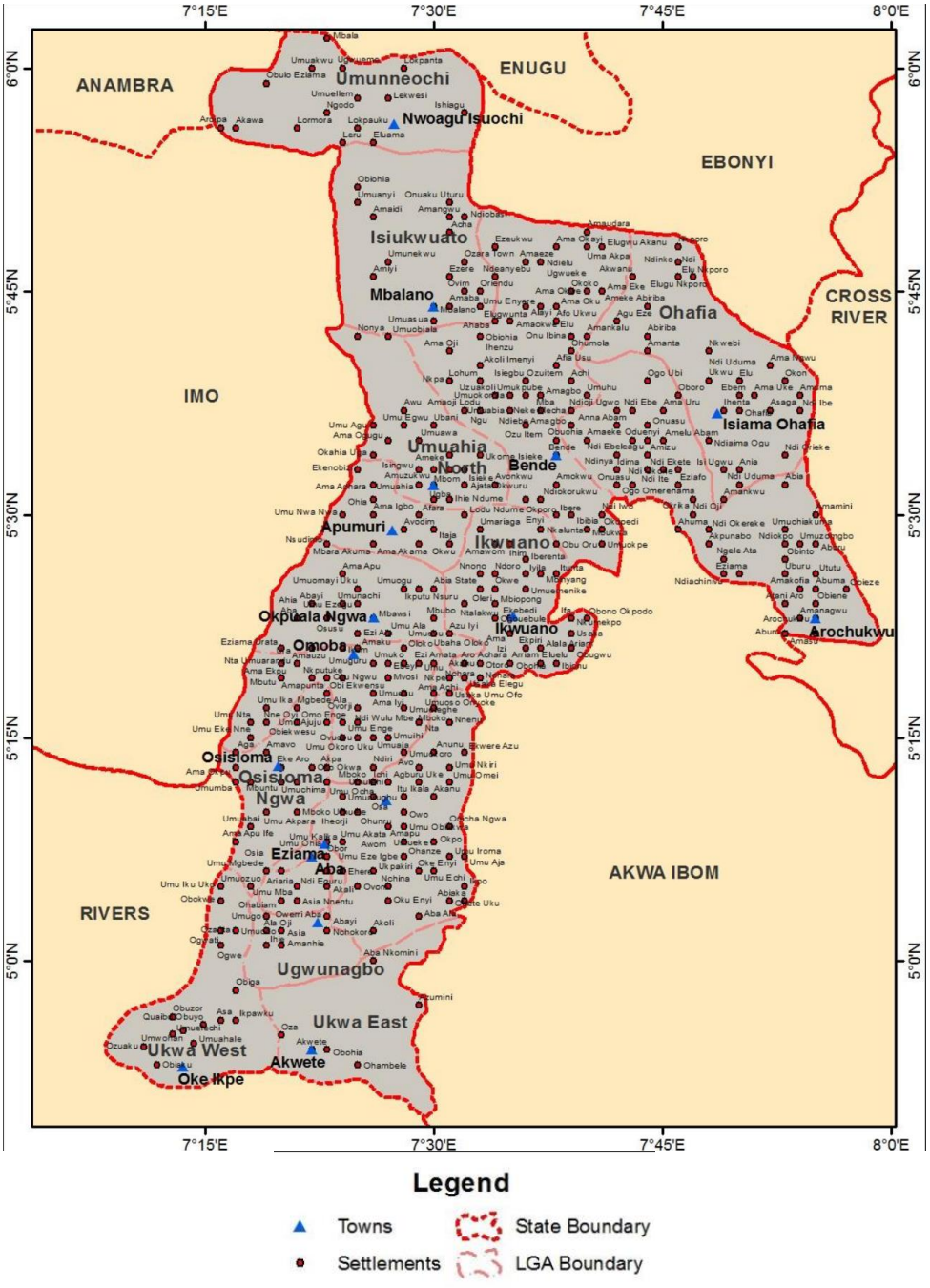


Figure 6: Towns and Communities - *Source: NEWMAP, 2017*

On population, the National Census of Nigeria carried out in 1991 puts the population of Abia State at 1,976,805 consisting of 920,268 males and 956,434 females. In 2006, total population was 2,845,380 consisting of 1,430,298 males and 1,415,082 females. Projected to 2017, the population is estimated at 3,766,150 consisting of 1,875,503 males and 1,890,647 females. In almost all local government areas of Abia State, the population of females is more than that of males except in Aba area (Aba North and Aba South LGAs) where the population of males is more than that of females. The population of Umuahia North LGA was 223,134 for Census 2006 and projected by 2017 to be 295,928, Umuahia South Census of 2006 139,058 and projected by 2017 to be 184,424 and Arochukwu Census of 2006 was 169,339 and projected by 2017 to be 224,584. The population density of the various LGAs is given in Figure 7.

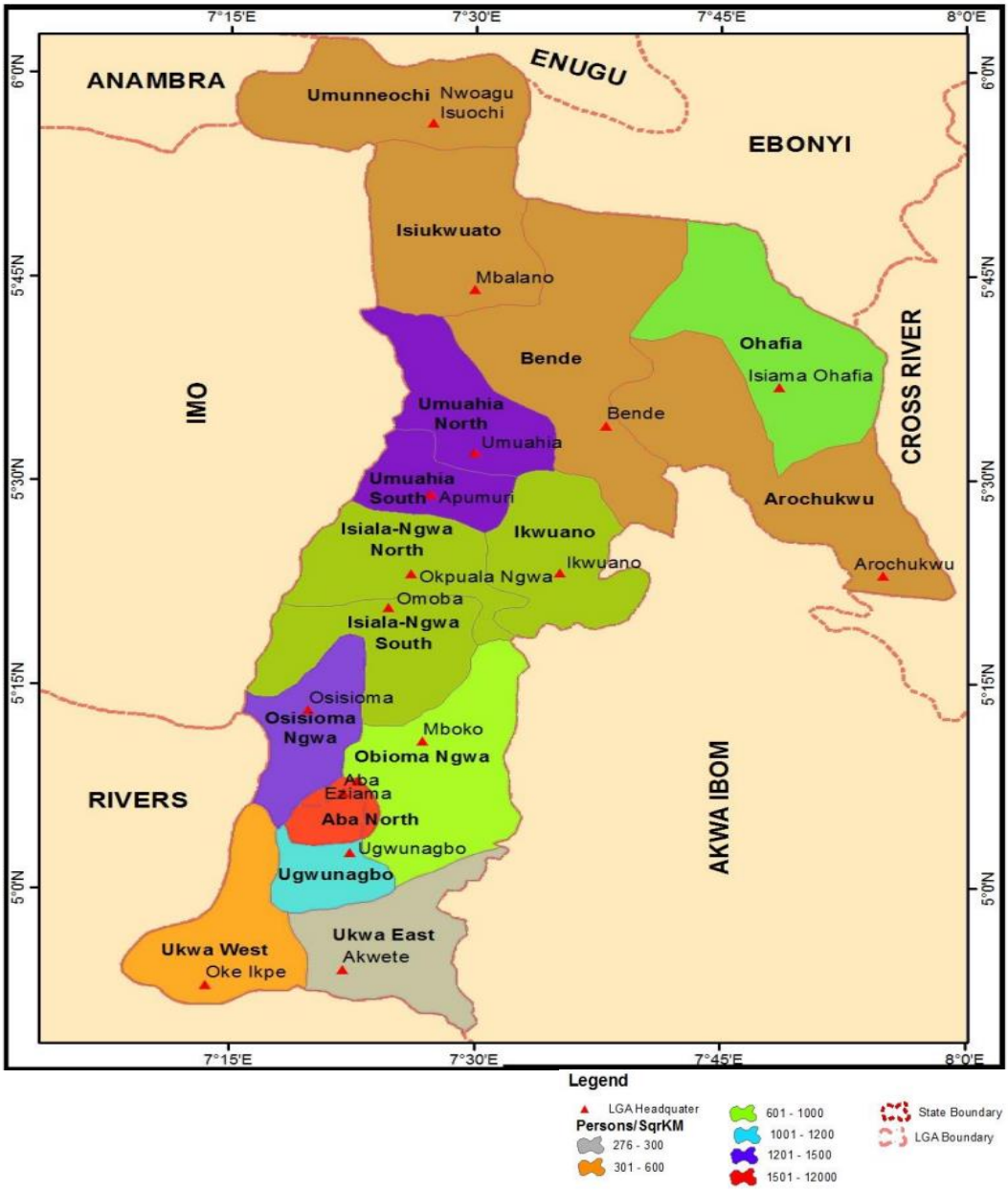


Figure 7: Population Density 2016 - *Source: NEWMAP, 2017*

2.2 Major environmental and social issues and challenges of the project

Several of these Peri urban and Urban roads for the rehabilitation are impassable, especially during rainy season. Abia experiences a high rainfall with corresponding high discharge of water as runoff that encourages gully erosion. It has a peak period between July and September. The two main seasons of the year are the rainy and the dry which affect the farming seasons. Thus, agricultural harvest is determined by these seasons. The harmattan – a dry and dust laden wind from the north of the country sets in between November and December and may in some years extend to January. The southern part of the State lies within the riverine part of Nigeria. It is low-lying with a heavy rainfall of about 2400 mm/year especially intense between the months of April through October. The rest of the State is moderately high plain.

A variety of landforms exist dominated by flat and lowlying land, generally less than 120m above sea-level. The rock system is divided into three namely, Upper Coal Measure, False-Bedded Sand Stones, and Lower Coal Measure. The Upper Coal Measure formation is the largest geological formation in this region and is comprised mainly of coarse grains, alternating sediments of grey sands, dark shale which contains sands of impure coal in place of vertical horizon (Figure 8).

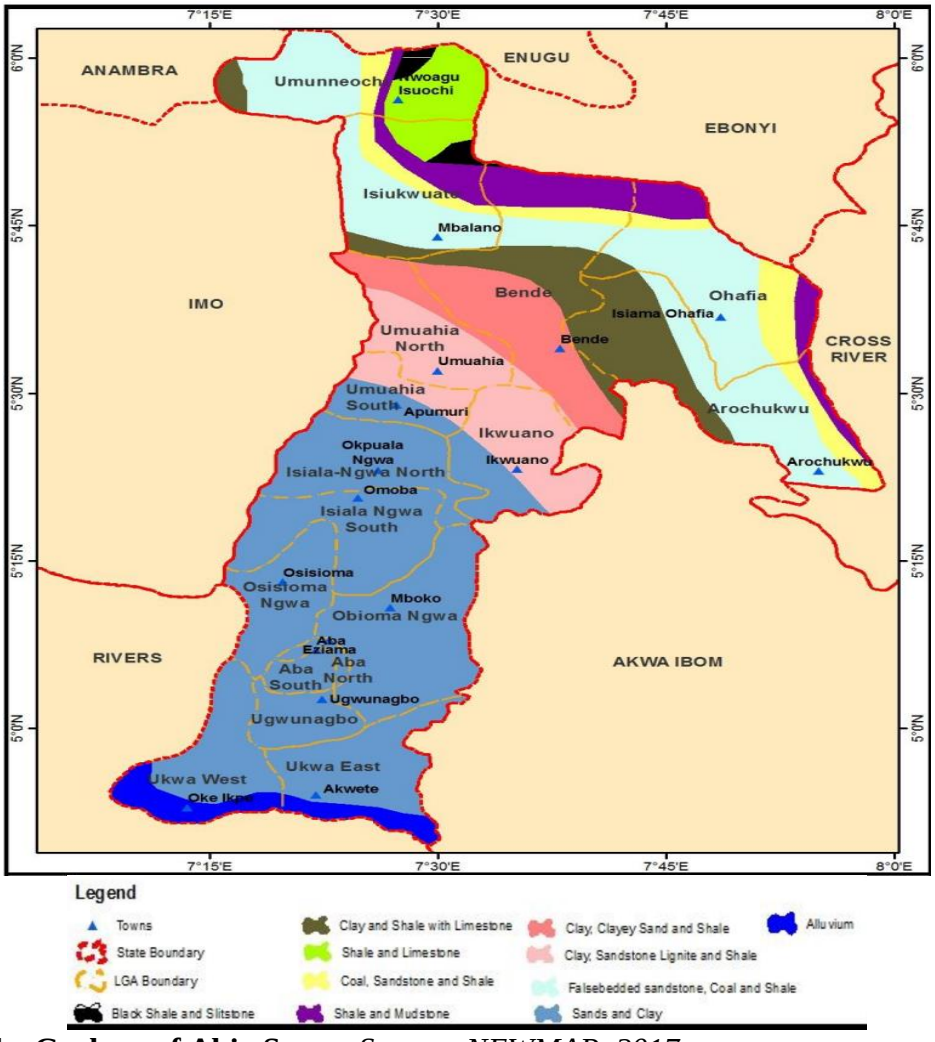


Figure 8. The Geology of Abia State - *Source: NEWMAP, 2017*

Umuahia is the state capital and one of the two largest urban centres in the state. The Other is Aba. As a result of the primate role enjoyed by Umuahia in the hierarchy of settlements in the state, enormous environmental problems have become manifest. These include refuse heaps, traffic congestion, overcrowding of residential areas, dearth of infrastructures and the pollution of water bodies

Appendix 1 contains features along or within the environment of the proposed roads for rehabilitation. The proposed roads are in dilapidation and the predominant issues challenging them include:

- Erosion and pot-hole vulnerability putting the roads in dilapidated conditions;
- Flat topography leading to serious drainage challenges resulting in perennial flooding and erosion;
- Narrow portions of roads; and
- Poor management of watershed and waste which has negatively affected the urban road infrastructure limitation in the effective and efficient transportation of agricultural produce, and access to markets.

This impacts economic growth of the populace, as it inhibits communities from accessing essential products and public services, such as education, healthcare, water, and markets to sell crops and goods.

Since road transportation is the main transportation mode in the state, once rehabilitated, the roads will help facilitate economic growth while improving local capacity, work and business opportunities, and livelihoods. This is also anticipated to reduce poor safety and security records on the roads, remove undue stress for travelers and afford them more comfortable ride.

Furthermore, the proposed roads appear vulnerable to climate stressors such as increased precipitation, runoff or flooding. The contextual site physical factors of the geographical location shows that hydrology, soil, slopes, etc. and artificial factors such as land use, urban development, etc. are of relevance. The climate factors likely to affect the road infrastructure is extreme weather event relating to rain, majorly. This is an intrinsic risk source for soil erosion. This could also be enhanced through artificial changes (e.g., soil waterproofing due to urban development or deforestation).

Quantifying the broader impact of climate-related traffic disruptions shows that when climate events shut down or reduce the capacity of the roads further, the consequences on supply chains, economic output, and access to services will be further compounded. On high-traffic roads, even relatively mild changes in climate could severely affect people and the economy—making the case for adaptation particularly strong for the proposed project.

Thus, when rehabilitated well with quality materials, good and proper drains, well greened and increased maintenance, and more frequent rehabilitation they are likely to be less impacted by the vagaries of climate change. The project is also justified as it would help 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.

2.3. Proposed project components and activities

The project concept and activities are to rehabilitate and upgrade these roads to high class engineered bitumen standard with a surface finishing, having a carriageway width of 7.3 meters (for single lanes) and 1.5 meters wide concrete along with the drainage lines with slab covers to serve as walkway. Drainages will be rehabilitated where they already exist, and new ones created where they do not exist.

The boxes/culverts have been proposed to be constructed at various locations along the proposed roads based on the designed engineers' hydrological and hydraulic analysis which determine storm water flows, velocities and depths which has been used to select the structures for the designs. Where need be bridges would be constructed.

Specifically, the proposed works generally include site clearance; earthworks; provision of lateritic sub-base and crushed stone base course; densely bituminous macadam, bituminous binder course, bituminous wearing course; side earth drains; reinforced concrete lined drains; concrete pipe and culverts of various sizes; reinforced concrete river bridges, provisions of apron and wing walls to culverts; provision of road signs and other road furniture. Thus, the rehabilitation of the roads will involve a lot of civil works including clearing, excavation and levelling of land, mining of gravel and quarry, transportation of materials, water abstraction, compaction of sub-base material, road sealing, construction of road related infrastructure such as bridges and drainage systems, shouldering, road signage and others. The roads rehabilitation will require the contractor (s) to build several campsite (s) to accommodate staff and facilitate the storage of materials and equipment.

These activities are envisaged to cause significant environmental and social impacts that may be reversible depending on their magnitude and mitigation measures to be put in place. Prevention of such impacts is a priority but where it cannot be achieved appropriate mitigation and pollution abatement measures have been designed in the ESMP and RAP which will help to minimise environmental and social damage and compensate for any loses.

2.4 Project area of influence

The project area of influence includes Right of Ways (RoWs) of the road corridors to be rehabilitated, infrastructure and surrounding areas. The project area of influence also includes nearby communities, businesses, and other legal and/or natural persons directly and/or indirectly depending on project implementation.

3.0 Institutional and legal framework governing ESIA implementation in Nigeria

The institutional and regulatory framework was comprehensively analyzed to take into consideration environmental and social protection policies/strategies with the project's sector (road construction) relevant standards/norms and E&S health and safety,

3.1 Administrative frameworks

In Nigeria, the power of regulation of all environmental matters is vested in the Federal Ministry of Environment (FMEnv).

The State Governments are also encouraged to set up their own Ministries of Environment and/or Environmental Protection Agencies for the purpose of maintaining good environmental quality around related pollutants under their control and thus there is State Ministry of Environment with an agency named the Abia State Environmental Protection Agency (ASEPA).

The Local Governments liaise and cooperate with the Federal and State Ministries of Environment to achieve a healthy or better management of the environment within their domains with the relevant byelaws.

3.2 Legal instruments

Nigeria subscribes to several International Regulations and Conventions relating to Environmental and Social Protection. Also, International Development Partners/Agencies such as the AfDB and other financial organizations interested in development projects have sets of environmental and social Safeguards instruments and policies which must be complied with by State Project Implementation Units (SPIUs) before these institutions invest in or fund them.

To this end, the duty and responsibility for environmental and social protection and management related to project execution in various sectors of the Nigerian economy comes under the following mandate:

- Current Federal, State and Local and relevant acts, rules, regulations and standards, and the common law of the Federal Republic of Nigeria (FRN);
- International environmental agreements and treaties ratified by the Federal Republic of Nigeria; and
- Safeguard Policies of supporting/development partners like AfDB's ISS

Below, an outline of some of the relevant regulatory instruments to this ESIA is given as they relate to the Federal, State and International arenas.

3.2.1 Environment-related regulatory instruments

At the National level, some of the Environment-related regulatory instruments include: National Policy on Environment, 1989 (revised 1999), Environmental Impact Assessment (EIA) ACT 86, CAP E12, LFN 2004, National Guidelines for Environmental Audit in Nigeria, Guidelines and Standards for Environmental Pollution Control 1991, National Guidelines on Environmental Management Systems, The National Environmental Standards and Regulations Enforcement Agency (NESREA) and Regulations Gazetted as supplementary to NESREA Act, Nigeria Climate Act, 2021, etc.

At State level, the relevant instruments include: Abia State Basic Environmental Law No. 1, Abia State Policy on Environment, Abia State Flood and Erosion Control and Soil Conservation, Abia Riverine Area Management Policy, Abia State Watershed Management Policy, Abia State Flood and Erosion Control Management Support System, Abia State Flood Control and Water Conservation, Abia State Waste Management Law and Waste Management (Enforcement and Offences) Provisions Regulations, Abia State Environmental Protection Agency Law, Cap50, Vol. 2, Laws of Abia State, Abia state Ministry of

Physical Planning and Urban Development law and Abia State Environmental Protection Agency Law Cap 14 of July, 1994.

3.2.2 Social protection -related regulatory instruments

In the consideration of social legislation, the acts and/or policies relevant to the proposed Project include Labour Act Cap L1, LFN 2004, Violence Against Persons (Prohibition) Act, 2005, National Gender Policy, 2006, Land Use Act of 1978, CAP 202, LFN 2004, Nigerian Urban and Regional Planning Act, CAP N138, LFN 2004 and National Policy on Child Labour (2013).

3.2.3 Sector -related regulatory instruments

Oversight of all transport related policy and development falls under the Federal Ministry of Transport with the equivalent at the State level. Some of the relevant instruments for roads development in Nigeria include, Nigeria Integrated Infrastructure Master Plan (2014-2043), 2021 updated Nigeria Nationally Determined Contributions, Federal Roads Safety Commission (FRSC) Act CAP 141 Laws of the Federation of Nigeria (LFN) 2004 and Federal Highways Act, CAP 135.

3.2.4Health and safety

The relevant instruments include National Policy on Occupational Safety and Health, revised 2020, which has the chief goal to facilitate improvement of occupational health and safety performance of all workers in all sectors of economic activity, the National Health Policy 2016 which, *inter alia*, has the goal to significantly reduce the burden of non-communicable diseases in Nigeria in line with the targets of the 3rd Sustainable Development Goal.

Some of the relevant international instruments on good international industry practice in health, and safety which will be of benefit to the proposed project include the International Labour Standards on Occupational Safety and Health such as Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187), Occupational Safety and Health Convention, 1981 (No. 155) and its Protocol of 2002 , Occupational Health Services Convention, 1985 (No. 161), and Working Environment (Air Pollution, Noise and Vibration) Convention, 1977 (No. 148).

3.2.5International policies and standards- protocols signed by Nigeria

A number of the Conventions, Protocols and Treaties that promote the maintenance of a viable environment and achieving sustainable development have been endorsed by Nigeria and are applicable to the proposed project based on the environmental and social dimensions alongside the inherent health and safety implications such as Paris Accord, Aarhus, 1998, United Nations Guiding Principles on the Human Environment, and Agenda 21 – United Nations Conference on Environment and Development. Alongside, are Voluntary International Standards such as Equator Principles and ISO26000, Guidance on Social Responsibility are Applicable.

3.2.6 African Development Bank (AfDB) policies

As part of the international environmental and social requirements of project financing institutions, AfDB policies are usually considered. For the AfDB, borrowers/ clients, such as in the case of the proposed project, are required to comply with her safeguards requirements during project preparation and implementation as enshrined in her Integrated Safeguards Systems (ISS) which sets out the basic tenets that guide and underpin the Bank's approach to environmental and social safeguards. The environmental and social safeguards of the Bank form the cornerstone of the Bank's support for inclusive economic growth and environmental sustainability in Africa.

To achieve the goals and optimal functioning of the ISS, the Bank adopted five OSs, namely: Environmental and Social Impact Assessment (OS1), Involuntary resettlement, land acquisition, population displacement, and compensation (OS2), Biodiversity and ecosystems services (OS3), Pollution Prevention and Control, Green House Gases, Hazardous Materials and Resources Efficiency (OS4), Labour Conditions, Health and Safety (OS5).

These OSs are triggered by the proposed project in the following ways:

- The construction of the roads will induce impacts such as noise, major road closures and accessibility problems; heavy traffic, disruption to local businesses, H&S incidents, risk of oil/chemical spills and leaks, and generation of hazardous wastes that are difficult to treat etc. These impacts need to be mitigated through the preparation of an ESIA, hence OS.1 is triggered;
- Since the proposed project will displace people and/assets, this has necessitated the preparation of a Resettlement Action Plan. Thus, the OS.2 is triggered;
- The proposed project will not require large land clearance of vegetation and removal of biodiversity. Thus OS 3 is not triggered;
- OS 4: Pollution Prevention and Control, Greenhouse Gases, Hazardous Materials and Resource Efficiency has not been triggered although there are provisions for avoiding and preventing pollution and ensuring water efficiency during project implementation activities as captured in the ESMP; and
- The project would demand or necessitate the deployment of qualified civil engineers and other experts including various technicians and a reasonable labour force to work. The related labour conditions, Health and Safety need to be managed and the measures on these have been included in the ESMP and hence it could be said that OS 5 is triggered.

It worthy to say here that the principles inherent in the safeguard requirements of the AfDB ISS are in tandem with the EIA procedures and processes of the FMEnv and shall guide the project implementation. However, in the event of divergence between them the most beneficial, environmentally, and socially speaking, shall take precedence in the execution of the project and utilization of the ESIA instrument.

3.3 Summary of the institutional and regulatory framework analysis

The analysis of the applicable policies and regulatory framework reveals that there is no dearth of regulatory instruments for environmental and social management including health and safety issues relating to the proposed project. In summary, the following were revealed:

- The Federal and the State Ministries of Environment provide overarching guidance which include policies, legal and regulatory framework;
- The State have good governance framework and laws to back up and manage the environmental and social safeguard issues. The State has considerable experiences in the ESIA process and safeguard issues. In addition to the EIA Act, there exist important environmental laws and guidelines in the State that would support monitoring and enforcement;
- The Local Government Authorities are charged with direct responsibility to manage these issues in their domain although largely lacking the technical, financial and personnel capacity to fulfil this obligation effectively. Hence, they have been identified as one of the target groups to train. State government support in the executed of the proposed project is assured; and
- Without doubt, there will be need to continually strengthen the capacity of project staff and that of the State Ministry of Environment and other relevant actors charged with implementing this EIA and other attendant safeguards instruments through in-depth training courses in environmental and social management risk.

4.0 Identified impacts and mitigation/enhancement measures

4.1 Identified impacts

The provision of all-weather roads due to the proposed rehabilitations will assist to overcome the currently and severely constrained access to economic opportunities (agricultural inputs, markets, rural-peri-urban-urban linkages) and social services (health and education).

Conversely, there are anticipated potential major and moderate negative impacts which have been identified to include short-term construction related impacts and long-term and permanent activities.

The potential *short-term construction-related impacts* which will last on the average of about six-month duration for a typical road include:

- Increased level of noise beyond the measured range of 46.8 – 54.8 dB(A) with a mean of 51.1 dB(A) at present, which were generally within the NESREA prescribed limits of 60 dB(A) during the day and 50 dB(A) in the night for residential areas mixed with small scale production and commercial activities;
- Vibration due to earthmoving activities could leads to cracks in buildings which are absent at present;
- Poor air quality from dust and emissions around the construction site and material hauling routes which for instance would make particulate matters (PM2.5) measured at present to range from 42.2 – 60.2 $\mu g/m^3$, values below the FMEnv set limits of 250 $\mu g/m^3$ to be higher.
- Earthworks impacts on soil that goes beyond 15 m wide zone RoW and areas which will be used as access roads for construction works and result in soil erosion;
- Removal of vegetation and making the road sides to be susceptible to erosion, i.e the inherent yielding or non-resistance of soils to erosion which could allow the onset of gullies development from water runoff;
- Generation, temporary storage and disposal of waste from the labor camp leading to unsightly accumulation of waste;
- Contamination of soil and groundwater by stored fuel, lubricants, paints; and refueling of vehicles which are absent along the corridors of the project environment;
- Movement of earth materials which could cause surface water bodies to be polluted, for instance, increase in turbidity or colour;
- Disturbance, particularly land scarring at sources of construction materials (sand, aggregates, stones,) as these will be collected from sources far from the construction site
- Traffic disruption as activities will significantly, increase traffic delays and will lead to inconvenience to the public, motorists, and chauffeurs, and increase the potential for nuisance in the project area of influence
- The road rehabilitation will trigger land take that will impact 1,655 Project Affected Persons (PAPs) which will potentially and specifically affect 641 households losing their shelters, loss of 60hectares of arable/productive lands, and 1053 households losing their crops and/or revenues. Also, 667 number of building are likely to be demolished totally with 219 commercial kiosks and 10 community-level service infrastructures will be disrupted or dismantled
- The population living in the areas adjacent to the corridors find it difficult to access their residences or businesses due to drain lines construction, for instance; and
- Increase in public and occupational health and safety issues within the vicinity of the site such as increased risk of trips, falls, injuries, accidents and spread of diseases such as COVID 19 amongst

the contractors, pedestrians, passengers and staff at the project level as well as at the community level.
- Traffic activities will significantly increase the frequency of vehicular traffic congestion and thus increase the risk of motor-vehicle accidents.

Long-term unavoidable impacts due to the operation which are likely to come out in the form of:
- Direct impacts: emissions and pollution due to traffic and transport of goods on the roads; and
- Indirect impacts: changes in economic structure, trade and transportation systems, impact on the people's lifestyle, social values, and the "rebound effect,"

Impacts due to decommissioning will be due to demolition and removal of camps, cabins, equipment, etc after rehabilitation/construction of the project for which the major impacts have been identified to short-term noise and dust raising. The land where these activities will take place or removed from will be revegetated.

The design life of the project road will be about 20 years or so based on associated infrastructures. The letter may operate for 20 years or more depending on the materials used to construct them. Thus specific impacts then will be identified before further rehabilitation or total closure of the roads (which are unlikely).

A more project specific potential negative impacts and the level of impacts that could emanate from the project are summarized in Table 1 with some specific fields of impacts.

Table 1: Potential Environmental and Social Impacts of the Proposed Project												
Project Phase	**Project Activity**	**Description of Impact**	**Impact Qualification**							**Overall Rating**
			Beneficial	**Neutral**	**Negative**	**Short term < 3 months**	**Long term > 3 months**	**Reversible**	**Irreversible**	
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		**L**
	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	**Biophysical**								
		Air Pollution: Construction-related dust generation, Batching plants and asphalt plant operations, Material dump sites, Vehicular emissions and haulage of materials			-		L	R		**H**
		Solid Waste: Generation of debris from demolitions, spoils and domestic refuse			-		L	R		**H**
		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.			-		L	R		**H**
		Wetlands: Siltation and oil pollution may affect the wetlands.			-	S		R		**L**
		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.			-	S		R		**L**
		Wildlife; construction workers poaching and trading wildlife			-	S			I	**L**

Table 1: Potential Environmental and Social Impacts of the Proposed Project											
Project Phase	**Project Activity**	**Description of Impact**	**Impact Qualification**							**Overall Rating**
			Beneficial	**Neutral**	**Negative**	**Short term < 3 months**	**Long term > 3 months**	**Reversible**	**Irreversible**	
	Slope Stability/ Earthworks (cut and fill equalization) Quarries and borrow pits Fuel consumption Spoil and construction waste disposal Work/ Labour camp operation -	**Vegetation/Flora:** Clearing of vegetation will be necessary for the road realignment. Natural vegetation is not regarded as having any special conservation significance. However, clearing activities could encourage soil erosion.			-	S		R		**H**
		Material Source: third party site								**M**
		Hazardous Materials: Contamination of the immediate surroundings due to handling and Storage			-	S		R		**M**
		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		**H**
		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	**H**
		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		**M**
		Cultural, historical or traditional sites: There are sites of cultural, historic or traditional value that would be affected by the road works.i.e. the grave yards		0	-		L		I	**L**
		Agricultural activities: During construction, little or no change is expected with regard to agricultural activities.			-		L		I	**H**
		Settlements/ Induced settlements: During construction, a pool effect is likely to occur for would be petty traders to the roadside	+		-		L		I	**M**

Table 1: Potential Environmental and Social Impacts of the Proposed Project											
Project Phase	**Project Activity**	**Description of Impact**	**Impact Qualification**							**Overall Rating**
			Beneficial	**Neutral**	**Negative**	**Short term < 3 months**	**Long term > 3 months**	**Reversible**	**Irreversible**	
		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/Vulnerable: Impacts on the vulnerable groups **(**1,151 PAPs)			-		L		I	**H**
		Cultural Resources			-		L		I	**L**
		Conflict due to Local people excluded from project activities & Promises made to local people during feasibility and planning phases								**M**
		Traffic: Disruptions and Diversion Impacts, Road Closure and Detours			-	S		R		**M**
		Service infrastructures: community-level service infrastructures disruption or dismantled								**H**
		Workmen/Contractor camp: Presence of the camp is likely to lead to an increase in water usage putting a strain on the local communities. Solid waste disposal and sanitation problems will be an issue.	+			S			I	**M**
		Health and Safety								
		Road safety: During construction, there will be some danger to pedestrians and cyclists along the existing road		-		S		R		**M**
		COVID 19/HIV/AIDS and STIs: impact likely due to presence of more workers from other communities			-	S		R		**M**
		Public health interference: Exposure to accidents, dust, noise, etc		-		S		R		**M**
		Occupational health and Safety Workers exposed to accidents, dust, etc		-		S		R		**H**
		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**
		Biophysical								
		Revegetation								**L**
		Environmental Justice	+				L		I	**H**

Table 1: Potential Environmental and Social Impacts of the Proposed Project											
Project Phase	**Project Activity**	**Description of Impact**	**Impact Qualification**							**Overall Rating**
			Beneficial	**Neutral**	**Negative**	**Short term < 3 months**	**Long term > 3 months**	**Reversible**	**Irreversible**	
Operation	Vehicular movement, passenger patronage and maintenance	Increase in noise nuisance			-		L		I	**L**
		Reduction in air quality			-		L		I	**L**
		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**
		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**
		Transport affordability with constant and easily understandable fares with reduction in freight haulage and transportation time**,** improved tourism opportunities,	+				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 corridors due to enhanced transportation which will attract ventures- businesses, market centres and other essential services	+/-				L		I	**H**
		Traffic Congestion - Road Closure and Detours			-		L	R		**M**
		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**
		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		**M**
										L
		HEALTH AND SAFETY								
		Enhanced Public Safety and security on corridor	+				L	R		**H**
		Injury/fatalities in workforce/communities			-		L	R		**H**

Table 1: Potential Environmental and Social Impacts of the Proposed Project											
Project Phase	**Project Activity**	**Description of Impact**	**Impact Qualification**							**Overall Rating**
			Beneficial	**Neutral**	**Negative**	**Short term < 3 months**	**Long term > 3 months**	**Reversible**	**Irreversible**	
		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: Dust generation		-		S		R		L
		Occupational health and Safety Exposures – workers		-		S		R		L
Decommissioning	Demolition and Removal of camps, cabins, equipment etc	**Biophysical**								
		Revegetation	+	-		S		R		M
		Increase in noise nuisance		-		S		R		L
		Reduction in air quality		-		S		R		L
		Climate Change due to GHG Emission		-		S		R		L
		Soil Degradation and Soil/Groundwater contamination		-		S		R		L
		Erosion/Flooding		-		S		R		L
		SOCIO-ECONOMICS		-		S		R		L
		Traffic disruption		-		S		R		L
		Public health interference: Dust generation		-		S		R		L
		Occupational health and Safety Exposures – workers		-		S		R		L

Rating	+ve	-ve Low	-ve Moderate	-ve High

4.2 Mitigation/enhancement measures

The following mechanism for enhancing the mitigation measures or reducing the major and moderate adverse impacts have been developed:

S/ No	Issue	Mitigation/Enhancement Measures
1	Land Use	➢ Plan road alignment to minimize loss of land resources and compensation of affected persons and assets. ➢ Demarcate RoWs to avoid encroachment and enforce relevant regulations.
2	Resettlement	➢ Ensure that resettlement of people and shifting of properties and utilities are in consonance with the RAP.
3	Material sites & Use	➢ 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 sign posts and barricades such as fencing. ➢ Control earthworks and ensure proper management of excavation activities. ➢ Rehabilitate before abandonment.
4	Slope Stability	➢ Extract carefully and secure the topsoil within 25 cm from the surface. ➢ Keep optimum balance in extraction and filling of soil works. ➢ Ensure Geo-hazardous assessment and mapping. ➢ Use designated disposal site and avoid side casting of spoil. ➢ Provide proper drainage.. ➢ Use bioengineering on exposed slopes.
5	Pollution/Vehicular Emission	➢ Spray water at regular intervals during the day to minimize 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	➢ 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	➢ Avoid stream diversion and blocking. ➢ Prevent Waterlogging by improved drainage. ➢ Avoid contamination of surface water bodies resulting from runoff. ➢ No siltation of surface water resulting from uncontrolled runoff from storage piles of construction.
8	Changes in hydrology /Impeded Drainage, Soil erosion	➢ All pavement and drainage structures be done properly, using a mixture of concrete structures and vegetation (bioengineering). ➢ 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 is necessary every 20 m.
9	Landscaping and Trees Planting	➢ Landscape road corridor and road reserve (setback) with local species of vegetation (shrubs and grasses) to beautify and contribute to sequestering carbon emissions.

S/ No	Issue	Mitigation/Enhancement Measures
	program/ Aesthetics	➢ 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 landscape. ➢ 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	Traffic and Road Safety Plan	➢ Install warning signs and speed bumps on approach to the towns and settlements. ➢ Provide parking bays for heavy-duty 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	Covid 19/STI & HIV/AIDS Awareness and Prevention	➢ Sensitization and awareness campaign in the communities along the project road. ➢ Preventive measures like the use of condoms, voluntary testing. ➢ Carry out sensitization and awareness activities on Covid19/HIV/AIDS & STI with drug and substance abuse. ➢ Establish wellness centres at truck parking locations that will be established along the road.
	Disposal of Construction Wastes	➢ 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	➢ 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 areas need to be demarked.

S/ No	Issue	Mitigation/Enhancement Measures
		➢ Monitor the hygiene of work force.
13	Construction Camps (Public health and occupational safety)	➢ Sufficient measures will be taken in the construction camps i.e., provision of garbage bins and sanitation facilities. ➢ If septic tanks are installed, evacuate 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	Roadside Amenities	➢ 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 physical site plan and operate the sites where facilities such as kiosks will be built. ➢ 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	➢ Ensure pavement improvements are able to account for adaptation measures that do favour 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. ➢ Alter maintenance regimes to target vulnerable sections. ➢ Retrofit existing stormwater infrastructure (e.g., culvert crossings, bridges) to accommodate increasing flow patterns). ➢ Harden or stabilize slopes subject to increased runoff from extreme weather events. ➢ Elevate mechanical and electrical equipment in operations or maintenance facilities (e.g., traffic signals) ➢ Use waterproof materials. ➢ Utilize permeable pavements for heavy traffic areas, the use of permeable pavement shoulder can be beneficial, especially in highly urbanized areas as provides an alternative for areas that cannot integrate bioretention areas or temporary water storage and serves as a durable and ecological solution to minimize the risk of flooding.

5.0 Public consultations and engagement

5.1 Stakeholders' consultations

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). Appendix 3 contains a list of those consulted and when as well as the summary of the outcomes of the meetings.

Below the key outcomes/opinions synchronised from the stakeholders' consultations are outlined:

- The project is a welcome development and will assist in alleviating the suffering of the citizenry on the various roads to be rehabilitated
- The communities are ready to give maximum cooperation to the construction company especially in terms of security; and
- The stakeholders are willing to give up their land and property for this development as long as they will be fully compensated. Nevertheless, they also noted that caution should be exercised in land take especially for the detours and campsites adding that land taken for such purposes should not only be compensated but also be rehabilitated and returned to the rightful owners upon completion of the project;
- To be truly all-weather roads after rehabilitation, the contractors should ensure quality implementation of the projects;
- The youth should be given special consideration in employment and make them useful to help in the provision of security and safety of materials and personnel.
- The project implementation activities should include the stakeholders and ensure a coordinated approach in addressing compensation and resettlement issues as they affect various parties especially the local communities;

These observations and opinions have been noted and are taken care of in the mitigation measures or principle enshrined in the ESMP and RAP, making them to support in efficient project delivery in an environmentally benign, socially acceptable and culturally appropriate way.

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5.2 Stakeholder engagement plan

In order to ensure a continual engagement with the relevant stakeholders, a Stakeholder Engagement Plan (SEP) has been developed geared towards a robust stakeholder's involvement in the development and implementation of the project throughout the life cycle. A summary of the key element of sustaining stakeholders' support in any project execution embedded in the SEP ABSIIDP is provided below:

Summary of the of Stakeholder Engagement Plan

Activity	Stakeholders / Community	Frequency/ Timeline
Prior to Project Commencement		
1. Project email, postal address and contact details	All stakeholders	Once-off establishment
2. Briefings on project and environmental (E) and social (S) risks	State Government, Local Government, Bank	As required, subject to the approval process
3. Site tours	Regulators, Site Committee, community, Bank, etc	As required
4. Personal meetings on project and E and S risks	Targeted stakeholders	As required
5. Community Sessions on project and E and S risks	Residents of affected areas/ Community and interest groups	As required, subject to approvals route and feedback from the community
6. Develop and disseminate Feedback and Complaints Mechanism and communications procedures	All stakeholders	As required, subject to any updates on the Project
7. 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
8. Disclosure of Safeguard Reports	Area of project influence	As required by Federal Ministry of Environment
9. Review of ESIA Report		As required by Federal Ministry of Environment
Construction and operations		
10. Ongoing community liaison	Local community	Ongoing
11. Project updates and E and S risks	All stakeholders	Monthly
12. Responding to issues and inquiries as per Feedback and Complaints Mechanism	All stakeholders	Ongoing / as required
13. Annual reporting	All stakeholders	Annually

5.3 Grievance redress mechanism

The Grievance Redress Mechanism (GRM) is designed to address situations of conflicts or disagreements about some of the project activities during construction and operation in the following order:

- All complaints will go to the contractor directly in the first instance.
- Where issues are not addressed, complaints shall be scaled to the Project Manager.
- Where it is perceived that no satisfactory attention was given, then the complainant shall have access to the Project Owner.
- If, it is considered that issues are not satisfactorily addressed by the Site Manager, the complainant shall be free to approach SPIU Management.
- Informing the relevant government authorities is considered the next step if SPIU Management is seen not to have resolved the arising issues satisfactorily.
- The last but undesirable is reaching the court by settlement of any issues that are not addressed at the previous levels.
- This grievance redress process shall be provided to any person who has complaints or grievances during ay of the phases of the project.

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 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 for all phases of the project for internal and external (public) consumption through the regulators.

For a *more detailed grievance procedure based on community grievance committees, one per LGA, which will be established for resolution of the disputes and complaints, especially in relation to resettlement issues, kindly refer to the RAP prepared for the project.*

6.0 Environmental and social management plan (ESMP)

6.1 ESMP implementation

The ESMP is instituted for the proposed project to ensure that impact mitigation; control and recovery measures are well implemented. The ESMP is designed to commit SPIU 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. It should be noted that for effectiveness, specific plans have been designed to ensure mitigation measures prescribed and others that might not have been foreseen now are implemented as summarised in Table 2.

There will be a Project Environmental and Social Safeguards Officer to oversee Implementation and Monitoring and reporting on ESMP and RAP developed for the project.

6.2 ESMP integration into project implementation

Since contractors will implement the project on behalf of the SPIU, the Contractor (s) will be required to develop a Construction ESMP (CESMP) to ensure compliance with the requirement of the ESMP, the country system and AfDB ISS before construction works begin. The range of contractors' responsibilities in this regard 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. 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 to put in place corrective and remedial measures for non-conformance and have an incident notification and Emergency and Risk Response Management Plan. An Environmental and Social Code of Conduct for road Infrastructure development for contractors is given in Appendix 4.

For the ESMP to be implemented as envisaged by the contractors, relevant aspects shall be integrated into the project design and tender documents. Using this approach, the mitigation measures will automatically become part of the project construction and operation phase. By including in the contract or in specific items in the Bill of Quantities, the cost of implementation should be covered under the normal engineering supervision provisions of the contract. Examples of clauses that should be incorporated into contracts with construction companies include:

1. Construction contracts should:
    - Select or develop guidelines and procedures to be applied to each facet of road construction or rehabilitation—site clearing, bed and surface construction, drainage, fuel and material usage, quarry site management, construction camp and work site operating procedures, including worker safety.
2. Maintenance agreements should ensure:
    - Finalization of maintenance agreements with local communities before beginning construction.
    - Maintenance contracts that are performance-based with penalties in case of non-compliance with the agreed standards (e.g., flouting safety rules, number of potholes per km of roads). All parties must clearly understand and be committed to terms of the agreement, such as who will do what work, when, how frequently, for what compensation, and within what limits.

Table 2: ESMP for the Proposed Project			
S/No	Activity/Plan *	Objective of Management plan for compliance	**Action Party**
1	**Air Quality Management Plan**	• 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, 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. • Provide nose cover to those at risk, especially the workers tor prevent dust inhalation	**FMEnv SMEnv SPMU**
2	**Noise Abatement Management Plan**	• 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**
3	**Contractor Adherence to Management Plan**	• Give legal status to the EMP by being referred to or incorporated into contractual documents. • Make Contractor: o Comply with the EMP for the works he is responsible for informing himself about the EMP, and preparing his work strategy and plan to fully take into account relevant provisions of the EMP. o 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. o 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. o 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**
4	**Materials Excavation, Movement & Use**	**Excavation, Earth Burrowing, etc.** • 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 in topsoil and covered with tree planting, field sods or grass seeding. **Material Excavation and Deposit**	**FMEnv SMEnv SPMU**

		• 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: o Shall not be 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. o 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. o 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. o 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 EMP, 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. **Use of Materials** • The contractor, in as much as possible, shall use local materials to avoid importation of foreign material and long-distance transportation.	
5	**Soil Erosion Prevention**	o To the extent practicable, the Contractor shall rehabilitate all sites progressively so that the rate of rehabilitation is similar to the rate of construction. o 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. o Topsoil shall not be stored in large heaps. Low mounds of no more than 1 to 2m high are recommended. o 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. o Locate stockpiles where they will not be disturbed by future construction activities. o The contractor shall reinstate natural drainage patterns where they have been altered or impaired. o 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. o Identify potentially toxic overburden and screen with suitable material to prevent mobilization of toxins. o 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.	**FMEnv** **SMEnv** **SPMU**

		○ 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.	
6	**Water Resources Management**	• 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. • Wastewater 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 wastewater 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**
7	**Restoration and management of Vegetation**	• Construction contractors will undertake planting of approved plant species of all disturbed areas completely after construction phase. • Routine maintenance of the vegetation shall be ensured	**FMEnv SMEnv SPMU**
8	**Social Issues management Plan**	• 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**
9	**Traffic Management Plan**	• 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**
10	**HSE MS Plan**	• Ensure Health, Safety & Environmental Management that systematically ensure hazards and effects that may affect or arise from the project activities are careful managed	**FMEnv SMEnv**

		• Specify points at which HSE studies and activities such as reviews, audits, etc. are required. • A tracking system for all the recommendations from this EIA and other studies properly documented and such documents maintained throughout the projects lifespan. • Ensure Contractor adhere to the plan (See Appendix 7.1)	**SPMU**
11	**Public safety and health**	• 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**	• 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**	**Overall Waste Management** • 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. **Worksite/Camp Site Waste Management** • All vessels (drums, containers, bags, etc.) containing oil/fuel/surfacing materials and other hazardous chemicals shall be bunded 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 in topsoil 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.	**FMEnv** **SMEnv** **SPMU**

		Disposal of Unusable Elements • 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**	• 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**	• 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	**Communication Plan**	• 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**
17	**Decommissioning Plan**	• 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**
18	**Auditing and Review Plan**	• 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

**The SPIU has the responsibility to ensure that all these measures are implemented. Ministry of Works and the SPIU have the responsibility to ensure that the Contractor complies with the requirements through routine monitoring and reporting on all arrangements.*

The FMEnv and SMEnv will externally monitor contractors' compliance with the applicable requirement standards.

6.3 Institutional capacity and strengthening plan

6.3.1 Roles and responsibilities

In order to achieve the success of this ESMP and indeed the overall project outcome, the SPIU) is the implementing body, supervised by the Ministry of Works, 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. In order to achieve this mandate, the SPIU shall liaise with the various levels of government and other identified stakeholders with their institutional roles and responsibilities below:

Institutional Responsibilities

S/No	Category	Roles & Responsibilities
1.	SPIU	• Implementing authority • Ensure all environmental and social commitments are implemented during the life cycle of the project • Ensure adequate implementation and compliance of the ESMP by all parties • Appoint Environmental and Social Safeguard officer who have the responsibility to ensure compliance with the ESMP and other safeguard documents and provides training schedule on environmental and social matters.
2.	Ministry of Works and ABSIIDP	• Co-ordinate all policies, programmes, and actions relating to the project • Ensure that the project is carried out in a sustainable manner.
3.	Federal Ministry of Environment (FMEnv)	• Provides lead role on screening, scoping, review of draft ESIA report (in liaison with State Ministry of Environment), receiving comments from stakeholders, public hearing of the project proposals and social liability investigations, monitoring and evaluation process and criteria.
4.	Abia State Ministry of Environment	• Review of draft ESIA report (in liaison with Federal Ministry of Environment) • Site assessment and monitoring of ESIA implementation. • Environmental monitoring and compliance overseer at the State level
5.	Other MDAs	• 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 as may be required of.
6.	AfDB	• Assess implementation • Provide implementation support that ensures sustainability • Recommend additional measures for strengthening the ESMP implementation
7.	Contractor	• Develop a Construction Environmental Management Plan (CEMP) 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 • Appoint HSE Officer primarily responsible for daily inspection and monitoring of this ESMP and CEMP implementation.
8.	Site Engineers/Supervisors	• Provide oversight function during construction to ensure adherence to good practice and the ESMP
9.	Trade Association/CDAs/CSOs	• Assisting in their respective ways to ensure effective response actions, • Ensure members participation by mobilizing, sensitizing community members;
10.	Direct and Other Stakeholder/Groups	• Ensure social values are not interfered with. • Identify issues that could derail the project • Could complain about project execution manner.

Institutional Responsibilities	
11. Local Community	• Support project impacts and mitigation measures, Awareness campaigns • Support project implementation by ensuring safety and security of construction workers and materials • Assist and liaise with other stakeholders to ensure works are carried out without hinderance • Participate in practical awareness campaign for the proposed projects, amongst the various relevant grass roots interest groups • Support in monitoring project execution within their domains to ensure compliance with this ESMP and other relevant requirements
12. Local Government	• 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.

6.3.2 Capacity building and institutional strengthening

Based on the interaction with the relevant stakeholders, assessment and determination of the characteristics of all the relevant stakeholders with key roles in the project as well as the assessment of the institutional capacities of the different parties involved in the ESMP implementation, areas of awareness creation and training/capacity building/strengthening have been identified as outlined in Table 3.

Table 3: 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, LGA	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/LGAs	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 SPIU 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: Roles and Responsibilities of officials/contractors/consultants towards protection of environment and Implementation Arrangements Monitoring mechanisms	Officials of MoW, and other line MDAs. LGAs	Workshop	½ day	Environmental & Social Specialists of Design Consultant/External Agency engaged for capacity building	200,000
Module VII	Monitoring and reporting system Community Participatory Monitoring and Evaluation	Engineers, MoW, & relevant MDAs, Community leaders, LGAs	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.	PAPS	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

6.4 ESMP implementation schedule and budget

In order to effectively implement the environmental and social management measures of the ESIA, an ESMP Implementation Schedule has been provided (Table 4). There are also budgetary provisions for the ESMP components implementation (Table 5.).

Table 4: ESMP Implementation Schedule

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

Table 5: Summary of indicative Budget for Implementing the Components of ESMP			
Item	**Responsibility**	**Cost Estimate Nigerian Naira (N)**	**Cost Estimate US Dollars (US$) ***
Mitigation	Contractor		60,000.00
	SPIU		30,000.00
Monitoring	SPIU, MDAs		50,000.00
Capacity Building	SPIU,		15,000.00
Cost for GRM	SPIU		25,000.00
RAP implementation*	SPIU		
Sub- Total			180,000.00
Contingency	SPIU		18,000.00
Total		**99,000,000.00**	**198,000.00^**

Contingency=Add 10% to Subtotal $1=N500 ^Annual Budget until for construction phase *See RAP Report for Budget

6.5 Environmental and social monitoring plan

A project specific E&S management and monitoring plan has been designed as indicated in Table 6. Monitoring shall be conducted by trained individuals who can carry out the monitoring and record-keeping effectively using properly calibrated and maintained equipment on behalf of the SPIU and/or contractor. External monitoring will be carried out by the Federal and State Ministry of Environment.

Table 6: Environmental and Social Monitoring Plan						
a. Environmental and Social Monitoring Plan (Pre- Construction) *						
S/N	**Activity/ Issue**	**Mitigation Measure Implementation**	**Monitoring Activity**	**Frequency**	**Monitoring Responsibility**	**Budget *** m
1	**Erection of contractor construction camp**	Contractor to identify suitable camp site in consultation with SPIU/ relevant MDAs Contractor obtains approval for camp site from members of the public/Local government	Retain a record of discussions Retain a record of approval	After each discussion Once	FMEnv SMEnv SPIU/Contractor	**0.1**
2	**Materials testing**	SPIU to include requirement for independent materials testing in contracting documents SPIU to ensure that Contractor complies with requirements	Retain copy of contracting documents with the requirement Check record of materials testing	Once When materials are delivered	FMEnv SMEnv SPIU Site Engineers	
3	**Operation of Contractor construction camp**	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 Covered rubbish bins for scraps Adequately stocked first aid medical kits Trained person to provide first aid assistance if required Include requirement in contracting documents for Contractor	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 Retain copies of contracting documents with requirement Retain copies of waste disposal dockets Maintain a photographic record of disposal activities Maintain documentary record of monitoring activities	Once Daily during dry weather condition Daily Monthly As required Once As required As required Daily and weekly	FMEnv SMEnv SPIU Contractor SPIU Site Supervisor	
4	**Heavy machinery operation**	Ensure contracting documents include specifications relating to type, weight and operation of heavy machinery	Retain copy of contracting documents on project files Include reference in acceptance advice Maintain record of inspections and public complaints	Once Once Weekly	SPIU/Contractor	

5	**Excavation generally**	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: 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	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	Daily Once	FMEnv SMEnv SPIU SPIU/Contractor	
6		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	Retain copy of contracting documents on project files Maintain photographic and documentary record of Contractor performance	Once Daily	FMEnv SMEnv SPIU/Contractor	
7	**Social issues**	Continual undertake public consultation Conclude all resettlement issues that may arise SPIU to include requirement for continual stakeholder consultations and public enlightenment in contracting documents	Retain copies of minutes of discussions	After each discussion	FMEnv SMEnv SPIU/Contractor	
8	**Health and Safety Issues**	SPIU 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 project signs to warn pedestrians and motorists of construction activities, diversions, etc. provided at appropriate points.	Retain copy of contracting documents on project files Maintain photographic and documentary record of Contractor performance	Once	FMEnv SMEnv SPIU/Contractor	
9	**Traffic Safety and Traffic Management**	SPIU to include requirement for contract document need for contractor to ensure public safety and meet traffic safety requirements for the operation of work to avoid accidents. be responsible for the safety along the related to the site,	Retain copy of contracting documents on project files Maintain photographic and documentary record of Contractor performance Records of accident plan	Once	FMEnv SMEnv SPIU/Contractor	

		provide and maintain necessary barricades, suitable and sufficient flashlights, flagmen, danger signals, and signs. Submit weekly activities schedule and the locations of his work along the				

***No budget as these is part of the overall contractual arrangement between SPIU and Contractors**

b. Summary of Environmental and Social Monitoring Plan during Construction and Operation

	Component	Parameters	Method & where	Frequency	Responsible*	Cost (N)-m
1.	**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		**0.2**
2.	**Air quality**	Dust	Visual Observation at location of activities	Every day during construction		**1.0**
3.		PM, SO2, CO, NOX, CO2	Ambient air monitoring using standard method of sampling and analysis at established sampled locations for the baseline data	Monthly during construction and any other item incident relating to pollution are noticed (where visual observations indicate unpleasant scenario)		
4.	**Noise**	Level (dB A)	Disturbance/pinch	Every day during construction		**0.5**
5.		Level	Sensor measurement at established sampled locations for the baseline data	annually		
6.	**Erosion**	Topsoil movement/ground cutting Control and retention of disturbed soil at earthwork	Visual assessment	Routinely during construction and when erosive forces are observed		**0.4**
7.	**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 and/or		**0.5**
8.				Annually		
9.	**Soil Quality**	pH, Conductivity, Heavy Metals, TOC, Total Hydrocarbons, Cations	Sampling and analyses at designated locations	• monthly during construction. • Quarterly during the first 3 years of operation. •Biannually Subsequently		**0.7**
10.	**Vegetal Cover**	Lawn/vegetation growing well & maintained	Visual assessment, No of tree removed/planted	Routinely and growth		**0.5**

11.	**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	Routinely, daily		
12.	**Training**	Responsible HSE behaviour and culture	General HSE Awareness and specific training for workers and investors	Routinely and as need arises		**1.5**
13.	**Socioeconomics 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		**1.5**
14.	**Land use changes**	Emerging land use trends along the project during construction and operation	Absence of encroachment No of fines, changing social and economic development	Six monthly		**0.5**
15.	**Climate Change**	GHG Emission	Inventory	Once in three years		**2.0**
16.	**Circular Economy and Waste Management**	Amount of waste avoided/recovered and reused No of eco-chains or by-product exchanges created to encourage utilization of by-products among industries	Across the facility zones	During construction and operational life monitored quarterly during construction and annually during operation		**0.5**
17.	**Health & Safety**	Incidents	Hazard assessment	Before Start of work and routinely		**0.7**
18.	**Environmental & Social Audit**	Assessment of Mitigation, monitoring & Other management measures	Presence of Audit Report	Once in two years		**12.5**
	Total					**N23.0**

***SPIU has the primary responsibility**

6.6 Record keeping

The type of records from the various management and monitoring programmes shall include completed forms, checklists and maintenance logs, identified problems and corrective actions undertaken and Monitoring data / result. Some other types of records will also be valuable for assisting with the implementation and review such as: Incident forms (especially pollution incidents and response, accidents, etc.), Internal and external communications regarding the implementation of the mitigation measures, Results of internal or external assessments and compliance visits and Quarterly reports on the ESMP implementation submitted to the AfDB.

6.7 Disclosure

All reasonable efforts will be made to disclose the ESIA report with approval from the FMEnv and then AfDB with consideration given to the concerns and inputs of all relevant stakeholders regarding the design, development, and implementation of the project. Indeed an approval has been obtained from the Federal Ministry of Environment Authority to disclose the ESIA as contained in Appendix 4.

7.0 Conclusion

The ESIA identified significant environmental and social impacts for which the ESMP has been developed. Suffice it to say that the assessment revealed that the proposed project is most desirable because of the obvious environmental, health cum socio-economic benefits, which far outweigh the negative impacts that could arise during implementation. The potential negative implications of sufficient magnitude that could stop the execution of the project were not detected. Mitigation measures have been suggested for the identified adverse impacts that could occur due to the activities associated with the proposed project. Mitigation measures and management plans have been offered and developed for the adverse effects as provided in ESMP.

The ESMP is a 'living document' as it is amenable to updates and revisions in the light of current information on the environment and social risk that might be thrown up during the project implementation, as may be necessary. It is imminent that certain factors that would have been overlooked or not considered due to the preparation of the ESMP upstream in the project cycle could crop up during project implementation. Hence the need to review and update based on current field realities.

A third-party Environmental and Social Consultant shall be needed and retained annually to ensure adequate implementation of the ESMP.

The adequate implementation of the ESMP will ensure compliance with the country systems and AfDB's ISS and keep with international best practices that will provide environmentally benign, socially acceptable, and culturally appropriate project delivery.

Appendices

Appendix 1: Pictures of the current state of some of the roads

Appendix 2: Features along or within the Environment of the Proposed Roads for Rehabilitation

Road Id.	Section of the road	Length (km)	Significant Features	Road Sections
1	Amaogwugwu-Umuagu-Afor Umuezike	9.74	Luxuriant forest and riparian vegetation along the river course; ESIA Team sampling aquatic biota (Plankton)	
2	Umuezike – Afor Umuda-Uzo Isingwu-Empire Carpet Industries	4.77	Secondary forest dominated by oil palms around densely populated community	
3	Afor Umuda-Ulonna North (farm settlement)	4.26		
4	Dozie Way	1.49	Herbs, shrubs, grasses around densely populated settlements	

Appendix 2: Features along or within the Environment of the Proposed Roads for Rehabilitation				
Road Id.	**Section of the road**	**Length (km)**	**Significant Features**	**Road Sections**
5	Ahiaeke-Lodu-Umuanna-UmuafaiOrpet Road	4.32		
6	Umuovom-House of Assembly Road	1.11	Oil palms, grasses and ornamental trees around settlements	
7	Ozuabam-Ndiokereke-Arochukwu Road	29.85	Riparian vegetation around concrete bridge	
8	Dimond Stadium Road	0.81	Earth road in densely populated settlements with plantain, sugar cane as homestead crops	
9	Lodu Agbama Umuobia ISI Court	4.35	Earth road, oil palms, elephant grasses, Chromolaena odorata (Siam weed), homestead farms	
10	Umuobia Umuchukwu Ahia Ama Paulicon Junction Aba Road	1.72		
11	Madona Hospital – Saclux Industries-New Road	1.40	Earth road through settlements	
12	Amafor- Isingwu-Nkwoachara Ring Road.	1.74	Earth road through settlements, bamboo trees dominant, guinea grasses, cocoyams, cassava in homestead gardens	
13	Uhuokwu-Ubaha- Agro Allied Industries Ltd	2.20	Earth road, plantain, cassava, oil palms dominant	

Appendix 2: Features along or within the Environment of the Proposed Roads for Rehabilitation				
Road Id.	**Section of the road**	**Length (km)**	**Significant Features**	**Road Sections**
14	Nkata – Isiadu - Amaeke Road	4.59	Road with dilapidated bituminous surface, through densely populated communities, section with luxuriant secondary forest	
15	Nelcin Sec. Sch.- AborUmudaIsingwu Rd.	0.78		
16	Afor Umuawa-Umuawa AlaochaUmuda Ossah-Express Tower	3.12	Earth road through densely populated communities, plantain, banana, coconuts, oil palm trees along the road	
17	Ohiya-Umuihi-Ogbodinibe-Ehume Road	10.35	Earth road, section with bituminous surface, lots of oil palms, economic trees like mango, pear, etc	
18	Fire Service Road – Golden Guinea – Aba road	1.29		
19	Nkata – Akpahia – Umuire Ohuhu	3.89	Earth road, with cassava farms, guinea grasses, fallow lands with herbs and shrubs	
	Total length (Km)	**91.78**		

Appendix 3: Public Consultations

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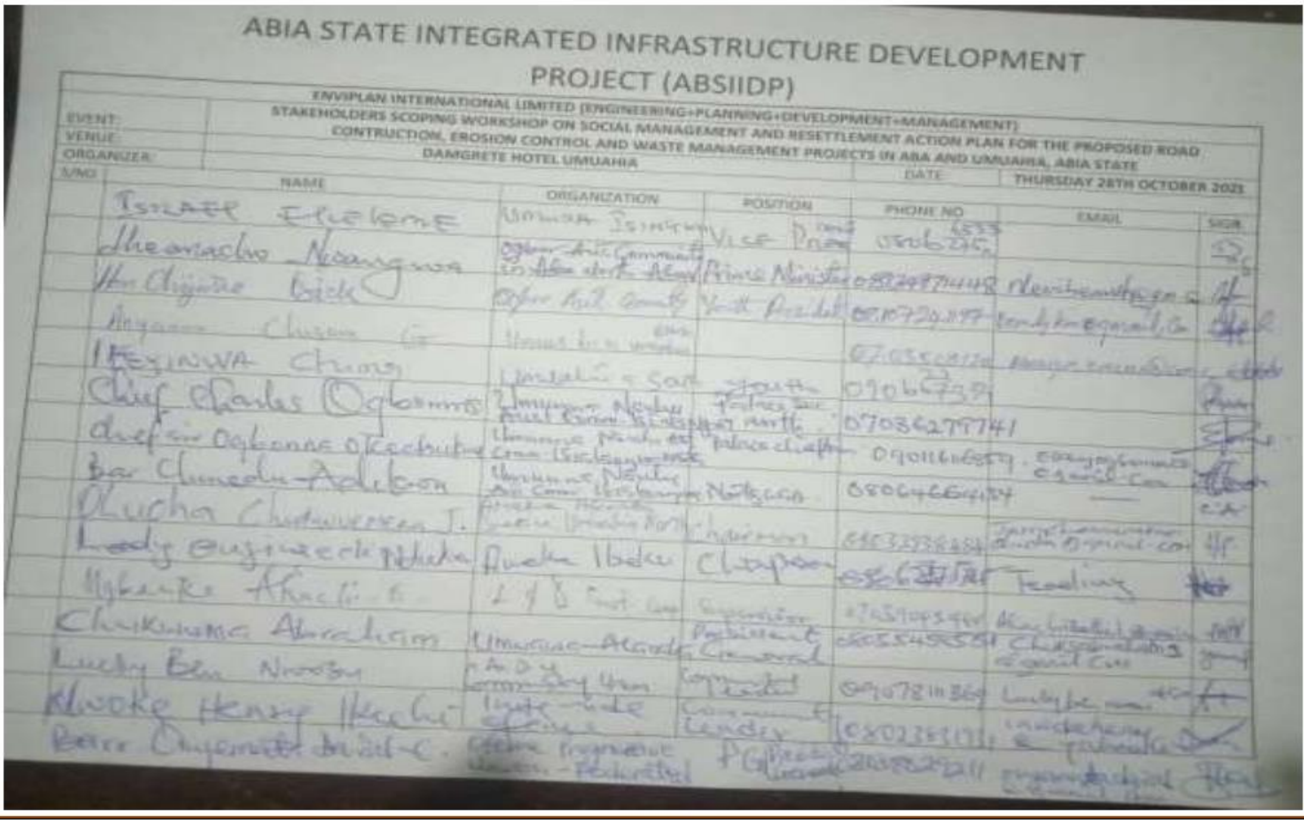
ABIA STATE INTEGRATED INFRASTRUCTURE DEVELOPMENT PROJECT (ABSIIDP)

ENVIPLAN INTERNATIONAL LIMITED (ENGINEERING+PLANNING+DEVELOPMENT+MANAGEMENT)

EVENT:	STAKEHOLDERS SCOPING WORKSHOP ON SOCIAL MANAGEMENT AND RESETTLEMENT ACTION PLAN FOR THE PROPOSED ROAD CONTRUCTION, EROSION CONTROL AND WASTE MANAGEMENT PROJECTS IN ABA AND UMUAHIA, ABIA STATE					
VENUE:	DAMGRETE HOTEL UMUAHIA			DATE:	THURSDAY 28TH OCTOBER 2021	
ORGANIZER:						
S/NO	NAME	COMMUNITY	RANK	PHONE NO	EMAIL	SIGN.
1	Ekene Elvis	Umuahia North		08171779338	Elvis Smart y7@[illegible]	
2	Joy Francis	Umuahia North		08164315127	Joychiliancy@[illegible]	
3	IGBOEGWU PHILIP O.	IKWUANO		08107728465	igboegwup@[illegible]	
4	IGBOEGWU Geraldine	Umuahia South		07034543886	Geraldin-Jay[illegible]	
5	Michael Emmanuel	Umuahia North		08063995289	Emmyfdgrt@[illegible]	
6	Ijeoma Nwanna Williams	Ikwuano		08062303470	nneomaw[illegible]	
7	Winner Edwin	Umuahia North		07034933786		
8	OBIOHA G. ULUOCHA	AMAOGWUGWU	F. PRESIDENT GENERAL	09091393925 08032585598	OBIWHITE HOUSE @ YAHO[illegible]	
9	Chukwunta Eunice U	Umuda Ofeme	Woman Leader	08063885005		
10	Augustine Ikegwu	Umuda Ofeme	community leader	09094141389		
11	Elder A.I.K. Oluoha	Nkata Ibeku	Community chairman	08064981269		
12	Elder A.C.B. Wosu (JP)	Umuakwu	Village Head	08065715177		
13	Deaconess NGOZI Egbe	Umuakwu		08162609647		
14	Elder Kingsly Adindu	Umuakwu		08132404896		
15	Hon. Nwabueze Onwigbo	Umuda Ofeme	Councilor	08039673016		



ABIA STATE INTEGRATED INFRASTRUCTURE DEVELOPMENT PROJECT (ABSIIDP)

ENVIPLAN INTERNATIONAL LIMITED (ENGINEERING+PLANNING+DEVELOPMENT+MANAGEMENT)

EVENT:	STAKEHOLDERS SCOPING WORKSHOP ON SOCIAL MANAGEMENT AND RESETTLEMENT ACTION PLAN FOR THE PROPOSED ROAD CONTRUCTION, EROSION CONTROL AND WASTE MANAGEMENT PROJECTS IN ABA AND UMUAHIA, ABIA STATE					
VENUE:	DAMGRETE HOTEL UMUAHIA			DATE	THURSDAY 28TH OCTOBER 2021	
ORGANIZER:						
S/NO	NAME	ORGANIZATION	POSITION	PHONE NO	EMAIL	SIGN
	Israel Ekeleme	[illegible]	Vice Pres	[illegible]		
	Iheanacho Nwaugwa	[illegible]	Prime Minister	[illegible]	[illegible]	
	Hon Chijioke [illegible]	[illegible]	Youth President	[illegible]	[illegible]	
	Anyanwu Chisom G.	[illegible]		[illegible]	[illegible]	
	IFEYINWA Chima	Umuahia South	Youth [illegible]	0906[illegible]	[illegible]	
	Chief Charles Ogbonna	[illegible]	[illegible]	07036279741		
	Chief Sir Ogbonna Okechukwu	[illegible]	Palace chief	09011616859	[illegible]	
	[illegible] Chinedu Adekoon	[illegible]	[illegible]	08064664184		
	Olucha Chidiebere J.	[illegible]	Chairman	[illegible]	[illegible]	
	Lady [illegible]	Aba [illegible]	Chairperson	[illegible]	[illegible]	
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	Chukwuma Abraham	[illegible]	President General	[illegible]	[illegible]	
	Lucky Ben Nwosu	[illegible]	Community Leader	09078111369	[illegible]	
	Nwoke Henry Ikechi	[illegible]	Community Leader	08023[illegible]	[illegible]	
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

Summary of Outcome of Public Consultations	
Stakeholders	*Response/How Project Address the Issues*
Expectations of the People about proposed Project: • We look forward to seeing this project becoming a reality.	• *Your remarks are well noted and shall be*

Summary of Outcome of Public Consultations	
Stakeholders	*Response/How Project Address the Issues*
• We thank the governor for keeping his promises. • 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 especially the rural dwellers • Increase in economic activities in the communities after project execution. • Let the project be executed with quality and speed. • The project if realized will really help us in bringing our agricultural products to markets and sell them for more profits. • Please, we are willing to give any support required of us to facilitate the actualization of this project. • We shall give maximum cooperation to the construction company especially in terms of security.	*communicated to the appropriate quarters* • *Adequate supervision by all responsible stakeholders will ensure quality road*
The Expressed Fears of the People Despite the high expectations of the net benefits of the project to the communities, some fears were expressed. These include among others; • 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. • 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?	• 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
Requests of the Communities • 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.	• 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

Appendix 3: Environmental hazard management - suggested code of conduct and clauses for contractors

General

1. As part of Environmental Hazard Management, the Contractor shall be made to comply with the principles for good practices through the implementation of all measures necessary to avoid undesirable adverse environmental and social impacts, wherever possible as well as restore work sites to acceptable standards, and abide by any environmental performance requirements by law or specified in this ESIA report. In general, these measures shall include but not be limited to:

a. Minimize the effect of dust on the surrounding environment resulting from earth mixing sites, asphalt mixing sites, dispersing coal ashes, vibrating equipment, temporary access infrastructure such as roads, etc. to ensure safety, health and the protection of workers and communities living in the vicinity dust producing activities.
b. Ensure that 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 communities.
c. Ensure that existing water flow regimes in rivers, streams and other natural or irrigation channels is maintained and/or re-established where they are disrupted due to works being carried out.
d. Prevent bitumen, oils, lubricants and waste water used or produced during the execution of works from entering into rivers, streams, irrigation channels and other natural water bodies/reservoirs, and also ensure that stagnant water in uncovered burrow pits is treated in the best way to avoid creating possible breeding grounds for mosquitoes.
e. Prevent and minimize the impacts of quarrying, earth burrowing, piling and building of temporary construction camps and access infrastructure such as roads on the biophysical environment including protected areas and arable lands; local communities and their settlements. As much as possible, restore/rehabilitate all sites to acceptable standards.
f. Upon discovery of ancient heritage, relics or anything that might or believed to be of archaeological or historical importance during the execution of works, immediately report such findings to the SE so that the appropriate authorities may be expeditiously contacted for fulfilment of the measures aimed at protecting such historical or archaeological resources.
g. Discourage construction workers from engaging in the exploitation of natural resources such as hunting, fishing, collection of forest products or any other activity that might have a negative impact on the social and economic welfare of the local communities.
h. Implement soil erosion control measures in order to avoid surface run off and prevents siltation, etc.
i. Ensure that garbage, sanitation and drinking water facilities are provided in construction workers camps.
j. Ensure that as much as possible, local materials are used to avoid importation of foreign material and long-distance transportation.
k. Ensure public safety, and meet traffic safety requirements for the operation of work to avoid accidents.

2. The Contractor shall indicate the period within which he/she shall maintain status on site after completion of civil works to ensure that significant adverse impacts arising from such works have been appropriately addressed.

3. The Contractor shall 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.

4. Besides the regular inspection of the sites by the relevant government authority and other supervising agencies for adherence to the contract conditions and specifications, the contractor will appoint an Inspector to oversee the compliance with these environmental conditions and any proposed mitigation measures. State environmental authorities may carry out similar inspection duties. In all cases, the Contractor shall comply with directives from such inspectors to implement measures required to ensure the adequacy rehabilitation measures carried out on the bio-physical environment and compensation for socio-economic disruption resulting from implementation of any works.

Worksite/Campsite Waste Management

a) All vessels (drums, containers, bags, etc.) containing oil/fuel/surfacing materials and other hazardous chemicals shall be bunded in order to contain spillage. All waste containers, litter and any other waste generated during the construction shall be collected and disposed off at designated disposal sites in line with applicable government waste management regulations.
b) 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.
c) Used oil from maintenance shall be collected and disposed off appropriately at designated sites or be re-used or sold for re-use locally.
d) Entry of runoff to the site shall be restricted by constructing diversion channels or holding structures such as banks, drains, dams, etc. to reduce the potential of soil erosion and water pollution.

Appendix 3: Environmental hazard management - suggested code of conduct and clauses for contractors

e) Construction waste shall not be left in stockpiles along the infrastructure such as road, but removed and reused or disposed of on a daily basis.
f) If disposal sites for clean spoil are necessary, they shall be located in areas, approved by the SE, of low land use value 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 planted with species indigenous to the locality.

Material Excavation and Deposit

a) The Contractor shall obtain appropriate licenses/permits from relevant authorities to operate quarries or burrow areas.
b) The location of quarries and burrow areas shall be subject to approval by relevant local and national authorities, including traditional authorities if the land on which the quarry or burrow areas falls within traditional land.

New extraction sites:

a) Shall not be located in the vicinity of settlement areas, cultural sites, wetlands or any other valued ecosystem component, or on high or steep ground or in areas of high scenic value, and shall not be located less than 1km from such areas.
b) Shall not be located adjacent to stream channels wherever possible to avoid siltation of river channels. Where they are located near water sources, burrow pits and perimeter drains shall surround quarry sites.
c) 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.
d) Shall not be located in forest reserves. However, where there are no alternatives, permission shall be obtained from the appropriate authorities and an environmental impact study shall be conducted.
e) Shall be easily 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.
f) Shall have clearly demarcated and marked boundaries to minimize vegetation clearing.
g) Vegetation clearing shall be restricted to the area required for safe operation of construction work. Vegetation clearing shall not be done more than two months in advance of operations.
h) 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 from workings.
i) The Contractor shall deposit any excess material in accordance with the principles of the general conditions, and any applicable EMP, in areas approved by local authorities and/or the SE.
j) Areas for depositing hazardous materials such as contaminated liquid and solid materials shall be approved by the SE 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.

Rehabilitation and Soil Erosion Prevention

Appendix 3: Environmental hazard management - suggested code of conduct and clauses for contractors

a) To the extent practicable, the Contractor shall rehabilitate the site progressively so that the rate of rehabilitation is similar to the rate of construction.
b) 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.
c) Topsoil shall not be stored in large heaps. Low mounds of no more than 1 to 2m high are recommended.
d) Re-vegetate stockpiles to protect the soil from erosion, discourage weeds and maintain an active population of beneficial soil microbes.
e) Locate stockpiles where they will not be disturbed by future construction activities.
f) To the extent practicable, reinstate natural drainage patterns where they have been altered or impaired.
g) Remove toxic materials and dispose of them in designated sites. Backfill excavated areas with soils or overburden that is free of foreign material that could pollute groundwater and soil.
h) Identify potentially toxic overburden and screen with suitable material to prevent mobilization of toxins.
i) 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.
j) Minimize the long-term visual impact by creating landforms that are compatible with the adjacent landscape.
k) Minimize erosion by wind and water both during and after the process of reinstatement.
l) Compacted surfaces shall be deep ripped to relieve compaction unless subsurface conditions dictate otherwise.
m) Revegetate 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, forest department and the local people.

Water Resources Management

a) The Contractor shall at all costs avoid conflicting with the water demands of local communities.
b) 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 relevant Water Authority.
c) Abstraction of water from wetlands shall be avoided. Where necessary, authority must be obtained from relevant authorities.
d) Temporary damming of streams and rivers shall be done in such a way as to avoid disrupting water supplies to communities downstream, and to maintains the ecological balance of the river system.
e) No construction water containing spoils or site effluent, especially cement and oil, shall be allowed to flow into natural water drainage courses.
f) Wash water from washing out of equipment shall not be discharged into water courses or infrastructure such as road drains.
g) Site spoils and temporary stockpiles shall be located away from the drainage system, and surface run off shall be directed away from stockpiles to prevent erosion.

Traffic Management

a) Location of access infrastructure such as roads/detours shall be done in consultation with the local community especially in important or sensitive environments. Access infrastructure such as roads shall not traverse wetland areas.
b) Upon the completion of civil works, all access infrastructures such as roads shall be ripped and rehabilitated.
c) Access infrastructure such as roads shall be sprinkled with water at least five times a day in settled areas, and three times in unsettled areas, to suppress dust emissions.

Blasting

a) Blasting activities shall not take place less than 2km from settlement areas, cultural sites, or wetlands without the permission of the SE.
b) Blasting activities shall be done during working hours, and local communities shall be consulted on the proposed blasting times.
c) Noise levels reaching the communities from blasting activities shall not exceed 90 decibels.

Disposal of Unusable Elements

a) Unusable materials and construction elements such as electro-mechanical equipment, pipes, accessories and demolished structures will be disposed of in a manner approved by the SE. The Contractor must agree with the SE which elements are to be surrendered to the Client's premises, which will be recycled or reused, and which will be disposed of at approved landfill sites.
b) As much as possible, abandoned pipelines shall remain in place. Where for any reason no alternative alignment for the new pipeline is possible, the old pipes shall be safely removed and stored at a safe place to be agreed upon with the SE and the local authorities concerned.

c) AC-pipes as well as broken parts thereof must be treated as hazardous material and disposed of as specified above.
d) Unsuitable and demolished elements shall be dismantled to a size fitting on ordinary trucks for transport.

Health and Safety

a) In advance of the construction work, the Contractor shall mount an awareness and hygiene campaign. Workers and local residents shall be sensitized on health risks particularly of AIDS.
b) Adequate infrastructure such as road signs to warn pedestrians and motorists of construction activities, diversions, etc. shall be provided at appropriate points.
c) Construction vehicles shall not exceed maximum speed limit of 40km per hour.

Repair of Private Property

a) Should the Contractor, deliberately or accidentally, damage private property, he shall repair the property to the owner's satisfaction and at his own cost. For each repair, the Contractor shall obtain from the owner a certificate that the damage has been made good satisfactorily in order to indemnify the Client from subsequent claims.
b) In cases where compensation for inconveniences, damage of crops etc. are claimed by the owner, the Client has to be informed by the Contractor through the SE. This compensation is in general settled under the responsibility of the Client before signing the Contract. In unforeseeable cases, the respective administrative entities of the Client will take care of compensation.

Contractor's Environment, Health and Safety Management Plan (EHS-MP)

a) Within 6 weeks of signing the Contract, the Contractor shall prepare an EHS-MP to ensure the adequate management of the health, safety, environmental and social aspects of the works, including implementation of the requirements of these general conditions and any specific requirements of an EMP for the works. The Contractor's EHS-MP will serve two main purposes:
b) For the Contractor, for internal purposes, to ensure that all measures are put in place for adequate EHS management, and as an operational manual for his staff.
c) For the Client, supported where necessary by a SE, to ensure that the Contractor is fully prepared for the adequate management of the EHS aspects of the project, and as a basis for the monitoring of the Contractor's EHS performance.
d) The Contractor's EHS-MP shall provide at least:

- a description of procedures and methods for complying with these general environmental management conditions, and any specific conditions specified in an EMP;
- a description of specific mitigation measures that will be implemented in order to minimize adverse impacts;
- a description of all planned monitoring activities (e.g. sediment discharges from burrow areas) and the reporting thereof; and the internal organizational, management and reporting mechanisms put in place for such.
- The Contractor's EHS-MP will be reviewed and approved by the Client before start of the works. This review should demonstrate that the Contractor's EHS-MP has covered all of the identified impacts, and has defined appropriate measures to counteract any potential impacts.

EHS Reporting

Appendix 3: Environmental hazard management - suggested code of conduct and clauses for contractors

a) The Contractor shall prepare bi-weekly progress reports to the SE in compliance with these general conditions, the project EMP if any, and his own EHS-MP. An example format for a Contractor EHS report is portrayed in Annex 6. It is expected that the Contractor's reports will include information on:
b) EHS management actions/measures taken, including approvals sought from local or national authorities;
c) Problems encountered in relation to EHS aspects (incidents, including delays, cost consequences, etc. as a result thereof);
d) Lack of compliance with contract requirements on the part of the Contractor;
e) Changes of assumptions, conditions, measures, designs and actual works in relation to EHS aspects; and
f) Observations, concerns raised and/or decisions taken with regard to EHS management during site meetings.
g) It is advisable that reporting of significant EHS incidents be done "as soon as practicable". Such incident reporting should be done individually. Also, it is advisable that the Contractor keep his own records on health, safety and welfare of persons, and damage to property. It is advisable that the include such records, as well as copies of incident reports, as Annexes to the bi-weekly reports. A sample format for an incident notification is shown below. Details of EHS performance will be reported to the Client through the SE's reports to the Client.

Training of Contractor's Personnel

a) The Contractor shall provide sufficient training to his own personnel to ensure that they are all aware of the relevant aspects of these general conditions, any project EMP, and his own EHS-MP, and are able to fulfil their expected roles and functions. Specific training should be provided to those employees that have particular responsibilities associated with the implementation of the EHS-MP. General topics should be:
b) EHS in general (working procedures);
c) emergency procedures; and
d) social and cultural aspects (awareness raising on social issues).

Cost of Compliance

a) It is expected that compliance with these conditions is already part of standard good workmanship and state of art as generally required under this Contract. The item "Compliance with Environmental Management
b) Conditions" in the Bill of Quantities covers this cost. No other payments will be made to the Contractor for compliance with any request to avoid and/or mitigate an avoidable EHS impact.

Example Format: EHS Report

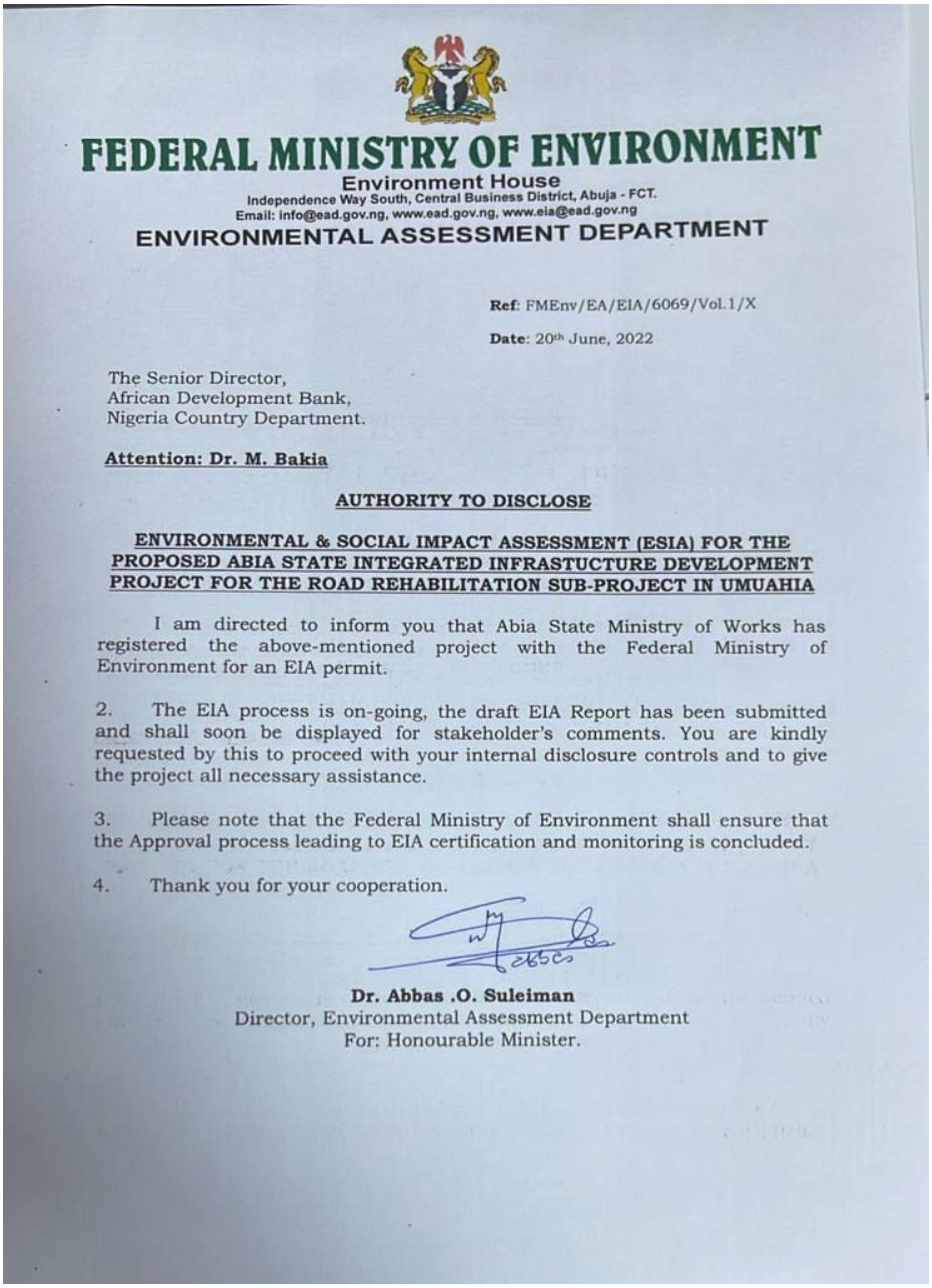
a) Contract:
b) Period of reporting:
c) EHS Management Actions/Measures:
d) Summarize EHS management actions/measures taken during period of reporting, including planning and management activities (e.g. risk and impact assessments), EHS training, specific design and work measures taken, etc.
e) EHS incidents:
f) Report on any problems encountered in relation to EHS aspects, including its consequences (delays, costs) and corrective measures taken. Include relevant incident reports.
g) EHS compliance:
h) Report on compliance with Contract EHS conditions, including any cases of non-compliance.
i) Changes:
j) Report on any changes of assumptions, conditions, measures, designs and actual works in relation to EHS aspects.
k) Concerns and observations:
l) Report on any observations, concerns raised and/or decisions taken with regard to EHS management during site meetings and visits.
m) Signature (Name, Title Date):
n) Contractor Representative

EHS Incident Notification

Appendix 3: Environmental hazard management - suggested code of conduct and clauses for contractors

a) Provide within 24 hrs to the Supervising Engineer
b) Originators Reference No: .....
c) Date of Incident: .....
d) Time: .....
e) Location of incident: .....
f) Name of Person(s) involved: .....
g) Employing Company: .....
h) Type of Incident: .....
i) Description of Incident:
j) Where, when, what, how, who, operation in progress at the time (only factual)
k) Immediate Action:
l) Immediate remedial action and actions taken to prevent reoccurrence or escalation
m) Signature (Name, Title, Date): .....
n) Contractor Representative

Appendix 4: Federal Ministry of Environment Authority to disclose the ESIA



FEDERAL MINISTRY OF ENVIRONMENT

Environment House
Independence Way South, Central Business District, Abuja - FCT.
Email: info@ead.gov.ng, www.ead.gov.ng, www.eia@ead.gov.ng

ENVIRONMENTAL ASSESSMENT DEPARTMENT

Ref: FMEnv/EA/EIA/6069/Vol.1/X

Date: 20th June, 2022

The Senior Director,
African Development Bank,
Nigeria Country Department.

Attention: Dr. M. Bakia

AUTHORITY TO DISCLOSE

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED ABIA STATE INTEGRATED INFRASTUCTURE DEVELOPMENT PROJECT FOR THE ROAD REHABILITATION SUB-PROJECT IN UMUAHIA

I am directed to inform you that Abia State Ministry of Works has registered the above-mentioned project with the Federal Ministry of Environment for an EIA permit.

2. The EIA process is on-going, the draft EIA Report has been submitted and shall soon be displayed for stakeholder's comments. You are kindly requested by this to proceed with your internal disclosure controls and to give the project all necessary assistance.

3. Please note that the Federal Ministry of Environment shall ensure that the Approval process leading to EIA certification and monitoring is concluded.

4. Thank you for your cooperation.

Dr. Abbas .O. Suleiman
Director, Environmental Assessment Department
For: Honourable Minister.

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* the Road Rehabilitation Subproject in Aba, Abia State, June 2021 prepared under Abia State Integrated Infrastructure Development Project and State Project Management Implementation Unit by Enviplan International Limited, Kaduna, Nigeria with Quality Assurance by Multiple Development Services (MDS) Team led by Dr. Eugene Itua,

For more information, please contact:

- ……..Senior Transport Engineer, … … … …
- ……or Environmental Officer, ……..