



**DRAFT ENVIRONMENTAL AND SOCIAL  
MANAGEMENT PLAN (ESMP)  
FOR  
8 ROADS UNDER BACKLOG  
MAINTENANCE (124KM) ROADS UNDER  
THE NIGER STATE RAAMP**



**SEPTEMBER, 2023**

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## ABBREVIATIONS AND ACRONYMS

|          |  |
|----------|--|
| AFD      | French Development Agency  |
| ARAP     | Abbreviated Resettlement Action Plan                                       |
| CEDAW    | Convention on the Elimination of All Forms of Discrimination against Women |
| EMP      | Environmental Management Plan  |
| ESIA     | Environmental and Social Impact Assessment                                 |
| ESMF     | Environmental and Social Management Framework                              |
| ESMP     | Environmental and Social Management Plan                                   |
| ESMS     | Environmental and Social Management System                                 |
| ESO      | Environmental and Social Officer   |
| EVD      | Ebola Virus Diseases   |
| FEPA     | Federal Environmental Protection Agency                                    |
| FGN      | Federal Government of Nigeria  |
| FME      | Federal Ministry of Education  |
| FMEnv    | Federal Ministry of Environment  |
| FPMU     | Federal Project Management Unit  |
| GBV      | Gender Based Violence  |
| GRM      | Grievance Redress Mechanism  |
| HIV/AIDS | Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome           |
| HSE      | Health, Safety & Environment   |
| IDA      | International Development Association                                      |
| LGAs     | Local Government Authorities   |
| M&E      | Monitoring and Evaluation  |
| NISACA   | Niger State Agency for Control of AIDS                                     |
| NISEPA   | Niger State Environmental Protection Agency                                |
| NISWASEC | Niger State Water and Sewage Corporation                                   |
| PAD      | Project Appraisal Document   |
| PIM      | Project Implementation Manual  |
| RAMP-2   | Second Rural Access and Mobility Project                                   |
| SEA      | Sexual Exploitative Abuse  |
| SEPA     | State Environmental Protection Agency                                      |
| SLO      | Social and Livelihood Officer  |
| SPIU     | State Project Implementation Unit  |
| STDs     | Sexually Transmitted Diseases  |
| TOR      | Terms of Reference   |
| WB       | World Bank   |



## EXECUTIVE SUMMARY

### ES1: INTRODUCTION

The Federal Government of Nigeria (FGN) has initiated the preparation of the Rural Access and Agricultural Marketing Project (RAAMP), the successor of the Second Rural Access and Mobility Project (RAMP-2). The project will be supported with financing from the World Bank and the French Development Agency (AFD) and will be guided by the Government's Rural Travel and Transport Policy (RTTP). The lead agency for the Federal Government is the Federal Department of Rural Development (FDRD) of the Federal Ministry of Agriculture and Rural Development (FMARD). The Federal Project Management Unit (FPMU) is overseeing the project on behalf of FDRD, while the respective state government of nineteen (19) participating states will implement it. The project development objective of RAAMP is to improve rural access and agricultural marketing in selected participating states whilst strengthening the financing and institutional base for effective development, maintenance and management of the rural road network sustainability. The participating states are: eleven northern states (Bauchi, Gombe, Kaduna, Kano, Katsina, Kebbi, Kogi, Kwara, Niger, Plateau and Sokoto) and eight southern states (Abia, Akwa Ibom, Ebonyi, Ekiti, Ogun, Ondo, Osun and Oyo).

The Niger state RAAMP has 8 Nos of Backlog maintenance roads with a total distance of 124km. The work package would involve engineering works such as, but not limited to, the following: site clearance; earthworks; provision of sub-base; provision of lateritic base course (generally as surfacing); trapezoidal earth side drains; with turnouts/off-shoots; lined side drains; single and multiple 900 mm concrete pipe culvert extensions and new culverts; reinforced concrete box culverts; possibly reinforced concrete bridges on bored piles; Double Bituminous Surface Treatment (DBST).

These activities have the potential to generate environmental and social impacts including noise and dust generation; delay in travel time due to traffic obstruction from movement of construction vehicles, accident risks to road users due to construction vehicles, potential pollution to water resources from poor waste management, child labour, impacts on assets and access to assets, community health & safety risks such as accidents/spread of STDs, risks of GBV/SEA/SH from labour influx, security risks to workers such as kidnapping and banditry amongst others.

In line with the RAAMP ESMF, an Environmental and Social Screening was conducted in April 2023 to ascertain the eligibility of the roads based on the environmental and social sensitivities, and the need for preparation of any site-specific instrument or otherwise. The screening identified the need to prepare an Environmental and Social Management Plan (ESMP) to adequately address the site-specific impacts envisaged due to the project activities for the eight (8) roads

RAAMP triggers four environmental and social safeguards policies namely: Environmental Assessment OP/BP 4.01, Natural Habitats OP/BP 4.04, Physical Cultural Resources OP/BP 4.11 and Involuntary Resettlement OP/BP 4.12 and has been assigned an Environmental Assessment (EA) Screening Category "B". This rating is based on the scope of the project, which indicates limited negative environmental and social impacts, especially as the project does not contemplate constructing new roads and will essentially remain within the existing right-of-way.

The specific objective of this ESMP is to assess the potential environmental and social impacts of the proposed works as described in the detailed preliminary designs and develop appropriate mitigation measures to address the negative impacts. This ESMP also outlines mitigation costs, responsibilities, and a monitoring plan which include monitoring parameters, frequency, responsibility and costs. This ESMP also advises any required updates to the engineering design based on impacts reduction strategies and mitigation measures, prior to finalization of the engineering design. Furthermore, the costs for mitigation of this ESMP which is due to the contractor will be embedded in Bill 1 in the standard bidding documents for contractors to enable adequate consideration and costing for E&S management in their bids.

The overall study was based on both quantitative data and qualitative inputs collected through literature review of environmental and social data for the project areas, field visits for primary data gathering and socio-economic survey in the project areas. In addition, stakeholders' consultations were conducted along the project corridor including Focused Group Discussion (FGD) and Key informants' interviews.

## **ES2: ADMINISTRATIVE & REGULATORY FRAMEWORK**

The preparation of this ESMP was guided by the Environmental Impact Assessment Act No. 86, 1992 (as amended by EIA Act CAP E12 LFN 2004), relevant Niger State and Federal Government environmental and social policies, laws, regulations, guidelines, and applicable World Bank Operational Policies. The proposed project activities triggers all the four (4) applicable World Bank operational policies for RAAMP as stated above. However, only the Kuyi – Pampala (7km) road as explained in table 2.1 triggered OP4.12 Involuntary Resettlement and a standalone Resettlement Action Plan is being prepared alongside this ESMP to compensate for losses. Table 2.2 in chapter 2 of this ESMP gives a summary of applicable Nigerian environmental framework relevant to the project.

## **ES3: PROJECT DESCRIPTION**

Generally, RAAMP has four components as indicated below;

**Component A:** Improvement of Rural Access and Trading Infrastructure

**Component B:** Sector Reform, Asset Management and Agro-logistics Performance Enhancement

**Component C:** Institutional Development, Project Management and Risk Mitigation.

**Component D:** Contingent Emergency Response.

The Niger state RAAMP has 8 Nos of Backlog maintenance roads with a total distance of 124km. The work package would involve engineering works such as, but not limited to, the following: Site clearance; earthworks; provision of sub-base; provision of lateritic base course (generally as surfacing); trapezoidal earth side drains; with turnouts/off-shoots; lined side drains; single and multiple 900 mm concrete pipe culvert extensions and new culverts; reinforced concrete box culverts; possibly reinforced concrete bridges on bored piles and Double Bituminous Surface Treatment (DBST).

The proposed intervention is the upgrade of a single lane carriageway of 6 m, with 1 m shoulder each on either side, and a bituminous surfacing, 150 mm base course, and 150 mm subbase course. A side drain of 1.2 m is proposed on either side of the road in built-up areas, while slide-slopes will be constructed in other areas with a design speed of 50 km/h. This is depicted in figure 3.1 in chapter 3 of this ESMP.

Other activities include creation of a staging area for office and equipment parking, creation of workers campsites, and creation of borrow pits. The various proposed project activities and staffing requirements at the pre-construction, construction, decommissioning and operation phases of the project have been outlined in Table 3.1 of this report.

## **ES4: DESCRIPTION OF PROJECT ENVIRONMENT**

The 8 nos. Backlog maintenance roads with a total of 124km are located across six (6) Local Government Areas (LGAs) of Niger State, namely; Katcha, Lavun, Borgu, Bosso, Kontagora and Wushishi LGAs. Figure 4.2 in chapter 4 is a map showing relative distribution of the roads across Niger State, Nigeria. Table 4.1 in chapter 4 of this ESMP shows list of the roads, their location details and brief descriptions.

Niger State is in the northern part of Nigeria and has a hot climate characterized by very high temperatures year-round; a long, intense dry season from November – March; and a brief, irregular rainy season from April - October months. These areas of interventions fall within the major climatic conditions of Niger State.

The Ambient Air quality assessment was conducted using MSA ALTAIR® 5x Multi Gas detector. All values of major air quality parameters were within FMEEnv limits.

The roads in their present conditions are earth roads with most of the pavements currently silted up while some have been washed away by erosion. Because of the rainfall conditions of the state, erosion is very common on the stretch of roads with medium to high slope, some developing into gullies in some segments. These conditions of the roads were observed along the 7km Kuyi – Kampala Road, 35Km Beji-Makera-Jangara Road, 3Km Kontagora-Gangaren Sag Road and 10Km Patishin-danko-Masallaci Road where failed culverts and parts of the roads have been washed away by erosion.

Niger state is drained by rivers Niger and Kaduna and their numerous flood plains and tributaries some of which traverse the newly built river crossings across the project areas. Generally, there are poor drainage systems across the road project corridors hereby making the road prone to erosion.

No surface water samples were obtained because the streams were dried as at the time of baseline sampling while for groundwater, four (4) field samples were collected and analysed in a laboratory approved by the Federal Ministry of Environment (FMEEnv).

**Flora:** The vegetation in Niger State is a typical Northern Guinea Savannah types, characterized by presence of trees, shrubs and herbaceous flora.

**Fauna:** Some domestic animals are present such as cows, goats, dogs, sheep, ram, chickens and during consultation with local residents and hunters along the project corridor the wildlife species identified include:

**Mammals:** Monkeys, Wildcats, Hare, Antelopes, Pig, Buffalos, Hippopotamus

**Birds:** Doves, Cattle egret, Hawks, Bushfowls, Guinea fowls

**Rodents:** Grass-cutters, Rats, Giant rats, Squirrels

**Reptiles:** Crocodile, Snakes (of several species), Cobra, Vipers

**Fish:** tilapia, catfish

Local inhabitants acknowledged that there are several more species, which in recent times have virtually become extinct or rare, due to hunting and perhaps habitat loss. Such species include hyena and lion.

The Socio-Economic Baseline reveals that most of the persons interviewed are in the productive age band of between 18-50yrs (76.79%) and so offers a labour pool from which contractors can source for workers for the proposed road upgrading project. The study also indicates higher proportion of the men in the population interviewed (73.21%) will provide sufficient human capital from the communities that the contractor can recruit personnel for the execution of this project. However, there was impressive turnout of women at Bako village which constituted almost half of the women that responded across the whole project corridor. Also, with 78.57% of respondents that have lived in the project area for 10 years and above; there is every tendency that they will be familiar with environmental and social challenges facing their communities. The result shows that almost all of respondents (89.29%) were Muslims and that the majority (75%) are married and this indicates the high positive impact this road upgrading project will have on the households in these family units as the project will improve source of income and livelihood of these households. Finally, most of the respondents (67.86%) are farmers and 26.79% are traders and the component A of the RAAMP project is Improvement of Rural Access and Marketing Infrastructure, therefore, this road upgrading will be a great advantage to the farmers and traders. The rural communities where the roads are located are predominantly agrarian communities where farming, charcoal making, hunting and fishing are their main occupations



## ES5: POTENTIAL IMPACTS AND MITIGATION

The proposed 124km backlog rehabilitation/intervention works could potentially cause impacts on the environmental and socio-economic components of the project area. Majority of these impacts will be beneficial especially in areas of improved access to farms, markets and quality infrastructure. Nonetheless, civil works have the potential to generate adverse impacts on the environment and immediate communities.

Table ES5: Potential Adverse Environmental and Social Impacts

| ENVIRONMENTAL IMPACTS  | SOCIAL IMPACTS   |
|--|--|
| <b>Preconstruction Phase</b>   |  |
| <ul style="list-style-type: none"> <li>❖ <b>Loss of Flora and Fauna</b> <ul style="list-style-type: none"> <li>➤ Land clearing activities (especially at proposed campsite locations and along <b>Road</b> project corridors) could lead to loss of vegetation cover and soil erosion and exacerbate climate change impacts.</li> </ul> </li> <li>❖ <b>Environmental Pollution</b> <ul style="list-style-type: none"> <li>➤ Vegetal waste from clearance of vegetation may be washed into water bodies and cause pollution if they are not properly managed.</li> <li>➤ Potential deterioration of air, water and soil quality from land clearing activities, fugitive dust and exhaust fumes from movement and use of vehicles and machines which could result in environmental pollution and public health concerns.</li> </ul> </li> <li>❖ <b>Land Degradation</b> <ul style="list-style-type: none"> <li>➤ Sourcing of construction materials from unlicensed vendors and burrow pits such as sand, clay, gravels could lead to environmental degradation and erosion from unreclaimed burrow pits, sand mining activities and extraction of gravel from unlicensed quarries.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>❖ <b>Involuntary Resettlement</b> <ul style="list-style-type: none"> <li>➤ Involuntary Resettlement Issues which involve loss of economics trees, crops and business access disturbance along 7km Kiyu Kampala road project corridor</li> </ul> </li> <li>❖ <b>Disruption of Community Activities / Social Stress</b> <ul style="list-style-type: none"> <li>➤ Disturbance of communities due to construction activities such as mobilization of vehicles/materials/equipment to site and civil works/operation of machinery on-site, which could also cause grievances.</li> <li>➤ Increase in traffic and delay time, disturbance of market and religious activities due to movement of vehicles/materials/equipment to site.</li> </ul> </li> <li>❖ <b>Labor Influx</b> <ul style="list-style-type: none"> <li>➤ Increased risk of illicit behavior and crime (including prostitution, theft and substance abuse) from presence of workers in the community.</li> <li>➤ Risks associated with Labor influx such as Gender-based violence, including sexual harassment, child abuse and exploitation.</li> <li>➤ Poor labor and working conditions could expose workers to ill-health, injury, conflicts and legal action</li> </ul> </li> <li>❖ <b>Conflict and Community Unrest</b> <ul style="list-style-type: none"> <li>➤ Conflict may arise between community members and contractor, especially when members of the community are not hired/employed at the construction site.</li> <li>➤ Armed personnel onsite may act harshly towards the contractor workers.</li> </ul> </li> <li>❖ <b>Accident/incidents involving Community members</b> <ul style="list-style-type: none"> <li>➤ Movement of equipment and vehicle to site could lead to accidents involving community members, students and staff.</li> <li>➤ Material and equipment stacking could restrict access for students and community members.</li> </ul> </li> <li>❖ <b>Occupational Accidents/incidents</b> <ul style="list-style-type: none"> <li>➤ Occurrence of accidents and injury of workers during pre-construction activities.</li> </ul> </li> <li>❖ <b>Insecurity</b> <ul style="list-style-type: none"> <li>➤ Project workers including Consultants, contractor workers could fall victim of theft, kidnap, insurgency, and social conflicts.</li> </ul> </li> <li>❖ <b>Loss of Archaeological and Cultural Resources</b> <ul style="list-style-type: none"> <li>➤ Possible chance finds during construction works may unearth/destroy sensitive sites such as graves which can cause conflict or grievances</li> </ul> </li> </ul> |
| <b>Construction Phase</b>  |  |

| ENVIRONMENTAL IMPACTS  | SOCIAL IMPACTS  |
|--|---|
| <ul style="list-style-type: none"> <li>❖ <b>Impairment of Air Quality</b> <ul style="list-style-type: none"> <li>➤ Potential air pollution from fugitive dust and exhaust fumes from movement and use of vehicles and equipment which could result in environmental pollution and public health concerns.</li> </ul> </li> <li>❖ <b>Soil Degradation/Contamination</b> <ul style="list-style-type: none"> <li>➤ Leakages may occur from stacked equipment containing oil such as engine oil or fuel. This could result in the seeping-through of toxic fluid into the soil, thereby leading to possible contamination of soil.</li> <li>➤ Soil compaction and soil structure changes may occur due to influx and stationary positioning of heavy-duty equipment and vehicles during access road construction.</li> <li>➤ Sourcing of construction materials such as sand, clay, gravels could lead to environmental degradation and erosion from sand mining activities and extraction of gravel from unlicensed quarries.</li> </ul> </li> <li>❖ <b>Noise and vibration nuisance</b> <ul style="list-style-type: none"> <li>➤ Noise pollution resulting from movement and use of heavy machinery and equipment.</li> </ul> </li> <li>❖ <b>Impairment of Water Quality</b> <ul style="list-style-type: none"> <li>➤ Leakages may occur from stacked equipment containing oil such as engine oil or fuel. This could result in the seeping-through of toxic fluid into surface water and ground water and cause water pollution.</li> </ul> </li> <li>❖ <b>Environmental Pollution</b> <ul style="list-style-type: none"> <li>➤ Generation of solid wastes - soil excavated debris, metal scraps, plastics, wood, waste concrete, papers and cartons, etc. and waste from staging area and site camp can cause pollution to soil, water and air if not properly managed.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>❖ <b>Disruption of Community Activities / Social Stress</b> <ul style="list-style-type: none"> <li>➤ Disturbance of communities due to construction activities such as movement of vehicles/materials/equipment to site and civil works/operation of machinery on-site.</li> <li>➤ Increase in traffic and delay time, disturbance of market and religious activities due to movement of vehicles/materials/equipment to site.</li> </ul> </li> <li>❖ <b>Labor Influx</b> <ul style="list-style-type: none"> <li>➤ Increased risk of illicit behavior and crime (including prostitution, theft and substance abuse).</li> <li>➤ Risks associated with Labor influx such as Gender-based violence, including sexual harassment, child abuse and exploitation. Poor labor and working conditions.</li> <li>➤ Potential for child abuse and child labor which could expose children to hazardous situation, accidents, and molestation.</li> <li>➤ Poor labor and working conditions could expose workers to ill-health, injury, conflicts and legal action.</li> </ul> </li> <li>❖ <b>Conflict and Community Unrest</b> <ul style="list-style-type: none"> <li>➤ Conflict may arise between community members and contractor, especially when members of the community are not hired/employed at the construction site.</li> <li>➤ Armed personnel onsite may act harshly towards the contractor workers.</li> </ul> </li> <li>❖ <b>Accident/Incidents Involving Community Members</b> <ul style="list-style-type: none"> <li>➤ Movement of equipment and vehicle to site as well as construction activities could lead to accidents involving community members.</li> <li>➤ Material and equipment stacking could obstruct free movement of vehicles or could leads to accident.</li> </ul> </li> <li>❖ <b>Occupational Accidents/incidents</b> <ul style="list-style-type: none"> <li>➤ Occurrence of accidents, injury, fatality of workers during construction activities from unsafe work practices, unavailability of PPEs and lack of Health &amp; safety cautions</li> <li>➤ Exposure of workers to hazardous substances such as toxic materials and unsafe working conditions.</li> </ul> </li> <li>❖ <b>Insecurity</b> <ul style="list-style-type: none"> <li>➤ Project workers including Consultants, contractor workers could fall victim of theft, kidnap, insurgency, and social conflicts.</li> </ul> </li> </ul> |
| <b>Decommissioning Phase</b>   |   |
| <ul style="list-style-type: none"> <li>❖ <b>Environmental Pollution</b> <ul style="list-style-type: none"> <li>➤ <b>Poor housekeeping during decommissioning of staging area, campsite and project site could pollute the environment and also lead to grievances from the school/community members.</b></li> <li>➤ <b>Unsuitable and unwanted materials could be left lying indiscriminately in the project area and cause environmental pollution and also lead to grievances from the school/community members.</b></li> <li>➤ Unreclaimed established borrow pits used by contractors may lead to environmental degradation, and store dirty water which could harbour disease vectors and cause public health issues.</li> </ul> </li> </ul>  | <ul style="list-style-type: none"> <li>❖ <b>Accidents/incidents involving community members</b> <ul style="list-style-type: none"> <li>➤ Unreclaimed established borrow pits used by contractors may become accident and drowning sites especially for children, stagnant pools could harbour disease vectors and cause illnesses.</li> <li>➤ Loss of temporary employment for locals engaged during the project activities will lead to loss of income and grievances.</li> </ul> </li> </ul>  |
| <b>Operational Phase</b>   |   |
| <ul style="list-style-type: none"> <li>❖ <b>Noise Pollution</b> <ul style="list-style-type: none"> <li>➤ During the operation stage, the volume of vehicles plying the road will also generate noise that is significantly higher than these background noise levels especially on market days when the volume of traffic is bound to be significantly highest.</li> </ul> </li> <li>❖ <b>Erosion</b> <ul style="list-style-type: none"> <li>➤</li> </ul> </li> </ul>  | <ul style="list-style-type: none"> <li>❖ <b>Security Risk</b> <ul style="list-style-type: none"> <li>➤ Improved mobility will enable persons of dubious character ease of mobility from far and near into communities along the roads' corridors. Thus, the security risk in the area traversed by the road will increase.</li> </ul> </li> <li>❖ <b>Accidents</b> <ul style="list-style-type: none"> <li>➤</li> <li>➤</li> </ul> </li> </ul>   |

| ENVIRONMENTAL IMPACTS | SOCIAL IMPACTS   |
|-----------------------|--|
|                       | ➤ Increased risks of accidents due to more vehicular movements along the rehabilitated roads |

This project may face an influx of labor as skilled laborers required might not be available in the communities along the project corridors. Therefore, Niger RAAMP will take concrete measures to avoid and mitigate potential labor influx-related risks such as workers' sexual relations with minors and resulting pregnancies, presence of sex workers in the community, the spread of HIV/AIDS, sexual harassment of female employees, child labor and abuse, increased dropout rates from school, inadequate resettlement practices, and fear of retaliation, failure to ensure community participation, poor labor practice, and lack of road safety. These risks require careful consideration to improve social and environmental sustainability, resilience and social cohesion.

### ES6: GRIEVANCE REDRESS MECHANISM

A Grievance Redress Mechanism has been designed in this ESMP to ensure that deliberate processes and procedures are put in place to capture, assess and respond to concerns from project beneficiaries, project executors and the general public during the implementation of the roads project. This will ensure smooth implementation of the projects, timely and effectiveness in addressing problems that may be encountered during implementation. The mechanisms for receiving grievances include complaint boxes, dedicated phone lines, grievance redress committees, stakeholder consultations, direct complaints to the project office etc. as stated in chapter 6 of this ESMP. The project has also designed a separate GRM for GBV related cases which includes reporting to the GBV Intermediary Service Provider engaged by the SPIU for onward referral to the relevant service providers mapped by the project.

### ES 7 : ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN

The identified potential adverse environmental and social impacts of the project activities at the pre-construction, construction, decommissioning and operation phases are presented in table 7.1 of this ESMP indicating the mitigation and monitoring measures, responsibility and frequency for monitoring. The ESMP matrix also provides the costs associated with the implementation of proffered mitigation measures.

The summary of the cost for the implementation of the ESMP is presented in the Table below. The total costs of the ESMP including costs for mitigation and monitoring and capacity building is estimated as: **Thirty – Six Million, Two Hundred and Sixty - Seven Thousand Naira (₦36,267,000.00) which is equivalent to Forty six thousand, six hundred and nine dollars, sixty nine cents (\$46,609.69).**

**Table ES7: Summary of ESMP Implementation Budget**

| S/N | Item               | Responsibility  | Estimated Cost (NGN) | Estimated Cost (USD) |
|-----|--------------------|---|----------------------|----------------------|
| 1.  | Mitigation         | Contractor and Niger RAAMP SPIU                               | 20,570,000.00        | 26,436.19            |
| 2.  | Monitoring         | Niger RAAMP SPIU, Supervising Consultant, responsible MDAs    | 9,170,000.00         | 11,785.12            |
| 3.  | Capacity Building  | Niger RAAMP SPIU, Supervising Consultant, Other relevant MDAs | 3,000,000.00         | 3,855.55             |
| 4.  | ESMP Disclosure    | Niger RAAMP SPIU  | 1,800,000.00         | 2,313.33             |
| 5.  | <b>Sub – Total</b> |   | <b>34,540,000.00</b> | <b>44,390.18</b>     |
| 6.  | Contingency        | 5% of Sub-Total   | 1,727,000.00         | 2,219.51             |
|     | <b>TOTAL</b>       |   | <b>36,267,000.00</b> | <b>46,609.69</b>     |

US\$1 = N778.10 (September 28,2023)

### ES8: PUBLIC CONSULTATION

Public consultations and engagement formed a vital part of this ESMP and it is a continuous process throughout the life span of the project. The opinions and concerns of project affected persons and beneficiaries or/and interested parties were collected and documented during consultations.

The consultations took place along the 8 nos Backlog Road maintenance corridors between 24<sup>th</sup> May to 2<sup>nd</sup> June 2023. The communities covered include; Kuyi, Bako, Kampala, Benji, Busigi, Makera, Gudi, Jangar, Mosalashi, Danko Emikyara, Doko, Angbasa, Gaba, Badeyi, Kaajy, Panti, Kafa, Serikwa, Katako, Gbagbaruku, Bakondare, Kusoji, Ebba, Mandara, Tunganwawa.

#### **ES9: CONCLUSION AND RECOMMENDATIONS**

In summary, this ESMP was prepared to provide mitigation for potential adverse impacts and risks associated with the various phases of the proposed 124KM backlog rehabilitation/intervention works in Niger State, and monitoring program to ensure compliance with best international practices. The proposed road project will have highly beneficial impacts on the rural adjoining communities and respective LGAs and the state at large as it will promote integration and improve accessibility to communities, markets, farms and agro-processing centres in the project areas. The effective implementation of mitigation measures in this ESMP will help to avoid, reduce or mitigate/manage the potential adverse impacts and risks, and in very few cases they may be offset. Some recommendations that will enhance the overall sustainability of the proposed project especially during the implementation phase of the project are stated in chapter 9.

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Background**

The Federal Government of Nigeria (FGN) has initiated the preparation of the Rural Access and Agricultural Marketing Project (RAAMP), the successor of the Second Rural Access and Mobility Project (RAMP-2). The project will be supported with financing from the World Bank and the French Development Agency (AFD) and will be guided by the Government's Rural Travel and Transport Policy (RTTP). The lead agency for the Federal Government is the Federal Department of Rural Development (FDRD) of the Federal Ministry of Agriculture and Rural Development (FMARD). The Federal Project Management Unit (FPMU) is overseeing the project on behalf of FDRD, while the respective state government of nineteen (19) participating states will implement it. The project development objective of RAAMP is to improve rural access and agricultural marketing in selected participating states whilst strengthening the financing and institutional base for effective development, maintenance and management of the rural road network sustainability. The participating states are: eleven northern states (Bauchi, Gombe, Kaduna, Kano, Katsina, Kebbi, Kogi, Kwara, Niger, Plateau and Sokoto) and eight southern states (Abia, Akwa Ibom, Ebonyi, Ekiti, Ogun, Ondo, Osun and Oyo).

The Nigeria road network is relatively dense consisting of about 194,000 km of roads. This includes 34,000 km of federal roads, 30,000 km of state roads and 130,000 km of registered rural roads. The road density is about 0.21 km of roads per square kilometre (RAMP-2 ESMF, 2012). In spite of the relatively high road density, the rural accessibility index for Nigeria (defined as the proportion of the rural population living within 2 kilometres away from an all-weather road) is low, at only 25.5 percent, leaving about 92 million rural dwellers unconnected (World Measuring Rural Access: Update 2017/18). Rural access is limited where the poor population is concentrated. An improved rural access will enhance the agricultural potentials and marketing opportunities for the agrarian rural communities in Nigeria and, by extension, help in the improvement of livelihoods of the rural population.

Out of the total project outlay of US\$575 million, the World Bank, the AFD and the GoN will contribute S\$280 million, US\$230 million (Euro 200 million equivalent) and US\$65 million respectively. These contributions are equivalent to 49 percent, 40 percent and 11 percent of the total costs respectively for the Association, the AFD, and GoN.

### **1.2 Description of the Proposed Intervention**

The Niger state RAAMP has 8 Nos of Backlog maintenance roads with a total distance of 124km. The work package would involve engineering works such as, but not limited to, the following: Site clearance; earthworks; provision of sub-base; provision of lateritic base course (generally as surfacing); trapezoidal earth side drains; with turnouts/off-shoots; lined side drains; single and multiple 900 mm concrete pipe culvert extensions and new culverts; reinforced concrete box culverts; possibly reinforced concrete bridges on bored piles; Double Bituminous Surface Treatment (DBST). Other associated activities include vegetation & site clearance, use of labor, creation of staging areas, campsites and burrow pits. These activities have the potential to generate environmental and social impacts including noise and dust generation; Delay in travel time due to traffic obstruction, accident risks to road users, potential pollution to water resources from poor waste management, labour influx, involuntary resettlement, community health & safety risks such as accidents/spread of STDs, risks of GBV/SEA/SH, traffic congestion, security risks to workers such as kidnapping and banditry amongst others.

In line with the RAAMP ESMF, an Environmental and Social Screening was conducted in April 2023 to ascertain the eligibility of the roads based on the environmental and social sensitivities, and the need for preparation of any site-specific instrument or otherwise. The screening identified the need to prepare an Environmental and Social

Management Plan (ESMP) to adequately address the site-specific impacts envisaged due to the project activities for the eight (8) roads.

### **1.3 Scope of the Assignment**

The assignment is for the preparation of site specific ESMP for the eight (8) Backlog maintenance roads that consist of a well-documented set of likely environmental and social issues with appropriate mitigation measures, monitoring, and institutional actions to be taken before, during and after implementation to eliminate the identified adverse environmental and social impacts, offset them, or reduce them to acceptable levels. It also includes the measures required to implement these actions, costing, and responsibility, addressing the adequacy of the monitoring and institutional arrangements in the intervention site.

### **1.4 Rationale for ESMP**

The project triggers four environmental and social safeguards policies namely: Environmental Assessment OP/BP 4.01, Natural Habitats OP/BP 4.04, Physical Cultural Resources OP/BP 4.11 and Involuntary Resettlement OP/BP 4.12 and has been assigned an Environmental Assessment (EA) Screening Category “B”. This rating is based on the scope of the project, which indicates limited negative environmental and social impacts, especially as the project does not contemplate constructing new roads and will essentially remain within the existing right-of-way. This ESMP identifies the environmental and social impacts of the proposed project and defines roles and responsibilities of all stakeholders throughout project life cycle to ensure that mitigation measures are implemented, and overall sustainability of the project is assured.

### **1.5 Objectives of the ESMP**

The specific objective of this ESMP is to assess the potential environmental and social impacts of the proposed works as described in the detailed preliminary designs and develop appropriate mitigation measures to address the negative impacts. This ESMP also outlined mitigation costs & responsibilities, and a monitoring plan which includes monitoring parameters, frequency, responsibility and costs. This ESMP also advises any required updates to the engineering design based on impacts reduction strategies and mitigation measures, prior to finalization of the engineering design. Furthermore, the costs for mitigation of this ESMP which is due to the contractor will be embedded in Bill 1 in the standard bidding documents for contractors to enable adequate consideration and costing for E&S management in their bids.

### **1.6 ESMP Methodology**

The methodology adopted to achieve the project objectives included the conduct of distinct phases of activities carried out. The sequence of the phases of activities conducted broadly included:

- i) Review of applicable environmental and social regulations and statutory requirements including the WB operational policies such as Environmental Assessment (OP 4.01) and Public Disclosure Policy (OP/BP 17.50)
- ii) Literature review and gathering of site and project information;
- iii) Stakeholders'/community consultations and engagement;
- iv) Development of potential environmental and social impacts and associated mitigation measures;
- v) Development of budgetary estimates for implementing this ESMP; and,
- vi) Preparation of the required environmental and social management plan (ESMP) .

Field observations and soil sampling were carried out along the project corridor and its area of influence and extending same to the control points for soil study. Field soil morphological description following the procedure in the 'Guideline for Soil Survey and Profile Description' (FAO, 2006) was adopted. Soil sampling was carried out using Dutch Soil Auger with stainless steel tip. Bulk/composite soil samples were collected by bulking at least 10 core soil samples from land area that is 2 – 5 metres spatially spread around a central sampling location. This



approach was adopted because Turk and Foth (1997) indicated that bulk/ composite rather than core soil sample gives better representation of an area and reduces micro-variabilities due mainly to anthropogenic (i.e., human and land use) effects. Depth of soil sampling was 0 – 30 cm in view of the widespread intensive cultivation and partly built-up nature of the study area with mosaic of fallow area. All the soil observation and sampling points were geo-referenced using hand-held GPS (Appendix 15).

The overall study was based on both quantitative data and qualitative inputs collected through research of historical environmental and social data for the project areas, and the socio-economic survey. Besides the quantitative data collection method, a number of other tools were also used for eliciting information. These tools included (a) Focused Group Discussion (FGD) and (c) Key informants' interviews.

## **CHAPTER TWO: ADMINISTRATIVE & REGULATORY FRAMEWORK**

### **2.1 World Bank Safeguard Policies and Relevant Local and Federal Policy, Legal, Regulatory, and Administrative Frameworks that are Relevant to Niger RAAMP**

The preparation of this ESMP was guided by the Environmental Impact Assessment Act No. 86, 1992 (as amended by EIA Act CAP E12 LFN 2004), relevant Niger State and Federal Government environmental and social policies, laws, regulations, guidelines, and applicable World Bank Operational Policies. The proposed surface dressing activities have triggered four (4) applicable World Bank operational policies for Niger RAAMP, OP4.01 Environmental Assessment, OP/BP 4.04 Natural Habitats, OP/BP 4.11 Physical Cultural Resources which was triggered at all the eight (8) backlog roads while OP4.12 Involuntary Resettlement was triggered only at Kiyu – Pampala (7km) road as explained in table 2.1 below, while table 2.2 below gives a summary of applicable Nigerian environmental framework relevant to the project.

#### **2.1.1 World Bank Safeguard Policies**

The World Bank has 10+2 Environmental and Social safeguard policies, designed to avert and mitigate undue harm to people and their environment in the development process and ultimately ensuring that environmental and social issues are addressed throughout the project life cycle of a World Bank – financed project. Specifically, the proposed project has triggered the following policies: OP/BP 4.01: Environmental Assessment; OP/BP 4.12: Involuntary Resettlement; OP/BP 4.04: Natural Habitat and OP/BP 17.50: Disclosure of Information. The description and applicability of triggered policies are presented in table 2.1 below.

##### **2.1.1.1 World Bank Group Environmental, Health, and Safety General Guidelines**

These guidelines are technical reference documents with general and industry-specific examples of good international industry practice. The EHS guidelines contain the performance levels and measures that are normally acceptable to the World Bank Group and that are generally considered to be achievable for infrastructural developments including road construction.

<https://www.ifc.org/content/dam/ifc/doc/2000/2007-general-ehs-guidelines-en.pdf>

##### **2.1.1.2 Environmental, Health, and Safety Guidelines for Toll Roads**

The EHS Guidelines for Toll Roads include information relevant to construction, operation and maintenance of large, sealed road projects including associated bridges and overpasses. Issues associated with the construction and operation of maintenance facilities are addressed in the General EHS Guidelines.

<https://www.ifc.org/content/dam/ifc/doc/2000/2007-toll-roads-ehs-guidelines-en.pdf>

##### **2.1.1.3 Environmental, Health, and Safety Guidelines for Construction Materials Extraction**

This document includes information relevant to construction materials extraction activities such as aggregates, limestone, slates, sand, gravel, clay, gypsum, feldspar, silica sands, and quartzite, as well as to the extraction of dimension stone. It addresses stand-alone projects and extraction activities supporting construction, civil works, and cement projects. Although the construction materials extraction guidelines emphasize major and complex extraction schemes, the concepts are also applicable to small operations.

<https://www.ifc.org/content/dam/ifc/doc/2000/2007-construction-materials-extraction-ehs-guidelines-en.pdf>

### 2.1.1.4 World Bank Good Practice Note Road Safety

The World Bank’s Environmental and Social Framework (ESF) calls for road safety to be considered on projects. Improving road safety is critical to the World Bank’s twin goals of eradicating extreme poverty and increasing shared prosperity. This note focuses on addressing road safety on World Bank financed operations.

The ESF road safety requirements are defined in Environmental and Social Standard 4 (ESS4): “10. The Borrower will identify, evaluate and monitor the potential traffic<sup>6</sup> and road safety risks to workers, affected communities and road users throughout the project life-cycle and, where appropriate, will develop measures and plans to address them. The Borrower will incorporate technically and financially feasible road safety measures into the project design to prevent and mitigate potential road safety risks to road users and affected communities”

<https://thedocs.worldbank.org/en/doc/6486815701356124010290022019/original/GoodPracticeNoteRoadSafety.pdf>

### 2.1.1.5 Description of the World Bank Safeguard Policies Triggered by the Proposed Niger RAAMP

The table 2.1 below presents the summary of the World Bank Safeguards Policies triggered by the Niger RAAMP proposed road surface dressing project.

Table 2. 1: Description of the World Bank Safeguard Policies Triggered by the Proposed Niger RAAMP Road Surface Dressing Project

| Operational Policy                    | Description of Policy  | Triggered by Proposed Sub Project | How it will be addressed   |
|---------------------------------------|--|-----------------------------------|--|
| Environmental Assessment (OP/BP 4.01) | The proposed project entails civil engineering works with activities such as site clearing, use of heavy equipment, concrete works, Bitumen, labour influx etc. and may trigger some site-specific environmental and social impacts including waste generation, OHS risks, disturbance of economic activities, community health & safety risks, potential GBV/SEA/SH risks, child labour and security risks.   | Yes                               | Mitigation measures have been included in this ESMP (chapter 7) to address specific E&S impacts.                             |
| Natural Habitats (OP/BP 4.04)         | This is triggered by Niger RAAMP activities such as vegetation clearance for Proposed campsites, borrow pits and road realignment along 7Km Kuyi – Kampala Road project corridor.  | Yes                               | Mitigation measures for envisaged associated negative impacts have been captured in this ESMP                                |
| Physical Cultural Resources (OP 4.11) | Both the E&S screening, the ESMP preparation and consultations with affected communities established that there are no physical and cultural resources in the project area and adjoining areas. However, there is possibility of chance find as a result of digging and excavation works along the proposed project corridors.   | Yes                               | To address this policy as a result of digging and excavation, chance find procedures have been provided in appendix 13       |
| Involuntary Resettlement (OP 4.12)    | Activities under this project will not result in any land acquisition. However, there will be, cutting of 15 economic trees, relocation of 2 makeshift structures like kiosks, hence disturbance to small-scale economic activities. These 2 makeshift structures are moveable structures on the RoW and will need to be shifted inwards only, to allow for continuity of businesses. A standalone RAP has been prepared to identify the PAPs and quantify the socio-economic impacts. Compensation will be paid prior to project works. | Yes                               | Further consultations with PAPs. Preparation and implementation of RAP. Establish GRM for channeling & addressing grievances |

## 2.1.2 Relevant Local and Federal Policy, Legal, Regulatory, and Administrative Frameworks that are Relevant to Niger RAAMP

### 2.1.2.1 Administrative Structures

#### 2.1.2.1.1 Federal Ministry of Environment

The Federal Ministry of Environment (FME<sub>env</sub>) is the statutory government institution mandated to coordinate environmental protection and natural resources conservation for sustainable development in Nigeria. The

Environmental Assessment (EA) Department of the Ministry is charged with the responsibility of ensuring that all developmental projects are carried out in compliance with relevant environmental laws and regulations in order to ensure environmental sustainability.

#### **2.1.2.1.2 National Environmental Standards and Regulations Enforcement Agency (NESREA)**

National Environmental Standards and Regulations Enforcement Agency (NESREA) was established by NESREA Act No 25 of 2007 as a parastatal of the FMEnv. NESREA is charged with the responsibility of enforcing all environmental laws, guidelines, policies, standards and regulations in Nigeria. It also has the responsibility to enforce compliance with provisions of international agreements, protocols, conventions and treaties on the environment to which Nigeria is signatory.

#### **2.1.2.1.3 Niger State Ministry of Environment and Forestry (SME&F)**

The mandate of the ministry includes preserving, conserving and on sustainable basis, maintain the ecosystem and encourage collaboration among the States, local government as well as the domestication of all international treaties. It also ensures that engineering design and specification of appropriate waste disposal and treatment system take into consideration the geological and environmental setting, encourage recycling and preserving the integrity of surface and ground water system.

#### **2.1.2.1.4 Niger State Environmental Protection Agency (NISEPA)**

The Niger State Environmental Protection Agency (NISEPA) was established by the NISEPA (Amendment) Law of May, 2011. The functions of the Agency amongst others include to:

- ❖ Enact and enforce State regulations control criteria, procedure, guidelines and environmental standards for effective prevention, remediation, control and prevention of point and non-point sources of pollution and degradation;
- ❖ Implement environmental policy in the State and in particular to demand and review EIA and statements for new development projects and to also demand and review environmental audit reports for existing developments and such other operations which are deemed to have significant impact on the environment; and
- ❖ Establish operational mechanisms for refuse collection, transportation and disposal in cooperation with local governments of the State.

#### **2.1.2.1.5 Local Government Authorities**

Environmental matters at the 13 LGAs hosting the roads under considerations are essentially guided by Environmental Sanitation edicts and bye-laws. The host LGAs have Environment and Public Health Departments that are responsible for environmental health issues in their LGAs.

In table 2.2 below is the description of the applicable Nigerian Environmental Framework relevant to the Niger RAAMP Project.

*Table 2. 2: Applicable Nigerian Environmental Framework Relevant to the Project.*

| <b>Regulatory Framework</b>                                       | <b>Description</b>  | <b>Project Compliance</b>   |
|---|---|---|
| <b>National Policy on the Environment, 1989. Revised 2016</b>     | The policy identifies key sectors requiring integration of environmental concerns and sustainability with development and presents their specific guidelines  | Niger RAAMP will abide by the provisions and processes of the National Environmental Policy which ensures environmental protection and sustainability of projects   |
| <b>Environmental Impact Assessment (EIA) Act CAP E12 LFN 2004</b> | The Environmental Impact Assessment (EIA) Act CAP E12 LFN 2004 provides guidelines for activities of development projects for which EIA is mandatory in Nigeria. According to the act, category II projects such as the Niger RAAMP Road Surface Dressing project that require only a partial EIA/EMP according to the Environmental and Social Screening Report, which will focus on mitigation and Environmental planning measures, | An ESMF was prepared for RAAMP to provide a framework to address environmental and social concerns under the project in compliance with the World Bank's OP 4.01 Environmental Assessment.<br><br>This ESMP has been prepared in compliance with the World Bank's Operational Policies and the Nigerian EIA law, as a site-specific |

|   |   |  |
|---|---|--|
|   |   | management and mitigation plan to address potential negative impacts.  |
| <b>National Environmental (Sanitation and Wastes Control) Regulations (2009)</b>            | The purpose of the Regulation is the adoption of sustainable and environment friendly practices in environmental sanitation and waste management to minimize pollution. The Instrument amongst others makes provisions for the control of solid wastes and hazardous wastes.  | A waste management plan including categories of the project waste, costs and responsibilities is included in this ESMP.  |
| <b>National Environmental (Soil Erosion &amp; Flood Control) Regulations (S.I. 12) 2011</b> | The purpose of these Regulations is to establish technically feasible and economically reasonable standards and procedures to achieve appropriate level of management and conservation practices to abate soil erosion, siltation and sedimentation of the waters of Nigeria, due to soil erosion and flood aggravated by non-agricultural earth-disturbing activities.   | Measures to avoid/minimise such practices are contained in this ESMP including reclamation of borrow pits and recommendation for proper termination of drainage & culverts in the engineering designs.   |
| <b>National Environmental (Noise Standards and Control) Regulations, 2009</b>               | The objective of the Regulations is to ensure maintenance of a healthy environment for all people in Nigeria, the tranquillity of their surroundings and their psychological wellbeing by regulating noise levels. The Instrument prescribes maximum permissible noise levels for construction site as 60dB (A) and 50dB(A) for day and night respectively for Hospitals, schools, institutions of higher learning, homes for the disabled, etc. and maximum permissible noise levels for construction site as 75dB (A) and 65dB(A) for day and night respectively for Buildings other than those mentioned previously. Maximum Permissible Noise Levels for Accelerating Vehicles as stated in Table VIII.   | Measures to avoid/minimise noise pollution are contained in the ESMP including retrofitting of heavy equipment, provision of ear plugs to workers and limiting of project activities to work hours to avoid disturbing rest periods  |
| <b>National Environmental (Air Quality Control) Regulations, 2014</b>                       | The purpose of these regulations is to provide for improved control of the nation's air quality to such extent that would enhance the protection of flora and fauna, human health, and other resources affected by air quality deteriorations and also, all users, the right to: clean air; utilize and benefit from all natural resources managed according to the principles of sustainable development; be informed of the nature and extent of the potential hazard of any activity, undertaking or project and to be served timely notice of any significant rise in the level of pollution and the accidental or deliberate release into the atmosphere of harmful or hazardous substances; and the clean – up and rehabilitation of the affected area. | Measures to avoid/minimise air quality deterioration are contained in this ESMP including regular servicing of machineries and vehicles to reduce emissions from equipment, regular sprinkling of water to reduce dust and use of noise mask by the construction workers.  |
| <b>National Environmental (Construction Sector) Regulations (S.I No. 19), 2011</b>          | The purpose of these regulations is to prevent and minimize pollution from construction, decommissioning and demolition activities in the Nigerian environment. It stipulates that new projects in the construction sector shall apply cost-effective, up-to-date, efficient, best available technology, to minimize pollution to the barest degree practicable. In addition, every operator or facility shall carry out an EIA and submit an EMP for new projects or modification including expansion of existing ones before commencement of activity.  | The preparation of this ESMP is in compliance to this National regulation. Furthermore, pollution risks have been identified and mitigation measures duly factored   |
| <b>National Environmental (Surface &amp; Groundwater Quality Control) Regulations, 2011</b> | The purpose of these regulations is to restore, enhance and preserve the physical, chemical and biological integrity of the nation's surface waters and to maintain existing water uses and also to promote groundwater sources by regulating the discharge and underground injection of hazardous wastes, fluids used for extraction of minerals, fossil fuel energy, and any other substances having the potential to contaminate groundwater   | Measures to avoid/minimise water contaminations are contained in this ESMP including prevention of oil spillage into the water bodies.   |
| <b>Nigerian Land Use Act of 1978</b>  | The law establishes the legal framework for government expropriation of land from individuals and communities, when it is required for "overriding public interest/good". It prescribes the circumstances under which the State can revoke rights of occupancy to the land and the compensation provisions that are required.   | Niger RAAMP has adopted the World Bank OP/BP 4.12 Involuntary Resettlement which provides a more stringent approach to address impacts associated with economic and physical displacement, loss of assets, economic trees & cash crops, economic disturbance. Consequently, a stand-alone Resettlement Action Plan has been prepared where required. |
| <b>National Policy on Occupational Safety and Health, revised 2020</b>                      | This policy was approved by the Federal Executive Council (FEC) in September 2020. It provides a guide for voluntary compliance and serves as a basis for occupational health and   | An OHS Plan has been included in this ESMP. In addition, the contractor will submit an HSE plan to the Niger SPIU as part of contract documents.   |

|   |  |   |
|---|--|---|
|   | safety (OHS) programs for workers even under such development projects   |   |
| <b>Nigeria Labour Law (2004)</b>        | The Labour Act of 2004 set the standard for the minimum amount of naira a worker in Nigeria is supposed to make. In 2020, the National Minimum Wage was set to ₦30,000.00 per month  | The Niger SPIU will ensure that employment of labour is in line with the requirements of this law. Contractual agreements will be reviewed by the social safeguards officer.                      |
| <b>Workers Compensation Act (2010)</b>  | The Workmen's Compensation Act makes provisions for the payment of compensation to workmen for injuries suffered in the course of their employment   |   |
| <b>Niger (Amendment) State Law 2011</b> | The Niger State Environmental Protection Agency (NISEPA) Law promulgated on the 4 <sup>th</sup> of May, 2011, established NISEPA to have the general responsibility for all matters relating to the environment in the State. The Law spells out the powers and functions of NISEPA and makes provision for the establishment of a governing council for the Agency. | The project will engage the Niger State Environmental Protection Agency (NISEPA) in waste management and periodic monitoring of environmental parameters as stated in this ESMP monitoring table. |

### ***2.1.2.1 Child Rights Act (2003)***

The Child's right Act provides a platform for protection of children against child labour, exploitation and other forms of social vices. It codifies the rights of children in Nigeria (a person below the age of 18 years), consolidates all laws relating to children into a single law and specifies the duties and obligations of government, parents and other authorities, organizations and bodies. More particularly, the Act gives full protection to privacy, honour, reputation, health and prevention from indecent and inhuman treatment through sexual exploitation, drug abuse, child labour, torture, maltreatment and neglect to a Nigerian Child. Niger RAAMP will strictly adhere to this legislation in line with mitigation measures in the ESMP table. This will be enforced and monitored by the Supervision Consultant, Niger SPIU, other relevant bodies as identified in this ESMP.

### ***2.1.2.2 The Convention on the Rights of Persons with Disabilities (CRPD) (2012)***

Adopts a broad categorization of persons with disabilities and reaffirms that all persons with all types of disabilities must enjoy all human rights and fundamental freedoms. It clarifies and qualifies how all categories of rights apply to persons with disabilities and identifies areas where adaptations have to be made for persons with disabilities to effectively exercise their rights and areas where their rights have been violated, and where protection of rights must be reinforced.

### ***2.1.2.3 National Gender Policy (2006)***

Provides a framework for ensuring gender inclusion and sensitivity in developmental plans and programs at the national and sub-national levels. The goal includes the elimination of cultural/ religions gender-based biases and harmful cultural and religious practices which rise to inequalities in gender-role relations in the Nigerian society, by ensuring: ensure equal access to women, boys and girls to both formal and informal education; ensure that women have access to critical resources and invest in their human capital as a means of reducing extreme poverty in families; and eliminate the high risks linked to many harmful traditional cultural practices, which still put threaten the health of women. Niger RAAMP through the social safeguard/ GBV officer will ensure that there is gender consideration in every program and phase of the program, and also ensure the implementation of Gender Based Violence procedures.

### ***2.1.2.4 The Violence Against Persons Prohibition (VAPP) ACT 2015)***

signed into law on 23rd May 2015. This act prohibits all forms of violence against private and public life and provides maximum protection and effective remedies for victims and punishment of offenders. Nigeria's national government has taken steps to penalize and address GBV and SEA, although a clear leadership with the leverage to garner multi sectoral support to address this complex problem seems absent. The institutional champion of women's and children's rights and GBV issues within the government is the Federal Ministry of Women Affairs and Social Development (FMWASD). But it has limited influence on sectoral ministries who need to enforce policy, insufficient



budgetary resources and insufficient institutional capacity to enact its mandate. In practice, the legal and judicial systems provide women and children with little protection against violence, and timely and adequate support services are scarce and often ill-equipped to respond to survivors' needs. Thus, Niger RAAMP will adopt the GBV Prevention and Response framework prepared for RAAMP including implementation of GBV Action Plan and Mapping of GBV service providers.

### **2.1.2.5 The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) (1985),**

Discourages the discrimination against women by any distinction, exclusion or restriction made on the basis of sex which has the effect or purpose of impairing or nullifying the recognition, enjoyment or exercise by women, irrespective of their marital status, on a basis of equality of men and women, of human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field. Niger RAAMP through the social safeguard/ GBV officer will ensure that there is gender consideration in every program and phase of the program, and also ensure the implementation of Gender Based Violence procedures.

### **2.1.2.6 Other Relevant Human Protection Laws**

#### **a) International Treaties Relevant to GBV**

- The International Covenant on Civil and Political Rights (ICCPR) (2004)
- The International Covenant on Economic, Social and Cultural Rights (ICESCR) (2004)
- The Convention on the Rights of the Child (CRC) (1990), and the Convention on the Rights of Persons with Disabilities (CRPD) (2012)
- International Convention on the Elimination of all forms of Racial Discrimination (1976)

#### **b) Regional Treaties Relevant to GBV**

- The African Charter on Human and Peoples' Rights (ACHPR) (1982)
- The African Charter on the Rights and Welfare of the Child (ACRWC) (2007)
- The Protocol to the ACHPR on the Rights of Women in Africa (the "Maputo Protocol") (2007)
- The National Action Plan for the Implementation of United Nations Security Council Resolution 1325 (2009);

## **2.2 COMPARISON BETWEEN APPLICABLE NATIONAL LAWS AND WORLD BANK POLICIES**

**Table 2. 3: World Bank Safeguards Policies**

| <b>Nigeria National</b>  | <b>World Bank Safeguards Policies</b>   | <b>Comments</b>   |
|--|---|---|
| The Environmental Impact Assessment (EIA) Act CAP. E12 L.F.N (2004) makes it mandatory for all major development projects likely to have negative impacts on the environment like the RAAMP to conduct Environmental Impact Assessments. RAAMP is rated a category II based on the Nigerian EIA law which stipulates the need for an Environmental Management Plan | Environmental Assessment (OP/BP 4.01) which ensures that projects likely to have potential environmental and social negative impacts undergo environmental assessments based on the defined project category. RAAMP is rated a category B due to the nature of envisaged limited environmental and social impacts. An ESMF has been prepared to identify all potential risks and mitigation for the project. This ESMP also provides site-specific mitigation plans for potential negative impacts. | This ESMP has adopted the World Bank OP4.01 as a guide for the project, which is also in line with the Nigerian EIA law for a category B project and State law for assessment on project impacts prior to approval for development. |
| The Forestry Act 2006 has provisions to restore, maintain and enhance the ecosystems and ecological processes essential for the functioning of the biosphere to preserve biological diversity and the principle of optimum sustainable yield in the use of these natural resources and ecosystems.   | Natural Habitat (OP/BP 4.04) which is triggered by RAAMP activities such as vegetation clearance. The policy aims to conserve biological diversity and promote the sustainable use of natural resources. Mitigation measures for envisaged associated negative impacts have been captured in this ESMP  | Niger State RAAMP has adopted the World Bank OP/BP 4.04 pursuant to the robust guidelines for protection of natural habitat. Though this policy was only triggered along 7km Kuyi – Kampala Road project corridor.                  |

| Nigeria National   | World Bank Safeguards Policies  | Comments   |
|--|---|--|
| <p>National Cultural Policy, 1988 sets directions for the following: affirmation of the authentic cultural values and cultural heritage; building up of a national cultural identity and parallel affirmation of cultural identities of different ethnic groups.</p> <p>Federal Ministry of Information &amp; Culture has a mandate to promote the nation's rich cultural heritage</p> <p>National Commission for Museums and Monuments has a mandate to manage the collection, documentation, conservation and presentation of the National Cultural properties</p> | <p>Physical Cultural Resources (OP/BP 4.11) which stipulates the need to protect the integrity of physical and cultural heritage. Excavation works under RAAMP may lead to chance find, also, project activities may not completely avoid unknown sacred sites and cultural resources. To address this policy, chance find procedures have been provided in appendix 13</p> | <p>In the absence of an associated robust law at the state level, national provisions will be complied with and the World Bank OP4.11 has been adopted to provide the overarching guidance</p> |
| <p>Land Use Act (1978) which proscribes that all Land belongs to the State Government and can be allocated for developmental purposes</p>  | <p>OP 4.12 Involuntary Resettlement which ensures measures to compensate for land acquisition, economic and physical displacement, loss of assets, economic trees and cash crops.</p> <p>Project activities will affect economic trees, access to assets and temporary structures, thus a Stand-alone RAP has been prepared by the SPIU for 7Km Kuyi – Kampala Road.</p>    | <p>In the absence of stringent relevant state and national laws, the World Bank OP/BP 4.12 has been adopted</p>  |

## CHAPTER THREE: PROJECT DESCRIPTION

### 3.1 Description of the Proposed Project and Project Component

RAAMP has four components as indicated below;

**Component A:** Improvement of Rural Access and Trading Infrastructure – activities include the upgrading of rural roads, construction of short-span critical cross-drainage structures, improvement of agro-logistics centers and support to the costs of consultancies and supervision of construction activities.

**Component B:** Sector Reform, Asset Management and Agro-logistics Performance Enhancement. This component comprises three sub-components: (i) B.1 Other Civil Works. Support the maintenance and spot improvement of rural roads; (ii) B.2 Support for Improving Agro-logistics Activities.

**Component C:** Institutional Development, Project Management and Risk Mitigation. The component has two sub-components. (i) C.1 Institutional Development and Project Management. This sub-component will involve support to institutional development of the rural transport, trading infrastructure and agro-logistics activities and maintenance (ii) C.2 Risk Mitigation and Resiliency: The areas the risk mitigation & resiliency technical assistance support will include GBV/SEA, grievance redressal & citizen participation, road safety and rural road climate resiliency.

**Component D:** Contingent Emergency Response. The component will address any unforeseen emergency infrastructure needs following a natural disaster. The component will be triggered if there are emergency infrastructure needs following a natural disaster in order to restore livelihoods of affected people.

### 3.2 Description of the Proposed Project Activities

The Niger state RAAMP has 8 Nos of Backlog maintenance roads with a total distance of 124km. The work package would involve engineering works such as, but not limited to, the following:

- ❖ Site clearance;
- ❖ earthworks;
- ❖ provision of sub-base;
- ❖ provision of lateritic base course (generally as surfacing);
- ❖ trapezoidal earth side drains; with turnouts/off-shoots;
- ❖ lined side drains;
- ❖ single and multiple 900 mm concrete pipe culvert extensions and new culverts;
- ❖ reinforced concrete box culverts;
- ❖ possibly reinforced concrete bridges on bored piles;
- ❖ Double Bituminous Surface Treatment (DBST).

Other activities include staging of campsites, site office and vehicle parking areas, use of labour, and creation of borrow pits. The Table 3.1 below shows the various proposed project activities and staffing at the pre-construction, construction, decommissioning and operation phases of the project.

**Table 3. 1: Project Activities and Facilities**

| No. | Project Phase    | Activities  | Labor / Staffing   | Support Facilities  |
|-----|------------------|---|--|---|
| 1.  | Pre-Construction | <ul style="list-style-type: none"> <li>• Site marking and pegging,</li> <li>• Site clearing including the demolition and relocation of structures within the RoW,</li> <li>• Mobilization of equipment and workers to site, and staging of campsite</li> <li>• Removal of topsoil</li> <li>• Dewatering</li> <li>• Creation of borrow pits</li> </ul> | <ul style="list-style-type: none"> <li>• Skilled labor (estimate of 16 nos)</li> <li>• Unskilled Labor (estimate of 40 nos)</li> </ul> | <ul style="list-style-type: none"> <li>• Campsite</li> <li>• Sanitary Facilities including 1 male and 1 female toilets</li> <li>• Staging Area for contractor equipment</li> <li>• Borrow Pit Area</li> <li>• Personal Protective Equipment (PPEs)</li> <li>• First Aid kits</li> <li>• Portable water</li> <li>• On-camp power source</li> </ul> |

|    |                           |  |  |  |
|----|---------------------------|--|--|--|
| 2. | Construction              | <ul style="list-style-type: none"> <li>• Earth works</li> <li>• Excavation</li> <li>• Construction of drainage structure and facilities,</li> <li>• Desilting of silted existing drainages</li> <li>• Earth filing and alignment</li> <li>• Road surfacing</li> <li>• Installation of Beam Rail along affected road section near existing borrow pits;</li> <li>• Reclamation of existing borrow pits that encroached into RoW.</li> <li>• Construction of Box culverts and demolition of failed hydraulic structures</li> <li>• Strengthening the existing carriageway</li> <li>• Installation of Traffic Signage along upgraded road and spur</li> </ul> | <ul style="list-style-type: none"> <li>• Skilled labor (estimate of 24 nos)</li> <li>• Unskilled labor (estimate of 80 nos)</li> </ul> | <ul style="list-style-type: none"> <li>• Campsite</li> <li>• Healthcare facility</li> <li>• First aid kits (1 kit would serve 10 staff)</li> <li>• Borrow pit</li> <li>• Construction water</li> <li>• Maintenance Workshop for contractor equipment</li> <li>• Staging Area</li> <li>• Sanitary Facilities (2 male and 2 female toilets)</li> <li>• PPEs</li> <li>• Portable water</li> <li>• On-camp power source</li> </ul> |
| 3. | Decommissioning           | <ul style="list-style-type: none"> <li>• Removal of construction equipment;</li> <li>• Disposal of construction spoil and waste in general;</li> <li>• Decommissioning of borrow pit</li> <li>• Dismantling of temporary work camp of the contractor; and</li> <li>• Waste management.</li> </ul>  | <ul style="list-style-type: none"> <li>• Skilled labor (estimate 16 nos)</li> <li>• Unskilled labor (estimate 40 nos)</li> </ul>       | <ul style="list-style-type: none"> <li>• First aid kits (1 kit would serve 10 staff)</li> <li>• Sanitary Facilities (2 male and 2 female toilets)</li> <li>• PPEs</li> <li>• Portable water</li> </ul>   |
| 4. | Operation and Maintenance | <ul style="list-style-type: none"> <li>• Vehicular movement</li> <li>• Identification of road defects</li> <li>• Fixing of potholes</li> <li>• De-siltation of culverts and drains</li> <li>• Treatment such as crack sealing</li> </ul>   | <ul style="list-style-type: none"> <li>• Skilled labor (estimate 3 nos)</li> <li>• Unskilled labor (estimate 15 nos)</li> </ul>        | <ul style="list-style-type: none"> <li>• Maintenance Workshop</li> <li>• Maintenance equipment</li> </ul>  |

### 3.3 Proposed Road Upgrade Design

The proposed upgrade is a single lane carriageway of 6 m, with 1 m shoulder each on either side, and a bituminous surfacing, 150 mm base course, and 150 mm subbase course. A side drain of 1.2 m is proposed on either side of the road in built-up areas, while slide-slopes will be constructed in other areas with a design speed of 50 km/h. This is depicted in figure 3.1 below.

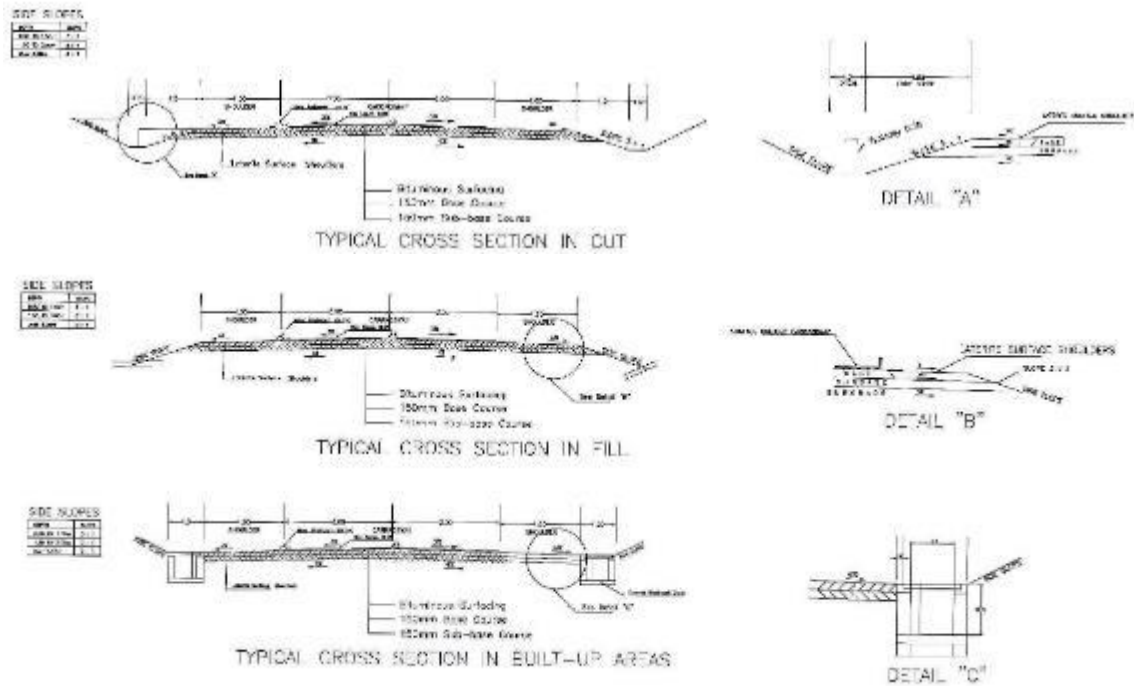


Figure 3. 1:Beji - Makera Typical X Section (Cross-Section in: cut, Fill and Built – Up Areas)

### 3.4 Proposed Hydraulic Structures Design

The design proposes to improve some existing drainages since they are still in good condition, following the findings of a condition survey conducted by the design engineer. Furthermore, some of the existing culverts will be reconstructed and elongated to meet the new road span designed for the road upgrade works. For example, the culvert and drainage schedule for Beji – Makera road corridor are presented in table 3.2 and 3.3 below respectively.

Table 3. 2: Beji – Makera Culverts Schedule

| S.No | Chainage | Description  | Height (m) | Embankment Height (m) |         |       | Invert    |        |        | Overburden (m) |       | Grad | Length (m) |
|------|----------|--------------|------------|-----------------------|---------|-------|-----------|--------|--------|----------------|-------|------|------------|
|      |          |              |            | EGL                   | FGL     | H     | E. Centre | Inlet  | Outlet | Inlet          | Crown |      |            |
| 1    | 10+478   | 1 - 900mm PC | 1.35       | 244.316               | 245.381 | 1.065 | 245.381   | 245.58 | 245.19 | 0.299          | 0.470 | 4%   | 9.79       |
| 2    | 11+375   | 1 - 900mm PC | 1.35       | 247.712               | 249.089 | 1.377 | 249.089   | 249.3  | 248.88 | 0.400          | 0.582 | 4%   | 10.40      |
| 3    | 11+950   | 1 - 900mm PC | 1.35       | 256.347               | 257.286 | 0.939 | 257.286   | 257.49 | 257.08 | 0.355          | 0.532 | 4%   | 10.13      |
| 4    | 12+750   | 1 - 900mm PC | 1.35       | 241.634               | 243.756 | 2.122 | 243.756   | 243.97 | 243.54 | 0.452          | 0.639 | 4%   | 10.71      |
| 5    | 22+300   | 1 - 900mm PC | 1.35       | 166.881               | 167.758 | 0.877 | 167.758   | 167.97 | 167.55 | 0.399          | 0.581 | 4%   | 10.39      |

Table 3. 3: Beji – Makera Drainage Schedule

| S.No | Location   |                     | Geometry/Dimension | Material          | Length(m) | Grad |
|------|------------|---------------------|--------------------|-------------------|-----------|------|
|      | Land Mark  | Position            |                    |                   |           |      |
| 1    | Busugi     | N9 36.739 E6 16.532 | 1m x .75m x 0.15m  | RC Open U-Channel | 600.00    | 2%   |
| 2    | Pai        | N9 35.130 E6 13.875 | 1m x .75m x 0.15m  | RC Open U-Channel | 1500.00   | 2%   |
| 3    | Lapiagi    | N9 33.718 E6 12.418 | 1m x .75m x 0.15m  | RC Open U-Channel | 500.00    | 2%   |
| 4    | Makera     | N9 32.808 E6 12.110 | 1m x .75m x 0.15m  | RC Open U-Channel | 1200.00   | 2%   |
| 5    | Muddi      | N9 32.149 E6 10.846 | 1m x .75m x 0.15m  | RC Open U-Channel | 520.00    | 2%   |
| 6    | Nyikagi    | N9 31.974 E6 10.341 | 1m x .75m x 0.15m  | RC Open U-Channel | 280.00    | 2%   |
| 7    | Jebanchiko | N9 31.455 E6 07.417 | 1m x .75m x 0.15m  | RC Open U-Channel | 200.00    | 2%   |

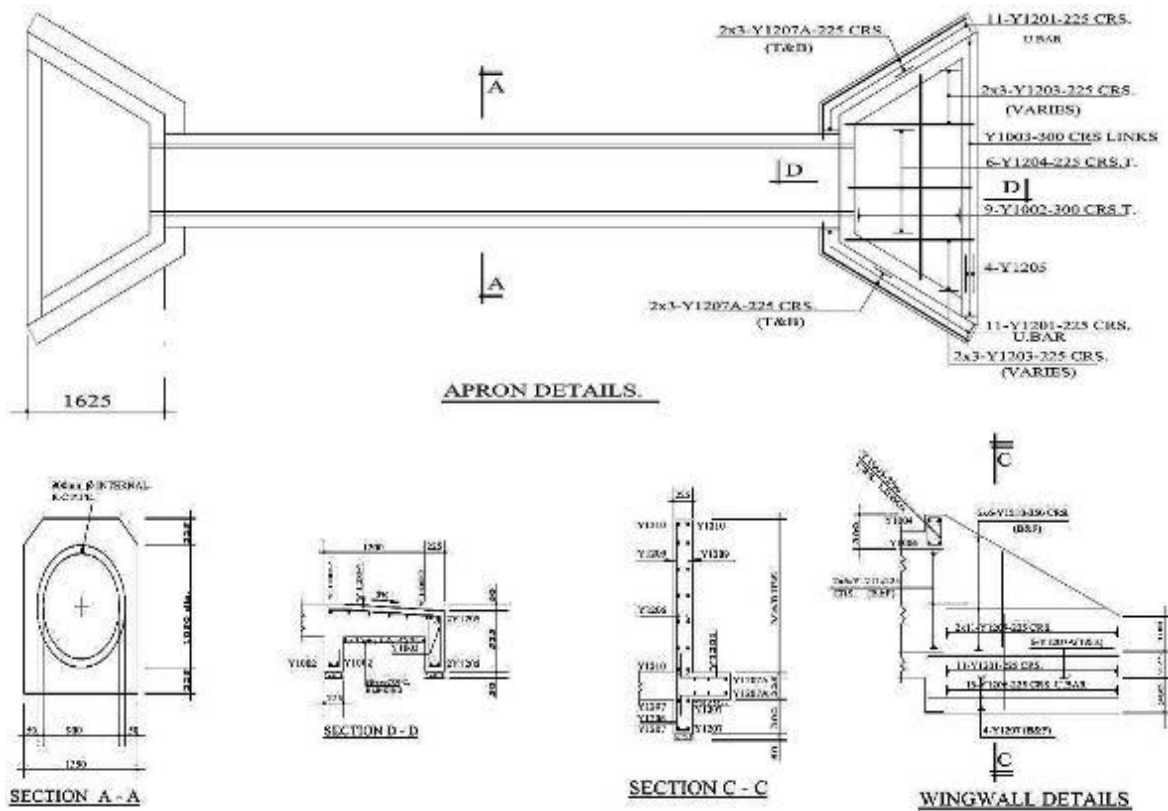


Figure 3. 2: Proposed Hydraulic Design

| GENERAL NOTES   |  |
|---|--|
| -   | MANNUALS USED - Nigeria Highway Design Manual Volume V Structural Design AASHTO Bridge Design Specification Overseas Road Note 9 (TRL 2000)  |
| -   | LOADING USED - HL- 93 LOAD ACCORDING TO CHAPTER 3 OF THE ABOVE SPECIFICATIONS  |
| -   | ALL DIMENSIONS ARE IN MILLIMETERS.   |
| -   | ALL BEND DIMENSIONS ARE OUT TO OUT OF BAR.   |
| -   | ALL REINFORCING STEEL SHALL HAVE THE SPECIFIED CLEAR COVER.  |
| JOINT NOTE:   |  |
| -   | ALL STRUCTURES SHALL HAVE FORMED CONSTRUCTION JOINTS IN TOP SLAB AND WALLS (OPTIONAL IN FLOOR SLAB) SPACED NOT MORE THAN 12M APART, OR AS SHOWN REINFORCING STEEL SHALL PROJECT 500MM THROUGH THE JOINT. |
| REINFORCEMENT STEEL.  |  |
| -   | GRADE 250 STEEL BARS FOR DIAMETERS LESS THAN 20MM. MINIMUM YIELD STRENGTH IS 250MPA AND MINIMUM TENSILE STRENGTH IS 500MPA.  |
| -   | GRADE 460 STEEL BARS FOR DIAMETERS GREATER THAN OR EQUAL TO 20MM BARS MINIMUM YIELD STRENGTH IS 460MPA AND MINIMUM TENSILE STRENGTH IS 620MPA.   |
| OVERLAP FOR THE LONGITUDINAL REINFORCEMENT $\phi$ 12 - 300MM. |  |
| FOR CLASS OF FINISH REFER TO TECHNICAL SPECIFICATION.         |  |
| NOTE:   |  |
| -   | LAP SPLICE AT THE MIDSPAN OF SLAB OR WALL IS IN COMPRESSION AND IS TAKEN TO BE 30 TIMES BAR DIAMETER WITH A 300MM MINIMUM.   |
| -   | HEADWALL AND CUTOFF WALL QUANTITY IS NOT INCLUDED IN THE TABLE ABOVE.  |

### 3.5 Proposed Campsite

Proposed locations for campsite for contractors were to be identified by the SPIU based on the following criteria:

Table 3. 4: Checklist for Campsite selection

| No. | Selection Condition/Criteria   | Remark |
|-----|--|--------|
| 1.  | Located outside the protection zone of watercourses (100 m) and wetlands | TBC    |
| 2.  | Located within an acceptable distance from existing residential areas    | TBC    |
| 3.  | Not located in areas with intact vegetation                              | TBC    |
| 4.  | Not located in or around a school premises                               | TBC    |

TBC: To be checked



**Other Criteria include:**

- The contractor must first obtain the necessary licenses and consents from the local authorities or from the owner of the needed area;
- The contractor must submit for the prior approval of the Resident Engineer, the implantation design and other project structures and specifications related to the camps and sites that are intended to be built;
- The contractor shall take all necessary measures and precautions to ensure that the execution of the works is carried out in accordance with environmental, legal and regulatory requirements, including those set out in this document; The contractor shall take all measures and precautions to avoid any disturbance in the local communities and among the users of the road, as a result of the project execution;
- All contractor workers (resident and non-resident) must sign code of conducts (sample in Appendix 9) against GBV/SEA/SH and other illicit behaviours;
- The areas occupied by the camps and sites must be recovered at the end of the project, when the contractor is demobilized, through the replacement of previously existing conditions, unless other uses are intended;
- The contractor must ensure that Separate rooms will be provided for male and female workers and that all necessary sanitary facilities complying with World Health Organisation (WHO) regulations will be provided for workers to include but not limited to separate toilets for male and female, portable water with well-placed overhead tanks, wash basins and concrete and covered septic tanks.

As part of measures for the management of labour camps, Appendix 10 presents a detailed Campsite Management Plan (CMP) detailing measures for avoiding, reducing and minimizing impacts related to labour camps. The CMP also provides the responsibilities for enforcing and monitoring measures are strictly adhered to.

### **3.6 Material Sourcing/Borrow Pits**

Materials for the construction works shall be locally sourced by the Contractor. Materials such as gravels, aggregates and chips shall be purchased by the contractors from existing materials markets in Niger State. The Contractor will identify and source water externally, in collaboration with the Niger State Water and Sewage Corporation (NISWASEC), outside the project host communities. The Contractor shall not depend on or source for water for the construction works from the community water points so as not to adversely impact existing water sources. Furthermore, most of the streams and rivers are seasonal, and serves the communities along the project corridors, making it non-suitable for use by the Contractor for construction works. The Contractor shall identify potential borrow pits in collaboration with the Niger RAAMP SPIU with materials that possess suitability for the construction works and shall comply with the borrow pit management plan in appendix 7. The Contractor shall carry out requisite engineering tests on samples of the materials for the construction. It is noteworthy that the surface of the existing alignment is mostly lateritic. This may reduce the quantity of materials that may be sourced by the contractor. The Niger RAAMP SPIU will ensure that the contractors comply with the following criteria to establish borrow pits:

- Inform and agree on location of borrow pits with the SPIU (Project coordinator, engineers, safeguard officers) prior to civil works
- The proposed locations not to be located in agricultural fields
- Locations should not be near schools or other public facilities
- Locations not along the proposed road (at least 20m from the shoulder of the road).
- Sufficient quality of soil and suitable earth as adjudged to be available by material quality test to be submitted to the SPIU engineers
- The coordinates, pictures, borrow pit management and reclamation plan for each borrow pit to be submitted to the SPIU
- The SPIU to confirm reclamation of pits after use to close to pre-use state as much as possible including proper documentation and pictures. The unsuitable from the road scarification can be used to reclaim the pit,

where this is not sufficient, contractors should have a plan and budget in place for reclamation and should be duly included in their bid documents. A sample borrow pit management plan is provided in Appendix 7 of this ESMP.

- The SPIU will ensure adequate and documented transactional agreement between the contractor and the landowners.

### **3.7 Staging Area**

The staging area for sighting of the project office, parking equipment and other machinery for the project works will be identified by the contractor in conjunction with the Niger RAAMP SPIU and the community. The potential impacts that may be associated with the sighting and operation of the staging area have been identified alongside mitigation measures and included in the ESMP Matrix in chapter 7 of this ESMP. The following criteria will be adopted in identifying and managing the staging area:

- Not to be located in or around school premises
- Be located outside the protection zone of watercourses (100 m) and wetlands.
- Be located within an acceptable distance from existing residential areas.
- Not located in areas with intact vegetation/critical habitat
- The site must be cordoned off and access restricted to prevent accidents and unsupervised visitors
- The contractor must first obtain the necessary licenses and consents from the local authorities or from the owner of the needed area, including agreement on how the site should be handed over after use:
- The contractor must submit for the prior approval of the Resident Engineer, the design for the staging area that are intended to be built.
- The contractor shall take all measures and precautions to avoid any disturbance in the local communities and among the users of the road, as a result of the project execution;
- The Contractor will ensure that all necessary sanitary facilities shall be provided for workers expected on site:
  - ✓ Conducive office space with tables, chairs, drinking water, good aeration, etc.
  - ✓ Sanitary facilities including a shaded area for breaks and meals.
  - ✓ Separate toilets for male and female
  - ✓ Portable water with well-placed overhead tanks
  - ✓ Wash basins
  - ✓ Concrete and covered septic tanks

## CHAPTER FOUR: DESCRIPTION OF PROJECT ENVIRONMENT

### 4.1 Description of the Area of Influence

Niger State is located in north Central Nigeria with twenty- five local government areas. The state was created 3 February 1976 with the capital sited in Minna, and other major towns are Bida, Kontagora, and Suleja. The State lies on 10° 00'N 6° 00'E. The state capital is about 145 km from the Federal Capital Territory Abuja. Niger state is bordered to the North by Sokoto State, to the west by Kebbi State, South by Kogi, South-West by Kwara State. Kaduna State and the Federal Capital Territory border the State to both the North-East and South-East respectively. Also, Niger State shares an international boundary with the Republic of Benin in the Northwest. The States common boundary with the Republic of Benin is along New Bussa, Agwara and Wushishi Local Government Areas; and this has given rise to common inter- border trades between the two countries. See figure 4.1 below showing the location of Niger Sate in the context of Nigeria.

Niger state is the home state of the two of Nigeria's hydroelectric power stations- the Kainji dam and the Shiroro dam.

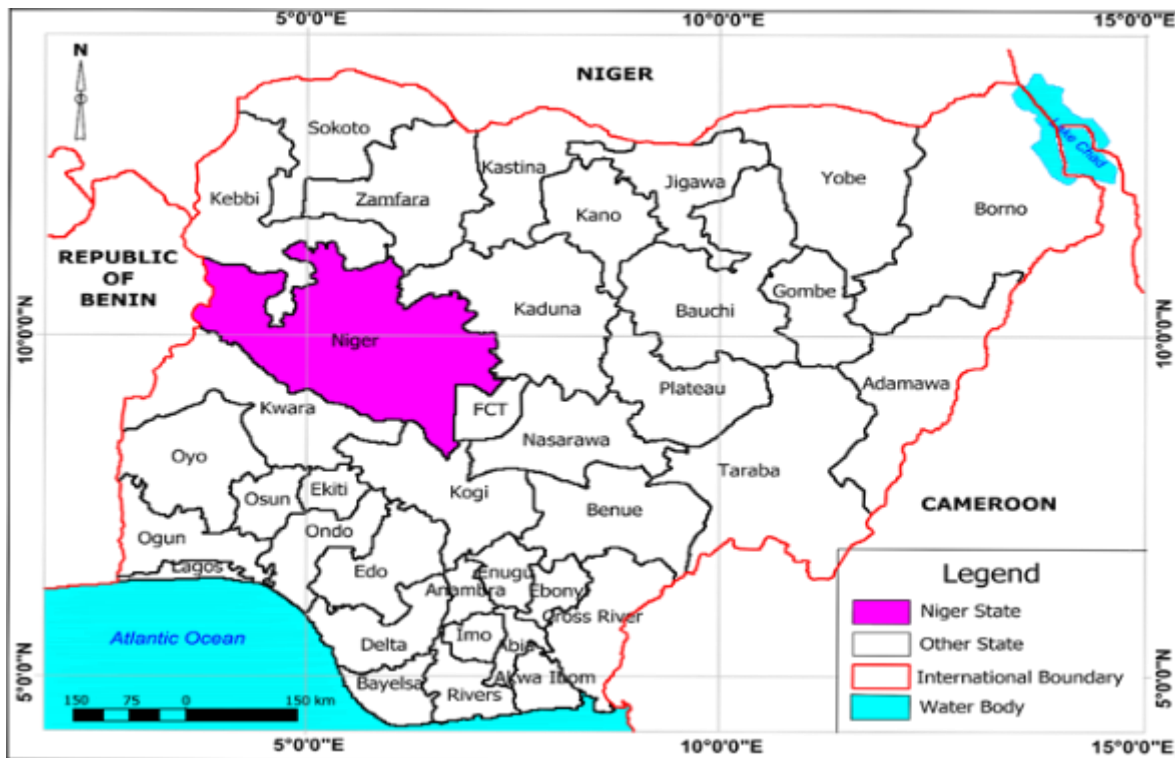


Figure 4. 1: Location Map showing the Location of Niger State in Nigeria

The 8 nos. Backlog maintenance roads with a total of 124km are located across six (6) Local Government Areas (LGAs) of Niger State, namely; Katcha, Lavun, Borgu, Bosso, kontagora and Wushishi LGAs. Figure 4.2 is a map showing relative distribution of the roads across Niger State, Nigeria. Table 4.1 shows list of the roads, their location details and brief descriptions.

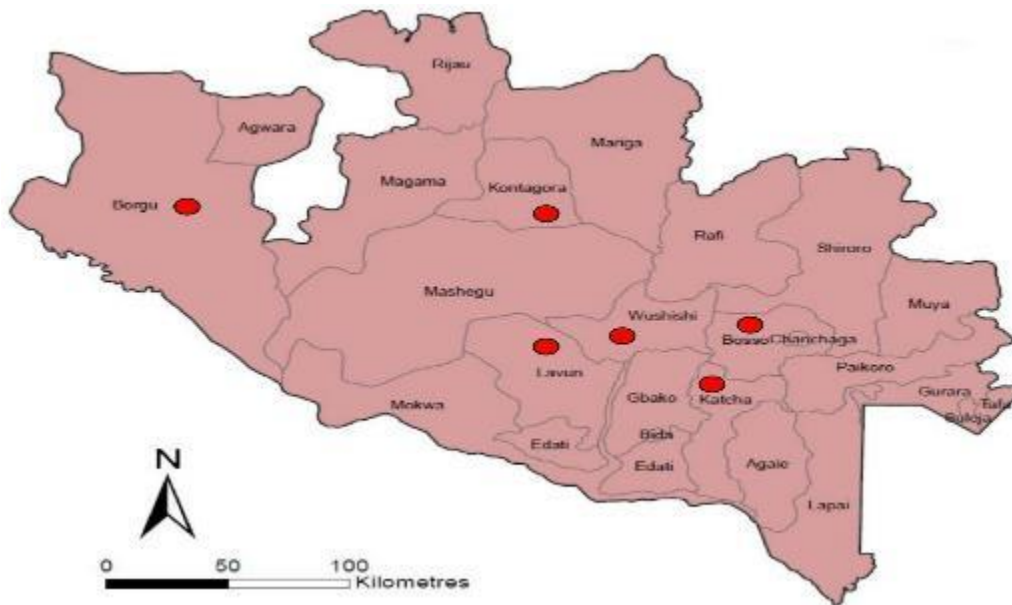


Figure 4. 2: Map of Niger State showing the Six (6) Local Government Areas of Roads for Interventions

Table 4. 1: List of Backlog maintenance Roads showing Location and Brief description

| SN           | Road Name                     | Length (Km)  | LGA            | Coordinates                     |                                 | Description  |
|--------------|-------------------------------|--------------|----------------|---------------------------------|---------------------------------|--|
|              |                               |              |                | Start                           | End                             |  |
| 1            | Kataregi –Ebba Road           | 23km         | Katcha         | N9.36058028<br>E6.2907401°      | N9.2077581<br>E6.09189°         | Laterite motorable Road. Eligible for rehabilitation/intervention  |
| 2            | Doko-Gaba-Shehi Road          | 14.43km      | Lavun          | N8.9433728°;<br>E5.96604°       | N8.9151824°;<br>E5.96604°       | Laterite Road motor able. Eligible for rehabilitation/intervention   |
| 3            | Luma-Shagunu road             | 24.00km      | Borgu          | N10.32060<br>E004.25935°        | N10.34033<br>E004.46828°        | Laterite Road motor able. Upgrade is required to increase sustenance   |
| 4            | Beji-Makera-Jangara Road      | 35.0km       | Bosso          | N9.6297406<br>E6.311876°        | N9.5409257<br>E6.0849333°       | Laterite Road motor able. Eligible for rehabilitation/intervention   |
| 5            | Kontagora-Gangaren sagi       | 3.0km        | Kontagora      | N9.6250059°;<br>E6.5256204°     | N10.3808882°;<br>E5.48478°      | Laterite with numerous culverts requiring de-silting. Erosion prone. Intervention required.  |
| 6            | Tungan wawa-Madara            | 7.0km        | Kontagora      | N10 332 3046°;<br>E005 442.946° | N10 332 3046°;<br>E005 442.946° | Laterite Road motor able. Eligible for rehabilitation/intervention   |
| 7            | Patishin-danko-Masallaci road | 10.0km       | Lavun          | N08 59.814°;<br>E005 55.284°    | N08 29.340°;<br>E005 26.676°    | Laterite Road with failed culvert and prone to erosion as a result of runoff water. Vegetation along road side. Intervention required  |
| 8            | Kuyi-Kampala Road             | 7.0km        | Bosso/wushishi | N09 39.696°;<br>E006 25.350°    | N09 39.431°;<br>E006 25116°     | Laterite Road motor able with failed culverts and prone to erosion as a result of runoff water. A number of economic trees will be affected. RAP required. Eligible for rehabilitation/ intervention |
| <b>TOTAL</b> |                               | <b>124KM</b> |                |                                 |                                 |  |

## 4.2 Environmental Baseline Conditions

### 4.2.1 Climate /Meteorology

Niger State is part of the West Africa Sahel region and has a hot climate characterized by very high temperatures year-round; a long, intense dry season from November – March; and a brief, irregular rainy season. These areas of interventions fall within the major climatic conditions of Niger State. The tropical climate of the state is broadly of two seasons: rainy season (April - October) and dry season (November – March). Rainfall intensity in the state ranges from 60mm/hr to 105mm/hr with the highest rainfall values usually recorded in August during the peak of rainy season. The mean monthly temperature in Niger State is generally high all year round, with the highest value

of about 38.1 OC in the month of March and the lowest value of about 19.60C in December. The mean monthly sunshine hours range between a low value of 4.7 hours in July and August (rainy season) and a high value of 8.6 hours in November (dry season). The number of daily sunshine hours is strongly subjected to the influence of seasonal atmospheric alteration by cloud and rainfall.

#### 4.2.2 Air Quality

The Ambient Air quality assessment was conducted along the project corridors using MSA ALTAIR® 5x Multi Gas detector. Parameters analysed include SPM, CO, NO<sub>2</sub>, PPM, VOC All values of major air quality parameters were within FMEEnv limits (Appendix 15) As summarized in Table 1.1, - 1.4 (Appendix 15) VOC, SO<sub>2</sub>, CO and CO<sub>2</sub> concentrations were detected of all the gaseous pollutants measured in and around the project premises during the study.

VOC concentration range of 0.1ppm to 0.3ppm was detected in all the sampling locations within the proposed project area. The three major forms of VOCs of environmental concern are benzene, toluene and xylene (BTX). The long-term limits of benzene, toluene and xylene are 1.5 ppm, 0.6 ppm, and 0.7 ppm respectively. #. The FMEEnv/NESREA limit of 1.9ppm was also not breached at all the sampling locations. The WHO limit of 6.3ppm was not breached at all the sampling locations.

Carbon dioxide is essentially an asphyxiant gas with only mild toxic properties and no cumulative effects. The recommended exposure limit by Occupational Health and Safety Administration (OSHA) (The Health and Safety Executive Guidance Note EH 40 - Occupational Exposure Limits) for indoor air quality for carbon dioxide is 5,000 ppm (0.5%) by volume calculated as an eight-hour time - weighted average concentration in air, or 15,000 ppm (1.5%) for a 15-minute period. There are no stipulated limits for indoor concentrations.

The concentration of Carbon Dioxide measured within and around the proposed site ranged from 499ppm to 621ppm.

Particulates were detected in all the sampling locations within and around the proposed project site (appendix 15). ThePM<sub>2.5</sub> values ranged from 4.6 – 18.1µg/m<sup>3</sup> which is within the FMEEnv permissible limit of 50µg/m<sup>3</sup>. and PM<sub>5.0</sub> value ranged from 6.0 – 33.3µg/m<sup>3</sup> which is within the FMEEnv permissible limit of 250µg/m<sup>3</sup>. While PM<sub>10</sub> value7.5 – 39.7µg/m<sup>3</sup> fall within FMEEnv limit of 150µg/m<sup>3</sup> and TSP concentrations is from 8.3 – 28.03µg/m<sup>3</sup>for , concentrations

CO concentrations were detected and the value detected in these locations was within 10 ppm daily ambient limit. However, H<sub>2</sub>S, SO<sub>2</sub> and NH<sub>3</sub> were not detected in any of the sampling locations along the proposed project corridor.



*Plate 4.1: Air Quality and Noise Level Sampling Along the Project Corridors*

#### 4.2.3 Erosion/Flooding Patterns

The roads in their present conditions are earth roads with most of the pavements currently silted up while some have been washed away by erosion. Because of the rainfall conditions of the state, erosion is very common on the



stretch of roads with medium to high slope, some developing into gullies in some segments. Motor bikes are the main means of vehicular movement of persons, goods and services. Majority of the roads are low lying in comparison to the general terrain. As a result, in segments where the roads are relatively flat or are of gentle slope, they receive deposits of sand that impede movement especially in the dry season. Also, other segments of the roads (low to medium slopes) are extensively eroded creating rills and gullies which constitute major impediments to traffic. In some of the road segments, road infrastructures in the form of culverts and bridges are available but the extent of erosion has rendered them unusable.

These conditions of the roads were observed along the 7Km Kuyi – Kampala Road, 35Km Beji-Makera-Jangara Road, 3Km Kontagora-Gangaren Sagi Road and 10Km Patishin-danko-Masallaci Road where failed culverts and parts of the roads have been washed away by erosion.



*Plate 4. 2: Pictures Showing Current Status of 3Km Kontagora-Gangaren Sagi Road*



*Plate 4. 3: Pictures Showing Current Status of 7Km Kuyi – Kampala Road Corridor*



*Plate 4. 4: Pictures Showing Current Status of 35Km Beji-Makera-Jangara Road*



#### 4.2.4 Drainage Pattern

Niger state is drained by rivers Niger and Kaduna and their numerous flood plains and tributaries some of which traverse the newly built river crossings across the project areas. Generally, there are poor drainage system across the road project corridors hereby making the road prone to erosion.



*Plate 4. 5: Some Parts of 10Km Patishin-Danko-Masallaci Road without and with Drainages*

#### 4.2.5 Water Quality

The environmental baseline data of water quality (Surface and Aquifer Characteristics) of the proposed project corridor are presented in this sub-section. There were no surface water samples were obtained, while for groundwater four (4) field samples were collected and analysed in a laboratory (**Green Eco Technology Resource Limited**) approved by the Federal Ministry of Environment (FMEnv). The water samples were preserved in an iced cool container before transportation to the laboratory within six hours.

##### 4.2.5.1 Ground Water

**Physico-Chemical Characteristics of Ground Water:** Ground water sample were collected from the boreholes along the project corridors (Appendix 15). The summary of the lab result is presented below;

**Temperature:** The temperature of the groundwater of the study area ranged from 26.2 – 26.7 °C during the study period.

**pH:** The pH of the groundwater of the study area during the study ranged from 7.1 – 7.2 which fails within the FMEnv acceptable limit 6.5 – 9.2.

**Electrical Conductivity:** The conductivity values ranged from 90 – 540  $\mu\text{S}/\text{cm}$ . Electrical Conductivity is the ability of a solution to permit the flow of electrical current. It varies with the number and type of ions in the solution. The conductivity in water is proportional to the concentration of dissolved solids, mostly inorganic salts. The higher the salinity of water the higher the conductivity value (Kiely, 1998).

**Dissolved Oxygen:** The DO levels of the groundwater in the area during the study period ranged between 4.5 mg/l – 7.5 mg/l with mean concentration of 6 mg/l

**Chloride:** chloride which is a function of the salinity level of the water was analyzed ranged from 27.7 mg/l – 35 mg/l with mean concentration of 31.35 mg/l. This is a measure of solids of oxides and chlorides in water. It affects the taste of a groundwater quality.

**Nutrients:** the concentrations of nitrates and nitrites study ranged from 9.40 – 21.00 mg/l with mean concentration as 15.20 mg/l and 0.10 - 0.59 mg/l with mean concentration of 0.345 mg/l respectively. Phosphate values in the

groundwater around the study area ranged from 0.30 mg/l – 1.2 mg/l with mean value of 0.21 mg/l while sulphate ranged between 55.00 – 57.6 mg/l with mean concentration of 56.3 mg/l.

**Cations:** the concentration of magnesium ranged 7.50 - 17.35 mg/l in all the underground water studied while calcium concentration ranged from 12.50 mg/l to 30.00 mg/l with mean value of 41.25 mg/l. Ammoniacal nitrogen ranged between 7.5 – 1.5 mg/l in the groundwater around the study area. Sodium, potassium, magnesium, ammonium and calcium ions ( $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{NH}_4^+$  and  $\text{Ca}^{2+}$ ) are common cations that are essential macro nutrients present in a water environment.

**Heavy Metals in Groundwater:** the following metals were analysed in the groundwater – Arsenic, Chromium, Zinc, Copper, Iron, Lead, Manganese and Cadmium. Arsenic was not detected in the water and Cadmium was 0.002 mg/l in Boko and Mosalaci water samples respectively. However, Copper, Zinc, Iron and Manganese were detected in the following concentrations respectively: 0.09 – 1.00 mg/l, 0.30 – 1.50 mg/l, 0.46 – 0.6 mg/l and 0.029 – 1.15 mg/l. Their mean concentrations in the same order are 0.545 mg/l, 0.90 mg/l, 0.53 mg/l and 0.59 mg/l.

The assessment of heavy metal status is because of the concerns relating to their presence in water. Such concerns are toxicity, bioaccumulation and hazards to human health (GEMS 1992). The detailed heavy metal concentrations in boreholes water of the study area are presented in the physico-chemical quality of the groundwater in the study area as analysed during the study can be summarized as follows:

The general appearance of the groundwater is generally clear with colour being less than 5Hz. This will enhance the aesthetics and acceptability of the water for usage. The odour of the water is acceptable while the electrical conductivity was higher than WHO standard of 1 mg/l for drinking water. Some of the groundwater samples were clear while some were slightly turbid. The mean pH of the groundwater is acidic while the TDS is within WHO acceptable limit for drinking water.

The groundwater in the area is soft water i.e., it contains lower levels of calcium and magnesium which concentrations are within WHO acceptable limit for groundwater. Groundwater chloride content within the study area is within acceptable limit. Sulphate remained undetected in any of the water samples while the phosphate content is within acceptable limit. The heavy metal content of the water was equally analysed. Obtained results showed that some of the heavy metals are not detected in the water namely Arsenic, Lead, Cadmium and Chromium. Others are detected but within acceptable limits. They are Iron, Copper, Manganese and Zinc. The mean Dissolved Oxygen obtained during the study conformed to WHO standard of 7.5 mg/l.

**Microbiology of Ground Water (Bore Hole):** *The distribution of heterotrophic bacteria and fungi and hydrocarbon utilizes in the underground water samples collected at different sampling stations is presented in Heterotrophic bacteria abundance was observed to vary from  $2.0 \times 10^5$  -  $3.0 \times 10^5$  CFU/ml during the study. Total heterotrophic fungi were observed to range from  $1.0 \times 10^2$  to  $4.0 \times 10^2$  CFU/ml during the study. Hydrocarbon utilizing bacteria (HUB) population was observed to vary from  $8.0 \times 10^1$  -  $18.0 \times 10^1$  and Hydrocarbon utilizing fungi (HUF) was observed to range from 0.00 -  $1.0 \times 10^1$ . Total Coliform was absent in the groundwater studied during the exercise. The percentage Hydrocarbon Utilizers abundance obtained during the study ranged from 0.0400% to 0.0600 %.*

#### 4.2.6 Soil

Field observations and soil sampling were carried out along the project corridor and its area of influence and extending same to the control points for soil study. Field soil morphological description following the procedure in the 'Guideline for Soil Survey and Profile Description' (FAO, 2006) was adopted. Soil sampling was carried out using Dutch Soil Auger with stainless steel tip. Bulk/composite soil samples were collected by bulking at least 10 core soil samples from land area that is 2 – 5 metres spatially spread around a central sampling location. This approach was adopted because Turk and Foth (1997) indicated that bulk/ composite rather than core soil sample gives better representation of an area and reduces micro-variabilities due mainly to anthropogenic (i.e., human and land use) effects. Depth of soil sampling was 0 – 30 cm in view of the widespread intensive cultivation and

partly built-up nature of the study area with mosaic of fallow area. All the soil observation and sampling points were geo-referenced using hand-held GPS (appendix 15).

## 4.2.7 Biological Aspects

### 4.2.7.1 Flora and Fauna,



**Flora:** The vegetation in Niger State is a typical Northern Guinea Savannah types, characterized by presence of trees, shrubs and herbaceous flora. The rural communities where the roads are located are predominantly agrarian communities where farming, charcoal making, hunting and fishing are their main occupations. Therefore, the vegetation is highly degraded and most of the forests encountered are secondary woodlands where the plants are struggling to regenerate. It was noted that this vegetation had been cleared by members of the communities, either for their farmlands or as wood-fuel, as well as ranching. It was also gathered that the community (most especially women) gathered the firewoods, not only for use as fuel, but also as means of inheritance to be bequeathed to their children. This is evident from numerous hips of firewood encountered during this study (Plate 4.6). Meanwhile, there is no state and/or national protected areas/wetlands/forests that was identified along the project corridor.










*Plate 4. 6: Hips of Fire Woods at different part of the Project Corridor*


The common vegetation along the roads project corridors is presented in the table below;

**Table 4. 2: Common Vegetation Along the Project Corridors**

| S/N | Common Name       | Botanical Name/Other Name                                 | Pictures  |
|-----|-------------------|---|---|
| 1.  | Shea Butter Tree  | Vitellaria paradoxa / Karite – nut, Bambouk – buttertreen |  |
| 2.  | Locust Beans Tree | Parkia biglobosa  |  |

|    |                      |  |   |
|----|----------------------|--|---|
| 3. | Baobab Tree          | <i>Adansonia digitata</i> / Dead – rat – tree, Monkey – bread – tree |    |
| 4. | Lucky nut            | <i>Cascabela thevetia</i> / Yellow Oleander, Bee – still Tree        |    |
| 5. | Neem                 | <i>Azadirachta indica</i> / Indian lilac, Neem Tree                  |    |
| 6. | Mopane               | <i>Colophospermum mopane</i> / Balsam tree, Iphane, Mupane, Mwaani   |   |
| 7. | Chinese white poplar | <i>Populus tomentosa</i>   |  |
| 8. | Clary                | <i>Salvia sclarea</i> / Orvale, Europe Sage                          |  |
| 9. | Mango Tree           | <i>Mangifera indica</i>  |  |



|     |                  |                        |   |
|-----|------------------|------------------------|---|
| 10. | Cashew nuts tree | Anacardium occidentale |  |
|-----|------------------|------------------------|---|

**Fauna:** Some domestic animals are present such as cows, goats, dogs, sheep, ram, chickens and during consultation with local residents and hunters along the project corridors the wildlife species identified include:

**Mammals:** Monkeys, Wildcats, Hare, Antelopes, Pig, Buffalos, Hippopotamus

**Birds:** Doves, Cattle egret, Hawks, Bushfowls, Guinea fowls

**Rodents:** Grass-cutters, Rats, Giant rats, Squirrels

**Reptiles:** Crocodile, Snakes (of several species), Cobra, Vipers

**Fish:** tilapia, catfish

However, the above-mentioned Mammals: Monkeys, Wildcats, Hare, Antelopes, Pig, Buffalos, Hippopotamus were not sighted and it is not a common occurrence to sight them along the project corridors. However corresponding avoidance and mitigation measures have been provided in Table 7.1 in chapter 7 of this ESMP.

#### **4.2.7.2 Endemic and Endangered Species.**

Local inhabitants acknowledged that there are several more species, which in recent times have virtually become extinct or rare, due to hunting and perhaps habitat loss. Such species include hyena, lion etc.

### **4.3 Analysis of Socio-Economic Baseline Conditions**

Socio-economic survey was done in order to collect the baseline information from a sampling frame of individuals along the project corridor from which 56 respondents were selected and interviewed based on simple random sampling.

To achieve the objectives of the study the approach adopted involved a combination of the following:

- ❖ Questionnaire administration for data collection on existing livelihood opportunities, income, gender characteristics, age profile, health, transport access
- ❖ Focus group discussion (FGD) was conducted to obtain information about the analysis of existing formal and informal grievance redress mechanisms, the fears and expectations of the people
- ❖ Key informant interviews to elicit in-depth information about community structure, norms and values, among others

A summary of socio-economic survey carried out in the project areas is summarized in the Table 4.3

**Table 4. 3: Socioeconomic characteristics of Project Area**

| Description            | Category       | No | Percentage | Remarks  |
|------------------------|----------------|----|------------|--|
| Age Profile            | 18-30          | 7  | 12.50      | This reveals that almost all the persons interviewed are in the productive age band of between 18-50yrs (76.79%) and so offers a labour pool from which contractors can source for workers for the proposed road upgrading project.  |
|                        | 31-50          | 36 | 64.29      |  |
|                        | 51-70          | 13 | 23.21      |  |
|                        | 71+            | 0  | 0.00       |  |
| Gender Characteristics | MALE           | 41 | 73.21      | This indicates that the higher proportion of the men in the population interviewed (73.21%) will provide sufficient human capital from the communities that the contractor can recruit personnel for the execution of this project. However, there was impressive turnout of at Bako village which constituted almost of this record |
|                        | FEMALE         | 15 | 26.79      |  |
|                        | From Birth     | 27 | 48.21      |  |
|                        | Above 15 years | 15 | 26.79      | This implies that with 78.57% of respondents have lived in the project area for 10 years and above; there is every tendency that   |

|                                    |                     |    |       |  |
|------------------------------------|---------------------|----|-------|--|
| <b>Length of Stay in Community</b> | 10-14 years         | 2  | 3.57  | they will be familiar with environmental and social challenges facing their communities.   |
|                                    | 5-9 years           | 9  | 16.07 |  |
|                                    | Below 5 years       | 3  | 5.36  |  |
| <b>Religion</b>                    | Islam               | 50 | 89.29 | Results show that almost all of respondents (89.29%) were Muslims. This indicate that Islam is the predominant religion along the project corridor.  |
|                                    | Christianity        | 6  | 10.71 |  |
|                                    | Others              | 0  | -     |  |
| <b>Marital Status</b>              | Married             | 42 | 75.00 | Results obtained show that majority (75%) are married and this indicates the high positive impact this road upgrading project will have on the households in these family units  |
|                                    | Single              | 9  | 16.07 |  |
|                                    | Widowed             | 5  | 8.93  |  |
|                                    | Divorced/Separated  |    | -     |  |
| <b>Livelihoods</b>                 | Public sector       | 3  | 5.36  | This shows that most of the respondents (67.86%) are farmers and 26.79% are traders and the component A of the RAAMP project is Improvement of Rural Access and Trading Infrastructure. Therefore, this road upgrading will be a great advantage to the farmers and traders. |
|                                    | Fishermen           | 0  | -     |  |
|                                    | Farmers             | 38 | 67.86 |  |
|                                    | Self employed       | 0  | -     |  |
|                                    | Traders             | 15 | 26.79 |  |
| <b>Daily Income in Naira</b>       | Below 500           | 5  | 8.93  | This implies that an improvement in the local economy will further enhance the earning capacity & income of persons along the project corridors.   |
|                                    | 500-900             | 34 | 60.71 |  |
|                                    | 1000-5000           | 10 | 17.86 |  |
|                                    | 6000-10000          | 4  | 7.14  |  |
|                                    | 11,000 +            | 3  | 5.36  |  |
| <b>Household Size</b>              | 10+                 | 8  | 14.29 | Almost all the families interviewed (87.51%) have a size larger than 3+. This implies that the sub-project will have significant impact on the persons in these family units.  |
|                                    | 7 to 9              | 15 | 26.79 |  |
|                                    | 4 to 6              | 26 | 46.43 |  |
|                                    | 1 to 3              | 7  | 12.50 |  |
|                                    | Tertiary            | 1  | 1.79  |  |
| <b>Educational Level</b>           | WASC/SSCE           | 10 | 17.86 | It was observed that more than half (55.36%) have no formal education and 19.64 were able to attend primary school only.. This may attribute to the fact that respondents along the road project corridor are farmers and traders.   |
|                                    | Adult Education     | 1  | 1.79  |  |
|                                    | Primary School      | 11 | 19.64 |  |
|                                    | Arabic school       | 2  | 3.57  |  |
|                                    | No Former Education | 29 | 55.36 |  |
| <b>MEANS OF TRANSPORT</b>          | Bus/Car             | 33 | 58.93 | From the baseline study, it was revealed that the most use of transportation along the project corridors is by Bus/Car.  |
|                                    | Motorcycle          | 19 | 33.93 |  |
|                                    | Bicycle             | 3  | 5.36  |  |
|                                    | Others              | 1  | 1.79  |  |

Source: Field Survey, May 2023



## CHAPTER FIVE: POTENTIAL IMPACTS AND MITIGATION

### 5.1 Methods and Techniques in Assessing and Analyzing the Environmental and Social Impacts of the Proposed Road Project

The methodology and techniques used for identifying, assessing and analyzing the possible environmental and social impacts of the proposed Niger State RAAMP road project were field investigations of the local environment of the proposed project corridors and the neighbouring communities, quantitatively assessed where possible, using appropriate indicators and models. Also, the scope and duration of the likely impacts were assessed.

For this ESMP study, a “5-Step approach was employed by the consultant for the impact identification in line with the Leopold Matrix:

Step 1: Impact Identification - Interaction between project activities and environmental and social sensitivities

Step 2: Qualification of impacts positive/negative, Direct/Indirect/ Short/Long term, Reversible/Irreversible

Step 3: Rating of Impact Likelihood

Step 4: Degree of Impact Significance - Major, Moderate, Moderately High, Moderately Low

Step 5: Impact Assessment Matrix

#### Step 1: Identification of Potential Impacts

Potential impacts were determined based on anticipated interactions between project activities and major environmental and social sensitivities. The identification was done through technical examination of the scope and nature of construction works required, previous experience on similar jobs, concerns raised by stakeholders during focused group discussions and public consultations, and interactions with professionals and experts in the field. The environmental and social sensitivities likely to be affected by project activities are outlined below.

**Environmental Component** includes: Air Quality, Noise (Vibrations, Sound Waves, etc.), Surface water Quality, Ground water Quality, Soil Quality, Terrestrial habitats including fauna and flora

**Social Component** includes: Grievance redress and community affairs, Community health and safety, Economic activities, Employment, Education, Gender Inclusion, Land use pattern, Security risks, Property rights, Transport and traffic, religious activities, Cultural Resources and Involuntary Resettlement.

#### Step 2: Categorization of Impacts

In order to further qualify the impacts of the various project activities on the environment, the identified impacts were characterized based on the nature, duration, and reversibility as follows:

- Beneficial Impacts – these are impacts that have positive and beneficial effects.
- Adverse Impacts – these are impacts that have negative and untoward effects.
- Direct Impacts – these are impacts that are most obvious and are directly related to the proposed project and can be connected to the action that caused them.
- Indirect Impacts – these are secondary impacts that occur later in time or further away from the impact source.
- Cumulative Impacts – typically occur from the incremental impact of an action when combined with impacts from projects that have been undertaken recently or would be carried out in the near future.
- Reversible Impacts – these are impacts over which the components involved have the ability to recover after the alterations caused by the impact.
- Irreversible Impacts – these are the impacts whose effects are such that the sensitivity cannot be returned to its original state even after adequate mitigation measures are applied.
- Residual Impacts – these are the impacts whose effects remain after mitigation measures have been applied.
- Short-term Impacts – these are the impacts whose effects remain over a short period of time and are removed after the application of mitigation measures.

- Long-term Impacts – these are the impacts whose effects remain over a long period of time, even after the application of mitigation measures.

### Step 3: Rating of Impact Likelihood

This is an assessment of the probability of the effect occurring. *Table 5.1* illustrates evaluation/rating based on probability, likelihood and frequency of effect occurring.

**Table 5. 1: Likelihood of Occurrence of Impact**

| Impact Probability               | Likelihood             | Frequency             |
|----------------------------------|------------------------|-----------------------|
| High probability (80-100%)       | A very likely impact   | Very frequent impacts |
| Medium high probability (60-80%) | A likely impact        | Frequent impacts      |
| Medium probability (40-60%)      | A possible impact      | Occasional impacts    |
| Medium low probability (20-40%)  | An unlikely impact     | Few impacts           |
| Low probability (0-20%)          | A very unlikely impact | Rare impacts          |

### Step 4: Degree of Significance

At this stage, the impact rating is determined based on its significance / potential consequence. *Table 5.2* shows the impact significance with associated impact ratings.

**Table 5. 2:: Impact Significance with Associated Impact Ratings**

| Impact Significance     | Impact Ratings    |
|-------------------------|-------------------|
| Major Significance      | Major Impact      |
| Moderate Significance   | Moderate Impact   |
| Minor Significance      | Minor Impact      |
| Negligible Significance | Negligible Impact |

### Step 5: Impact Assessment Matrix

The final impact assessment was rated based on the likelihood of occurrence and potential consequence of the impact; after the rating of each impact, the determination of mitigation measures followed. Only moderate and major impacts were considered for impact mitigation. Continuous improvement practices will address low impacts. *Figure 5.1* shows the Leopold Impact Risk Assessment Matrix.

| Likelihood  | Potential consequences |            |            |              |          |          |
|-------------|------------------------|------------|------------|--------------|----------|----------|
|             | Positive               | Negative   |            |              |          |          |
|             |                        | Hardly any | Little     | Considerable | Great    | Extreme  |
| High        |                        | Moderate   | Moderate   | Major        | Major    | Major    |
| Medium high |                        | Minor      | Moderate   | Moderate     | Major    | Major    |
| Medium      |                        | Minor      | Minor      | Moderate     | Moderate | Major    |
| Medium low  |                        | Negligible | Minor      | Minor        | Moderate | Moderate |
| Low         |                        | Negligible | Negligible | Minor        | Minor    | Moderate |

**Figure 5. 1 Impact Assessment Matrix (Risk Assessment Matrix)**

## 5.2 Potential Significant Adverse Environmental and Social Impacts of the Proposed Project

The proposed 124KM backlog rehabilitation/intervention works could potentially cause impacts on the environmental and socio-economic components of the project area. Majority of these impacts will be beneficial especially in areas of improved access to farms, markets and quality infrastructure. Nonetheless, civil works have the potential to generate adverse impacts on the environment and immediate communities. These unfavorable impacts need to be prevented or managed to enhance the sustainability of the project. This section presents an

extensive analysis of the identified potential beneficial and adverse impacts associated with the proposed project in six (6) local government of Niger State.

**Table 5. 3: Potential Adverse Environmental and Social Impacts**

| ENVIRONMENTAL IMPACTS  | SOCIAL IMPACTS   |
|--|--|
| <b>Preconstruction Phase</b>   |  |
| <ul style="list-style-type: none"> <li>❖ <b>Loss of Flora and Fauna</b> <ul style="list-style-type: none"> <li>➢ Land clearing activities (especially at proposed campsite locations and along Road project corridor) could lead to loss of vegetation cover and soil erosion and exacerbate climate change impacts.</li> </ul> </li> <li>❖ <b>Environmental Degradation</b> <ul style="list-style-type: none"> <li>➢ Vegetal waste from clearance of vegetation may be washed into water bodies and cause pollution if they are not properly managed.</li> <li>➢ Potential air, water and soil pollution from land clearing activities, fugitive dust and exhaust fumes from movement and use of vehicles and machines which could result in environmental pollution and public health concerns.</li> </ul> </li> <li>❖ <b>Land Degradation</b> <ul style="list-style-type: none"> <li>➢ Sourcing of construction materials from unlicensed vendors and burrow pits such as sand, clay, gravels could lead to environmental degradation and erosion from unreclaimed burrow pits sand mining activities and extraction of gravel from unlicensed quarries.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>❖ <b>Involuntary Resettlement</b> <ul style="list-style-type: none"> <li>➢ Involuntary Resettlement Issues which involve loss of economics trees, crops and business access disturbance along 7km Kiyu Kampala road project corridor</li> </ul> </li> <li>❖ <b>Disruption of Community Activities / Social Stress</b> <ul style="list-style-type: none"> <li>➢ Disturbance of communities due to construction activities such as mobilisation of vehicles/materials/equipment to site and civil works/operation of machinery on-site, which could also cause grievances.</li> <li>➢ Increase in traffic and delay time, disturbance of market and religious activities due to movement of vehicles/materials/equipment to site.</li> </ul> </li> <li>❖ <b>Labor Influx</b> <ul style="list-style-type: none"> <li>➢ Increased risk of illicit behavior and crime (including prostitution, theft and substance abuse) from presence of workers in the community.</li> <li>➢ Risks associated with Labor influx such as Gender-based violence, including sexual harassment, child abuse and exploitation.</li> <li>➢ Poor labor and working conditions could expose workers to ill-health, injury, conflicts and legal action</li> </ul> </li> <li>❖ <b>Conflict and Community Unrest</b> <ul style="list-style-type: none"> <li>➢ Conflict may arise between community members and contractor, especially when members of the community are not hired/employed at the construction site.</li> <li>➢ Armed personnel onsite may act harshly towards the contractor workers.</li> </ul> </li> <li>❖ <b>Accident/incidents involving Community members</b> <ul style="list-style-type: none"> <li>➢ Movement of equipment and vehicle to site could lead to accidents involving community members, students and staff.</li> <li>➢ Material and equipment stacking could restrict access for students and community members.</li> </ul> </li> <li>❖ <b>Occupational Accidents/incidents</b> <ul style="list-style-type: none"> <li>➢ Occurrence of accidents and injury of workers during pre-construction activities.</li> </ul> </li> <li>❖ <b>Insecurity</b> <ul style="list-style-type: none"> <li>➢ Project workers including Consultants, contractor workers could fall victim of theft, kidnap, insurgency, and social conflicts.</li> </ul> </li> <li>❖ <b>Loss of Archaeological and Cultural Resources</b> <ul style="list-style-type: none"> <li>➢ Possible chance finds during construction works may unearth/destroy sensitive sites such as graves which can cause conflict or grievances</li> </ul> </li> </ul> |
| <b>Construction Phase</b>  |  |
| <ul style="list-style-type: none"> <li>❖ <b>Impairment of Air Quality</b> <ul style="list-style-type: none"> <li>➢ Potential air pollution from fugitive dust and exhaust fumes from movement and use of vehicles and equipment which could result in environmental pollution and public health concerns.</li> </ul> </li> <li>❖ <b>Soil Degradation/Contamination</b> <ul style="list-style-type: none"> <li>➢ Leakages may occur from stacked equipment containing oil such as engine oil or fuel. This could result in the seeping-through of toxic fluid into the soil, thereby leading to possible contamination of soil.</li> </ul> </li> </ul>  | <ul style="list-style-type: none"> <li>❖ <b>Disruption of Community Activities / Social Stress</b> <ul style="list-style-type: none"> <li>➢ Disturbance of communities due to construction activities such as movement of vehicles/materials/equipment to site and civil works/operation of machinery on-site.</li> <li>➢ Increase in traffic and delay time, disturbance of market and religious activities due to movement of vehicles/materials/equipment to site.</li> </ul> </li> <li>❖ <b>Labor Influx</b> <ul style="list-style-type: none"> <li>➢ Increased risk of illicit behavior and crime (including prostitution, theft and substance abuse).</li> </ul> </li> </ul>   |

| ENVIRONMENTAL IMPACTS  |  | SOCIAL IMPACTS  |  |
|--|--|---|--|
| <ul style="list-style-type: none"> <li>➤ Soil compaction and soil structure changes may occur due to influx and stationary positioning of heavy-duty equipment and vehicles during access road construction.</li> <li>➤ Sourcing of construction materials such as sand, clay, gravels could lead to environmental degradation and erosion from sand mining activities and extraction of gravel from unlicensed quarries.</li> </ul> <p>❖ <b>Noise and vibration nuisance</b></p> <ul style="list-style-type: none"> <li>➤ Noise pollution resulting from movement and use of heavy machinery and equipment.</li> </ul> <p>❖ <b>Impairment of Water Quality</b></p> <ul style="list-style-type: none"> <li>➤ Leakages may occur from stacked equipment containing oil such as engine oil or fuel. This could result in the seeping-through of toxic fluid into surface water and ground water and cause water pollution.</li> </ul> <p>❖ <b>Environmental Pollution</b></p> <ul style="list-style-type: none"> <li>➤ Generation of solid wastes - soil excavated debris, metal scraps, plastics, wood, waste concrete, papers and cartons, etc. and waste from staging area and site camp can cause pollution to soil, water and air if not properly managed.</li> </ul> |  | <ul style="list-style-type: none"> <li>➤ Risks associated with Labor influx such as Gender-based violence, including sexual harassment, child abuse and exploitation. Poor labor and working conditions.</li> <li>➤ Potential for child abuse and child labor which could expose children to hazardous situation, accidents, and molestation.</li> <li>➤ Poor labor and working conditions could expose workers to ill-health, injury, conflicts and legal action.</li> </ul> <p>❖ <b>Conflict and Community Unrest</b></p> <ul style="list-style-type: none"> <li>➤ Conflict may arise between community members and contractor, especially when members of the community are not hired/employed at the construction site.</li> <li>➤ Armed personnel onsite may act harshly towards the contractor workers.</li> </ul> <p>❖ <b>Accident/Incidents Involving Community Members</b></p> <ul style="list-style-type: none"> <li>➤ Movement of equipment and vehicle to site as well as construction activities could lead to accidents involving community members.</li> <li>➤ Material and equipment stacking could obstruct free movement of vehicles or could leads to accident.</li> </ul> <p>❖ <b>Occupational Accidents/incidents</b></p> <ul style="list-style-type: none"> <li>➤ Occurrence of accidents, injury, fatality of workers during construction activities from unsafe work practices, unavailability of PPEs and lack of Health &amp; safety cautions</li> <li>➤ Exposure of workers to hazardous substances such as toxic materials and unsafe working conditions.</li> </ul> <p>❖ <b>Insecurity</b></p> <ul style="list-style-type: none"> <li>➤ Project workers including Consultants, contractor workers could fall victim of theft, kidnap, insurgency, and social conflicts.</li> </ul> |  |
| <b>Decommissioning Phase</b>   |  |   |  |
| <p>❖ <b>Environmental Pollution</b></p> <ul style="list-style-type: none"> <li>➤ Poor housekeeping during decommissioning of staging area, campsite and project site could pollute the environment and also lead to grievances from the school/community members.</li> <li>➤ Unsuitable and unwanted materials could be left lying indiscriminately in the project area and cause environmental pollution and also lead to grievances from the school/community members.</li> <li>➤ Unreclaimed established borrow pits used by contractors may lead to environmental degradation, and store dirty water which could harbour disease vectors and cause public health issues.</li> </ul>  |  | <p>❖ <b>Accidents/incidents involving community members</b></p> <ul style="list-style-type: none"> <li>➤ Unreclaimed established borrow pits used by contractors may become accident and drowning sites especially for children, stagnant pools could harbour disease vectors and cause illnesses.</li> <li>➤ Loss of temporary employment for locals engaged during the project activities will lead to loss of income and grievances.</li> </ul>  |  |
| <b>Operational Phase</b>   |  |   |  |
| <p>❖ <b>Noise Pollution</b></p> <ul style="list-style-type: none"> <li>➤ During the operation stage, the volume of vehicles plying the road will also generate noise that is significantly higher than these background noise levels especially on market days when the volume of traffic is bound to be significantly highest.</li> </ul>   |  | <p>❖ <b>Security Risk</b></p> <ul style="list-style-type: none"> <li>➤ Improved mobility will enable persons of dubious character ease of mobility from far and near into communities along the roads' corridors. Thus, the security risk in the area traversed by the road will increase.</li> </ul> <p>❖ <b>Accidents</b></p> <ul style="list-style-type: none"> <li>➤ Increased risks of accidents due to more vehicular movements along the rehabilitated roads</li> </ul>  |  |

**Table 5. 4: Rating of Identified Potential Impacts at Pre-Construction Phase**

| Activities                                     | Component   | Sub-Component | Potential Impact  | Categorization  | Likelihood | Consequence  | Rating   |
|--|-------------|---------------|---|---|------------|--------------|----------|
| <b>Preconstruction and Construction Phases</b> |             |               |   |   |            |              |          |
| Site clearance and vegetation clearance        | Environment | Air           | Impairment of overall air quality resulting from fugitive dust, particulates and gaseous emission from vegetation clearance and | Direct /<br>Negative /<br>Short-term /<br>Local /<br>Reversible | Medium     | Considerable | Moderate |
| Mobilisation of Equipment and material to site |             |               |   |   |            |              |          |

| Activities   | Component | Sub-Component   | Potential Impact   | Categorization  | Likelihood   | Consequence  | Rating     |
|--|-----------|---|--|---|--------------|--------------|------------|
| Use of machinery<br>Creation of borrow pits and staging area<br>All civil works activities   |           |   | movement/operation of vehicles and machinery   |   |              |              |            |
|  |           | Soil  | Reduced susceptibility to erosion and waterlogging of roads  | Direct / Positive / Long-term / Local / Reversible    |              |              | Beneficial |
|  |           | Flora and Fauna   | Loss of flora and fauna during mobilization of equipment and site clearing,  | Direct / Negative / Long-term / Local / Reversible    | Medium       | Little       | Minor      |
|  |           | Land & Water  | Land degradation from Sourcing of construction materials from sand mining sites, unlicensed quarries, unstable areas             | Direct / Negative / Long-term / Local / Irreversible  | Medium       | Considerable | Moderate   |
|  |           | Soil  | Soil, surface water and ground water contamination from leakages of oil and chemicals from staked equipment and use of chemicals | Direct / Negative / Long-term / Local / Irreversible  | Low          | Considerable | Moderate   |
|  |           | Noise   | Noise pollution resulting from movement and use of heavy machinery and equipment   | Direct / Negative / Short-term / Local / Irreversible | Medium       | Little       | Moderate   |
|  |           | Waste   | Environmental pollution from vegetal waste, construction waste, human waste  | Direct / Negative / Short-term / Local / Reversible   | Medium       | Considerable | Moderate   |
| Site clearance and vegetation clearance<br>Mobilisation of Equipment and material to site<br>Use of machinery<br>Employment and use of labor<br>Creation of borrow pits and staging area<br>All civil works activities | Social    | People  | Increase in local development and employment as the local population are expected to be employed during the civil works          | Direct / Positive / Short-term / Local/ Reversible    |              |              | Beneficial |
|  |           |   | Gender-based violence, including sexual harassment, child abuse and exploitation, substance abuse from labor influx.             | Direct / Negative / Long-term / Local/ Irreversible   | High         | Considerable | Major      |
|  |           | Potential for child abuse and child labor which could expose children to hazardous situation, accidents, and molestation    | Direct / Negative / Long-term / Local/ Irreversible  | High  | Considerable | Major        |            |
|  |           | Poor labor and working conditions could expose workers to ill-health, injury, conflicts                                     | Direct / Negative / Short-term / Local/ Reversible   | Medium  | Considerable | Moderate     |            |
|  |           | Accidents involving community members, students and staff<br>Movement of equipment and vehicle to site and use of machinery | Direct / Negative / Long-term / Local/ Irreversible  | Medium  | Considerable | Moderate     |            |

| Activities                            | Component   | Sub-Component   | Potential Impact   | Categorization   | Likelihood  | Consequence   | Rating       |
|---------------------------------------|-------------|---|--|--|---|---|--------------|
|                                       | Social      | People  | Increase in traffic and delay time, disturbance of communities, market and religious activities  | Direct /<br>Negative /<br>Short-term /<br>Local/<br>Reversible   | Low   | Little  | Minor        |
|                                       |             |   | Conflict between community members and contractor  | Direct /<br>Negative /<br>Short-term /<br>Local/<br>Irreversible | Medium  | Considerable  | Moderate     |
|                                       |             |   | Poor transactional agreement and adequate documentation for rental of staging areas, campsites and borrow pits can lead to grievances. | Direct /<br>Negative /<br>Short-term /<br>Local/<br>Reversible   | Medium  | Considerable  | Moderate     |
|                                       |             |   | Material and equipment stacking could restrict access for students and community members   | Direct /<br>Negative /<br>Short-term /<br>Local/<br>Reversible   | Low   | Little  | Minor        |
|                                       |             |   | Occupational Health & Safety   | Accidents and injury of workers                                  | Direct /<br>Negative /<br>Short-term /<br>Local/<br>Irreversible          | Medium  | Considerable |
|                                       |             | Exposure of workers to hazardous substances such as toxic materials and unsafe working conditions.                                  |  | Direct /<br>Negative /<br>Short-term /<br>Local/<br>Irreversible | Medium  | Considerable  | Moderate     |
|                                       |             | Insecurity resulting in theft, kidnap, and insurgency.<br><br>Armed personnel onsite may act harshly towards the contractor workers |  | Direct /<br>Negative /<br>Long-term /<br>Local/<br>Irreversible  | Medium  | Considerable  | Major        |
|                                       |             | Cultural Resources  | Construction works may unearth/destroy sensitive sites such as graves etc.   | Direct /<br>Negative /<br>Long-term /<br>Local/<br>Irreversible  | Medium  | Considerable  | Moderate     |
| <b>Decommissioning Phase</b>          |             |   |  |  |   |   |              |
| Activities                            | Component   | Sub-Component   | Potential Negative Impact  | Categorization   | Likelihood  | Consequence   | Rating       |
| Demobilisation from site              | Environment | Land and Waste  | Poor housekeeping during decommissioning of staging area and project site can lead to environmental pollution.                         | Direct /<br>Negative /<br>Short-term /<br>Local/<br>Reversible   | Medium  | Considerable  | Moderate     |
| Closure of staging area and campsites |             |   | Environmental degradation from unreclaimed established borrow pits.  | Direct /<br>Negative /<br>Long-term /<br>Local/<br>Irreversible  | Low   | Considerable  | Moderate     |
| Removal of equipment from site        |             |   | Social   | People   | Accidents, exposure to diseases and drowning from unreclaimed borrow pits | Direct /<br>Negative /<br>Long-term /<br>Local/<br>Irreversible | Low          |



| Activities                | Component   | Sub-Component | Potential Impact  | Categorization   | Likelihood | Consequence  | Rating     |
|---------------------------|-------------|---------------|---|--|------------|--------------|------------|
|                           |             |               | Grievances from loss of temporary employment for locals   | Indirect / Negative / Short-term / Local/ Irreversible | Low        | Considerable | Moderate   |
| <b>Operational Phase</b>  |             |               |   |  |            |              |            |
| Maintenance of facilities | Environment | Air           | Poor air quality from exhaust fumes from increase in vehicular traffic along the project corridors.       | Direct / Negative / Long-term/ Local/ Irreversible     | Medium     | Considerable | Moderate   |
|                           |             | Water         | Surface water and ground water deterioration as a result of increase in Storm water runoff                | Direct / Negative / Short-term / Local/ Irreversible   | Medium     | Considerable | Moderate   |
|                           |             | Erosion       | Eliminate erosion sites along the project corridors as a result of proper drainage channelisation         | Direct / Positive / Long-term / Local / Reversible     |            |              | Beneficial |
|                           | Social      | People        | Easy access to farms and markets  | Direct / Positive / Long-term / Local / Reversible     |            |              | Beneficial |
|                           |             |               | Increase in income and improvement in livelihood for farmers and traders                                  | Direct / Positive / Long-term / Local/ Reversible      |            |              | Beneficial |
|                           |             |               | Increase in the IGR of the communities along the project corridors, LGAs of intervention and Niger State. | Direct / Positive / Long-term / Local / Reversible     |            |              | Beneficial |
|                           |             |               | Road accident as result of over speeding and increase in traffic  | Direct / Negative / Long-term / Local/ Irreversible    | High       | Considerable | Major      |

### 5.3 Labor Influx

This project may face an influx of non-local labor and working conditions issues as skilled laborers required might not be available in the communities along the project corridors. Therefore, Niger RAAMP will take concrete measures to avoid and mitigate potential labor influx-related risks such as workers' sexual relations with minors and resulting pregnancies, presence of sex workers in the community, the spread of HIV/AIDS, sexual harassment of female employees, child labor and abuse, increased dropout rates from school, inadequate resettlement practices, and fear of retaliation, failure to ensure community participation, poor labor practice, and lack of road safety and insecurity. These risks require careful consideration to improve social and environmental sustainability, resilience and social cohesion. The SPIU will include mitigation measures such as:

- (a) assessing living conditions of workers' camps and ensuring appropriate living conditions in accordance to the IFC/EBRD Guidance Note on Workers' Accommodation: Processes and Standards (This guidance note looks at the provision of housing or accommodation for workers by employers and the process to address issues that arise from the planning, construction and management of such facilities.);
- (b) establishing proper agreement with host community on equipment staging area
- (c) establishing and enforcing a mandatory Code of Conduct for the company, managers and workers, and an Action Plan for implementation;
- (d) ensuring appropriate location for

these camps; (e) taking countermeasures - indicated in the Social Management Plan - to reduce the impact of the labor influx on the public services; and, (f) devising and implementing a strategy for maximizing employment opportunities for local population, including women.(g) implement the security management plan to identify and mitigate potential security threats.

The Supervision Consultant shall be responsible for monitoring the contractor performance and adherence to the labor influx guideline and that of its Sexual Exploitation and Abuse (SEA) obligations, with a protocol in place for immediate, timely, mandatory and confidential reporting in case of incidents to project community.

#### **5.4 Gender Based Violence**

Nigeria has ratified or acceded to the core international human rights treaties and is a party to the major regional human rights instrument which obliged States to respect, protect and fulfill human rights of all persons within the territory and subject to the jurisdiction of the State, without discrimination. Rape may violate several human rights obligations enshrined in the instruments ratified by Nigeria and is also a form of gender-based violence and a brutal manifestation of violence against women. As a State party to the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) and the Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa (the "Maputo Protocol"), Nigeria has made legally binding commitments to exercise due diligence to combat gender-based violence and discrimination.

Accordingly, Nigeria has an obligation to take all appropriate measures to prevent rape, ensure that there are adequate sanctions for rape in law and in practice, and ensure access to reparation.

## CHAPTER SIX: GRIEVANCE REDRESS MECHANISM

### 6.1 Introduction

The GRM will assist the Niger RAAMP SPIU to ensure that deliberate processes and procedures are put in place to capture, assess and respond to concerns from project beneficiaries, project executors and the general public during the implementation of the roads project. This will ensure smooth implementation of the projects, timely and effectiveness in addressing problems that may be encountered during implementation

Therefore, the setting of grievance redress committee early during the project's preparation is imperative. Grievances may not be limited to but can arise from any of the following: 1) involuntary resettlement and compensation issues, 2) violence, 3) exclusion from project benefits and non-compliance of the contractor to the agreement reached with RAAMP or the community.

This Chapter has been prepared to address the management of grievances arising from the proposed interventions works therefore, the contents herein are a summary of key areas relevant to the subprojects for this ESMP. The GRM for the sub-projects will be applied at 3 levels namely; Community/site Level, SPIU Level and State Steering Committee Level. The structure and composition of these levels have been further discussed in subsequent sections.

### 6.2 Setting up a Grievance Redress Committee

#### Channel 1: GRC at the Site/community Level:

The first channel for filing grievance shall be the district heads. The underlying merit is that the district heads leadership system has proven a cordial and notable channel for conflict resolution in the project areas. The district head shall head this committee while membership of the committee will consist of:

- ❖ The district head or a person appointed by him from his council; Secretary to the district head
- ❖ The village/ward head;
- ❖ The Woman leader in the community or her secretary 2 Representatives of PAPs in the project
- ❖ Two (2) members of the road maintenance committee

#### Channel 2: GRC at the SPIU Level:

The second channel for filing grievance shall be at the level of the project's SPIU. The state project coordinator shall constitute a team within the SPIU to receive, hear and address complaints that are not resolved by district level GRCs at district level. The SPC shall head this committee while membership of the committee shall be as follow:

- ❖ Social Safeguard Officer (Secretary);
- ❖ Communication officer/ Public relations officer; Environmental officer
- ❖ Monitoring and Evaluation officer, and the project Engineer
- ❖ A witnessing NGO

#### Channel 3: GRC at the State Steering Committee Level:

The committee at this level shall be headed by the Permanent Secretary Ministry of Agriculture while the SPC shall serve as the secretary of the committee. Membership of the GRC at this level shall constitute as follows:

- ❖ The Permanent Secretary Niger State Ministry of Agriculture;
- ❖ Director Niger State Ministry of Land & Survey
- ❖ Director Niger State Ministry of Agriculture;
- ❖ Director Niger State Ministry of Environment

- ❖ The Niger State Project Coordinator of RAAMP
- ❖ A witnessing NGO

### **6.3 Informing Parties on Levels and Channels of Grievance Uptake**

Community members have been sufficiently informed during public consultation meetings held across the project areas that there will be 3 levels at which aggrieved persons can channel his/her complaints for redress. Grievance redress shall be funded by the SPIU so that there shall be no cost to the aggrieved/complainant for redress. These shall include:

- 1) the project site/community level,
- 2) the State Project Implementation Unit level and
- 3) the State Steering Committee level.

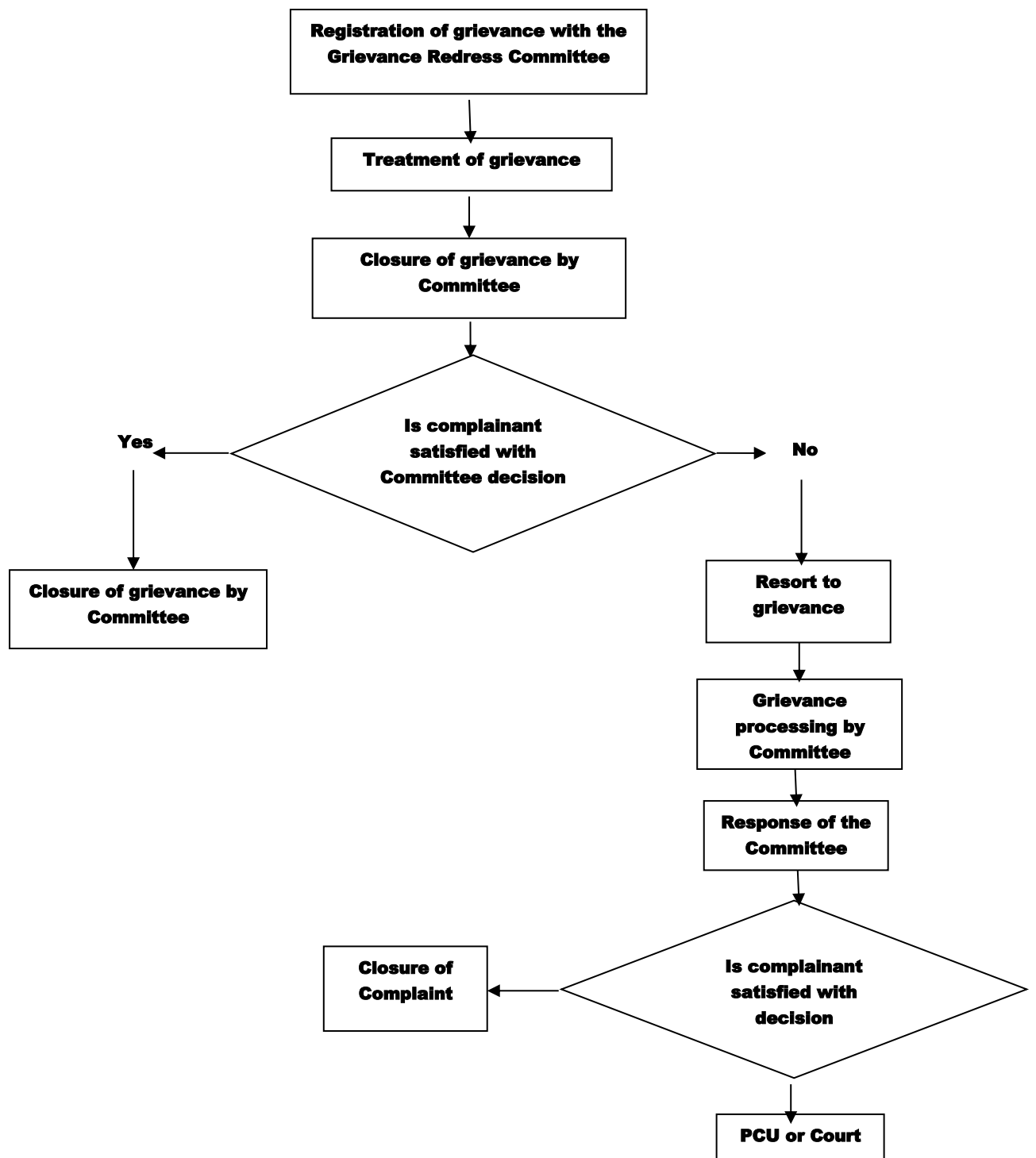
PAPs have also been informed that it is their right to seek redress in the court of law as the last resort, if they felt dissatisfied with the judgments obtained from the grievance redress committees set up by Niger RAAMP project.

### **6.4 Grievance Redress Procedure**

The procedure for addressing potential grievance arising from this project shall involve the steps described in the grievance log shown below:



**Plate 6. 1: GRM Box for Grievance Redress along 23Km Kataeregi –Ebba Road**



**Figure 6. 1: Grievance Log Showing Steps for Grievance Redress**

As shown in the grievance log, an aggrieved person will have the opportunity to lodge complaint with the GRC at the residence or palace of the community district head. That will be the first channel of grievance uptake. It is expected that the matter should be addressed and determined within 10 days from date of receiving the complaint. If a complainant feels dissatisfied with the outcome of the closure of the matter by the community GRC, he/she is encouraged to go to the higher channel for redress. Steps for grievance redress shall involve:

**i. Registration**

The secretary of the committee will receive grievance from the complainant, register and acknowledge receipt of grievance to the grievant within 2 days. The registration will capture the following data: name of the complainant (except anonymous), date of the grievance, category of the grievance, persons involved, and impacts on complainant life, proofs and witnesses. A registration form will have all these bits of information.

**ii. Treatment of Grievance**

This involves the verification of grievance to determine among other things whether the matter has relationship with the project activities, and whether the matter can be handled/resolved at the level where it is presented. This will determine if the matter should be referred to the next level or not. Part of the investigations may also be to assess the cost of lost or risk involved in the grievance.

**iii. Closing of the Grievance or the Processing of the matter**

This involves options and approach taken to resolving the case. This may involve site visit for physical inspection and determination of the claim, negotiation with the aggrieved person and feed back to the parties involved.

**iv. Feed back**

All responses to the complainant in a grievance redress process that moves beyond a unit level must be communicated in writing and/or by verbal presentation to the complainant. This will include a follow up on the corresponding authority where cases are referred, to ascertain the status of reported cases. Feedback on outcome of each case should get to the complainant through the secretary of committee or social contact/safeguard person as the case may be. It is expected that reported complaints at each level will be resolved and determined within **10 days** from date of receipt of the complaint.

However, the aggrieved person can present a grievance/complaint; in person/verbally, by dropping a letter/note in the grievance redress box, email, direct phone calls or SMS etc in English, Hausa or Pidgin English. depending on which ever way that is convenient for the aggrieved person or he/she prefer to present the complaint.

**6.5 Financing of the Grievance Redress Mechanism and Cost of Remediation**

The proponent shall be responsible for the funding of logistics for the GRC as well as the eventual compensation or resettlement remediation that aggrieved party may be entitled to. The proponent will also be responsible for the cost of the judicial process for cases that result to court for adjudication. The anticipated cost of GRM is 5% of the project mitigation cost. The implementation plan for the GRM is shown in Table 6.1.

**Table 6. 1: Implementation Plan for Grievance Mechanism**

| Steps | Process   | Description  | Completion Time frame  | Responsible Agency/Person   |
|-------|---|--|--|---|
| 1.    | Receipt of complaint                            | Document date of receipt, name of complainant, village, nature of complaint, inform the SPIU             | 1 day  | Secretary to GRC at project level   |
| 2.    | Acknowledgement of grievance                    | By letter, email, phone  | 1-2 days   | Social safeguard officer at SPIU  |
| 3.    | Screen and Establish the Merit of the Grievance | Visit the site; listen to the complainant/community; assess the merit                                    | 5-10 days  | GRC & social safeguard officer & the aggrieved person or his/her representative |
| 4.    | Implement and monitor a redress action          | Where complaint is justified, carry out resettlement redress in line with the entitlement matrix/OP 4.12 | 14 days or at a time specified in writing to the aggrieved PAP | PC-PIU and Social safeguard Officer   |
| 5.    | Extra intervention for a dissatisfied scenario  | Review the redress steps and conclusions, provide intervention solution                                  | 10 days of receiving status report                             | PC-PIU  |
| 6.    | Judicial adjudication                           | Take complaint to court of law   | No fixed time  | Complainant   |
| 7.    | Funding of grievance process                    | GRC logistics and training, redress compensation, court process  | No fixed time  | The proponent   |



## 6.6 Gender Based Violence – Grievance Mechanism

Based on the high GBV risk profile of RAAMP, model 2 of the GRM document which links Project grievance mechanism to an identified intermediary service provider to handle SEA/SH allegation will be adopted. The intermediary service provider will be open to the use of all members of the communities as well as stakeholders. SEA/SH allegation can be reported through project-level GM Channels or directly to the intermediary service provider. Operators of the project level GM Channel would be trained to refer all SEA/SH allegation to the designated intermediary. If SEA/SH allegation is received through the formal grievance mechanism, the GM Operator refers the matter to the intermediary. The intermediary will provide immediate support services in its sphere of competency, such as health or psychosocial support, and then refer survivors to other relevant GBV service providers and coordinate with the Project GM operator on survivor's behalf with the informed consent of the survivor. The intermediary service provider will equally provide survivors with information regarding the options for reporting and response, including referral to other existing service providers. It is for survivors to decide if they want to report through the grievance mechanism or if they want to access services. If a survivor wants to access services but does not want to file a formal grievance, that decision should be accepted. Survivors should give their consent for each of these steps, according to established response protocol.

The process for addressing complaints would typically be along the following lines:

- ❖ The GRM operator will keep GBV allegation reports confidential and, unless the complaint was received through the GBV Services Provider or other identified reporting channels, refer the survivor immediately to the GBV Service Provider.
- ❖ If a case is first received by other GBV Services Provider or through other identified reporting channels, the report will be sent to the GBV Service Provider (also the intermediary) to ensure it is recorded with the consent of the survivor.
- ❖ The intermediary GBV Services Provider provides the necessary support to the survivor until it is no longer needed.
- ❖ If requested by the survivor, a survivor's representative from the GBV Service Provider will participate in the GBV resolution mechanism, including referral to the police if necessary. The survivor must give the service provider representative consent to participate in the GBV resolution mechanism on her/his behalf.
- ❖ As part of the established resolution mechanism, GBV allegations are verified if it's related to the project or not and an agreement is reached on a plan for resolution by the committee, as well as the appropriate sanctions for the perpetrator carried out by the contractor, all within the shortest timeframe possible to avoid further trauma to the survivor.
- ❖ In consultation with the GBV Services Provider, the contractor is tasked with implementing the agreed upon plan which should always be in accordance with local legislation, the employment contract, and CoC.
- ❖ Through the GBV Services Provider, the GBV complaints resolution mechanism advises the GRM operator that the case has been resolved, and it will then be closed in the GRM.
- ❖ RAAMP SPIUs and the World Bank will be notified that the case is closed.

## **CHAPTER SEVEN : ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN**

### **7.1 Introduction**

The identified potential adverse environmental and social impacts of the project activities at the pre-construction, construction and operation phases are presented in table 7.1 indicating the mitigation and monitoring measures, responsibility and frequency for monitoring. The ESMP matrix also provides the costs associated with the implementation of proffered mitigation measures.

## 7.2 Environmental and Social Management and Monitoring Plan

Table 7. 1: Environmental and Social Management and Monitoring Plan

| Activities  | Potential Impact   | Mitigation Measures  | Responsibility for Mitigation | Mitigation Cost (NGN) | Parameters to be measured  | Method of measurement  | Performance indicator   | Sampling Location   | Monitoring Frequency   | Institutional Responsibility (Monitoring)   | Costs (NGN)   |
|---|--|--|-------------------------------|-----------------------|--|--|---|---|--|---|---|
| <b>PRE-CONSTRUCTION PHASE</b>   |  |  |                               |                       |  |  |   |   |  |   |   |
| <b>A. Environmental Impacts</b>   |  |  |                               |                       |  |  |   |   |  |   |   |
| <b>Campsite, stacking Areas Clearing, Clearing of 1.3Km of Kuyi – Kampala Road and Mobilization</b> | Impairment of Air Quality as a result of increase in amounts of fugitive dust, exhaust fumes and GHGs from movement of heavy-duty vehicles and equipment into project corridors.   | Sprinkling of water via spraying devices to limit dusts.   | Contractor                    | 200,000.00            | Fugitive dust  | Visual Observation   | Minimal dust on project road  | Along the roads   | Daily  | Supervising Consultant (SC)<br><br>SPIU Environmental Safeguard Specialist (SPIU-ESS) | Supervision Consultant costs are part of operational costs in the contract.<br><br>150,000.00 (Part of routine SPIU monitoring) |
|   | Loss of Flora and Fauna at a result of Land clearing activities (especially at proposed borrow pit and campsite locations and along Kuyi – Kampala Road project corridor at about 1.3km towards where the road intercept with Biko – Kampala Road) could | Restrict removal of vegetation and trees to the area of need only.<br><br>Protect all vegetation not required to be removed against damage;<br><br>Undertake quick re vegetation of exposed soils with indigenous plant species once construction is completed.<br><br>Place workers camp and borrow pit away from environmentally sensitive | Contractor                    | 300,000.00            | Vegetation cover<br><br>Number of workers aware and sensitized on the need to conserve the flora and fauna<br><br>Number or percentage of terrestrial flora and fauna unaffected by the sub projects | Vegetation study<br><br>Quadrant count ratio to estimate the number of flora & fauna species | Minimal vegetation clearing<br><br>Site clearing Inspection records<br><br>Wildlife incidents recorded reported to Wildlife Authority | At campsite, borrow pit are and along 1.3km Kuyi – Kampala new road alignment | At the commencement of the project works and decommissioning | Supervising Consultant (SC)<br><br>SPIU Environmental Safeguard Specialist (SPIU-ESS) |   |

| Activities | Potential Impact  | Mitigation Measures   | Responsibility for Mitigation | Mitigation Cost (NGN) | Parameters to be measured                                | Method of measurement                          | Performance indicator  | Sampling Location                              | Monitoring Frequency | Institutional Responsibility (Monitoring)       | Costs (NGN)                                  |
|------------|---|---|-------------------------------|-----------------------|--|--|--|--|----------------------|---|--|
|            | lead to loss of vegetation cover and soil erosion and exacerbate climate change impacts.                      | areas to avoid impacts on the local wildlife;<br><br>Avoid unnecessary exposure or access to sensitive habitat.   |                               |                       |  |  |  |  |                      |   |  |
|            | Vegetal waste from clearance can deface the environment and pollute streams                                   | Vegetal waste can be given to farmers as compost or animal feed. Implement site-specific waste management plan in Appendix 5 in conjunction with Niger State Environmental Protection Agency (NISEPA) for effective waste management and safe handling/disposal of waste. | Contractor                    | 100,000.00            | Presence of vegetal waste on-site                        | Site inspection                                | Compliance with the site waste management plan<br><br>Good house keeping | Project areas                                  | Weekly               | NISEPA<br><br>SPIU-ESS.<br><br>Project Engineer |  |
|            | Loss of top soil and soil compaction due to movement of vehicles to site and stacking of heavy-duty equipment | Limit zone of vehicle and equipment weight impacts (designate an area for parking and stacking equipment)   | Contractor                    |                       | Visible demarcation of vehicles and equipment limit zone | Visual observation<br><br>Soil Compaction test | Satisfactory Soil Compaction test  | Project camp sites and equipment packing zones | Monthly              | SC & SPIU-ESS                                   | 100,000.00                                   |
|            | Leakages from stacked equipment and subsequent intrusion of oil and chemical substances into soil.            | Ensure fastening of loose parts (bolts, nuts); Install impermeable surface at the limit zone to contain potential leakages  | Contractor                    | 100,000.00            | Installation of impermeable platform at limit zone.      | Project camp sites and equipment packing zones | Absence of spillages<br><br>Satisfactory Soil quality test               | Project camp sites and equipment packing zones | Monthly              | SC & SPIU-ESS                                   |  |
|            | Increase in noise level above permissible   | Equipment should be transported off peak hours/ weekends when it  | Contractor                    | NA                    | Number and frequency of complaints in project area       | In-situ measurement of noise level             | Noise level test (Not to exceed 60dB(A) for 8                            | Communities along the project corridors        | Weekly               | SC & SPIU-ESS                                   | 100,000.00 (Part of routine SPIU monitoring) |

| Activities | Potential Impact  | Mitigation Measures   | Responsibility for Mitigation | Mitigation Cost (NGN) | Parameters to be measured | Method of measurement | Performance indicator                      | Sampling Location                              | Monitoring Frequency | Institutional Responsibility (Monitoring) | Costs (NGN) |
|------------|---|---|-------------------------------|-----------------------|---------------------------|-----------------------|--|--|----------------------|---|-------------|
|            | noise level, (60dB and 50dB for day and night respectively)<br><sup>1</sup> during movement can disturb the community | will cause least disturbance.<br>Retrofit machines with sound proofing devices.   |                               |                       |                           |                       | hours working period                       |  |                      |   |             |
|            | Removal or damaging of flora and fauna  | Limit vegetation clearing to minimum area required to create access path;<br><br>Revegetate cleared area  | Contractor                    | NA                    | Radius of cleared path    | Visual Observation    | Evidence of revegetation                   | Project Corridor, campsites and stacking areas | After mobilization   | SC & SPIU-ESS                             |             |
|            | Accidents and injuries from the use of machineries and equipment  | Provision of PPE to workers;<br>Worker Education<br>Incident/accident reporting;<br>Provision of First Aid onsite<br>Ensure that staging areas for contractor equipment are adequately delineated and cordoned off with reflective tapes and barriers<br>Any uncovered work pits should have appropriate signage and protection around them;<br>Workers should get a daily induction/toolbox before going on the site | Contractor                    | 500,000.00            | Contractors Compliance.   | Routine inspection    | Use of PPEs by Workers<br>Training Records | Construction site                              | Daily                | SC & SPIU-ESS                             | 150,000.00  |

<sup>1</sup> The National Environment (Noise Standards and Control) Regulations, 2009 S.I No. 35. Maximum permissible noise levels for construction site as 60dB (A) and 50dB(A) for day and night respectively for Hospitals, schools, institutions of higher learning, homes for the disabled, etc. and maximum permissible noise levels for construction site as 75dB (A) and 65dB(A) for day and night respectively for Buildings other than those mentioned previously. Maximum Permissible Noise Levels for Accelerating Vehicles as stated in Table VIII



| Activities               | Potential Impact   | Mitigation Measures  | Responsibility for Mitigation | Mitigation Cost (NGN) | Parameters to be measured                                      | Method of measurement                | Performance indicator                            | Sampling Location                                 | Monitoring Frequency | Institutional Responsibility (Monitoring)   | Costs (NGN)       |
|--------------------------|--|--|-------------------------------|-----------------------|--|--------------------------------------|--|---|----------------------|---|-------------------|
|                          |  | and a refresher of what happened on site a day before<br>appropriate security measures in place to prevent harassment or kidnapping of workers<br>(See Appendix 6 for OHS Plan)                  |                               |                       |  |                                      |  |   |                      |   |                   |
|                          | Accidents involving vehicles or pedestrians during vehicle and equipment movement to the site. | Training of drivers on safe driving practices<br>Install safety signage<br><br>Enforce speed limits within and outside built-up areas. Comply with community health & safety plan in Appendix 12 | Contractor                    | 300,000.00            | Community Health & Safety Plan (CASHES)<br><br>Accident Report | Site Inspection<br><br>Consultations | Training Report<br><br>Accident/ Incident Report | Along the proposed road upgrade alignment         | Every 2 weeks        | SC &<br><br>SPIU-ESS/ SSO<br><br>Traffic Control Team<br><br>FRSC                       | 150,000.00        |
|                          | Risks of bites from snakes, crocodile, lion attack etc   | stocking anti-venom in the first aid kits, proper lightening in work areas and campsites, regular fumigation, avoid night work etc.  | Contractor                    | 250,000.00            | Community Health & Safety Plan (CASHES)<br><br>Accident Report | Consultations                        | Incident report                                  | Along the proposed project corridor and campsites | During mobilization  | SC<br>SPIU-ESS<br>Niger State<br>Ministry of<br>Agriculture<br>and Rural<br>Development | 50,000.00         |
|                          | Creation, risks & management of Borrow Pits  | Limit the need to dig excessive borrow pits<br>Ensure not to exceed approved max. depth of burrowing<br>Prepare a borrow pit management & reclamation plan<br>(Appendix 7: Borrow Pit Mgt Plan)  | Contractor                    | N/A                   | Contractors' Compliance  | Inspections                          | Number of borrow pits incidents.                 | Borrow pit locations                              | Monthly              | SC<br>SPIU-ESS<br>Niger State<br>Ministry of<br>Agriculture<br>and Rural<br>Development | 100,000.00        |
| <b>Sub-Total</b>         |  |  |                               | <b>2,150,000.00</b>   |  |                                      |  |   |                      |   | <b>800,000.00</b> |
| <b>B. Social Impacts</b> |  |  |                               |                       |  |                                      |  |   |                      |   |                   |

| Activities   | Potential Impact  | Mitigation Measures   | Responsibility for Mitigation          | Mitigation Cost (NGN) | Parameters to be measured                          | Method of measurement                  | Performance indicator  | Sampling Location  | Monitoring Frequency    | Institutional Responsibility (Monitoring)   | Costs (NGN) |
|--|---|---|--|-----------------------|--|--|--|--|-------------------------|---|-------------|
| <b>Campsite, stacking Areas Clearing, Clearing of Roads and Mobilization</b> | Temporal traffic build-up and delay in travel time along 35Km Beji-Makera-Jangara Road Corridor | Movement of equipment and machinery should be limited during peak hours/days/period as identified.<br>Traffic/caution signs at strategic locations/junctions<br>Prepare & implement a Traffic Management Plan (TMP) in line with Appendix 8.<br>Collaboration with traffic control team for the management of traffic | Contractor<br><br>Traffic Control Team |                       | No of complaints received within the project area  | Site visits and observation            | Traffic signs<br><br>Presence of traffic control teams             | Routes through community to the sites                              | During mobilization     | SPIU Social Safeguard Specialist (SPIU-SSS)<br><br>SC<br><br>Traffic Control Team<br><br>FRSC | 50,000.00   |
|  | Disturbance to nearby residential areas, clinics and school pupils from noise and movement      | Retrofit with suitable cost-effective vehicle sound proofing materials/ technologies.<br>Mobilization of equipment weekend. Stacking Areas and Campsites should not be located near residential areas, schools or clinics   | Contractor                             | 200,000.00            | Number and frequency of complaints in project area | In-situ measurement of noise level     | Noise level test (Not to exceed 60dB(A) for 8 hours working period | Residential areas, clinics and schools along the project corridors | Weekly                  | SPIU-SSS, and SC  | 150,000.00  |
|  | Uproar if equipment is not parked at designated location  | Ensure equipment is taken straight to the construction Camp where this is not achievable as some point due to extreme condition, adequate communication should be made to the relevant authority.   | Contractor                             | NA                    | Complaints from residents                          | Site Inspection Consultations          | Contractor's compliance  | Routes through community to the parking Camp                       | Monthly                 | SPIU-SSS, and SC Project Engineer   |             |
|  | Poor transactional agreement and adequate documentation for rental of                           | proper documentation of all agreements, fair rental wages as agreed by all parties and adjudged by the SPIU, comply with all agreements including   | Contractor                             | NA                    | Complaints from land owners                        | Signed agreement and land verification | land owner and Contractor's compliance                             |  | Whenever the need arise | SPIU-SSS, and SC Project Engineer and community leaders                                       |             |

| Activities | Potential Impact   | Mitigation Measures   | Responsibility for Mitigation  | Mitigation Cost (NGN) | Parameters to be measured                                     | Method of measurement                                   | Performance indicator   | Sampling Location                                | Monitoring Frequency                 | Institutional Responsibility (Monitoring)   | Costs (NGN) |
|------------|--|---|--|-----------------------|---|---|---|--|--------------------------------------|---|-------------|
|            | staging areas, campsites and burrow pits can lead to grievances.   | structural, use and reclamation/ end of use etc   |  |                       |   |   |   |  |                                      |   |             |
|            | Land Acquisition /transactional issues for borrow pits, campsite staging areas   | Signing of agreement with communities.  | Contractor   | 600,000.00            | No of complaints received                                     | Consultation<br><br>Review Grievance redress Log        | Evidence of adequately signed transactional agreements<br><br>No of cases resolved by the GRC   | Project area of influence                        | Continuous                           | Grievance Redress Committee<br><br>SPIU-SSS, and SC   | 200,000.00  |
|            | Labour Influx which could lead to Increase in sexual activities leading to possible spread of STDs/STIs in the project's location  | Awareness campaign on sexual diseases, and distribution of male and female condoms. (See Appendix 11 for Labor Influx Plan)   | Contractor, SPIU-SSS, SPIU Communications Officer  | 220,000.00            | Level of Awareness and Education<br><br>Increase in STI cases | Rapid health survey/ Primary Healthcare centres' report | Level of awareness and knowledge of preventive measures. % of reported STI/ STD cases among workforce                                     | Nearby communities<br><br>Health care facilities | Once during pre-construction         | SPIU-SSS<br><br>SC<br><br>Primary Health Care Centres (PHCs)  | 120,000.00  |
|            | Potential risk of harassment, Intimate Partner Violence (IPV), Sexual Exploitation and Abuse (SEA)/ Gender Based Violence (GBV), public harassment including verbal insults, physical abuse, rape, | Sourcing of local workforce<br>All contractors' workers to sign Code of Conduct (CoC) (see appendix 9 for sample CoC) and be sensitized on zero tolerance for sexual integration with students/ community<br>Community leaders/ women group/youth group to sensitize the community on | Supervision Consultant<br>GBV Specialist<br>Contractor Management,<br>Resident engineers | 500,000.00            | Stakeholders concerns on risk of GBV                          | Consultations<br><br>Third Party Monitor Report         | Signed CoCs with the SPIU<br><br>Conduct of sensitization campaigns and trainings<br><br>action plan for implementation of GBV activities | Project communities                              | During Pre-Construction / Continuous | Project Coordinator<br><br>SPIU-SSS, GBV Officer<br><br>Supervising Consultant<br>GBV Specialist<br><br>GBV Focal Person at the project level | 150,000.00  |

| Activities | Potential Impact   | Mitigation Measures  | Responsibility for Mitigation  | Mitigation Cost (NGN) | Parameters to be measured              | Method of measurement                     | Performance indicator                      | Sampling Location | Monitoring Frequency | Institutional Responsibility (Monitoring)                                  | Costs (NGN)                      |
|------------|--|--|--|-----------------------|--|---|--|-------------------|----------------------|--|----------------------------------|
|            | and women and child trafficking due to Influx of workers to project corridors                                  | appropriate conduct with contractors<br><br>Map GBV service providers,<br><br>Engagement of intermediary service provider<br><br>Provide Referral centres for survivors of GBV/SEA<br><br>Mainstreaming GBV/SEA action plan in Contractor's contract                     |  |                       |  |   | internal "Reporting and Response Protocol" |                   |                      | FPMU GBV Specialist<br><br>Project Third Party monitor                     |                                  |
|            | Child labour   | Ensure that children and minors are not employed directly or indirectly on the project. Communication on hiring criteria, minimum age, and applicable laws should be ensured. Enforcement of legislation prohibiting child labour  | Contractor<br><br>Supervision Consultant Social Specialist<br><br>SPIU-SSS | 50,000.00             | Visual observation of child labour     | Routine inspection                        | No. of cases observed & recorded           | Project site      | Daily                | SPIU-ESS & SSS, Project Engineer (Supervision Consultant),<br><br>FPMU SSO | 100,000.00                       |
|            | Vulnerable groups as identified will be at more disadvantage to social risks and disturbance to their movement | Implement SEA/SH/GBV prevention measures in section 5.4 campsite to be located outside the communities. Provide access slabs where required and consult with these groups regularly to address any concerns relating to the project and educate them on the GRM channels | Contractor<br><br>Supervision Consultant Social Specialist<br><br>GRC      | 200,000.00            | Stakeholder/ vulnerable group Concerns | No of complaints via survey, GRM channels | Level of satisfaction of vulnerable groups | Project corridor  | Daily                | SPIU-ESS & SSS,<br><br>Project Engineer<br><br>SPC                         | Part of routine monitoring costs |

| Activities | Potential Impact  | Mitigation Measures  | Responsibility for Mitigation            | Mitigation Cost (NGN)   | Parameters to be measured   | Method of measurement   | Performance indicator                                | Sampling Location   | Monitoring Frequency                 | Institutional Responsibility (Monitoring)                | Costs (NGN)                |
|------------|---|--|--|---|---|---|--|---|--------------------------------------|--|----------------------------|
|            | Physical and Economic displacement including temporal restriction of access at Kuyi – Kampala Project Corridor  | Implement standalone RAP prepared for the Kuyi – Kampala project Corridor. Ensure all issues relating to compensation are handled in a transparent, consistent and equitable manner  | SPIU-SSS; SPIU                           | Refer to the RAP for all compensation and livelihood assistance costs | Implementation of the compensation and livelihood assistance                                | Number of PAPs compensated or provided with livelihood assistance | Level of satisfaction of the PAPs                    | Project area of influence   | Before implementation of civil works | FPMU-SSO   | Provided in the RAP report |
|            |   | Grievances over loss of sources of livelihood  | Grievance Redress Committee (GRC)        | 150,000.00  | No of complaints received   | Consultation<br><br>Review Grievance redress Log                  | No of cases resolved by the GRC                      | Project area of influence   | Continuous                           | GRC<br><br>SPIU-SSS<br>FPMU - SSO                        | 150,000.00                 |
|            | Influx of Additional Population may introduce menace to the community pressure on local resources, localized inflation, pressure on accommodation and public facilities | It is strongly recommended that the contractor hire semi to unskilled labour locally, according to their qualifications and experience, and must offer equal opportunities for men and women. Contractor to provide campsite and amenities for workers | Contractor<br><br>Supervising Consultant | Part of staff costs   | Recruitment Process<br><br>No of locals hired<br><br>Availability of campsite and amenities | Observation and Interview/ Records                                | Compliance with Mitigation                           | Camp Office<br><br>Project Site   | Monthly                              | SPIU-SSS<br><br>FPMU-SSO                                 | 100,000.00                 |
|            | Influx of workers could increase the risks of COVID-19 thus causing ill-health and potential COVID outbreak in the project area   | Workers to adhere to COVID-19 prevention protocols including use of nose masks, frequent handwashing, regular health checks and timely sick reporting. Comply with COVID regulations in Appendix 12  | Contractor                               | 200,000.00  | Increase in COVID-19 cases/ Outbreak  | Health survey reports   | Absence of COVID outbreak related to project workers | Workers' campsite<br><br>Primary Health Care Centre<br><br>Project Site | Weekly                               | SPC<br><br>SC<br><br>SPIU-SSO<br><br>Health care workers | 100,000.00                 |

| Activities  | Potential Impact                                  | Mitigation Measures   | Responsibility for Mitigation  | Mitigation Cost (NGN)                        | Parameters to be measured          | Method of measurement                                 | Performance indicator  | Sampling Location                     | Monitoring Frequency | Institutional Responsibility (Monitoring)   | Costs (NGN)                                     |
|---|---|---|--|--|------------------------------------|---|--|---------------------------------------|----------------------|---|---|
| <b>All project activities</b>                               | Security Risks                                    | The SPIU to liaise with the state Government and security forces to ensure adequate provision of security for project personnel | Contractor Security  | Part of contract costs for contractor and SC | Availability of security personnel | Visual Observation                                    | Absence of security incidents associated with project workers and contractors                                    | Project Site                          | Daily                | SPC   | 3,500,000.00                                    |
|   |   |   | Supervising Consultant Security  | State Budget                                 | No of Incidents                    | Security Incident Report                              |  |                                       |                      |   |   |
|   |   |   | State Government   | See monitoring costs                         |                                    |   |  |                                       |                      |   |   |
|   |   |   | SPIU (for SPIU site monitoring)  |  |                                    |   |  |                                       |                      |   |   |
| <b>Sub Total</b>  |   |   |  | <b>2,920,000.00</b>                          |                                    |   |  |                                       |                      |   | <b>4,820,000.00</b>                             |
| <b>Total (Pre-construction Phase)</b>                       |   |   |  | <b>4,820,000.00</b>                          |                                    |   |  |                                       |                      |   | <b>5,570,000.00</b>                             |
| Activity  | Potential Impact                                  | Mitigation Measures   | Responsibility for Mitigation  | Mitigation Cost (NGN)                        | Parameters to be measured          | Method of measurement                                 | Performance indicator  | Sampling Location                     | Monitoring Frequency | Institutional Responsibility (Monitoring)   | Costs (NGN)                                     |
| <b>CONSTRUCTION PHASE</b>                                   |   |   |  |  |                                    |   |  |                                       |                      |   |   |
| <b>Environmental Impacts</b>                                |   |   |  |  |                                    |   |  |                                       |                      |   |   |
| <b>Operation &amp; movement of equipment/ upgrade works</b> | <b>Impairment of Air Quality</b><br>Fugitive dust | Sprinkling of water during activities   | Contractor   | 300,000.00                                   | Fugitive dust                      | Visual Observation                                    | Minimal dust   | On-site                               | Daily                | SPIU-ESS<br>Niger State Ministry of Agriculture and Rural Development<br><br>Supervision Consultant | 150,000.00<br>(Part of routine monitoring cost) |
|   |   | Release of exhaust fumes, hazardous gases (NOx, CO, SOx, SPM.), Oxides from machinery<br><br>GHG Emissions                      | Fuel switching- Fuel switching from high- to low-carbon content fuels (where available) can be a relatively cost-effective means to mitigate GHG emissions during this phase.<br>Energy efficiency- Machines e.g., generator plants could be turned off when not in use, in order to reduce carbon emissions. Vehicles can | Contractor                                   |                                    | Gaseous pollutants: SO2, NO2, CO2, CO, VOCs, H2S, TSP | In-situ Air Quality Measurement<br><br>Vehicle emission testing (VET) and vehicle exhaust screening (VES Report) | FMEV air pollutants permissible limit | Project area         |   |   |



| Activity | Potential Impact  | Mitigation Measures  | Responsibility for Mitigation | Mitigation Cost (NGN) | Parameters to be measured  | Method of measurement                                  | Performance indicator   | Sampling Location                              | Monitoring Frequency      | Institutional Responsibility (Monitoring)                                 | Costs (NGN)                 |
|----------|---|--|-------------------------------|-----------------------|--|--|---|--|---------------------------|---|-----------------------------|
|          |   | be equipped with catalytic converters  |                               |                       |  |  |   |  |                           |   |                             |
|          | <b>Noise and vibration nuisance:</b><br>increase in noise level above permissible noise level, (60dB) during construction activities can disturb communities and cause OHS issues | Adequate maintenance of equipment and machineries to reduce noise<br>Retrofit machines with sound proof<br>Implement OHS Plan in Appendix 12<br>Use of adequate PPEs including earmuffs<br>Implement CASHES in Appendix 12   | Contractor                    | 250,000.00            | Number and frequency of complaints in project area   | In-situ measurement of noise level                     | Noise level test (Not to exceed 60dB(A) for 8 hours working period) | Communities along project corridors            | Weekly                    | Supervising Consultant<br><br>SPIU-ESS & SSS                              |                             |
|          | Surface soil compaction from Movement of heavy vehicles/Stationary vehicles and equipment   | Creation of limit zones<br>Minimize compaction during stockpiling by working in the dry state<br>Rip compacted areas to reduce runoff and re-vegetate where necessary (every affected tree/shrub should be replaced by two (2))  | Contractor                    | NA                    | Visible demarcation of vehicles and equipment limit zone   | Visual observation<br><br>Soil Compaction test         | Visual observation<br><br>Soil Compaction test                      | Project camp sites and equipment packing zones | Monthly                   | Supervising Consultant<br><br>SPIU-ESS<br><br>Project Engineer            | Part of routine maintenance |
|          | Pollution of soil and groundwater contamination by oil spills, lubricants, Bitumen and other chemicals  | All oil and lubricants should be sited on an impervious base and should have drip pans<br>The storage area should be far from all other water sources including boreholes, all containers should be clearly labeled.<br>Bitumen should be properly handled with use of adequate PPEs | Contractor                    | 150,000.00            | Soil quality parameters (Especially hydrocarbon contaminants)<br><br>Compliance with fuel storage procedures | In situ/ Laboratory Analysis<br><br>Visual Observation | FMEV soil Pollutants Permissible limit                              | Project areas                                  | Twice during construction | Niger State Ministry of Agriculture and Rural Development<br><br>SPIU-ESS | 100,000.00                  |

| Activity  | Potential Impact   | Mitigation Measures   | Responsibility for Mitigation | Mitigation Cost (NGN) | Parameters to be measured                  | Method of measurement             | Performance indicator  | Sampling Location | Monitoring Frequency | Institutional Responsibility (Monitoring) | Costs (NGN) |
|---|--|---|-------------------------------|-----------------------|--|-----------------------------------|--|-------------------|----------------------|---|-------------|
|   |  | and liaise with Niger State Ministry of Agriculture and Rural Development for evacuation of Bitumen waste   |                               |                       |  |                                   |  |                   |                      |   |             |
|   | Excessive vibrations from operations of construction heavy duty trucks to existing buildings (some buildings along the road are mud built) may lead to collapse if not attended to | Mitigation at source (for all activities)<br>A noise barrier or acoustic shield will reduce noise by interrupting the propagation of sound waves.<br>Limiting operation to specific areas where work is carried out | Contractor                    | 300,000.00            | Presence of affected buildings             | Visual inspection                 | Machinery fitted with acoustic shield                                | Project areas     | Monthly              | Supervising Consultant<br>SPIU-ESS        | 150,000.00  |
| <b>Continuous construction works for road upgrade, including Double Bitumen Surface Treatment</b> | Presence of construction waste on-site which can pollute the environment leading to community and public health issues.  | Implement site-specific waste management plan in Appendix 5<br>Liaise with NISEPA for effective waste management and safe handling/disposal of waste.   | Contractor                    | 1,600,000.00          | Presence of construction waste on-site     | Site inspection                   | Compliance with the site waste management plan<br>Good house keeping | Project areas     | Weekly               | NISEPA<br>SPIU-ESS.<br>Project Engineer   | 200,000.00  |
|   | Loss of Vegetation cover<br><br>Silt from drainages can pollute and deface the environment   | Limit clearing to required road ROW<br>Re-plant where it is relevant<br><br>Silt can be given to farmers as manure  | Contractor                    |                       | Vegetation cover within the area           | Visual Observation                | vegetation at the appropriate outside the ROW                        | Project ROW       | Monthly              | Supervising Consultant<br>SPIU-ESS        |             |
|   | Disruption in current flow of stream & pollution of the  | Road construction near streams and rivers to be carried out during the dry season.  | Contractor                    | NA                    | Water quality parameters such as TSS, TDS, | In-situ Water Quality Measurement | Routine testing procedures   | Project Corridor  | As required          | Niger State Ministry of Agriculture and   |             |

| Activity   | Potential Impact   | Mitigation Measures   | Responsibility for Mitigation | Mitigation Cost (NGN) | Parameters to be measured  | Method of measurement | Performance indicator            | Sampling Location            | Monitoring Frequency | Institutional Responsibility (Monitoring)  | Costs (NGN) |
|--|--|---|-------------------------------|-----------------------|--|-----------------------|----------------------------------|------------------------------|----------------------|--|-------------|
|  | streams along project corridor   | Contractors will not make use of this source of water for construction but make provisions for water in the BOQ   |                               |                       | Conductivity, pH, DO, Oil/Grease   |                       | being conducted                  |                              |                      | Rural Development<br><br>SPIU-ESS Supervising Engineer   |             |
| <b>Material sourcing and borrow pit management</b> | Material sourcing from borrow-pits may trigger erosion if the standard and permissible depth is not maintained, or borrow pit reclaimed. | Limit the need to dig excessive borrow pits<br><br>Created borrow pits should have appropriate signage and protection around them;<br><br>Ensure not to exceed approved max. depth of burrowing<br>Prepare and implement a borrow pit management & reclamation plan (see Appendix 10)<br><br>Ensure reclamation of borrow pit before demobilization | Contractor                    | 1,500,000.00          | Contractors' Compliance<br><br><br><br><br><br><br><br><br><br>Reclaimed borrow pits | Inspections           | Number of borrow pits incidents. | Borrow pit locations         | Monthly              | Niger State Ministry of Agriculture and Rural Development<br><br>SPIU-ESS Supervising Engineer | 150,000.00  |
| <b>Campsite management</b>                         | Pollution of the environment from open defecation by contractors' workers<br><br>Waste generation and disposal                           | Contractor to provide mobile toilets and on-camp sanitary facilities for workers<br><br>Sensitize workers against open defecation<br><br>Implement the detailed Waste Management Plan (WMP) (See Appendix 5), and Appendix 10: Campsite Management Plan   | Contractor                    | 1,750,000.00          | Evidence of faecal waste within the project sites                                    | Site inspection       | Absence of faecal waste on-site  | Camp sites and working zones | Weekly               | Supervising Consultant<br><br>SPIU-ESS   | 250,000.00  |

| Activity                  | Potential Impact   | Mitigation Measures  | Responsibility for Mitigation | Mitigation Cost (NGN)  | Parameters to be measured  | Method of measurement   | Performance indicator   | Sampling Location | Monitoring Frequency | Institutional Responsibility (Monitoring)     | Costs (NGN) |
|---------------------------|--|--|-------------------------------|--|--|---|---|-------------------|----------------------|---|-------------|
| <b>Upgrade activities</b> | <p>Risk of occupational accidents (OHS), Injuries and diseases, life &amp; fire safety</p> <p>Injuries from application of Bitumen material to road surface</p> <p>Exposure to harmful chemicals</p> <p>Exposure to snakebites</p> | <p>Implement project OHS Plan in Appendix 6. Provide additional PPE and enforce usage of appropriate PPE. Demarcate/cordon off construction areas and, lit up adequately at night, Fence out danger zones and keep out of reach. Restricted access to be placed at construction sites using caution signs and manned personnel Use caution tapes. Develop and implement visitors' management protocol Ensure that staging areas for contractor equipment are adequately delineated and cordoned off with reflective tapes and barriers Any uncovered work pits should have appropriate signage and protection around them; Workers should get a daily induction/toolbox before going on the site and a refresher of what happened on site a day before</p> | Contractor                    | <p>1,000,000.00 (OHS Plan Implementation)</p> <p>500,000.00 (PPEs)</p> <p>450,000.00 (caution signs, tapes &amp; barricades)</p> <p>350,000.00 (first aid)</p> | <p>OHS Plan Developed</p> <p>Compliance with OHS Plan</p> <p>First aid box</p> | <p>Consultations/ visual observation</p> <p>Accident Report</p> | <p>Decrease in Lost Time Injuries (LTI)</p> <p>Zero incident /accident report</p> <p>Well stocked first aid box</p> | Project area      | Daily                | <p>Supervising Consultant</p> <p>SPIU-ESS</p> | 250,000.00  |

| Activity  | Potential Impact   | Mitigation Measures  | Responsibility for Mitigation                 | Mitigation Cost (NGN) | Parameters to be measured  | Method of measurement                            | Performance indicator   | Sampling Location                     | Monitoring Frequency      | Institutional Responsibility (Monitoring)   | Costs (NGN)         |
|---|--|--|---|-----------------------|--|--|---|---------------------------------------|---------------------------|---|---------------------|
|   |  | <p>Appropriate security measures in place to prevent harassment or kidnapping of workers</p> <p>Provide well-equipped first aid box</p> <p>Provide fire extinguisher at strategic locations</p> <p>Provide anti-venom onsite; fumigate campsite environment.</p> |   |                       |  |  |   |                                       |                           |   |                     |
| <b>Sub-Total:</b>                                     |  |  |   | <b>8,150,000.00</b>   |  |  |   |                                       |                           |   | <b>1,250,000.00</b> |
| <b>Social Impacts</b>                                 |  |  |   |                       |  |  |   |                                       |                           |   |                     |
| <b>Continuous construction works for road upgrade</b> | Temporal traffic build-up and delay in travel time along the proposed road (35km Beji-Makera-Jangara Road) which is currently use as alternative route by trailers | <p>Prepare &amp; Implement TMP (see framework in Appendix 8)</p> <p>Movement of equipment and machinery should be limited during peak hours/days/period as identified such as market days</p>  | <p>Contractor</p> <p>Traffic Control Team</p> | 700,000.00            | <p>No of complaints received within the project area</p> <p>Contractors Compliance</p> | Site visits and observation                      | <p>Traffic signs</p> <p>Contractors' compliance</p> <p>Presence of flagmen and Traffic Control Team</p> | Routes through community to the sites | Weekly                    | <p>Supervising Consultant</p> <p>SPIU-ESS/SSS</p> <p>Traffic Control Team</p> <p>FRSC</p> | 150,000.00          |
|   | Grievances and negative perception by community members  | <p>Conduct stakeholders' consultation with the host community at every phase of the project</p> <p>Grievance channels to be set up at project level</p>  | <p>Contractor</p> <p>GRC</p>                  | 300,000.00            | No of complaints by community persons  | <p>Consultations</p> <p>Review grievance log</p> | Minimal number of reported cases  | Host community                        | Every 2 months            | <p>GRC</p> <p>SPIU-SSS</p> <p>FPMU</p>  | 150,000.00          |
|   | Increase in sexual activities  | Continuous awareness and sensitization   | Contractor                                    | 200,000.00            | Level of Awareness and   | Rapid health survey                              | Level of  | Nearby communities                    | Twice during Construction | SPIU-SSS & GBV Officer  | 150,000.00          |

| Activity | Potential Impact   | Mitigation Measures  | Responsibility for Mitigation   | Mitigation Cost (NGN)   | Parameters to be measured                                      | Method of measurement                                 | Performance indicator  | Sampling Location                       | Monitoring Frequency      | Institutional Responsibility (Monitoring)  | Costs (NGN) |
|----------|--|--|---|-------------------------|--|---|--|---|---------------------------|--|-------------|
|          | leading to possible spread of STDs/STIs from influx of workers to project location                                       | campaign on sexual diseases, and distribution of male and female condoms.  | SPIU-SSS, Local Healthcare centre   |                         | Education<br><br>Increase in number of new STI cases           |   | awareness and knowledge of preventive measures. % of reported STI/ STD cases among workforce                             | Health care facilities                  |                           | Supervising Consultant, PHCs   |             |
|          | Potential risk of Sexual Exploitation and Abuse (SEA)/ Gender Based Violence (GBV) Influx of workers to project location | All contractors' workers to sign Code of Conduct (CoC) (See Appendix 9 for sample CoC) and be sensitized on zero tolerance for sexual integration with students/ community Community leaders/ women group/youth group to sensitize the community on appropriate conduct with contractors<br><br>Mapping of Service providers and establishment of GBV- GRM<br>Compliance with the GBV Action Plan for RAAMP, Code of Conducts and measures stated in section 5.3 below | SPIU GBV Specialist,<br><br>Contractor<br><br>Supervision Consultant<br>GBV Specialist<br><br>GBV-GRC<br>Focal person | 220,000.00 (contractor) | Stakeholders concerns on risk of GBV<br>GBV related grievances | Consultations<br><br>GBV Prevention activities report | Signed CoCs with the SPIU<br><br>Conduct of sensitization campaigns<br><br>Satisfactory GBV Prevention activities report | Communities along the project corridors | Twice during Construction | SPIU-SSS & GBV Officer<br><br>FPMU-GBV Specialist<br><br>GBV Focal person at the project level | 250,000.00  |
|          | Conflicts between contractor and community members over  | Good work enforcement program<br>Grievance Redress Mechanism<br>Regular consultations (see Appendix 11 Labor   | Contractor<br><br>GRC   | 230,000.00              | No of complaints received                                      | Consultation<br><br>Review<br>Grievance redress Log   | No of cases handled by the GRC   | Project area of influence               | Continuous                | GRC<br><br>SPIU SSS  | 150,000.00  |



| Activity | Potential Impact  | Mitigation Measures   | Responsibility for Mitigation | Mitigation Cost (NGN)   | Parameters to be measured              | Method of measurement                | Performance indicator                                     | Sampling Location                    | Monitoring Frequency | Institutional Responsibility (Monitoring) | Costs (NGN)                      |
|----------|---|---|-------------------------------|-------------------------|--|--------------------------------------|---|--------------------------------------|----------------------|---|----------------------------------|
|          | labour influx and labour intake   | Influx Management Plan)   |                               |                         |  |                                      |   |                                      |                      |   |                                  |
|          | Increase demand on existing community health and sanitation infrastructure due to influx of temporary workers           | Provide basic amenities (water, sanitation, etc. to workers)<br>See Appendix 10 campsite management plan and Appendix 4 General Environmental Conditions for Contract.  | Contractor                    | 3,050,000.00            | No of amenities in workers' camps      | Visual observation                   | Availability of all essential amenities in workers' camps | Workers camp sites<br>Host community | Monthly              | SPIU-SSS<br><br>Supervising Consultant    | 200,000.00                       |
|          | Community and public health issues. (People along the project corridor may be exposed to vehicular or on-site accident) | Implement community health & safety plan: install caution signs, barricades, speed bumps, train drivers, avoid working at night, light up danger/work areas at night, restrict construction areas and staging areas for controlled visiting, etc. see Appendix 10 | Contractor                    | Same as in Env. Impacts | Accident /Incident Report              | Reporting and feedback mechanism GRM | No of accidents reported                                  | Project area of influence            | Continuous           | SPIU-ESS & SSS;<br>Supervising Consultant | Captured in CASHES               |
|          | Child labour and school drop out  | i. Ensure that children and minors are not employed directly or indirectly on the project.<br>ii. Communication on hiring criteria, minimum age, and applicable laws should be ensured.<br>iii. Enforcement of legislations that prohibits child labour           | Contractor, SPIU-SSS          | 200,000.00              | Visual observation                     | Routine inspection                   | No. of cases observed & recorded                          | Project site                         | Daily                | SPIU-SSS<br><br>Supervising Consultant    | 150,000.00                       |
|          | Vulnerable groups as identified will be   | i. Implement SEA/SH/GBV prevention measures   | Contractor                    | 100,000.00              | Stakeholder/ vulnerable group Concerns | No of complaints via                 | Level of satisfaction of                                  | Project corridor                     | Daily                | SPIU-ESS & SSS,                           | Part of routine monitoring costs |

| Activity  | Potential Impact   | Mitigation Measures  | Responsibility for Mitigation                          | Mitigation Cost (NGN)      | Parameters to be measured   | Method of measurement                               | Performance indicator                                   | Sampling Location   | Monitoring Frequency   | Institutional Responsibility (Monitoring)                  | Costs (NGN)         |
|---|--|--|--|----------------------------|---|---|---|---|------------------------|--|---------------------|
|   | at more disadvantage to social risks and disturbance to their movement   | in section 5.4. campsite to be located outside the communities. Provide access slabs where required and consult with these groups regularly to address any concerns relating to the project and educate them on the GRM channels | Supervision Consultant<br>Social Specialist<br><br>GRC |                            |   | survey, GRM channels                                | vulnerable groups                                       |   |                        | Project Engineer<br><br>SPC                                |                     |
|   | Influx of workers could increase the risks of COVID-19 thus causing ill-health and potential COVID-19 outbreak in the project area | Workers to adhere to COVID-19 prevention protocols including use of nose masks, frequent handwashing, regular health checks and timely sick reporting. Comply with COVID-19 regulations in Appendix 12                           | Contractor   | 200,000.00                 | Increase in COVID-19 cases/ Outbreak                                    | Health survey reports                               | Absence of COVID-19 outbreak related to project workers | Workers' campsite<br><br>Primary Health Care Centre<br><br>Project Site | Weekly                 | SPC<br><br>SC<br><br>SPIU-SSO<br><br>Health care workers   | 100,000.00          |
| Upgrade activities                                  | Physical & Economic displacement along 7Km Kuyi – Kampala Road project corridor  | i. Implement standalone RAP prepared for the 7Km Kuyi – Kampala Road project corridor.   | GRC<br><br>SPIU  | Captured in standalone RAP | No of complaints received   | Consultation<br><br>Review<br>Grievance redress Log | No of cases handled by the GRC                          | Project area of influence   | Continuous             | SPIU-PC/SSS<br><br>FPMU                                    | 150,000.00          |
| <b>Sub Total</b>                                    |  |  |  | <b>5,200,000.00</b>        |   |   |   |   |                        |  | <b>1,450,000.00</b> |
| <b>Total (Construction Phase)</b>                   |  |  |  | <b>13,350,000.00</b>       |   |   |   |   |                        |  | <b>2,700,000.00</b> |
| <b>OPERATION PHASE</b>                              |  |  |  |                            |   |   |   |   |                        |  |                     |
| <b>Environmental Impacts</b>                        |  |  |  |                            |   |   |   |   |                        |  |                     |
| <b>Demobilization of equipment &amp; constructi</b> | Potential oil contamination of soil and water  | Cart away all spoils through the relevant authorities<br>Clean out impacted areas  | Contractor   | 200,000.00                 | Oil Spillages, Littered construction waste and spoilt equipment / parts | Site inspection                                     | Good house keeping                                      | Workers Camp site   | Quarterly for one year | SPIU-ESS<br><br>Project Engineer<br>Supervising Consultant | 150,000.00          |

| Activity                 | Potential Impact  | Mitigation Measures   | Responsibility for Mitigation  | Mitigation Cost (NGN)                      | Parameters to be measured  | Method of measurement | Performance indicator                                  | Sampling Location              | Monitoring Frequency  | Institutional Responsibility (Monitoring)   | Costs (NGN)           |
|--------------------------|---|---|--|--|--|-----------------------|--|--------------------------------|-----------------------|---|-----------------------|
| on materials             |   | Ensure restoration of campsite  |  |  |  |                       |  |                                |                       |   |                       |
|                          | The drainages may become conveyors for surface debris and improperly disposed wastes during a heavy rain, leading to drainage blockage and disruption of free flow. This may result in stagnated water, and water contamination downstream. | Routine maintenance of drainages, including regularly desilting<br><br>Proper waste management system in the communities  | Contractor<br><br>Niger State Roads Maintenance Agency (NIGROMA)<br><br>NISEPA | 550,000.00<br><br>Annual budget of NIGROMA | Flow rate of water through the drainage systems<br><br>Adequate waste treatment in the communities | Visual observation    | Implementation of proffered mitigation                 | Project site and community     | Quarterly             | SPIU-ESS<br><br>Niger State Ministry of Agriculture and Rural Development<br>Project Engineer | 300,000.00            |
|                          | Possibility of culvert collapse, flooding, or erosion from post construction which may result from poor designs, non-compliance to designs, sub-standard materials, poor maintenance  | To follow proper design and best available practices to rural road construction<br><br>Strict adherence to terms of reference and specifications of engineering design for bridge and road construction<br><br>Adequate and regular maintenance | Contractor<br><br>Project Engineer<br><br>Road maintenance groups              | NA<br><br><br>300,000.00                   | Structural and performance integrity of hydraulic features   |                       | Efficient Durability of roads and hydraulic structures | Project Sites                  | Quarterly             | SPIU-ESS,<br><br>Niger State Ministry of Agriculture and Rural Development                    | 250,000.00            |
| <b>Sub-Total:</b>        |   |   |  | <b>1,050,000.00</b>                        |  |                       |  |                                |                       |   | <b>700,000.00</b>     |
| <b>Social Impacts</b>    |   |   |  |  |  |                       |  |                                |                       |   |                       |
| <b>Continuous use of</b> | The rural communities will become more  | The communities with government support shall constitute  | Nigeria Police Force (NPF), Niger State  | Part of budget of relevant agency          | Incidence of security breach   | Routine interview     | Absence of security threat                             | Communities along project path | Quarterly for 2 years | NPF   | Part of annual budget |

| Activity                       | Potential Impact  | Mitigation Measures   | Responsibility for Mitigation                                | Mitigation Cost (NGN) | Parameters to be measured      | Method of measurement     | Performance indicator            | Sampling Location | Monitoring Frequency | Institutional Responsibility (Monitoring) | Costs (NGN)                |
|--------------------------------|---|---|--|-----------------------|--------------------------------|---------------------------|----------------------------------|-------------------|----------------------|---|----------------------------|
| <b>upgraded road</b>           | accessible and more exposed to people and activities from outside their communities including criminals, armed robbers, kidnappers and terrorist groups like Bandits etc. | community vigilante groups, mobilize the youths and request for police posts for regular surveillance of the communities. The design of local community alertness system shall be useful, to alert neighbours in case of invaders or criminals (see Appendix 14 for Sample Outline for Security Risk Management Plan) | Command; NSCDC, Community executives and Traditional Leaders |                       |                                |                           |                                  |                   |                      |   |                            |
|                                | Accidents involving vehicles or pedestrians are likely to occur as a result of increased vehicle density, operation and increased speed, as community roads               | Adequate road signs for motorists and pedestrians<br>Routine maintenance of roads.<br>Routine inspection of motor-able roads and road users.<br>Training of road users on interpretation of road signs, pedestrian safety, training of community children in the project corridors and driver safety.                 | FRSC<br><br>NURTW<br><br>Traffic Control Team                | 750,000.00            | Road accidents/animal crushing | Routine interview         | No complaints from the community | Communities       | Quarterly            | Traffic control team<br><br>FRSC          | Part of routine activities |
|                                | Discrimination against gender and vulnerable group for routine maintenance  | Continues sensitization and awareness program and ensure that community level programs allow for gender inclusiveness   | Community project monitoring committee                       | 350,000.00            | Reports and awareness          | Number of cases indicated | General compliance               | communities       | Quarterly            | SPIU SSS                                  | 150,000.00                 |
| <b>Sub Total</b>               |   |   |  | <b>1,100,000.00</b>   |                                |                           |                                  |                   |                      |   | <b>150,000.00</b>          |
| <b>Total (Operation Phase)</b> |   |   |  | <b>2,150,000.00</b>   |                                |                           |                                  |                   |                      |   | <b>850,000.00</b>          |
| <b>Grand Total</b>             |   |   |  | <b>20,570,000.00</b>  |                                |                           |                                  |                   |                      |   | <b>9,170,000.00</b>        |

| Activity                  | Potential Impact | Mitigation Measures | Responsibility for Mitigation | Mitigation Cost (NGN) | Parameters to be measured | Method of measurement | Performance indicator | Sampling Location | Monitoring Frequency | Institutional Responsibility (Monitoring) | Costs (NGN) |
|---------------------------|------------------|---------------------|-------------------------------|-----------------------|---------------------------|-----------------------|-----------------------|-------------------|----------------------|---|-------------|
| <b>(Pre + Con. + Op.)</b> |                  |                     |                               |                       |                           |                       |                       |                   |                      |   |             |

*\* Most of the cost is borne by the contractor and the SPIU will ensure it is embedded in their BOQ and will be verified by the SPIU Safeguards team.*

*\* Mitigation costs are estimates, contractors to review and ensure final costs in the BOQ are realistic and can adequately mitigate stated impacts.*

### 7.3 Institutional Roles & Responsibilities for Implementation and Monitoring the ESMP

The successful implementation of this ESMP depends on the commitment and capacity of various institutions and stakeholders to implement the ESMP effectively. Thus, the arrangement as well as the roles and responsibilities of the institutions and persons that will be involved in the implementation, monitoring and review of the ESMP are presented in Table 7.2 below.

**Table 7. 2:: Institutional roles and responsibilities for implementation & Monitoring of ESMP**

| No. | Category                               | Roles & Responsibilities  |
|-----|--|---|
| 1.  | Niger RAAMP SPIU                       | <ul style="list-style-type: none"> <li>❖ Overall responsibility for the implementation and monitoring of the implementation of the ESMP;</li> <li>❖ Monitoring of project/contractor performance and taking appropriate action to ensure ESMP provisions are met.</li> <li>❖ Inclusion of relevant provisions in the bidding document for contractors.</li> <li>❖ Safeguards due diligence</li> <li>❖ Implementation of request for environmental and social protection.</li> </ul>   |
| 2.  | Niger State RAAMP SPIU Safeguards Unit | <p><b>Environmental Safeguards</b></p> <ul style="list-style-type: none"> <li>❖ Analyse potential environmental impacts;</li> <li>❖ Ensure that project activities that are implemented are in accordance with best practices and guidelines</li> <li>❖ Identify and liaise with all stakeholders involved in environment related issues in the project; and be responsible for the overall monitoring of mitigation measures and the impacts of the project during implementation.</li> <li>❖ The review and approval of draft ESMP report submitted by the Consultant</li> <li>❖ Disclosure of the ESMP report at the designated locations within Niger State</li> </ul> <p>❖</p> <p><b>Social Safeguards</b></p> <ul style="list-style-type: none"> <li>❖ Develop, coordinate and ensures the implementation of the social aspects of the proposed project.</li> <li>❖ Identify and liaise with all stakeholders involved in social related issues during the proposed road rehabilitation;</li> <li>❖ Ensure that project activities that are implemented will be in accordance with best practices and guidelines and the ESMP</li> <li>❖ Monitoring of the GRM</li> <li>❖ Review of ESMP report</li> </ul> <p><b>GBV Specialist</b></p> <ul style="list-style-type: none"> <li>❖ Plan and implement all GBV related activities for the project</li> <li>❖ Development of GBV Grievance Redress Mechanism</li> <li>❖ Support the SPIU, in the identification, mitigation and management of the sexual exploitation and abuse (SEA), child exploitation and abuse (CEA), and other forms of GBV related risks identified in the projects.</li> <li>❖ Ensure that all measures outlined in the GBV Action Plans are implemented for all SPIU programmes.</li> <li>❖ Ensure that GBV mitigation and response measures are in place &amp; working correctly.</li> </ul> <p>❖</p> <p><b>Technical Assistants (TAs), Environment, Social and GBV</b></p> <ul style="list-style-type: none"> <li>❖ Provide technical assistance, guidance and support during ESMP development and implementation</li> </ul> |
| 3.  | E&S Consultant                         | <ul style="list-style-type: none"> <li>❖ Development of ESMP</li> <li>❖ Training of relevant SPIU/RAAMP staff, regulators, MDAs and contractor on ESMP implementation and monitoring.</li> </ul>  |
| 4.  | Federal Ministry of Environment        | <ul style="list-style-type: none"> <li>❖ Lead role – in the review and approval of draft ESMP report</li> <li>❖ Disclosure of the ESMP report at the FMEnv website <b>and receiving of comments from stakeholders,</b></li> </ul>   |
| 5.  | FPMU E&S                               | <ul style="list-style-type: none"> <li>❖ Provide guidance to the SPIU on E&amp;S compliance</li> <li>❖ Review of the ESMP and other safeguard instruments to ensure it complies with the WB requirements and the EIA Act</li> <li>❖ Periodic monitoring and supervision of the ESMP/RAP/GBV activities implementation</li> <li>❖ Review of monthly safeguards reports and other reports on safeguards activities.</li> </ul>  |



| No. | Category  | Roles & Responsibilities   |
|-----|---|--|
|     |   | ❖ Provision of safeguards training to the SPIU and contractors   |
| 6.  | World Bank  | ❖ Provision of advice on expected or likely issues based on Bank experience.<br>❖ Project mission and oversight monitoring to ensure overall safeguards compliance   |
| 7.  | Niger State Ministry of Environment and Forestry (SME&F)  | ❖ Assist with the disclosure of the ESMP report at the designated locations within Niger State.<br>❖ Monitoring the implementation of the ESMP   |
| 8.  | Niger State Ministry of Agriculture and Rural Development | ❖ Oversees resource management in the state including building and construction resources like quarries and natural resources<br>❖ Approve borrow pit sites and monitor reclamation  |
| 9.  | Niger State Environmental Protection Agency (NISEPA)      | ❖ Oversee the collection/evacuation of waste from the project site<br>❖ Ensure management of project waste in line with best environmental practices as not to degrade or pollute the environment.<br>❖ Conduct periodic monitoring of environmental parameters to ensure compliance with environmental regulations  |
| 10. | Niger State Roads Maintenance Agency (NIGROMA)            | ❖ Continuous routine maintenance of upgraded road  |
| 11. | FRSC, Traffic Control Team                                | ❖ Control and manage traffic and road safety throughout project implementation<br>❖ Ensure route diversions are seamless and direct road users appropriately<br>❖ Discourage counter road safety practices among road users  |
| 12. | Other relevant State Government MDAs                      | ❖ Relevant areas or resources under their jurisdiction or management are likely to be affected or implicated by the proposed project.<br>❖ Participate in the EA processes and in project decision-making that helps prevent or minimize environmental and social impacts and to mitigate them.  |
| 13. | Local Government Area of Interventions                    | ❖ Provide oversight function across the project area for ESMP compliance.<br>❖ Liaising with the SPIU, engage and encourage carrying out comprehensive and practical awareness campaign for the proposed project amongst the various relevant grass roots interest groups  |
| 14. | Project Host Communities                                  | ❖ Promote environmental and social awareness<br>❖ Project Support amongst the various relevant grass roots interest groups.  |
| 15. | Contractor  | ❖ Compliance to BOQ specification in procurement of material and construction<br>❖ Follow the ESMP and provisions of other management plans during project implementation<br>❖ Establish and maintain communication with project host communities through a Community Liaison Officer (CLO).<br>❖ Prepare the Contractor's ESMP (C-ESMP)   |
| 16. | Site Engineers/Supervisors                                | ❖ Provide oversight function during site mobilization, construction and demobilization   |
| 17. | Supervising Consultant (Environmental and Social)         | ❖ Prepare and implement environmental monitoring plan during construction<br>❖ Supervise contractor performance of implementation of the Construction Campsite/Staging area Camp Management Plan/C-ESMP<br>❖ Report any incidents or non-compliance with the C-ESMP to the ESSU-SPIU<br>❖ Ensure adequate training and education of all staff involved in environmental and social safeguard supervision including training on CoC understanding<br>❖ Prepare monthly safeguards report including recommendations to the RAAMP regarding ESMP performance as part of an overall commitment to continuous improvement |
| 18. | NGOs/CSOs   | ❖ Assisting in their respective ways to ensure effective response actions during project implementation.<br>❖ Awareness campaigns  |
| 19. | Others/General Public                                     | ❖ Identify environmental and social issues that could derail the proposed project and support project impacts mitigation measures.<br>❖ Awareness campaigns  |

## 7.4 Capacity Building

Training is essential for ensuring that the ESMP provisions are implemented efficiently and effectively. The SPIU shall therefore ensure that all persons (listed in Table 7.3) that have roles to play in the implementation of the ESMP are competent with appropriate education, training or experience. Similarly, the contractors shall be required to undertake general HSE awareness for their project workforce and specific training for those whose work may significantly have impact on the environment. This is to ensure that they are fully aware of the relevant aspects of the ESMP and are able to fulfill their roles and functions. The contractor is required to forward internal

HSE training and procedures to the Niger SPIU for approval before commencement of civil works. Similarly, the contractors shall be required to undertake specific training for those whose work may significantly have impact on the environment and training on appropriate behaviour related to SEA and GBV, and also to ensure that they are fully aware of the relevant aspects of the ESMP and are able to fulfil their roles and functions. As a minimum, the contractors shall ensure they provide the following training to their personnel:

- ❖ OHS/HSE Induction/Orientation course for all workers to include (site safety rules, PPE requirements, Emergency Preparedness and Response);
- ❖ Daily tool box talks for workers at the start of each day's job;
- ❖ Refresher OHS courses as at when required.
- ❖ Manual Handling Techniques
- ❖ First Aid Training (for Site First Aiders)
- ❖ Safe Driving Techniques (for drivers)

Table 7.3 shows the training for ESMP implementation and monitoring:

**Table 7. 3: Capacity Building for ESMP Implementation & Monitoring**

| Training Description   | Participants  | Duration  | Responsibility                              | Training Cost (₦)   | Training Cost (USD) |
|--|---|---|---|---------------------|---------------------|
| ESMP mitigation measures and procedures for implementation and monitoring                          | SPIU, Contractor  | 1 day   | E&S Consultant/<br>E&S Technical Assistants | 550,000.00          | 706.85              |
| Training on Code of Conduct, Labour influx, OHS, C-ESMP, GRM, GBV-GRM, stakeholder engagement      | SPIU, Supervising Consultants, Contractors, GRCs, relevant institutions stated in the ESMP including NURTW, Traffic Control Team etc. | 2 days during preconstruction and refresher training quarterly    | E&S Consultant/<br>E&S Technical Assistants | 850,000.00          | 1,092.40            |
| Training of Contractor Drivers   | SPIU, Contractor drivers, supervising consultants, Traffic Control Team   | 1 day during pre-construction.<br>1 day during construction phase | FRSC  | 350,000.00          | 449.81              |
| Awareness campaign on preventing STI/sexual diseases   | Contractor workers, SPIU Officers, SC   | 1 day during pre-construction.<br>1 day during construction phase | Healthcare workers                          | 400,000.00          | 514.07              |
| Gender and GBV Awareness raising/mainstreaming in project, GBV prevention, mitigation and response | SPIU, Supervising Consultants, Contractors  | 2 days  | GBV Specialist                              | 850,000.00          | 1,092.40            |
| <b>Total</b>   | <b>@ N778.10 to US\$1 equivalent@ September 28,2023</b>   |   |   | <b>3,000,000.00</b> | <b>3,855.55</b>     |

In addition to the trainings, the SPIU safeguards officers will be supported by time-based technical assistants on environment, social and GBV.

## 7.6 ESMP Implementation Schedule

**Table 7. 4: ESMP Implementation Schedule**

| No. | Activity Description | Responsibility | Prior to Contract Award | Pre-Construction | Construction | Operation |
|-----|----------------------|----------------|-------------------------|------------------|--------------|-----------|
|-----|----------------------|----------------|-------------------------|------------------|--------------|-----------|

|     |   |                                     |   |   |   |   |
|-----|---|-------------------------------------|---|---|---|---|
| 1.  | Clearance & Disclosure of ESMP                                    | SPIU                                | √ |   |   |   |
| 2.  | Finalization of Engineering Designs                               | SPIU/Engineering Design Consultant  | √ |   |   |   |
| 3.  | Inclusion of Environmental & Social Requirements in Bid Documents | SPIU                                | √ |   |   |   |
| 4.  | Allocating Budget for ESMP Implementation                         | SPIU                                | √ |   |   |   |
| 5.  |   |                                     |   |   |   |   |
| 6.  | Update and Approval of Contractor's ESMP, Waste & Safety Plan     | SPIU                                | √ |   |   |   |
| 7.  | Mobilization to site  | Contractor                          |   | √ |   |   |
| 8.  | Construction Phase  | Contractor                          |   |   | √ |   |
| 9.  | Implementation of Mitigation Measures                             | Contractor                          |   | √ | √ | √ |
| 10. | Supervising ESMP Implementation                                   | SPIU                                |   | √ | √ | √ |
| 11. | Monitoring & Reporting on ESMP Implementation                     | SPIU/Relevant MDAs                  |   | √ | √ | √ |
| 12. | Environmental and Social Training                                 | Environmental and Social Consultant | √ | √ | √ |   |

## 7.7 ESMP Disclosure

Following the ESMP clearance by the World Bank, the SPIU shall disclose the ESMP in line with the Nigerian EIA laws for 21 days. This will include a formal registration of the ESMP with the FMEnv and receipt of guidelines for the disclosure from the EA department including the locations to disclose the documents. At a minimum, this will include the following:

Table 7. 5: ESMP Disclosure

| No | Action  | Remarks  | Cost (₦)            | Cost (\$)       |
|----|---|--|---------------------|-----------------|
| 1. | Registration of the ESMP at the FMEnv         | This is based on fixed statutory fees by the FMEnv   | 50,000.00           | 64.26           |
| 2. | Inhouse technical review                      | This is based on fixed statutory fees by the FMEnv   | 200,000.00          | 257.04          |
| 3. | IMM FMEnv Statutory Cost                      | This is based on fixed statutory fees by the FMEnv   | 500,000.00          | 642.59          |
| 4. | Final Access Charges                          | This is based on fixed statutory fees by the FMEnv   | 250,000.00          | 321.30          |
| 5. | Disclosure on 2 National Newspapers           | This entails advert in 2 newspapers (actual costs will be determined at the point of placing the advert and varies depending on the paper)         | 500,000.00          | 642.59          |
| 6. | Radio announcement of the ESMP at the state   | The SPIU will conduct radio announcement that has state coverage for the ESMP, to air for 10 working days (actual cost will depend on the station) | 150,000.00          | 192.78          |
| 7. | Printing of Hard Copies for Display Centres   | N10,000 (estimate) X 15 copies   | 150,000.00          | 192.78          |
| 8. | Disclosure at the World Bank External Website | The ESMP will be disclosed according to the World Bank Disclosure OP17.50  | N/A                 | N/A             |
|    | <b>Total</b>                                  | <b>@ N778.10 to US\$1 equivalent@ September 28,2023</b>  | <b>1,800,000.00</b> | <b>2,313.33</b> |

\*Actual costs will be provided at the point of disclosure.

## 7.8 Summary of ESMP Implementation Budget

The summary of the cost for the implementation of the ESMP is presented in the Table 7.6 below. The total costs of the ESMP including costs for mitigation and monitoring and capacity building is estimated as: **Thirty – Six Million, Two Hundred and Sixty – Seven Thousand Naira (N36,267,000.00)**.

**Table 7. 6: Summary of ESMP Implementation Budget**

| Item               | Responsibility  | Estimated Cost (NGN) | Estimated Cost (NGN) |
|--------------------|---|----------------------|----------------------|
| Mitigation         | Contractor and Niger RAAMP SPIU                               | 20,570,000.00        | 26,436.19            |
| Monitoring         | Niger RAAMP SPIU, Supervising Consultant, responsible MDAs    | 9,170,000.00         | 11,785.12            |
| Capacity Building  | Niger RAAMP SPIU, Supervising Consultant, Other relevant MDAs | 3,000,000.00         | 3,855.55             |
| ESMP Disclosure    | Niger RAAMP SPIU  | 1,800,000.00         | 2,313.33             |
| <b>Sub – Total</b> |   | <b>34,540,000.00</b> | <b>44,390.18</b>     |
| Contingency        | 5% of Sub-Total   | 1,727,000.00         | 2219.51              |
| <b>TOTAL</b>       |   | <b>36,267,000.00</b> | <b>46,609.69</b>     |

US\$1 = N778.10 (September 28,2023)

## CHAPTER EIGHT: PUBLIC CONSULTATION

### 8.1 Introduction

Public consultations and engagement formed a vital part of this ESMP and it is a continuous process throughout the life span of the project. The opinions and concerns of project affected and beneficiaries or/and interested parties were collected and documented during consultations. This will form the basis for subsequent consultations and engagement with stakeholders. The strategy adopted for the consultation process includes but not limited to the following considerations that guided the public consultations.

- ❖ Site visit of each of the proposed road route for upgrade/construction;
- ❖ Identification of the administrative leadership in the project areas, and visits to the community leadership
- ❖ Identification of PAPs and notification of meeting in collaboration with community leaderships
- ❖ Public forum with stakeholders on the project matter

To gain an understanding of the concerns and issues of the community members, consultations were carried out across the communities along the 8 nos Backlog Road maintenance corridors. The consultations took place at the project's corridors between 6<sup>h</sup> and 8<sup>h</sup> June 2023. The communities covered includes; Kuyi, Kampala, Bako, Jangara, Danko Emikyara, Danchi Tako, Sabon Madara, Makera and Mandara.

### 8.2 Public Consultation Plan

The table 8.1 below identifies the different stakeholders for the project and describes how these stakeholders will be engaged throughout the project implementation and operations phases. The SEP serves as a framework for engaging with the different spectrum of stakeholders for the project.

*Table 8. 1: Public Consultation and Stakeholder Engagement Plan (SEP)*

| Project Phase           | Project Activities   | Target Group   | Method  |
|-------------------------|--|--|---|
| <b>Pre-construction</b> | <ul style="list-style-type: none"> <li>❖ Disclosure of project information</li> <li>❖ Identification of proposed project location and area of influence</li> <li>❖ Scoping and study</li> <li>❖ ESMP disclosure</li> </ul> | <ul style="list-style-type: none"> <li>❖ Traditional rulers</li> <li>❖ Community Union Chairman</li> <li>❖ Affected/Benefitting communities</li> <li>❖ School Administration</li> <li>❖ Healthcare centre administration</li> <li>❖ NGOs, CBOs</li> <li>❖ LG Council</li> </ul>              | <ul style="list-style-type: none"> <li>❖ Consultations with communities, village heads, youth leaders, women groups and head of association</li> <li>❖ Invitation through LGAs</li> <li>❖ Disclosure of ESMP at LGAs, SME, SPIU, National &amp; Local Dailies.</li> </ul>   |
| <b>Construction</b>     | <ul style="list-style-type: none"> <li>❖ Road construction – Civil Works</li> <li>❖ ESMP Implementation</li> <li>❖ ESMP Monitoring</li> </ul>  | <ul style="list-style-type: none"> <li>❖ Traditional rulers</li> <li>❖ Community Union Chairman</li> <li>❖ Affected/Benefitting communities</li> <li>❖ School Administration</li> <li>❖ Healthcare centre administration</li> <li>❖ NGOs, CBOs</li> <li>❖ Host LG Council Police,</li> </ul> | <ul style="list-style-type: none"> <li>❖ Consultation with communities, village heads, youth leader, women groups and heads of MDAs</li> <li>❖ Information via village messenger</li> <li>❖ Distribution of fliers to the locals printed in English and Hausa languages</li> <li>❖ Arrangement of monitoring responsibilities to stakeholder Agencies</li> <li>❖ Follow up calls by SPIU-ESS/SSS or Communications Officer</li> </ul> |
| <b>Operation</b>        | <ul style="list-style-type: none"> <li>❖ De-mobilization</li> <li>❖ Audit/ Post construction evaluation</li> <li>❖ Road Maintenance</li> </ul>   | <ul style="list-style-type: none"> <li>❖ Traditional rulers</li> <li>❖ Community union chairman</li> <li>❖ Affected/Benefitting communities</li> <li>❖ School Administration</li> <li>❖ Healthcare centre administration</li> <li>❖ NGOs, CBOs</li> <li>❖ Host LG Council</li> </ul>         | <ul style="list-style-type: none"> <li>❖ Community based interview, questionnaire surveys by SPIU</li> <li>❖ Invitation through the village heads, youth leader, and heads of MDAs</li> <li>❖ Information via village messenger</li> <li>❖ Arrangement of monitoring responsibilities to stakeholder Agencies</li> <li>❖ Follow up calls by SPIU-ESS/SSS or Communications Officer</li> </ul>   |

The figure 8.1 below shows the stakeholders' consultation plan onwards.

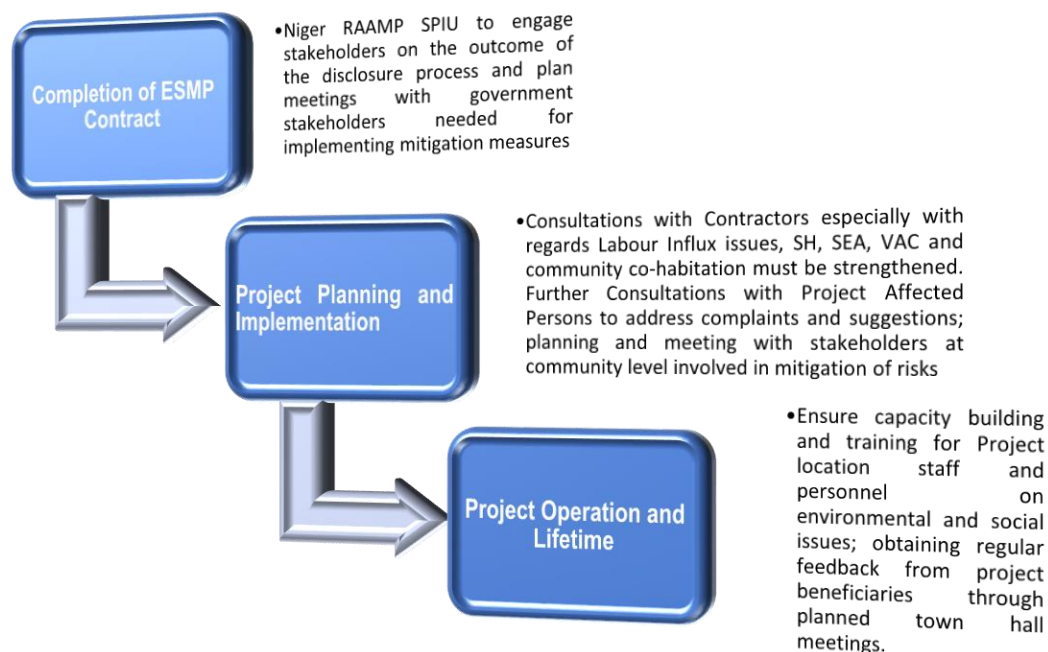




Figure 8. 1: Stakeholder Consultation Plan - Onward

## 8.2 Presentation of Consultations with Relevant Stakeholders and Affected Persons

|   |   |
|---|---|
| <b>Community / Venue / Date</b>           | Kuyi-Kampala, 06/06/2023  |
| <b>Project Area</b>                       | 7km Kuyi – Kampala Road Corridor  |
| <b>Language</b>                           | Hausa, Pigin and English  |
| <b>Attendees</b>                          | The meeting was held with the two (2) village heads, community leaders, community men and women, Niger RAAMP SPIU Safeguards Officers and Other Officers ESMP and RAP Team  |
| <b>Introduction</b>                       | Brief overview of RAAMP and the proposed rural road upgrade/rehabilitation was done by the ESMP Consultant team leader. He emphasized that there shall be continuous visit and meetings to keep stakeholders updated on the proposed project which comprises of both the pre-construction, construction, decommission and operational phase of the project. The consultant explained that the World Bank and AFD are in partnership with the State government through the federal government to finance the project and ensure it becomes a success. He further explained to them that there are some impacts that are associated with the proposed road upgrading project and hence this is the reason for the consultation to prepare their mind and also find possible mitigation for the likely adverse impacts that are associated with the project. |
| <b>Major Livelihood of the people</b>     | Farming and trading in agro-produce   |
| <b>Mode of transportation</b>             | Motor cars/buses and motorcycles  |
| <b>Respondents view about the project</b> | Both communities' leaders and communities' members expressed their happiness and excitement for the project and see to project as a great development to their community for it would grant ease movement of farm products from farm to the market hereby improving their economic activities within the community, for both farmers and traders.   |
| <b>Community needs and concerns</b>       | Limited access to farm due to bad road and limited transportation of farm produce to market<br>Timing of project commencement and duration<br>Exact time the project will commence  |



|   |   |
|---|---|
| <b>How Concerns were addressed</b>        | <p>Response by ESMP Consultant team leader</p> <p>Niger RAAMP is proposing to upgrade roads and that is why we are here to inform you and we want you to be part of the project from beginning to the end and we want you to take the project as your own. We also want you to give us advise on best way Niger RAAMP can execute the project without conflicts.</p> <p>Niger RAAMP is planning to upgrade 8 backlog-maintained roads in which your 7Km Kuyi – Kampala Road is one of it. The project is expected to last for 18months.</p> <p>This project is expected to commence as soon as Niger RAAMP complete the safeguards instrument and update the designs if necessary. SPIU will always carry you along and give you regular updates on the project.</p>      |
| <b>Pictures of Consultations</b>          |   |
| <b>Community</b>                          | Makera-Jangara, 08/06/2023  |
| <b>Project Area</b>                       | 35Km Beji-Makera-Jangara Road Corridor  |
| <b>Language</b>                           | Hausa, Pigin and English  |
| <b>Attendees</b>                          | <p>Mai anguwa of Makera village and some village members</p> <p>Community head of Jangara and other community members</p> <p>Niger RAAMP SPIU Safeguards Officers and Other Officers</p> <p>ESMP Team</p>   |
| <b>Introduction</b>                       | <p>The ESMP Team Leader briefed the attendee about the proposed 35Km Beji-Makera-Jangara road upgrading project. He added that there will be some negative impacts that will likely come with the new development and this is the reason for carrying out the ESMP on the project corridors to establish the current baseline condition, identify these likely issues and provide mitigation measures to manage the issues or solve the issues completely. He further said that the consultation with the project beneficiaries is a critical part of the ESMP study and the entire road upgrading project. He concluded by tasking the communities to own the project and they will be engaged by the Niger RAAMP SPIU from the beginning of the project to the end.</p> |
| <b>Major Livelihood of the people</b>     | Farming and trading in Agro-produce   |
| <b>Mode of transportation</b>             | Motor cars/buses and motorcycles  |
| <b>Respondents view about the project</b> | <p>The Jangara community through their leader Mallam Usman Abubakar expressed immense gratitude to the Niger RAAMP SPIU for selecting their community as beneficiaries of the rural road project, expressing how the project will bring about economic development to the community and ease transportation of farm produce to urban areas.</p> <p>The Mai anguwa of Makera said he is happy that Niger RAAMP SPIU involved the community in the project from the onset and he pledged to support the project with is community members.</p>  |
| <b>Community needs and concerns</b>       | <p>Mai anguwa of Makera wants Niger RAAMP SPIU to give them prior notice before mobilization to site.</p> <p>The major concern raised by Mallam Usman is increase in the accident at the Janara junction as a result of over speeding.</p>  |
| <b>How Concerns were addressed</b>        | <p>Response by ESMP Consultancy team Leader</p> <p>The Niger State RAAMP SPIU will carry you along throughout the proposed and will duly inform you before the commencement of civil works. He added that this consultation is not one off rather than a continuous process.</p> <p>The project Design Engineer has considered speed breakers along the proposed road corridor especially toward junctions.</p>   |

|   |   |
|---|---|
| <b>Consultation Pictures</b>              |   |
| <b>Community</b>                          | Masallaci and Danko, 07/06/2023   |
| <b>Project Area</b>                       | 10Km Patishin-danko-Masallaci Road Corridor   |
| <b>Language</b>                           | Hausa, Pigin and English  |
| <b>Attendees</b>                          | Mai anguwa of Danko village and some village members<br>Community members of Masallaci and other community members<br>Niger RAAMP SPIU Safeguards Officers and Other Officers<br>ESMP Team  |
| <b>Introduction</b>                       | As usual the ESMP Team Leader introduced the proposed road upgrading to the community members of Masalaci and also to the Mai anguwa of Danko and his community members. Although, the consultations were held separately at the respective communities, the consultant itemized likely impacts such as labour influx, noise, etc. that associated with the project and he added that all necessary steps will be taken to avert or / manage the issues. He further said that their cooperation is need to achieve the object of the project. He finally urges the communities to see the project as their community project as Niger RAAMP SPIU will always update them about the project and also consult them whenever there is a new update on the project.,  |
| <b>Major Livelihood of the people</b>     | Farming and trading in Agro-produce   |
| <b>Mode of transportation</b>             | Motor cars/buses and motorcycles  |
| <b>Respondents view about the project</b> | <p>The community members of Masalaci express gratitude about the new development and promised to support the project to be successful. They added that they give the community head the good news whenever he is back as he was not around for the consultation.</p> <p>The Mai anguwa of Danko was happy about the project as he pointed out that they really enjoyed the road after the first road grading intervention by SPIU and now that some part of the road has been affected by erosion which make it a right time for the intervention. He also said there won't be any problem in the community during project implementation as the community members have been leaving together in harmony for decade despite there religious different. He pledges his support and that of the community members for Niger RAAMP SPIU.</p> |
| <b>Community needs and concerns</b>       | <p>The representative of the community head at Masalaci raised concern about road accident as a result of over speeding motorist after the road upgrade project.</p> <p>The Mai anguwa of Danke requested that the road upgrading should be extended beyond the end point.</p>  |
| <b>How Concerns were addressed</b>        | <p>Response by ESMP Consultancy team Leader</p> <p>Speed limit signages will be install along the project corridor and also speed brakers to caution over speeding by the road users</p> <p>Niger RAAMP is intervening in eight (8) different road corridors and that is what the budget can accommodate for now.</p>   |



## CHAPTER NINE: CONCLUSION AND RECOMMENDATIONS

The proposed 124KM backlog rehabilitation/intervention works in Niger State will have highly beneficial impacts on the rural adjoining communities and respective LGAs and the state at large as it will promote integration and improve accessibility to communities, markets, farms and agro-processing centres in the project areas.

Stated below are some of the recommendations that will enhance the overall sustainability of the proposed project especially during the implementation phase of the project

- ❖ Affected economic trees/crops along the 10Km Kuyi - Kampalas road corridors should be replaced
- ❖ Preference should be given to local workers (both skilled and unskilled) during project implementation so as to limit the number of migrant workers. This will reduce threats to community culture, health, safety and security as well as stimulate local socioeconomic activities, improve livelihood and reduce poverty in the affected communities.
- ❖ Prior information should be given to Affected communities before the commencement of civil works. In addition, ongoing consultation with members of the affected communities especially during construction should be maintained to allow them freely to express their views/concerns and make valuable contributions.
- ❖ Water should be used for dust suppression during civil works especially those involving excavations and other dust generating activities in order to protect nearby communities from respiratory and eyes problems and other health related challenges of dust.
- ❖ All bare and exposed soils should be re-vegetated with native vegetation immediately after construction to prevent erosion.
- ❖ Codes of Conduct should be developed for contractors with prohibitions against GBV/SEA.
- ❖ Community-based Grievance Redress Mechanism should be developed and implemented to promptly and effectively resolve grievances from affected persons.
- ❖ Construction works should be carried out in an environmentally sustainable and socially responsible and inclusive manner.
- ❖ The Safeguard Unit of SPIU should ensure active monitoring to ensure the contractor adhere strictly to the requirements of this ESMP especially in the application of mitigation measures during project implementation.
- ❖ Adequate efforts should be made by all stakeholders, especially the government in ensuring provision of adequate infrastructures and social facilities in the rural communities in order to improve the standard of living of the rural dwellers.
- ❖ Ensure measures to prevent dust and erosion on the road surface are taking into consideration during road design, construction planning and implementation in order to prevent erosion and reduce dust impacts on communities during the dry seasons.
- ❖ Ensure that staging areas for contractor equipment are adequately delineated and cordoned off with reflective tapes and barriers.
- ❖ Installation barriers for trailers should considered along the 35Km Beji-Makera-Jangara Road in order to prolong the life span of the road as the road is not designed for heavy duty vehicles.

## **REFERENCES**

Final ESMP for Spot Improvement of 119km Rural Roads under RAMP in Niger State, 2019

National Environmental (Noise Standards and Control) Regulations, 2009

National Environmental (Air Quality Control) Regulations, 2014

# APPENDIXES

## APPENDIX 1: TERMS OF REFERENCE FOR THE ESMP

### TERMS OF REFERENCE RURAL ACCESS & AGRICULTURAL MARKETING PROJECT (RAAMP) PREPARATION OF ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) FOR 8 ROADS UNDER BACKLOG MAINTENANCE (124KM) ROADS UNDER THE NIGER STATE RAAMP

#### Background and Context

1. The Federal Government of Nigeria (FGN) has initiated the preparation of the Rural Access and Agricultural Marketing Project (RAAMP), the successor of the Second Rural Access and Mobility Project (RAMP-2). The project will be supported with financing from the World Bank and the French Development Agency (AFD) and will be guided by the Government's Rural Travel and Transport Policy (RTTP). The lead agency for the Federal Government is the Federal Department of Rural Development (FDRD) of the Federal Ministry of Agriculture and Rural Development (FMARD). The Federal Project Management Unit (FPMU) is overseeing the project on behalf of FDRD, while the respective state government of nineteen (19) participating states will implement it. The project development objective of RAAMP is to improve rural access and agricultural marketing in selected participating states whilst strengthening the financing and institutional base for effective development, maintenance and management of the rural road network sustainability. The participating states are: Nine northern states (Bauchi, Gombe, Kaduna, Kano, Katsina, Kebbi, Kogi, Kwara, Niger, Plateau and Sokoto) and eight southern states (Abia, Akwa Ibom, Ebonyi, Ekiti, Ogun, Ondo, Osun and Oyo).

2. The Nigeria road network is relatively dense consisting of about 194,000 km of roads. This includes 34,000 km of federal roads, 30,000 km of state roads and 130,000 km of registered rural roads. The road density is about 0.21 km of roads per square kilometre (RAMP-2 ESMF, 2012). In spite of the relatively high road density, the rural accessibility index for Nigeria (defined as the proportion of the rural population living within 2 kilometres away from an all-weather road) is low, at only 25.5 percent, leaving about 92 million rural dwellers unconnected (World Measuring Rural Access: Update 2017/18). Rural access is limited where the poor population is concentrated. These considerations demand the expansion and improvement of rural road network, and, also, conservation of rural road/transport assets.

3. Furthermore, an improved rural access will enhance the agricultural potentials and marketing opportunities for the agrarian rural communities in Nigeria and, by extension, help in the improvement of livelihoods of the rural population.

4. Out of the total project outlay of US\$575 million, the Association, the AFD and the GoN will contribute S\$280 million, US\$230 million (Euro 200 million equivalent) and US\$65 million respectively. These contributions are equivalent to 49 percent, 40 percent and 11 percent of the total costs respectively for the Association, the AFD, and GoN.

4. RAAMP has four components

Component A: Improvement of Rural Access and Trading Infrastructure – activities include the upgrading of rural roads, construction of short-span critical cross-drainage structures, improvement of agro-logistics centers and support to the costs of consultancies and supervision of construction activities.

Component B: Asset Management, Agro-logistics Performance Enhancement and Sector Reform. This component comprises three sub-components: (i) B.1 Other Civil Works. Support the maintenance and spot improvement of rural roads; (ii) B.2 Support for Improving Agro-logistics Activities.

Component C: Institutional Development, Project Management and Risk Mitigation. The component has two sub-components. (i) C.1 Institutional Development and Project Management. This sub-component will involve support to institutional development of the rural transport, trading infrastructure and agro-logistics activities, maintenance and management.

Component D: Contingent Emergency Response. The component will address any unforeseen emergency infrastructure needs following a natural disaster. The component will be triggered if there are emergency infrastructure needs following a natural disaster in order to restore livelihoods of affected people.

5. Considering the nature of these works, their scope, geographic coverage and client's capacity, the following World environmental and social safeguards policies are triggered: Environmental Assessment OP/BP 4.01, Natural Habitats OP/BP 4.04, Physical Cultural Resources OP/BP 4.11 and Involuntary Resettlement OP/BP 4.12. The project has been assigned an Environmental Assessment (EA) Screening Category "B". This rating is based on the scope of the project, which indicates limited adverse environmental and social impacts. It is expected that very limited adverse negative impacts are likely during project implementation; especially as the project does not contemplate constructing new roads and will essentially remain within the existing right-of-way.

6. At project preparation, an Environmental and Social Management Framework (ESMF) a Resettlement Policy Framework (RPF) was prepared. These safeguard instruments are frameworks that need to be translated into specific cost, measurable, and monitorable actions for specific sites intervention through the preparation of site-specific management and action plans.

In general, the ESMF specifies the procedures to be used for preparing, approving and implementing (i) environmental/social assessments (ESAs, or alternately both an SA and an EA) and/or (2) environmental/social management plans (ESMPs, or alternately both an EMP and SMP) for individual civil works packages developed for each project.

The Resettlement Policy Framework is prepared as a stand-alone document to provide guidance, and a procedure and process for preparing ARAP/RAP which may be carried out when the subcomponents' locations are known and more detailed information on subcomponents becomes available.



## I. PROJECT AREA

The proposed 124KM backlog rehabilitation/intervention works will be implemented in Niger State. The state is located in the north central Nigeria at 8o20'N 3o30'E. It has a land mass of about 76,363km<sup>2</sup> (29,484sqmi). The state shares boundaries with Kaduna and Federal Capital Territory in the east and south east respectively, Kebbi and Zamfara states in the north, Kwara and Kogi states in the south and Benin republic in the west. Niger state is the home state of the two of Nigeria's hydroelectric power stations- the Kainji dam and the Shiroro dam.

### Description of Proposed Intervention

The Niger state RAAMP has 8 Nos of Backlog maintenance roads with a total of 124km. The work package would involve engineering works such as, but not limited to, the following:

Site clearance; earthworks; provision of sub-base; provision of lateritic base course (generally as surfacing); trapezoidal earth side drains; with turnouts/off-shoots; lined side drains; single and multiple 900 mm concrete pipe culvert extensions and new culverts; reinforced concrete box culverts; possibly reinforced concrete bridges on bored piles; Double Bituminous Surface Treatment (DBST)

These activities have the potential to generate environmental and social impacts including noise and dust generation; Delay in travel time due to traffic obstruction, accident risks to road users, potential pollution to water resources from poor waste management, community health & safety risks such as accidents/spread of STDs, risks of GBV/SEA/SH, traffic congestion, security risks to workers such as kidnapping and banditry amongst others.

7. In line with the RAAMP ESMF, an Environmental and Social Screening was conducted in April 2023 to ascertain the eligibility of the roads based on the environmental and social sensitivities, and the need for preparation of any site-specific instrument or otherwise. The screening identified the need to prepare an Environmental and Social Management Plan (ESMP) to adequately address the site-specific impacts envisaged due to the project activities for the 8 roads

8. Against this backdrop, Niger state RAAMP is desirous to engage the services of an individual consultant to prepare an Environmental and Social Management Plan (ESMP) for the backlog maintenance roads (totaling 124 Km) (see Appendix A

### Objective and scope of the consultancy

The objective of the consulting services is to prepare an Environmental and Social Management Plan (ESMP) for the 8 roads (totaling 124km) proposed for Backlog maintenance under Niger state RAAMP in line with the guidelines of the World Bank/IDA. This ESMP will assist to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. The ESMP will also include the measures needed to implement these actions, addressing the adequacy of the monitoring and institutional arrangements for the upper and lower watersheds in the intervention sites.

### Objectives of the ESMP

9. The specific objective of the ESMP will be to assess the potential environmental and social impacts of the proposed works as described in the detailed preliminary designs and prepare a detailed Environmental and Social Management Plan (ESMP) and develop appropriate mitigation measures to address the negative impacts. The ESMP will also outline mitigation costs & responsibilities, and a monitoring plan which will include monitoring parameters, frequency, responsibility and costs. The ESMP will advise any required updates to the engineering design based on impacts reduction strategies and mitigation measures, prior to finalization of the engineering design. Furthermore, the costs for mitigation of the ESMP which is due to the contractor will be embedded in Bill 1 in the standard bidding documents for contractors to enable adequate consideration and costing for E&S management in their bids.

### Scope of Works

The assignment is for the preparation of site specific ESMP for the Backlog maintenance roads that should consist of a well-documented set of mitigation measures, monitoring, and institutional actions to be taken before and during implementation to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. It should also include the measures required to implement these actions, costing, and responsibility, addressing the adequacy of the monitoring and institutional arrangements in the intervention site

10. The consultant will work in close collaboration with the engineering design consultants and Niger state RAAMP State Project Implementation Unit's (SPIU) safeguard team, and with other actors as directed by the SPIU. In that respect the sequencing of the technical/feasibility studies and the ESMP will be critical. The consultant will have to consider the technical variants of the proposed activities and also in return inform the technical design consultants of any major constraint that may arise due to the social and environmental situation on ground.

The specific task for the consultancy assignment shall include but not limited to the following:

- a) Review the existing PAD, ESMF and RPF prepared for the project;
- b) Review of the Project's PIM and Road Intervention Catalogue;
- c) Review Environmental and Social Safeguards policies of the World Bank triggered on the project;
- d) Review of preliminary engineering designs and technical /feasibility studies for the proposed project locations;
- e) Describe the proposed project by providing a description of the project relevant components and presenting schematic diagrams, maps, figures and tables.
- f) As appropriate in highly sensitive sites, describe and analyse the physical, biological and human environment conditions in the study area before project implementation. This analysis shall include the interrelations between environmental and social



components and the importance that the society and local populations attach to these components, in order to identify the environmental and social components of high value or presenting a particular interest.

- The following biophysical issues shall be taken into consideration; Climate, Air Quality, erosion/flooding patterns, drainage pattern, water quality (surface and aquifer characteristics), Soil, biological aspects: flora and fauna, endemic and endangered species.
- g) Identify the policy, legal and administrative framework relevant to the sub-projects.
- h) Define and justify the project study area for the assessment of environmental and social impacts.
- i) Assess the potential environmental and social impacts related to project activities;
- j) Define appropriate mitigation/enhancement measures to prevent, minimise, mitigate, or compensate for adverse impacts or to enhance the project environmental and social benefits, including responsibilities and associated costs.
- k) Review institutional assessment and framework for environmental and social management.
- l) Identify responsibilities and actors for the implementation of proposed mitigation measures
- m) Assess the capacity available to implement the proposed mitigation measures and identify institutional responsibilities and needs for capacity building, if necessary, to implement the recommendations of the environmental and social assessment and associated costs
- n) The following socio-economic issues shall be addressed in the ESMP:
- Using a mixed methods approach, the study shall establish the social baseline information before project intervention. Social baseline parameters to be determined for each of the spot improvement sites include;
    - Location
    - Community Organisation and Governance
    - Pattern of social networks and interaction in the project area;
    - Access/Transport preferences of residents of project communities
    - population characteristics (number, demographic, literacy levels, other social characteristics, distribution of vulnerability within population around the project sites);
    - economy (prevalent occupations, employment rate, income distribution);
    - Availability of social services (health, education)
    - public services (types, capacity, and adequacy)
    - housing type;
    - Absorptive capacity of local communities for project-induced labour influx (worker/family).
    - Pattern of conflict and conflict resolution mechanisms in project communities
    - Factors driving Gender-Based Violence and Sexual Exploitation & Abuse risk in project areas
  - A summary of the views of the population including vulnerable groups, determined through documented discussions with local communities.
  - Cultural: Summarize the possible effects of the project on historical/archaeological sites, heritage/artefacts, native religious or harvest sites of the affected communities and identification or development of mechanisms for handling chance findings.
- o) Carry out consultations with primary and secondary stakeholders in order to obtain their views about the project. These consultations shall occur during the preparation of the ESMP to identify key environmental and social issues and impacts, and after completion of the draft ESMP to obtain comments from stakeholders on the proposed mitigation/enhancement measures
- p) The consultant shall also document how to manage risk related to Gender Based Violence (GBV) including Sexual Exploitation and Abuse and sexual harassment taken cognisance of (i) Develop a Labour Influx, (ii) Security issues, (iii) project GBV accountability and response framework. In doing these, he shall develop a labour influx, SEA/SH and Occupational Health and Safety Response Plan
- q) Develop a Grievance Redress Mechanism (GRM) which will be applied on the project. A GBV-specific Grievance Mechanism will also be developed to address complaints related to forms of GBV on the project.
- r) For ESMPs to capture the socio-economic, cultural and risk context for women, they should consider:
- Existing gender-specific statistics;
  - Data and/or information on cultural and socio-economic practices for women;
  - Information obtained from consultations carried out in the preparation of the project.
- s) Prepare an Environmental and Social Management Plan (ESMP). The ESMP should identify:
- The potential environmental and social impacts resulting from project activities
  - The proposed mitigation measures;
  - The monitoring indicators;
  - The institutional responsibilities for monitoring and implementation of mitigation measures;
  - The costs of mitigation, monitoring activities and implementing the ESMP; and
  - A calendar for implementation.

In executing the above task, the consultant shall carry out consultations with primary and secondary stakeholders in order to obtain their views about the project. These consultations shall occur during the preparation of the ESMP to identify key environmental and social issues and impacts, and after completion of the draft ESMP to obtain comments from stakeholders on the proposed mitigation/enhancement measures.

The following socio-economic issues shall be addressed in the ESMP:

- A summary of the impacted communities for the project: location, access, population (number, demographic and social characteristics); economy (employment rate, income distribution); services (types, capacity, and adequacy) and housing. The concern is the ability to provide workforce, service new development and absorb and adjust to growth (worker/family).

- A summary of the views of the population including vulnerable groups, determined through thoroughly documented discussions with local communities. These meetings and discussions must be documented and should show how issues and problems raised are or will be resolved (note that a Resettlement Action Plan (RAP) could be developed for the Site, and this is covered under separate TORs).
- Cultural: Summarize the possible effects of the project on historical/archaeological sites, heritage/artifacts, native religious or harvest sites of the affected communities and identification or development of mechanisms for handling chance findings.

Information will be gathered from field surveys and secondary data sources (interviews, structured questionnaires, in-depth interviews and focus group discussions).

### Ethical requirements

Before undertaking any activity, the team will make sure that it understands all ethical considerations related to working GBV (in particular Sexual Exploitation and Abuse). The consultant should not collect any primary data, they should NOT conduct interviews or research using the SEA survivors and will only make use of secondary sources and data. This is with the objective to minimize harm to women and children.<sup>2</sup>

The typical contents of an ESMP Report are presented hereafter in section IX. It shall be noted that the presentation of the Report may be adapted pending on the nature and specific requirements of the project. Also, the ESMP report should not be more than 50 pages with all other documentation in the Appendix. This is important to enable the engineers review the report during project implementation.

### Qualification of consultant

- The ESMP will be prepared by an individual consultant
- The consultant must have a working knowledge of World Bank Environmental and Social Framework, Operational safeguards policies gained through hands-on experience in the preparation and implementation of environmental and social management plans in an urban/rural area.
- Advanced degree in environmental sciences, natural sciences, environmental management or social sciences
- Minimum of 8 years' experience in safeguards related/civil works contracts requiring Environmental management procedures including mitigation measures
- Proven skill in World Bank (WB) Environmental and Social safeguard policy implementation including addressing cross-cutting issues in development project and must have prepared at least three (3) ESMPs for World Bank funded projects.
- Experience in occupational Health and Safety/HSE and relevant certification
- Excellent communication and report writing skills

### Deliverables and Timing

- **Inception Report:** An Inception report detailing the work plan for execution, review of relevant project documents and preliminary impacts identified shall be submitted to the SPIU one (1) week after contract signing (4 hard copies).
- **Draft Report:** A draft ESMP report shall be submitted to the Niger SPIU for review two weeks from the date of contract signing.
- **Final Report:** A Final ESMP report considering all comments from the FPMU and World Bank shall be submitted within three weeks for clearance and No-Objection from the World Bank.

### Payment Milestone

20% upon submission of Inception Report

50% upon submission and acceptance of the Draft ESMP Report

30% upon submission of the Final ESMP Report

### IX CONDUCT OF THE CONSULTANT

- The Consultant will, at all times, be expected to carry out the assignment with the highest degree of professionalism and integrity. The Consultant will be expected to conduct his duties in an open and transparent manner.
- The Consultant will not, under any circumstance, take any actions or be seen to be taking any actions, which may hinder or prevent the Niger State RAAMP from executing this assignment.
- The Consultant will study all Niger State RAAMP guidelines and policies, and will be expected to ensure that the assignment is concluded with the strictest adherence to all such policies and regulations.
- The Consultant will not, under any circumstances, take any material decision pertinent to this assignment without the express permission and written consent Project Coordinator or of an authorized representative of the Niger State RAAMP
- The Consultant will not, under any circumstances, discuss, divulge, or use any information regarding this assignment or any other transaction conducted without the express written permission of an authorized representative of Niger State RAAMP
- The consultant must not have a conflicting assignment with government agencies, development partners etc. if a conflict of interest is discovered, the contract shall be terminated and the consultant
- The consultant must avoid all potential conflict of interest situations.

### 11.0 DURATION

<sup>2</sup> "A woman may suffer physical harm and other forms of violence if a partner finds out that she has been talking to others about her relationship with him. Because many violent partners control the actions of their girlfriends or wives, even the act of speaking to another person without his permission may trigger a beating." For more information on ethical considerations see: VAWG Resource guide, <http://www.vawgresourceguide.org/ethics>

The duration of the assignment shall be for a period of 2 Weeks

### Project-specific Background Documents

- Environmental and Social Management Framework (ESMF)
- Resettlement Policy Framework (RPF)
- RAAMP Project Appraisal Document (PAD)
  
- RAAMP Project Implementation Manual (PIM)
- Civil work design report

### Report Outline

LIST OF TABLES

LIST OF FIGURES

LIST OF PLATES

ABBREVIATIONS AND ACRONYMS

EXECUTIVE SUMMARY

CHAPTER ONE: INTRODUCTION

- Background
- Description of the proposed intervention
- Scope of the assignment
- Rationale for ESMP
- Objectives of the ESMP

CHAPTER TWO: ADMINISTRATIVE & REGULATORY FRAMEWORK

- Discussion of the World Bank safeguard policies triggered by RAAMP and the proposed activity
- Summary of relevant local and federal policy, legal, regulatory, and administrative frameworks

CHAPTER THREE: PROJECT DESCRIPTION

- Description of the Proposed Project, Project Component and Activities

CHAPTER FOUR: DESCRIPTION OF PROJECT ENVIRONMENT

- Description of the area of influence and environmental baseline conditions including climate, air quality, erosion/flooding patterns, drainage pattern, water quality (surface and aquifer characteristics), soil, biological aspects: flora and fauna, endemic and endangered species.
- Analysis of socio-economic baseline conditions including livelihoods, economic opportunities, income, gender characteristics, age profile, health, transport access, existing community structures - at community, household, and individual levels

CHAPTER FIVE: POTENTIAL IMPACTS AND MITIGATION

- Methods and techniques used in assessing and analyzing the environmental and social impacts of the proposed project
- Discussion of the potentially significant adverse environmental and social impacts of the proposed project
- Labour influx
- Description of the GBV risk (including a GBV Action Plan), and more broadly the ESHS expectations, and include appropriate mitigation measures. The basis of the GBV Action Plan should be provided as part of the ESMP.<sup>3</sup>

CHAPTER SIX: GRIEVANCE REDRESS MECHANISM

- Description of grievance redress mechanism (in alignment with the ESMP and Project Implementation Manual) to address situations of conflicts or disagreements about some of the project activities

CHAPTER SEVEN: ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN<sup>4</sup>

- Discussion of the proposed mitigation measures
- ESMP table
- Institutional responsibilities and accountabilities
- Capacity building plan
- Monitoring and evaluation plan, including suitable indicators for the proposed project
- Costs of implementing the ESMP

CHAPTER EIGHT: PUBLIC CONSULTATION

- Public consultation plan
- Presentation of consultations with relevant stakeholders and affected persons

CHAPTER NINE: CONCLUSION AND RECOMMENDATIONS

REFERENCES

APPENDIX 1: TERMS OF REFERENCE FOR THE ESMP

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<sup>3</sup> The GBV Action Plan needs to include specific **arrangements** for the project by which GBV risks will be addressed. This includes considerations such as: a) Awareness Raising Strategy, which describes how workers and local communities will be sensitized to GBV risks, and the worker's responsibilities under the CoC; b) GBV Services Providers to which GBV survivors will be referred, and the services which will be available; and, c) GBV **Allegation Procedures**: How the project will provide information to employees and the community on how to report cases of GBV CoC breaches to the GRM.

<sup>4</sup> The ESMP should take into account that designation of responsibilities between contractor and Borrower may vary on a project-specific basis, in order to improve effectiveness and efficiency in implementation and associated results. To this end, the ESMP should follow the guidance in table 5 in the Labour influx guidance note : <http://pubdocs.worldbank.org/en/497851495202591233/Managing-Risk-of-Adverse-impact-from-project-labor-influx.pdf>

APPENDIX 2: SOCIO-ECONOMIC DATA COLLECTION INSTRUMENTS  
 APPENDIX 3: ATTENDANCE AT COMMUNITY CONSULTATIONS  
 APPENDIX 4: GENERAL ENVIRONMENTAL MANAGEMENT CONDITIONS FOR CONSTRUCTION CONTRACTS  
 APPENDIX 5: WASTE MANAGEMENT PLAN  
 APPENDIX 6: OCCUPATIONAL HEALTH AND SAFETY (OHS) PLAN  
 APPENDIX 7: BORROW PIT MANAGEMENT PLAN  
 APPENDIX 8: TRAFFIC MANAGEMENT PLAN (TMP)  
 APPENDIX 9: CODE OF CONDUCT FOR GENDER-BASED VIOLENCE  
 APPENDIX 10: CAMPSITE MANAGEMENT PLAN  
 APPENDIX 11: LABOUR INFLUX PLAN  
 APPENDIX 12: COMMUNITY AFFAIRS, SAFETY, HEALTH, ENVIRONMENT AND SECURITY (CASHES) PLAN  
 APPENDIX 13: SAMPLE CHANCE FIND PROCEDURE FOR THE PROTECTION OF PHYSICAL RESOURCES  
 APPENDIX 14: SAMPLE OUTLINE FOR SECURITY RISK MANAGEMENT PLAN

**APPENDIX A LIST OF ROADS                      8 no Backlog Maintenance Roads (124km)**

| SN    | LOT | ROAD NAME                      | LENGTH (KM) | INTERVENTION TYPE   |
|-------|-----|--------------------------------|-------------|---------------------|
| 1     |     | Kataeregi –Ebba road           | 23.0km      | Backlog maintenance |
| 2     |     | Doko-Gaba-Shehi road           | 14.43km     | Backlog maintenance |
| 3     |     | Luma-Shagunu road24            | 24.0km      | Backlog maintenance |
| 4     |     | Beji-makera-jangara road       | 35.0km      | Backlog maintenance |
| 5     |     | Kontagora-Gangaren sagi        | 3.0km       | Backlog maintenance |
| 6     |     | Tungan wawa-Madara             | 7.0km       | Backlog maintenance |
| 7     |     | Patishin-danko-massallaci road | 10.0km      | Backlog maintenance |
| 8     |     | Kuyi-Kampala road              | 7.0km       | Backlog maintenance |
| TOTAL |     |                                | 124.00km    |                     |

## APPENDIX 2: SOCIO-ECONOMIC DATA COLLECTION INSTRUMENTS

### IDENTIFICATION

Community: \_\_\_\_\_ Date \_\_\_\_\_  
 Name of Interviewer \_\_\_\_\_  
 Name of the Respondent: \_\_\_\_\_  
 Relationship to Household head \_\_\_\_\_  
 Age \_\_\_ Sex \_\_\_

Nationality \_\_\_\_\_ Nativity \_\_\_\_\_  
 Length of stay within the community \_\_\_\_\_  
 Which of these is your highest level of academic qualification (i) FSLC \_\_\_\_\_ (ii) WASC/SSCE \_\_\_\_\_ (iii) OND/TCII \_\_\_\_\_ (iv) HND/BSc \_\_\_\_\_ (v) MSc/PGD \_\_\_\_\_

### GENERAL INFORMATION

Religious Group: Christians \_\_\_ Muslim \_\_\_ ATR \_\_\_ Others (specify) \_\_\_  
 Family Pattern: Joint \_\_\_ Nuclear \_\_\_ Individual \_\_\_  
 Size of Family: Small (2-4) \_\_\_ Medium (5-7) \_\_\_ Large (Above 7) \_\_\_  
 Household's Main Occupation and Monthly income (A) \_\_\_\_\_  
 Secondary Source and Monthly Income (A) \_\_\_\_\_ No. of Adult earning members: \_\_\_\_\_ No. of dependents: \_\_\_\_\_ Family annual expenditure: (A) \_\_\_\_\_

### PUBLIC UTILITIES

How would you describe the condition of the following amenities in town you live/community?

| Amenities                  | Very Good | Good | Fair | Poor |
|----------------------------|-----------|------|------|------|
| Roads to the community     |           |      |      |      |
| Roads within the community |           |      |      |      |
| Schools in the community   |           |      |      |      |
| Public Health Institutions |           |      |      |      |

Potable Water

Public Electricity

Communication facilities

(Postal Service, Telephone)

What is the major source of water available to your household?

(i) River \_\_\_ (ii) Borehole (commercial) \_\_\_ (iii) Borehole (private) \_\_\_ (iv) Public pipe-borne water \_\_\_ (v) Pond \_\_\_ (vi) Water Vendor \_\_\_ (vii) Well water \_\_\_

What is your primary source of electricity

(i) Hurricane Lamp \_\_\_ (ii) Private Generators \_\_\_ (iii) Community Generators \_\_\_ (iv) State Government Utilities Board \_\_\_ (v) Company Operating in your community \_\_\_ (vi) PHCN (National Grid) \_\_\_

What is your secondary source of electricity?

(i) Hurricane Lamp \_\_\_ (ii) Private Generators \_\_\_ (iii) Community Generators \_\_\_ (iv) Company Operating in your community \_\_\_

What is the main fuel you use for cooking?

(i) Firewood \_\_\_ (ii) Charcoal \_\_\_ (iii) Kerosene \_\_\_ (iv) Gas \_\_\_ (v) Electricity \_\_\_ (vi) Crop residue/ Saw dust \_\_\_ (vii) Animal Wastes \_\_\_ (viii) Others \_\_\_

### HEALTH AND SANITATION

What type of toilet facility do you use?

(i) Pit \_\_\_ (ii) Bush \_\_\_ (iii) Bucket \_\_\_ (iv) Water Closet \_\_\_ (v) Others (Specify) .....

How do you dispose of your household refuse?

(i) Private Open Dump \_\_\_ (ii) Public Open Dump \_\_\_ (iii) Organized Collection \_\_\_ (iv) Burning \_\_\_ (v) Bush \_\_\_ (vi) Burying \_\_\_

Which of the following diseases/condition is most common in your area

(i) Malaria \_\_\_ (ii) Typhoid \_\_\_ (iii) Diarrhoea \_\_\_ (iv) Cough \_\_\_ (v) Respiratory Disturbance \_\_\_ (vi) Others \_\_\_

### PROJECT PERCEPTION

Are you aware of the proposed Rehabilitation Project? Yes \_\_\_ No \_\_\_ If Yes, Source of information \_\_\_\_\_

What is your opinion about the project? Good \_\_\_ Bad \_\_\_ Can't say \_\_\_

If good, what positive impacts do you perceive? \_\_\_\_\_

If bad, what negative impacts do you perceive? \_\_\_\_\_

**APPENDIX 3: ATTENDANCE AT COMMUNITY CONSULTATIONS**

7/6/2023

DANKO ENIWAQOCHI

- ① SAMUEL GRIKE M 07053969380
- 2 JIBRI ZUBAIRU M 07039670577
- 3 TRACIS SABA M 08130478777
- 4 DAWJUNA MUHAMMAD M 07165790227
- 5 FAIMA BABA F
- 6 FAIMA ZUBAIRU F 08153899678
- 7 NMA ZUBAIRU M (COMMUNITY LEADER) 08141188572

**ATTENDANCE SHEET**

Stakeholders' Consultation for Niger RAAMP ESMP and ARAP

Date 7/6/2023

Location / Community DANKO ENIWAQOCHI

| S/N | Name                 | Sex | Designation            | Phone       | Sign        |
|-----|----------------------|-----|------------------------|-------------|-------------|
| 1   | MUHAMMAD ISAH HARUNA | M   | WARD HEAD              | 07087277406 | [Signature] |
| 2   | MUSA IDRATIM         | M   |                        | 07087394129 | [Signature] |
| 3   | GARBA MAUSA          | M   |                        |             | [Signature] |
| 4   | IDRIS MUHAMMAD Bello | M   | As Safety and RAAMP    | 07065033177 | [Signature] |
| 5   | AMINUS MASIN         | M   | As Environmental RAAMP | 08035920538 | [Signature] |
|     |                      |     |                        |             |             |
|     |                      |     |                        |             |             |
|     |                      |     |                        |             |             |
|     |                      |     |                        |             |             |
|     |                      |     |                        |             |             |

**ATTENDANCE SHEET**

Stakeholders' Consultation for Niger RAAMP ESMP and ARAP

Date 7/6/2023

Location / Community DANKO ENIWAQOCHI

| S/N | Name            | Sex | Designation      | Phone        | Sign        |
|-----|-----------------|-----|------------------|--------------|-------------|
| 1   | MUHAMMAD HARUNA | M   | Community leader |              | [Signature] |
| 2   | MUHAMMAD JIBRI  | M   |                  | 07041451966  | [Signature] |
| 3   | ISAH JIBRI      | M   |                  | 08156257285  | [Signature] |
| 4   | MUHAMMAD JIBRI  | M   |                  | 09022549522  | [Signature] |
| 5   | MUHAMMAD JIBRI  | M   |                  | 08089920098  | [Signature] |
| 6   | MUHAMMAD KORA   | M   |                  | 09058517502  | [Signature] |
| 7   | ISAH JIBRI      | M   |                  | 080542418542 | [Signature] |
| 8   | JIBRI MUHAMMAD  | M   |                  | 09047730612  | [Signature] |
| 9   | ISAH MUHAMMAD   | M   |                  | 07085078221  | [Signature] |
| 10  | JIBRI MUHAMMAD  | M   |                  | 08152354856  | [Signature] |
| 11  | USMAN MUHAMMAD  | M   |                  | 08066079517  | [Signature] |
|     |                 |     |                  |              |             |

ATTENDANCE SHEET

Stakeholders' Consultation for Niger RAAMP ESMP and ARAP

Date .....  
Location / Community BAKO Community

| S/N | Name              | Sex | Designation | Phone | Sign |
|-----|-------------------|-----|-------------|-------|------|
|     | Fort. Isah        | M   | Housewife   |       |      |
|     | Sofiyas Isah      | F   |             |       |      |
|     | Hajjara Gaudina   | F   |             |       |      |
|     | ASabi Sani        | F   |             |       |      |
|     | Disha Sambo       | F   |             |       |      |
|     | Abdul Karim Yusuf | M   | Farmer      |       |      |
|     | Khalifa Isah      | M   |             |       |      |
|     | Shala Gama        | M   |             |       |      |

ATTENDANCE SHEET

Stakeholders' Consultation for Niger RAAMP ESMP and ARAP

Date 7/6/2023  
Location / Community JANGARA Community

| S/N | Name           | Sex | Designation         | Phone       | Sign |
|-----|----------------|-----|---------------------|-------------|------|
| 1   | USMAN ABUBAKAR | M   | Community leader    | 07054655415 |      |
| 2   | AMINA MUHAMMAD | M   |                     | 07054114212 |      |
| 3   | USMAN MUHAMMAD | M   | Community leader II | 07052423774 |      |
| 4   | HAWWA MUHAMMAD | F   |                     | 07052423794 |      |
| 5   | AMINA USMAN    | F   |                     | 08074279986 |      |

ATTENDANCE SHEET

Stakeholders' Consultation for Niger RAAMP ESMP and ARAP

Date 6/16/2023  
Location / Community KUYI/KOMPALA

| S/N | Name                 | Sex | Designation       | Phone       | Sign |
|-----|----------------------|-----|-------------------|-------------|------|
| 1   | Dr. Tukur C. Sani    | M   | Civil Servant     | 08177371086 |      |
| 2   | Alh. MUST Zaman      | M   | farmer            | 09054444805 |      |
| 3   | Elisha Joshua        | M   | Managing Director | 07051779354 |      |
| 4   | Dangjuma Usman       | M   | farmer            | 07063892122 |      |
| 5   | Jabu S. Luka         | M   | farmer            | 08020507533 |      |
| 6   | Tanku Baraka         | M   | farmer            | 07057779354 |      |
| 7   | Alithe Yusuf         | M   | Civil Servant     | 08061557980 |      |
| 8   | IBRAHIM Muhammadullo | M   | Civil Servant     | 07065033177 |      |
| 9   | Alh. Ahmad Masin     | M   | Civil Servant     | 08035920528 |      |
| 10  | KAYIYA HAVIYI Bala   | F   | Civil Servant     | 07066773577 |      |



8/6/2023

KATIARUKA  
SABU NABARA

- 1- IANAL NABARA M 08024468340 *tds*
- 2- AHMED ISMIL LIMAN M 08066292189 *tds*
- 3- UMARU SYAI M 09022615961 *tds*
- 4- ABDULHAKIM HAD M (community leader) 09029997715 *tds*
- 5- HUSFANI ALIYO M 07068140113 *tds*
- 6- AMADU HARENA M (community leader)

## **APPENDIX 4: GENERAL ENVIRONMENTAL MANAGEMENT CONDITIONS FOR CONSTRUCTION CONTRACTS**

### **General**

- In addition to these general conditions, the Contractor shall comply with any specific Environmental Management Plan (EMP) or Environmental and Social Management Plan (ESMP) for the works he is responsible for. The Contractor shall inform himself about such an EMP, and prepare his work strategy and plan to fully take into account relevant provisions of that EMP. If the Contractor fails to implement the approved EMP after written instruction by the Supervising Engineer (SE) to fulfil his obligation within the requested time, the Owner reserves the right to arrange through the SE for execution of the missing action by a third party on account of the Contractor.
  - Notwithstanding the Contractor's obligation under the above clause, the Contractor shall 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 EMP. 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 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 borrow pits is treated in the best way to avoid creating possible breeding grounds for mosquitoes.
    - (e) Prevent and minimize the impacts of quarrying, earth borrowing, piling and building of temporary construction camps and access roads on the biophysical environment including protected areas and arable lands; local communities and their settlements. In 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.
  - Ensure that, in as much as possible, local materials are used to avoid importation of foreign material and long distance transportation.
  - Ensure public safety, and meet traffic safety requirements for the operation of work to avoid accidents.
3. 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.
  4. 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.
  5. Besides the regular inspection of the sites by the SE for adherence to the contract conditions and specifications, the Owner may 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, as directed by the SE, 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**

6. All vessels (drums, containers, bags, etc.) containing oil/fuel/surfacing materials and other hazardous chemicals shall be banded 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.
7. 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.
8. Used oil from maintenance shall be collected and disposed off appropriately at designated sites or be re-used or sold for re-use locally.
9. 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.
10. Construction waste shall not be left in stockpiles along the road, but removed and reused or disposed of on a daily basis.
11. 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**

12. The Contractor shall obtain appropriate licenses/permits from relevant authorities to operate quarries or borrow areas.
13. The location of quarries and borrow areas shall be subject to approval by relevant local and national authorities, including traditional authorities if the land on which the quarry or borrow areas fall in traditional land.
14. 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, borrow 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 other 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.
15. 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.
16. 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.
17. 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.
18. 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**

19. To the extent practicable, the Contractor shall rehabilitate the site progressively so that the rate of rehabilitation is similar to the rate of construction.
20. 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.
21. Topsoil shall not be stored in large heaps. Low mounds of no more than 1 to 2m high are recommended.
22. Re-vegetate stockpiles to protect the soil from erosion, discourage weeds and maintain an active population of beneficial soil microbes.
23. Locate stockpiles where they will not be disturbed by future construction activities.
24. To the extent practicable, reinstate natural drainage patterns where they have been altered or impaired.
25. 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.
26. Identify potentially toxic overburden and screen with suitable material to prevent mobilization of toxins.
27. 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.
28. Minimize the long-term visual impact by creating landforms that are compatible with the adjacent landscape.
29. Minimize erosion by wind and water both during and after the process of reinstatement.
30. Compacted surfaces shall be deep ripped to relieve compaction unless subsurface conditions dictate otherwise.
31. 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**

32. The Contractor shall at all costs avoid conflicting with water demands of local communities.
33. 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.
34. Abstraction of water from wetlands shall be avoided. Where necessary, authority has to be obtained from relevant authorities.
35. Temporary damming of streams and rivers shall be done in such a way avoids disrupting water supplies to communities down stream, and maintains the ecological balance of the river system.
36. No construction water containing spoils or site effluent, especially cement and oil, shall be allowed to flow into natural water drainage courses.
37. Wash water from washing out of equipment shall not be discharged into water courses or road drains.
38. 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**

39. Location of access roads/detours shall be done in consultation with the local community especially in important or sensitive environments. Access roads shall not traverse wetland areas.
40. Upon the completion of civil works, all access roads shall be ripped and rehabilitated.
41. Access 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**

42. Blasting activities shall not take place less than 2km from settlement areas, cultural sites, or wetlands without the permission of the SE.
43. Blasting activities shall be done during working hours, and local communities shall be consulted on the proposed blasting times.
44. Noise levels reaching the communities from blasting activities shall not exceed 90 decibels.
45. 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 has to 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.
46. As far 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.
47. AC-pipes as well as broken parts thereof have to be treated as hazardous material and disposed of as specified above.
48. Unsuitable and demolished elements shall be dismantled to a size fitting on ordinary trucks for transport.

## Health and Safety

49. 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.

50. Adequate road signs to warn pedestrians and motorists of construction activities, diversions, etc. shall be provided at appropriate points.

51. Construction vehicles shall not exceed maximum speed limit of 40km per hour.

### Repair of Private Property

52. 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.

53. 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)

54. 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:

For the Contractor, for internal purposes, to ensure that all measures are in place for adequate EHS management, and as an operational manual for his staff.

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 monitoring of the Contractor's EHS performance.

55. 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 borrow areas) and the reporting thereof; and

the internal organizational, management and reporting mechanisms put in place for such.

56. The Contractor's EHS-MP will be reviewed and approved by the Client before start of the works. This review should demonstrate if the Contractor's EHS-MP covers all of the identified impacts, and has defined appropriate measures to counteract any potential impacts.

### EHS Reporting

57. The Contractor shall prepare bi-weekly progress reports to the SE on 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 below. It is expected that the Contractor's reports will include information on:

EHS management actions/measures taken, including approvals sought from local or national authorities;

Problems encountered in relation to EHS aspects (incidents, including delays, cost consequences, etc. as a result thereof); Lack of compliance with contract requirements on the part of the Contractor;

Changes of assumptions, conditions, measures, designs and actual works in relation to EHS aspects; and

Observations, concerns raised and/or decisions taken with regard to EHS management during site meetings.

58. It is advisable that reporting of significant EHS incidents be done "as soon as practicable". Such incident reporting shall therefore 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 to include such records, as well as copies of incident reports, as appendixes 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

59. 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:

EHS in general (working procedures);

emergency procedures; and

social and cultural aspects (awareness raising on social issues).

### Cost of Compliance

60. 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 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.

### 3. Example Format: EHS Report

#### Contract:

#### Period of reporting:

#### EHS management actions/measures:

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.

#### EHS incidents:

Report on any problems encountered in relation to EHS aspects, including its consequences (delays, costs) and corrective measures taken. Include relevant incident reports.

#### EHS compliance:

Report on compliance with Contract EHS conditions, including any cases of non-compliance.

**Changes:**

Report on any changes of assumptions, conditions, measures, designs and actual works in relation to EHS aspects.

**Concerns and observations:**

Report on any observations, concerns raised and/or decisions taken with regard to EHS management during site meetings and visits.

**Signature (Name, Title Date):**

Contractor Representative

**4. Example Format: EHS Incident Notification**

**EHS Incident Notification**

Provide within 24 hrs to the Supervising Engineer

**Originators Reference No:**.....

**Date of Incident:**..... **Time:**.....

**Location of incident:**.....

**Name of Person(s) involved:**.....

**Employing Company:**.....

**Type of Incident:**.....

**Description of Incident:**

Where, when, what, how, who, operation in progress at the time (only factual)

**Immediate Action:**

Immediate remedial action and actions taken to prevent reoccurrence or escalation

**Signature (Name, Title, Date):**.....

## APPENDIX 5: WASTE MANAGEMENT PLAN

| S/N                      | Potential Source   | Waste Type                | Waste Streams   | Management  | Cost  |
|--------------------------|--|---------------------------|---|---|---|
| <b>A PRECONSTRUCTION</b> |  |                           |   |   |   |
| 1                        | Movement of vehicles on unpaved surface and engine exhaust                         | Emission                  | COx, SOx, NOx, CO, Dust   | Use water suppression to prevent dust emission<br>Maintain vehicles and machineries to reduce emission<br>Maintain low speed to reduce dust and gaseous emission<br>Allow aerial dispersal over a large area.   | N700,000<br>Mitigation (N500,000)<br><br>Monitoring |
| 2                        | Site Clearing and Installation of temporary workers camp and offices and workshops | Non-Hazardous             | Vegetal Waste<br><br>Industrial Waste: Metal scraps, packaging waste  | Vegetal waste shall be supplied to farmers for use as compost.<br>Woody vegetal shall be supplied to host communities for domestic uses including as fuel wood for cooking.<br><br>Segregated and stored on site to be collected at least once a week for reuse or recycle through licensed third party facilities. | (N300,000)  |
| 3                        | Workers' camp  | Domestic and Sanitary     | Food remnant, kitchen wastes. Food packaging etc<br><br>Domestic Sewage   | To be transferred to locals for use as compost and animal feed.<br>Plastic and other packaging to be recycled through licensed recycling third parties.<br>Temporary stored and transferred to licensed carrier for disposal  |   |
| <b>B CONSTRUCTION</b>    |  |                           |   |   |   |
| 1                        | Movement of vehicles on unpaved surface and engine exhaust                         | Emission                  | COx, SOx, NOx, CO, Dust   | See A1  | See A   |
| 2                        | Civil works  | Non-Hazardous /Industrial | Spoils<br>Waste Packaging and Dunnage such as scrap wood, scrap metal, steel, glass, plastic, paper and cardboard, empty metal containers, excess concrete, broken equipment, or components   | Reuse spoils as fill materials as much as possible<br>Segregated and kept securely in closed containers on site. To be transferred to approved recycling third parties for reuse/recycling.<br>Non-recyclables to be removed by approved waste contractor for onward disposal at approved sites.                    |   |
|                          | Workers' camp/offices  |                           | Domestic-type waste: wastepaper and food scraps, metal cans   | To be transferred to locals for use as compost and animal feed.<br>Plastic and other packaging to be recycled through licensed recycling third parties.   |   |
| 3                        | Civil Works  | Hazardous Waste           | <b>Solid Waste:</b> used batteries, chemical containers, concrete etc<br><br><b>Liquid Waste:</b> spent lubricating oils, hydraulic fluids, brake fluids, battery electrolyte, and dielectric fluids, chemical cleaning agents, paints, primers, thinners, and corrosion control coatings; sealants and adhesives etc | Store on site in closed containers with secondary containment and transferred to a registered waste contractor with off-site permitted hazardous waste treatment, storage, or disposal facilities   |   |
|                          | Civil works  | Waste Water               | Waste water from equipment washing and concrete production  | Discharged to the ground as only very small quantity is envisaged at this stage.  |   |
| 4                        | Workers' camp  | Domestic and Sanitary     | Food remnant, kitchen wastes. Food packaging etc<br><br>Domestic Sewage   | See A3  |   |
| <b>C OPERATION</b>       |  |                           |   |   |   |
| 1                        | Movement of vehicles   | Emission                  | COx, SOx, NOx, CO, Dust   | See A1  | See A   |

|   |  |                           |  |  |   |
|---|--|---------------------------|--|--|---|
| 2 | Maintenance of bridge and other infrastructures<br><br>Workers' camp/offices | Non-Hazardous /Industrial | Packaging waste, scrap metals, plastic, paper and cardboard, empty metal containers, broken<br><br>equipment, or components<br>Domestic-type waste: wastepaper and food scraps, metal cans | Segregated and kept securely in closed containers on site. To be transferred to approved recycling third parties for reuse/recycling.<br>Non-recyclables to be removed by approved<br><br>To be transferred to locals for use as compost and animal feed. Plastic and other packaging to be recycled through licensed recycling third parties. | waste contractor for onward disposal at approved sites. |
| 3 | Maintenance of bridge and other infrastructures                              | Hazardous                 | Same as B3 but smaller quantity may be expected.   | See B3   |   |
|   | <b>Total Cost</b>  |                           |  |  | <b>N1,500,000</b>                                       |

Note: All records of type, amount, transportation and final disposal of all type of wastes will be kept in terms of manifest.



## APPENDIX 6: OCCUPATIONAL HEALTH AND SAFETY (OHS) PLAN

### INTRODUCTION

Every project poses its HSE risks including the Niger RAAMP. This plan was necessitated to meet up with OHS standards and to achieve the objectives set for the proposed project. The OHS has been allotted a budget of **N300,000** in the ESMP implementation budget. The project team shall undertake to ensure high performance standards and conformity with contract requirements by managing the works in a systematic and thorough manner.

| Key components of the OHS plan                         | Description  |
|--|--|
| <b>Competency</b>                                      | All personnel required to operate or work with any equipment or machine must be tested for each equipment he/ she must be operating. All personnel who as part of their profession require licensing or certification must obtain the necessary certification before he/she shall be allowed to work on the site.  |
| <b>Fitness</b>   | All personnel working on site shall be required to be certified medically fit to do so by an approved medical facility or Medical Doctor (pre-employment medical examination)  |
| <b>HSE Training : Induction/ Orientation</b>           | Every new or rehire employee and subcontractors employees must undergo mandatory OHS orientation/ induction. The purpose of the induction is to educate workers and make them aware of the major potential hazards he or she shall come into contact with while working on the site; also, it is one more opportunity to stress the importance of HSE being the first priority in the operation. The content of the HSE orientation/ induction shall cover the following subjects:<br><p style="text-align: center;">Site safety rules<br/>                     Personnel protective equipment requirements (PPE)<br/>                     Environmental sensitivity and protection<br/>                     Preparation and planning of the job (Daily Pre-tasks talk)<br/>                     Emergency plan and muster points.</p> |
| <b>Project specific training</b>                       | In addition to the HSE orientation/induction, there shall be specific HSE trainings which shall cover the following topics<br><p style="text-align: center;">Manual handling<br/>                     Electrical safety<br/>                     Emergency prevention, preparedness and response<br/>                     First Aid training (for site First Aiders )<br/>                     Lifting and rigging<br/>                     Safe driving techniques (for drivers )</p>   |
| <b>Hazard identification &amp; HSE risk assessment</b> | The project HSE risk assessment shall be developed and recorded. The project's HSE risk assessment shall be conducted by a team consisting of the HSE Manager/ Supervisor and technical managers/ supervisors. It must be approved by the project manager.   |
| <b>Fire Risk Assessment</b>                            | A fire risk assessment shall be developed and recorded. A fire safety plan shall be in place in the site   |
| <b>Job Hazard Analysis</b>                             | Job hazard analysis is required when the hazards and risks associated with a specific task is to be identified so as to implement control measures. The HSE department together with the technical managers/supervisors shall develop a job hazard analysis when applicable  |
| <b>Emergency Preparedness And Response</b>             | Emergency procedures and evacuation plan shall be developed by the HSE Department and displayed on the notice board. These procedures shall be communicated to all staff. Also each section/department shall have at least a trained first aider at all times.   |
| <b>HSE IMPLEMENTATION AND PERFORMANCE MONITORING</b>   |  |
| <b>HSE Meetings</b>                                    | HSE management meetings shall be held once a month. The meeting is to help identify safety problems, develop solutions, review incident reports, provide training and evaluate the effectiveness of our safety program. Some of the meetings shall be:<br><p style="text-align: center;">Project/Site Management HSE Meeting for management and supervision<br/>                     (Monthly).<br/>                     Tool box talk meetings for all workforce (Weekly).</p>  |

|   |  |
|---|--|
|   | Pre-task briefing for all workforces (Daily).<br>Special situation meeting (As required).  |
| <b>HSE Reporting</b>  | All incidents and illnesses must be reported to site supervisor after which investigation shall commence and recorded so that appropriate corrective actions shall be implemented to prevent any re-occurrence and report findings shall be forwarded to management for review. Reporting requirements shall include notification of incident, investigation report, and monthly report. Notification of Incident form shall be developed which shall be filled and submitted to HSE department for investigation.   |
| <b>HSE Inspection and Audits</b>                              | For continual improvement of HSE management system, HSE inspection and audit shall be conducted. An inspection checklist shall be developed. This is to ensure that the HSE management system is being adhered to. The inspection shall be conducted by the HSE department together with site management.  |
| <b>Corrective and Preventive Actions and Non Conformities</b> | During the course of inspections, concerns raised shall be addressed and closed out. It is expected that in a period of two weeks, a close out inspection shall take place to verify that the corrective actions have been closed.   |
| <b>Project HSE Rules</b>                                      | The project HSE rules shall be developed and supervision shall develop specific rules and procedures when necessary.<br>The following site rules shall be implemented at all times. The Site Manager shall draw these rules to the attention of their own workmen or staff. All sub-contractors must ensure that these rules are drawn to the attention of their workmen and staff. The Principal Contractor may implement additional site rules during the contract programme. Any such additional rules shall be notified to all personnel engaged on the project prior to their implementation. The HSE rules shall include but not limited to:<br><ol style="list-style-type: none"> <li>1. Personal Protective Equipment must be worn at all times.</li> <li>2. All instructions issued by the Site Manager regarding the storage, handling or cleaning of materials, plant and equipment must be followed.</li> <li>3. All vehicles must be parked in the designated areas.</li> <li>4. Any workman suffering from a medical condition that might affect his work and/or that could require specific Medical treatment must inform the supervisor before commencing work.</li> </ol> |

|  |  |               |
|--|--|---------------|
|  | 5. All site tools shall either be battery operated or 110 volts.   |               |
|  | 6. No one shall be permitted on site if it is believed that they are under the influence of alcohol or drugs.          | under the     |
|  | 7. Vehicles must not reverse without a banksman in attendance.   |               |
|  | 8. All visitors to site must undergo a site-specific induction and Identity badges must be worn at all times.          | operati<br>ve |
|  | 9. All excavations must be secured.  |               |
|  | 10. Smoking and eating shall only be permitted in the designated area. This area shall be identified during induction. |               |
|  | 11. No hot works operations are permitted without a hot work permit in place.  |               |
|  | 12. There shall be no radios or other music playing devices on site.   |               |
|  | 13. Good housekeeping practices to be adopted.   |               |
|  | 14. Compliance with all Ethical Power Permit to Work systems   |               |
|  | 15. The site keyed access procedure must be strictly adhered to.   |               |
|  | 16. All Contractors must comply with Site Health & Safety Guidelines / Site Safety Method Statement                    |               |
|  | 17. No untrained worker shall be permitted to operate heavy machineries.   |               |

|  |  |  |
|--|--|--|
| <b>SAFE WORK PRACTICES</b>                 |  |  |
| <b>Personal Protective Equipment (PPE)</b> | The basic PPE required for the project shall be Safety Glasses, Safety Boots, Hand Gloves, Hard Hat and Coverall. Any other PPE shall be used as applicable. Management is responsible for the provision of PPE and usage shall be enforced at |  |

|                                |  |
|--------------------------------|--|
|                                | <p>all time.<br/>PPE shall be provided in circumstances where exposure to hazards cannot be avoided by other means or to supplement existing control measures identified by a risk assessment. An assessment shall be made to ensure that the PPE is suitable for purpose and is appropriate to the risk involved.</p> <p>Information, instruction &amp; training shall be given to all employees on safe use, maintenance and storage of PPE.</p> <p>Employees shall, in accordance with instructions given, make full use of all PPE provided and maintain it in a serviceable condition and report its loss or defect immediately to the maintenance department where it shall be replaced.</p> <p>PPE shall be replaced when it is no longer serviceable and returned on a new for old basis. Employees shall sign to state that they have received PPE when issued.</p> |
| <b>Welfare Facilities</b>      | <p>The provision of welfare facilities on the site shall be communicated to all operatives at site induction.</p> <p>A cleaning regime shall be implemented and maintained for the duration of the construction phase to ensure the site welfare facilities remain in a clean and tidy condition.</p> <p>If mains drinking water becomes unavailable during the construction phase bottled water shall be brought to site for all operatives for the necessary period.</p>   |
| <b>Signage</b>                 | Adequate provision for warning and directional signs shall be made.  |
| <b>Project HSE Procedures</b>  | <p>OHS procedures shall be developed. Project activities shall generally be controlled in accordance with OHS Procedures. These procedures shall include:</p> <p>Lifting and Rigging Procedure</p> <p style="padding-left: 100px;">HSE Reporting Procedure</p> <p>Working at Height Procedure.</p> <p style="padding-left: 100px;">Emergency Procedure.</p>  |
| <b>Key roles</b>               | <b>Responsibilities</b>  |
| <b>Project manager</b>         | <p>Set good example in HSE issues.</p> <p>Ensure the availability of resources essential to establish, implement, maintain and improve</p>   |
|                                | <p>the OHS Management System.</p> <p>Define, document and communicate roles, allocate responsibilities and accountabilities, delegating authorities, to facilitate effective OHS management.</p> <p>Ensure that all of the activities undertaken in the Project conform to Nigerian legislation, client requirements or international standards when applicable.</p> <p>Review objectives achievements throughout the year</p>   |
| <b>Project supervisors</b>     | <p>Enforcing all phases of the established HSE plan.</p> <p>Set good example in HSE issues.</p> <p>Preparing Job Hazard Analysis when required.</p> <p>Ensuring the safety of all workers associated with the site.</p> <p>Conducting HSE inspections.</p> <p>Ensuring workers are competent for their allocated tasks.</p> <p>Attending and participating in HSE meetings.</p> <p>Participating in accident investigations.</p>   |
| <b>HSE Manager/ Supervisor</b> | <p>Prepare relevant OHS documentation and procedures.</p> <p>Monitor the efficient implementation of OHS requirements.</p> <p>Participate and organize the OHS risk assessments.</p> <p>Advise management of compliance and of conditions requiring attention.</p> <p>Conduct regular HSE inspections.</p> <p>Make thorough analysis of statistical data and inspections; delineates problem areas; and makes recommendation for solutions.</p> <p>Take part in the review of all OHS incidents and assist in investigating incident.</p> <p>Monitor the efficient implementation of the Project's OHS requirements.</p>   |

|                    |   |
|--------------------|---|
|                    | <p>Organize the Project's OHS risk assessment exercises.</p> <p>Check on the use of all types of personal protective equipment specifies the use of appropriate PPE for the various work activities. Evaluates their effectiveness and suggests improvements where indicate</p>   |
| <b>HSE Advisor</b> | <p>Check on the use of all types of personal protective equipment specifies the use of appropriate PPE for the various work activities. Evaluates their effectiveness and suggests improvements.</p> <p>Conduct independent inspections to observe conformance with established OHS Plan and determines the effectiveness of individual elements of the plan (pre-task briefing, weekly toolbox talk, etc)</p> <p>Establish contact with Subcontractors with the objective of maintaining good relations and coordination of accident prevention activities and compliance with the established OHS plan.</p> <p>Correct unsafe acts and unsafe conditions.</p> <p>Deliver HSE induction/orientation course to all employees, including subcontractors.</p> <p>Deliver HSE awareness course and toolbox talk.</p> <p>Advise employees on OHS matters.</p> |
|                    | <p>Take all reasonable and practical steps to care for their own health and safety and avoid affecting the health and safety of co-workers and the general public.</p> <p>Follow all instructions and use the equipment properly</p> <p>Not interfere with any safety arrangements.</p> <p>Report any circumstances which may not comply with the project's OHS management system.</p>  |

## APPENDIX 7: BORROW PIT MANAGEMENT PLAN

The contractor is also required to prepare a borrow pit management plan which takes account of these activities and follows them through to handing over. These plans need to take account of the potential environmental & social impact and health & safety hazard; including drowning hazards, water-borne disease vectors, impact on local land holdings, land-use and visual impacts.

The borrow pit management plan will include restoration measures for the site after decommissioning, such as removal and stockpiling of topsoil layers. Where borrow pits are to be left open, for their use in regular maintenance programs, the responsibility for their management should be assigned to the government entity / local authority in charge of road maintenance and compliance with the borrow pit management plan monitored.

| Stage                | Activities and features  | Measures/mitigation   | Responsibility |
|----------------------|--|---|----------------|
| Site selection       | Complete a preliminary site assessment prior to undertaking excavation | <ul style="list-style-type: none"> <li>• Outreach to the community leadership (e.g., operation, hazards, restoration)</li> <li>• Written approval from community leadership for use of the proposed site</li> <li>• Liaise with the local community on the option of retaining quarry pits as water collection ponds for watering cattle, irrigating crops or similar uses. Highlight issues of disease transmission and the need to prohibit its use for drinking, bathing, and clothes washing</li> </ul>   | Contractor     |
|                      |  | <ul style="list-style-type: none"> <li>• When siting borrow pit areas, avoid using sensitive areas or sites that drain directly into a sensitive area</li> <li>• Borrow pits will not be located in wetland or densely vegetated areas</li> </ul>   | Contractor     |
|                      |  | <ul style="list-style-type: none"> <li>• Test pits/excavations to confirm the quantity and quality of material in the proposed site</li> <li>• Determine presence of any groundwater</li> </ul>   | Contractor     |
|                      |  | <ul style="list-style-type: none"> <li>• Map of the location and a plan of the site, including buffer zone, perimeter berm, stockpiles, operational area</li> <li>• Borrow pit design must comply with standards defined (above),</li> <li>• Photographic record of the site in its undisturbed state</li> </ul>  | Contractor     |
| Excavation Operation | Excavation will consider the following measures                        | <ul style="list-style-type: none"> <li>• Ensure that excavation is accompanied by well-engineered drainage</li> <li>• Topsoil is stripped and stockpiled away from other materials and is to be used only for reinstatement, once pit operations are complete</li> <li>• Overburden soil (layer between topsoil and material of interest) to be used as a perimeter berm to direct drainage or stockpiled separately to backfill the pit</li> <li>• Pit excavations maximum 6 metres in depth, with a vertical slope of 2:1</li> <li>• Excavation below the water table is not permitted</li> <li>• Heavy machinery access and operation</li> <li>• Carry out necessary preliminary geotechnical investigation to confirm the quality and extent of materials.</li> <li>• Carry out hydrological assessment to determine the presence and depth of aquifer.</li> <li>• The contractor shall ensure that topsoil (150m-500m) is stripped and stockpiled at a separate location and preserved for future reclamation activities.</li> </ul> | Contractor     |
|                      |  | <ul style="list-style-type: none"> <li>• Barrier (e.g., warning tape, perimeter berms, fencing) to control or discourage public access to the pit</li> <li>• Install signposts warning of danger and no trespassing, at no more than 50 meters' distance from the pit</li> <li>• Community awareness and outreach on the dangers of borrow pits and that trespassing is prohibited.</li> </ul>  | Contractor     |
|                      |  | <ul style="list-style-type: none"> <li>• Avoid or reduce to a minimum vegetation clearance</li> <li>• Existing vegetation within the buffer area should provide some visual and physical screening of the pit operations</li> </ul>   | Contractor     |
|                      |  | <ul style="list-style-type: none"> <li>• If water is required for borrow pit operation, a water extraction point (e.g. borehole) will be established within the site area and will be planned for use by the community once the site is reinstated</li> <li>• Drainage structures or pumping will remove any standing water in the borrow pit. Alternatively any pits with 0.75 metres or more of standing water will be fenced</li> <li>• Overburden soil can be used as a perimeter berm to direct water drainage away from the site</li> <li>• Use drainage features in flatter areas, such as mitre drains and sumps, to remove water from around the road ditches</li> <li>• Community members are not allowed to use water at an active borrow pit, for any purpose</li> </ul>  | Contractor     |
|                      |  | <ul style="list-style-type: none"> <li>• Erosion control measures undertaken in all aspects of the borrow-pit operation, including: reduced slopes, seeding, etc</li> <li>• Protect topsoil stockpiles from wind and water erosion by reducing slopes, using a cover, and/or spraying with water</li> </ul>   | Contractor     |
|                      |  | <ul style="list-style-type: none"> <li>• If a rock crusher is used, dust control measures shall be put in place (water truck or sprinklers on crushing equipment)</li> <li>• Vegetation within the buffer area will screen noise of pit operations</li> </ul>   | Contractor     |

| Stage                               | Activities and features  | Measures/mitigation   | Responsibility |
|-------------------------------------|--|---|----------------|
| <b>Reinstatement of Borrow Pits</b> | Reinstatement of borrow pits will be completed prior to handover of the site | <ul style="list-style-type: none"> <li>• Fill excavated site with suitable materials</li> <li>• Spread topsoil on top of the overburden</li> </ul>  | Contractor     |
|                                     |  | <ul style="list-style-type: none"> <li>• Develop/construct suitable surface slopes, drainage ditches and conduits to prevent water from collecting at the sites</li> <li>• Scarify the borrow pit operational site to encourage vegetation cover</li> <li>• Establish a vegetation cover corresponding to at least 75% of the cover present prior to excavation (supporting photographs) and maintain following the first rains after reinstatement</li> <li>• Minimize erosion by focusing vegetation cover on side slopes of the excavated area</li> <li>• Any required seeding will make use of local plant varieties</li> </ul> | Contractor     |
| <b>Review</b>                       | Ensure the Borrow pit management plan implementation                         | <ul style="list-style-type: none"> <li>• Review borrow pit management / monitoring reports</li> <li>• Review reinstated borrow pit areas prior to handover of completed road sections</li> <li>• Engage local community authorities to take responsibility for long-term borrow pits in their areas</li> <li>• Ensure that the responsibility for management of borrow pits left open is assigned to the government entity / local authority</li> <li>• Verify conformance with Borrow Pit Management Plan</li> </ul>   | PIU            |

## APPENDIX 8: TRAFFIC MANAGEMENT PLAN (TMP)

Name of Contractor : .....

Name of Traffic Manager : .....

Phone Number of Traffic Manager.....

|  |  |                     |             |
|--|--|---------------------|-------------|
| <p><b>1.1 Description of the project activities:</b><br/>A detailed description of the activities of the road that warrant traffic management plan is captured under section 3.3 of the main report. These activities include vegetation clearing, excavation, construction of culverts, construction of earth drainage infrastructures, etc. These activities entail the use and movement of heavy duty machines and equipment in and out of the site, movement of workers and the public including hawkers, school children, farmers and women. These activities will occur during the 3 project phases:</p> <ol style="list-style-type: none"> <li>i. Pre-Construction</li> <li>ii. Construction</li> <li>iii. Operation/maintenance</li> </ol> | <p><b>1.2 Justification of Traffic Management Plan</b><br/>Based on the activities enumerated in section 1.1 above, a traffic management plan is essential because it will help to ensure that traffic risk (traffic jam, accidents, injuries and death) associated with road users is avoided or minimized.</p> <p><b>1.3 Objectives of TMP</b><br/>The primary objectives of the TMP are to:</p> <ol style="list-style-type: none"> <li>I. Protect site workers and the road users which includes the farmers, traders, school children, women and transporters from traffic hazards that may arise as a result of the construction work</li> <li>II. Manage potential adverse impact on traffic flow and ensure that pedestrian movement is maintained at an acceptable level</li> <li>III. Minimize adverse impact of the road construction work on the road users towards accessing their facilities</li> </ol> |                     |             |
| <p><b>1.4 Socioeconomic Infrastructures and volume of traffic</b><br/>Sensitive features of traffic consideration along the route of the 119km rural road in Niger state include rural farms, markets, schools and health centres.<br/>The baseline volume of traffic observed during the preparation of this ESM was 75-100 vehicular count per/day and is expected to increase to 200 counts per/day when the road condition is improved.</p>  |  |                     |             |
| <p><b>1.5 Target stakeholders of TMP (Beneficiaries)</b><br/>The target stakeholders are the site workers who operate construction machineries and road users who will be impacted during the construction work as a result of temporal restriction on the access roads to their various facilities.</p>   |  |                     |             |
| <p><b>1.6 Requirement for traffic control</b><br/>The following are required for effective traffic management:</p> <ol style="list-style-type: none"> <li>i. Speed limit bump</li> <li>ii. Cones and barriers</li> <li>iii. Road caution tape</li> <li>iv. Reflective safety vest</li> <li>v. Diversion signs</li> <li>vi. Caution signage and Trained traffic control personnel</li> </ol>  |  |                     |             |
| <p><b>1.7 Safety Precaution taken when using signage</b><br/><b>The contractor will ensure adherence to the following:</b><br/>Check that signs cannot divert traffic into wrong or dangerous paths.<br/>Place signs correctly and safely. Exact locations shall be in accordance with the TMP and shall be agreed with the Road Authority two days before set up.<br/>All signs shall be placed at least 1m clear of traffic paths.<br/>Ensure that all signs are within drivers and/or users line of sight – not blocked by trees, grass, works vehicles, machinery or other obstructions.<br/>Do not allow any sign to obscure a driver/users view of another sign.</p>   |  |                     |             |
| <p><b>8 KEY RESPONSIBILITIES</b><br/>Responsibility for coordination of traffic management plan is vested in the contractor's traffic manager who shall report to the RAAMP Social Safeguard Officer. Activities and responsibilities for TM are as stated below:</p>  |  |                     |             |
| <b>ACTIVITIES</b>  | <b>RESPONSIBILITIES</b>  | <b>ACTION PARTY</b> | <b>Cost</b> |
| Installation of TM Equipment and mobilization of materials (signages, caution warning, speed limit, diversion barriers)  | Ensure that all signs are placed at least 1m clear of traffic paths.<br>Ensure that machinery, vehicles, stock piles of gravel, sand, or steel bars or any other materials are not stored inside the "safety buffer zone" at the work zone.<br>Ensure that the roadway is kept   | Contractor          | 250,000     |



|  |   |                 |         |
|--|---|-----------------|---------|
| Traffic control services                                   | <p>clear of sand, mud and gravel so as to minimise the risk of a vehicle skidding or sliding.</p> <p>Ensure the presence of trained traffic personnel on the road during work hours</p> <p>Traffic control personnel must wear reflective jackets and hand gloves</p> | Traffic manager | 300,000 |
| Monitoring of TM activities at all 3 phases of the project | <ul style="list-style-type: none"> <li>• Check the availability of personnel and mitigation equipment</li> <li>• Check the availability of traffic control personnel during work time and their use of PPEs</li> </ul>  | SSO             | 300,000 |

**Note:** cost of TMP has been embedded into the ESMP Table

## APPENDIX 9: CODE OF CONDUCT FOR GENDER-BASED VIOLENCE

### Company's Code of Conduct

Preventing Gender Based Violence and Violence Against Children

The company is committed to creating and maintaining an environment in which gender-based violence (GBV) and violence against children (VAC) have no place, and where they will not be tolerated by any employee, associate, or representative of the company. Therefore, in order to ensure that all those engaged in the project are aware of this commitment, and in order to prevent, be aware of, and respond to any allegations of GBV and VAC, the company commits to the following core principles and minimum standards of behavior that will apply to all company employees, associates, and representatives including sub-contractors, without exception:

The company—and therefore all employees, associates, and representatives—commit to treating women, children (persons under the age of 18), and men with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status. Acts of GBV and VAC are in violation of this commitment.

Demeaning, threatening, harassing, abusive, culturally inappropriate, or sexually provocative language and behavior are prohibited among all company employees, associates, and its representatives.

Acts of GBV or VAC constitute gross misconduct and are therefore grounds for sanctions, which may include penalties and/or termination of employment. All forms of GBV and VAC, including grooming are unacceptable, regardless of whether they take place on the work site, the work site surroundings, at worker's camps or at worker's homes.

In addition to company sanctions, legal prosecution of those who commit acts of GBV or VAC will be pursued if appropriate.

Sexual contact or activity with children under 18—including through digital media—is prohibited. Mistaken belief regarding the age of a child is not a defense. Consent from the child is also not a defense or excuse.

Sexual favors—for instance, making promises or favorable treatment dependent on sexual acts—or other forms of humiliating, degrading or exploitative behavior are prohibited.

Unless there is full consent<sup>5</sup> by all parties involved in the sexual act, sexual interactions between the company's employees (at any level) and members of the communities surrounding the workplace are prohibited. This includes relationships involving the withholding/promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex—such sexual activity is considered "non-consensual" within the scope of this Code.

All employees, including volunteers and sub-contractors are highly encouraged to report suspected or actual acts of GBV and/or VAC by a fellow worker, whether in the same company or not. Reports must be made in accordance with GBV and VAC Allegation Procedures.

Managers are required to report suspected or actual acts of GBV and/or VAC as they have a responsibility to uphold company commitments and hold their direct reports responsible.

To ensure that the above principles are implemented effectively the company commits to ensuring that:

All managers sign the 'Manager's Code of Conduct' detailing their responsibilities for implementing the company's commitments and enforcing the responsibilities in the 'Individual Code of Conduct'.

All employees sign the project's 'Individual Code of Conduct' confirming their agreement not to engage in activities resulting in GBV or VAC. Displaying the Company and Individual Codes of Conduct prominently and in clear view at workers' camps, offices, and in public areas of the work space. Examples of areas include waiting, rest and lobby areas of sites, canteen areas, health clinics.

Ensure that posted and distributed copies of the Company and Individual Codes of Conduct are translated into the appropriate language of use in the work site areas as well as for any international staff in their native language.

An appropriate person is nominated as the company's 'Focal Point' for addressing GBV and VAC issues, including representing the company on the GBV and VAC Compliance Team (GCCT) which is comprised of representatives from the client, contractor(s), the supervision consultant, and local service provider(s).

Ensuring that an effective Action Plan is developed in consultation with the GCCT which includes as a minimum:

GBV and VAC Allegation Procedure to report GBV and VAC issues through the project Grievance Redress Mechanism (GRM);

Accountability Measures to protect confidentiality of all involved; and,

Response Protocol applicable to GBV and VAC survivors and perpetrators.

That the company effectively implements the Action Plan, providing feedback to the GCCT for improvements and updates as appropriate.

All employees attend an induction training course prior to commencing work on site to ensure they are familiar with the company's commitments and the project's GBV and VAC Codes of Conduct.

All employees attend a mandatory training course once a month for the duration of the contract starting from the first induction training prior to commencement of work to reinforce the understanding of the project's GBV and VAC Code of Conduct.

I do hereby acknowledge that I have read the foregoing Company Code of Conduct, and on behalf of the company agree to comply with the standards contained therein. I understand my role and responsibilities to prevent and respond to GBV and VAC. I understand that any action inconsistent with this Company Code of Conduct or failure to take action mandated by this Company Code of Conduct may result in disciplinary action.

Company name: \_\_\_\_\_

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<sup>5</sup> Consent is defined as the informed choice underlying an individual's free and voluntary intention, acceptance or agreement to do something. No consent can be found when such acceptance or agreement is obtained through the use of threats, force or other forms of coercion, abduction, fraud, deception, or misrepresentation. In accordance with the United Nations Convention on the Rights of the Child, the World Bank considers that consent cannot be given by children under the age of 18, even in the event that national legislation of the country into which the Code of Conduct is introduced has a lower age. Mistaken belief regarding the age of the child and consent from the child is not a defense.

Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

## **Manager's Code of Conduct**

### **Preventing Gender Based Violence and Violence Against Children**

Managers at all levels have particular responsibilities to uphold the company's commitment to preventing and addressing GBV and VAC. This means that managers have an acute responsibility to create and maintain an environment that prevents GBV and VAC. Managers need to support and promote the implementation of the Company Code of Conduct. To that end, managers must adhere this Manager's Code of Conduct and also sign the Individual Code of Conduct. This commits them to supporting and developing systems that facilitate the implementation of the Action Plan and maintain a GBV-free and VAC-free environment at the workplace and in the local community. These responsibilities include but are not limited to:

#### **Implementation**

To ensure maximum effectiveness of the Company and Individual Codes of Conduct:

Prominently displaying the Company and Individual Codes of Conduct in clear view at workers' camps, offices, and in in public areas of the workspace. Examples of areas include waiting, rest and lobby areas of sites, canteen areas, health clinics.

Ensuring all posted and distributed copies of the Company and Individual Codes of Conduct are translated into the appropriate language of use in the work site areas as well as for any international staff in their native language.

Verbally and in writing explain the Company and Individual Codes of Conduct to all staff.

Ensure that:

All direct reports sign the 'Individual Code of Conduct', including acknowledgment that they have read and agree with the Code of Conduct. Staff lists and signed copies of the Individual Code of Conduct are provided to the GCCT and the client.

Participate in training and ensure that staff also participate as outlined below.

Staff are familiar with the Grievance Redress Mechanism (GRM) and that they can use it to anonymously report concerns of GBV or VAC incidents.

Staff are encouraged to report suspected or actual GBV or VAC through the GRM by raising awareness about GBV and VAC issues, emphasizing the staff's responsibility to the Company and the country hosting their employment, and emphasizing the respect for confidentiality.

In compliance with applicable laws and to the best of your abilities, prevent perpetrators of sexual exploitation and abuse from being hired, re-hired or deployed. Use background and criminal reference checks for all employees.

Ensure that when engaging in partnership, sub-contractor or similar agreements, these agreements:

Incorporate the GBV and VAC Codes of Conduct as an attachment.

Include the appropriate language requiring such contracting entities and individuals, and their employees and volunteers, to comply with the Individual Codes of Conduct.

expressly state that the failure of those entities or individuals, as appropriate, to take preventive measures against GBV and VAC, to investigate allegations thereof, or to take corrective actions when GBV or VAC has occurred, shall constitute grounds for sanctions and penalties in accordance with the Individual Codes of Conduct.

Provide support and resources to the GCCT to create and disseminate internal sensitization initiatives through the awareness-raising strategy under the Action Plan.

Ensure that any GBV or VAC issue warranting police action is reported to the client and the World Bank immediately.

#### **Training**

All managers are required to attend an induction manager training course prior to commencing work on site to ensure that they are familiar with their roles and responsibilities in upholding the GBV and VAC Codes of Conduct. This training will be separate from the induction training course required of all employees and will provide managers with the necessary understanding and technical support needed to begin to develop the Action Plan for addressing GBV and VAC issues.

Ensure that time is provided during work hours and that staff attend the mandatory project facilitated induction training on GBV and VAC required of all employees prior to commencing work on site.

Ensure that staff attend the monthly mandatory refresher training course required of all employees to combat increased risk of GBV and VAC during civil works.

Managers are required to attend and assist with the project facilitated monthly training courses for all employees. Managers will be required to introduce the trainings and announce the self-evaluations.

Collect satisfaction surveys to evaluate training experiences and provide advice on improving the effectiveness of training.

#### **Response**

Managers will be required to provide input to the GBV and VAC Allegation Procedures and Response Protocol developed by the GCCT as part of the final cleared Action Plan.

Once adopted by the Company, managers will uphold the Accountability Measures set forth in the Action Plan to maintain the confidentiality of all employees who report or (allegedly) perpetrate incidences of GBV and VAC (unless a breach of confidentiality is required to protect persons or property from serious harm or where required by law).

If a manager develops concerns or suspicions regarding any form of GBV or VAC by one of his/her direct reports, or by an employee working for another contractor on the same work site, s/he is required to report the case using the GRM.

Once a sanction has been determined, the relevant manager(s) is/are expected to be personally responsible for ensuring that the measure is effectively enforced, within a maximum timeframe of 14 days from the date on which the decision to sanction was made.

Managers failing to report or comply with such provision can in turn be subject to disciplinary measures, to be determined and enacted by the company's CEO, Managing Director or equivalent highest-ranking manager. Those measures may include:

Informal warning.

Formal warning.

Additional Training.

Loss of up to one week's salary.

Suspension of employment (without payment of salary), for a minimum period of 1 month up to a maximum of 6 months.

Termination of employment.

Ultimately, failure to effectively respond to GBV and VAC cases on the work site by the company's managers or CEO may provide grounds for legal actions by authorities.

I do hereby acknowledge that I have read the foregoing Manager's Code of Conduct, do agree to comply with the standards contained therein and understand my roles and responsibilities to prevent and respond to GBV and VAC. I understand that any action inconsistent with this Manager's Code of Conduct or failure to take action mandated by this Manager's Code of Conduct may result in disciplinary action.

Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

## Individual Code of Conduct

### Preventing Gender Based Violence and Violence Against Children

I, \_\_\_\_\_, acknowledge that preventing gender-based violence (GBV) and violence against children (VAC) is important. The company considers that GBV or VAC activities constitute acts of gross misconduct and are therefore grounds for sanctions, penalties or potential termination of employment. All forms of GBV or VAC are unacceptable be it on the work site, the work site surroundings, or at worker's camps. Prosecution of those who commit GBV or VAC may be pursued if appropriate.

I agree that while working on the project I will:

Consent to police background check.

Treat women, children (persons under the age of 18), and men with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status.

Not use language or behavior towards women, children or men that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate.

Not participate in sexual contact or activity with children—including grooming or contact through digital media. Mistaken belief regarding the age of a child is not a defense. Consent from the child is also not a defense or excuse.

Not engage in sexual favors—for instance, making promises or favorable treatment dependent on sexual acts—or other forms of humiliating, degrading or exploitative behavior.

Unless there is the full consent<sup>6</sup> by all parties involved, I will not have sexual interactions with members of the surrounding communities. This includes relationships involving the withholding or promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex—such sexual activity is considered “non-consensual” within the scope of this Code.

Attend and actively partake in training courses related to HIV/AIDS, GBV and VAC as requested by my employer.

Consider reporting through the GRM or to my manager any suspected or actual GBV or VAC by a fellow worker, whether employed by my company or not, or any breaches of this Code of Conduct.

With regard to children under the age of 18:

Wherever possible, ensure that another adult is present when working in the proximity of children.

Not invite unaccompanied children unrelated to my family into my home, unless they are at immediate risk of injury or in physical danger.

Not sleep close to unsupervised children unless absolutely necessary, in which case I must obtain my supervisor's permission, and ensure that another adult is present if possible.

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<sup>6</sup> Consent is defined as the informed choice underlying an individual's free and voluntary intention, acceptance or agreement to do something. No consent can be found when such acceptance or agreement is obtained through the use of threats, force or other forms of coercion, abduction, fraud, deception, or misrepresentation. In accordance with the United Nations Convention on the Rights of the Child, the World Bank considers that consent cannot be given by children under the age of 18, even in the event that national legislation of the country into which the Code of Conduct is introduced has a lower age. Mistaken belief regarding the age of the child and consent from the child is not a defense.

Use any computers, mobile phones, or video and digital cameras appropriately, and never to exploit or harass children or to access child pornography through any medium (see also "Use of children's images for work related purposes" below).

Refrain from physical punishment or discipline of children.

Refrain from hiring children for domestic or other labor which is inappropriate given their age or developmental stage, which interferes with their time available for education and recreational activities, or which places them at significant risk of injury.

Comply with all relevant local legislation, including labor laws in relation to child labor.

#### Use of children's images for work related purposes

When photographing or filming a child for work related purposes, I must:

Before photographing or filming a child, assess and endeavor to comply with local traditions or restrictions for reproducing personal images. Before photographing or filming a child, obtain informed consent from the child and a parent or guardian of the child. As part of this I must explain how the photograph or film will be used.

Ensure photographs, films, videos and DVDs present children in a dignified and respectful manner and not in a vulnerable or submissive manner. Children should be adequately clothed and not in poses that could be seen as sexually suggestive.

Ensure images are honest representations of the context and the facts.

Ensure file labels do not reveal identifying information about a child when sending images electronically.

#### Sanctions

I understand that if I breach this Individual Code of Conduct, my employer will take disciplinary action which could include:

Informal warning.

Formal warning.

Additional Training.

Loss of up to one week's salary.

Suspension of employment (without payment of salary), for a minimum period of 1 month up to a maximum of 6 months.

Termination of employment.

Report to the police if warranted.

I understand that it is my responsibility to avoid actions or behaviors that could be construed as GBV or VAC or breach this Individual Code of Conduct. I do hereby acknowledge that I have read the foregoing Individual Code of Conduct, do agree to comply with the standards contained therein and understand my roles and responsibilities to prevent and respond to GBV and VAC. I understand that any action inconsistent with this Individual Code of Conduct or failure to take action mandated by this Individual Code of Conduct may result in disciplinary action and may affect my ongoing employment.

Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

## APPENDIX 10 : CAMPSITE MANAGEMENT PLAN

Company X (the Company) has developed this Camp Management Plan as part of its Environmental and Social Management Plan (ESMP) outlining a range of mitigation measures designed to avoid or reduce undesired camp management impacts during construction. This document establishes a basis and template for use by the Contractor(s) to develop their own plans outlining not only mitigation measures but to also incorporate the roles and responsibilities described in the ESMP.

The objectives of the Camp Management Plan are:

Avoid or reduce negative impacts on the community and maintain constructive relationships between local communities and workers' camps; and Establish standards on worker welfare and living conditions at the camps that provide a healthy, safe and comfortable environment.

This Plan should be read in conjunction with other environmental and social management plans (ESMPs), if available including:

- Traffic Management Plan
- Security Plan
- Stakeholder Engagement Plan

### Legal Requirements and Grievances

The Contractor is required to operate within the parameters of the Nigeria Labour Law and the International Labour Organization guidelines. The World Bank Performance Standards are applicable to Niger RAAMP and its sub projects. Furthermore, the Grievance Redress Mechanism contained in this ESMF is required to be adhered to by the Contractor.

Contractor personnel shall conduct regular safety walks and an HSE committee will track performance against requirements stipulated in this plan. The Contractor will also have its grievance mechanism developed for the project.

Additionally, Contractor would be required to sign and acknowledge the Code of Conduct and agree to abide by its provisions.

### Management and Monitoring

Figure below presents a flow chart summarizing key management steps associated with implementation and review of this Plan, including steps to allow for continued improvement. Table 1 presents a summary of the potential impacts related to camp activities, together with mitigation and management measures to avoid or reduce these impacts, and the monitoring required to assess the performance of these measures.

The Contractor shall develop a Contractor Plan which shall, as a minimum, incorporate the camp management measures described in Table 1. The Contractor shall not be limited to these measures.

Monitoring to be undertaken as part of this Plan is described in Table 1. The Contractor is responsible for developing area or site-specific procedures for the monitoring program (where necessary) based upon the final design details of the infrastructure

**Table 1: Management and Monitoring**

| Aspect                     | Potential Impact   | Mitigation & Management  | Monitoring  | Frequency   | Responsibility  |
|----------------------------|--|--|---|---|---|
| <b>Community Relations</b> | Unauthorised movements of construction workers (during and after working hours) could result in trespassing, damage to local land and property and create amongst local residents a sense of their privacy being invaded. Residents may feel vulnerable and there may be increasing incidents of crime and or violence (GBV etc) and threats to the safety of community members. Disparity of pay, increase in disposable income and potential availability of illegal substances, illicit or culturally inappropriate lifestyle choices, leading to increased tension between local communities and the workers at camps. | <ol style="list-style-type: none"> <li>1. Contractor shall enforce a 'closed' camp policy unless otherwise agreed and approved by Company. Workers will comply with the agreed camp closure hours.</li> <li>2. Contractor shall implement suitable measures to maintain the closed camp policy which may include perimeter security fences, security controls and guard houses, monitoring transfer of goods into and out of camps for contraband and stolen goods. Contractor should refer to the Project Security Management Plan.</li> <li>3. Contractor, as appropriate, shall provide adequate recreation facilities for workers to reduce incentive for leaving camps during leisure time.</li> <li>4. Contractor shall limit workers interaction with the community when outside the camp e.g., by organising transport directly to and from the worksite.</li> <li>5. If community members or local businesses express grievances in relation to camp related</li> </ol> | <ol style="list-style-type: none"> <li>1. Monitoring</li> <li>2. Verification</li> <li>3. Verification</li> <li>4. Verification</li> <li>5. Notification</li> <li>6. Verification</li> <li>7. Verification</li> <li>8. Verification</li> <li>9. Verification</li> </ol> | <ol style="list-style-type: none"> <li>1. On-going</li> <li>2. Every 3 months</li> <li>3. Every 6 months</li> <li>4. On-going</li> <li>5. On-going</li> <li>6. On-going</li> <li>7. Every 3 months</li> <li>8. On-going</li> <li>9. Every 3 months</li> </ol> | <ol style="list-style-type: none"> <li>1. Contractor</li> <li>2. Contractor</li> <li>3. Contractor</li> <li>4. Contractor</li> <li>5. Contractor and FPMU/SPIU</li> <li>6. Contractor and FPMU/SPIU</li> <li>7. Contractor and FPMU/SPIU</li> <li>8. Contractor and FPMU/SPIU</li> <li>9. Contractor and FPMU/SPIU</li> </ol> |

|   |   |   |  |  |   |
|---|---|---|--|--|---|
|   |   | <p>activities/operations, the Project shall respond to the grievance in accordance with the Grievance Redress Mechanism contained in the ESMF.</p> <ol style="list-style-type: none"> <li>6. FPMU/SPIU may request that camp related activities/operations be amended to address community grievances. Contractor shall comply with these requests.</li> <li>7. Workers shall abide by camp rules which include a disciplinary process to be developed by the contractor once appointed.</li> <li>8. The Project shall, be cognisant of the environment in which it works and shall, where practicable, respect local cultural events such as religious events, funerals and the like.</li> <li>9. The Project shall provide training to all workers on camp management including: <ol style="list-style-type: none"> <li>a. A briefing on camp rules, including closed camp policy, behaviour between fellow workers and the community;</li> <li>b. Procedures for dealing with camp related complaints, worker issues and community issues and</li> <li>c. Community relations orientation. The objective of this orientation will be to increase awareness about the local area and cultural sensitivities.</li> </ol> </li> </ol> |  |  |   |
| Health  | <p>Potential interaction between workers, persons engaged in illicit activities and the community increases the risk of spreading communicable diseases, particularly in more remote communities. Camp operations have the potential to develop favourable conditions for pests and disease, which could impact the health of workers and the community, as well as affect community livelihoods (e.g. rodent infestation affecting crops).</p> | <ol style="list-style-type: none"> <li>1. Contractor shall comply with the Minimum Health Requirements for Project Execution and the Community Health and Safety Management Plan which set out requirements and management measures on controlling communicable diseases within camps and to outside communities</li> <li>2. Contractor shall enforce the closed camp policy to limit interaction with community</li> <li>3. The Contractor shall develop a Pathogen and Pest Management Plan to prevent pathogens and pests from entering the camps and spreading outside the camps.</li> <li>4. Posters and informational sessions will be conducted to raise awareness among the workforce and communities locally around the worker camps.</li> </ol>   | Verification   | <ol style="list-style-type: none"> <li>1. Every three months</li> <li>2. On-going</li> <li>3. Every three months</li> </ol>        | Contractor  |
| Waste management, pollution and environmental impacts | <p>Camp has the potential to have off site pollution impacts from waste disposal, emissions and spills. Camp operations may also cause environmental issues including deteriorating water quality, erosion, sedimentation, noise and air quality issues. These factors have the potential to affect the community if not adequately managed.</p>  | <ol style="list-style-type: none"> <li>a) Contractor shall exercise all reasonable due diligence to conduct its operations in a manner that will minimize pollution.</li> <li>b) Contractor shall comply with the Waste Management Plan and Hazardous Materials Management Plan which define requirements to contain, transport, handle and dispose of camp wastes and hazardous materials to avoid impacts to human health and the environment.</li> <li>c) Contractor shall also apply appropriate mitigation measures as contained in this ESMF.</li> </ol>  | <ol style="list-style-type: none"> <li>v. Verification</li> <li>vi. Verification</li> <li>vii. Notification</li> </ol> | On-going   | Contractor  |
| Community resources                                   | <ul style="list-style-type: none"> <li>• Any infrastructure, services or resources used by camps (e.g. water abstraction) that result in reductions/shortage/interruptions for the local community will have a negative impact.</li> <li>• There is potential for social envy and increased resentment from the community towards the Project and project team if</li> </ul>  | <ol style="list-style-type: none"> <li>1. Contractor shall utilise water sources for camp use in a manner that minimises impacts on local supply and use. Where necessary, water supply should be sought outside of the community source(s).</li> <li>2. The Project shall routinely monitor quality and supply of water source used by camp through quarterly sampling exercises.</li> <li>3. Contractors shall be encouraged to extend Corporate Social Responsibility projects to host communities.</li> </ol>   | <ol style="list-style-type: none"> <li>12. Verification</li> <li>13. On-going</li> <li>14. Verification</li> </ol>     | <ol style="list-style-type: none"> <li>1. Prior to establishing the camps</li> <li>2. Every 3 months</li> <li>3. Annual</li> </ol> | <ol style="list-style-type: none"> <li>(i) Contractor</li> <li>(j) Contractor</li> <li>(k) Contractor &amp; SPIU</li> </ol> |



|                                      |  |  |              |  |                           |
|--------------------------------------|--|--|--------------|--|---------------------------|
|                                      | camp facilities are perceived to be superior to those in the community. Services of note include camp health facilities, power supply, clean running water. Restricted ability to access these services may increase frustration at the level of the services available to them.   |  |              |  |                           |
| Procurement and supply of goods      | Increased demand for food and other provisions may deplete natural resources e.g. agriculture, fisheries, etc. potentially causing shortages of supply in the local community, and/or increasing the price of goods, affecting affordability for local communities.  | The Project shall not purchase products in the local community unless through formal contracts with approved suppliers.  | Verification | On-going   | Contractor                |
| Camp location                        | <ul style="list-style-type: none"> <li>Siting of camps may result in displacement of residents, loss of productive lands and the resources upon these lands. Camps may also restrict or impede access to areas for the local community.</li> <li>Construction camps may result in a noticeable increase in traffic, noise, air emissions and light intrusion which could negatively affect the amenity and lifestyle of nearby communities and pose a potential safety issue.</li> </ul>   | <ol style="list-style-type: none"> <li>Potential camp locations will be selected in consultation with FPMU/SPIU and affected communities will be subsequently consulted. Necessary permits will be obtained from the relevant Local Authorities for the approved camp location.</li> <li>The Project shall refer to those Environmental &amp; Social Management Plan's (ESMP) that include mitigation/avoidance measures that relate to the local community, including: <ul style="list-style-type: none"> <li>Noise and Vibration Management Plan;</li> <li>Air Emissions Management Plan; and</li> <li>Waste Management Plan.</li> </ul> </li> </ol> |              | <ol style="list-style-type: none"> <li>Prior to establishing the camp</li> <li>On-going</li> </ol> | Contractor and/or Company |
| Labour Influx                        | There is a likelihood of influx of non local labour into areas around the construction camps. However, people from outside of the local area may migrate into existing settlements or develop new settlements in proximity to camps and the Project area. Labour Influx can result in disputes and sometimes violence between the new settlers and the resident community. Migrants moving into existing settlements may increase demand and inflate prices for housing, goods and services. Increased population and development of new and uncontrolled settlements increase pressure on infrastructure, services and resources. Major labour influx related risks include workers' sexual relations with minors and resulting pregnancies, presence of sex workers in the community, the spread of HIV/AIDS, sexual harassment of female employees, child labour and abuse, increased drop out rates from school, poor labour practice and lack of road safety. | <ul style="list-style-type: none"> <li>Contractor shall enforce a 'closed' camp policy. This is intended to deter individuals setting up near camp.</li> <li>Contractor shall develop a Labour Influx Management Plan.</li> <li>Contractor is to coordinate with Local government to ensure that no illegal and unsafe settlements develop.</li> <li>Contractor shall review and ensure adherence to labour influx management plan.</li> </ul>   | Verification | On-going   | Contractor and FPMU/SPIU  |
| Worker welfare and living conditions | Construction workers living in camps may encounter stresses and discomforts that negatively impact their health and welfare.   | Contractor shall comply with minimum standards for camp buildings, facilities and services in line with the Bank standard or as contained in the Project Invitation to Tender (ITT) requirements.  | Verification | On-going   | Contractor                |

|                        |   |  |              |  |                          |
|------------------------|---|--|--------------|--|--------------------------|
|                        | These stressors or discomforts may be caused by Poor living conditions (accommodation, ablution and sanitary, health, recreation catering and laundry).   |  |              |  |                          |
|                        | Cultural issues (nationality, religion, discrimination, GBV and harassment, etc.).  | <ul style="list-style-type: none"> <li>• Contractor shall ensure that applicable ESMF mitigation measures for specific issues are applied.</li> <li>• Contractor may provide prayer rooms and other facilities, as necessary and to the extent practicable, to satisfy the religious needs and customs of its workforce.</li> <li>• Contractor's personnel shall not engage in any discrimination, GBV, SEA or harassing behaviour. Contractor shall establish an Equal Opportunity Policy to promote non-discrimination in accordance with Labour and Worker Conditions Management Plan.</li> <li>• Contractor shall implement a worker grievance procedure to address grievances between workers. .</li> </ul>                                     | Verification | On-going   | Contractor               |
|                        | Mental health issues (morale, isolation, family attachments, boredom).  | <ul style="list-style-type: none"> <li>• Camps will be treated as closed camps. Camp rules in relation to alcohol consumption and drug prohibition will be complied with.</li> <li>• Contractor shall provide recreational facilities where practicable.</li> <li>• Contractor will provide counselling for all workers, with no discrimination by race, sex or religion.</li> </ul>   | Verification | <ul style="list-style-type: none"> <li>• On-going</li> <li>• Every 6 months</li> </ul> | Contractor               |
|                        | Personal security (crime, and emergencies).   | <ul style="list-style-type: none"> <li>• Camps will be controlled by security to avoid intrusions from outside community.</li> <li>• Work Site Security Plan to be developed by Contractor shall include security measures to be provided at the camps which may include fencing, locks, alarms, pass card systems, badge and pass system, access points, safe transport of personnel as appropriate.</li> <li>• Contractor shall develop an Emergency Response Plan that meets requirements set out in ITT package</li> </ul>   | Verification | Prior to establishing camp   | Contractor               |
|                        | Environmental stress (climate, noise etc.).   | <p>Contractor shall comply with Minimum Health requirements for Project Execution including the following:</p> <ul style="list-style-type: none"> <li>• Accommodation will be designed to suit climatic conditions;</li> <li>• Accommodation and surroundings shall be constructed so that noise does not interfere with sleep to the extent that is reasonably practicable; and</li> <li>• Health and hygiene inspections shall be carried out.</li> </ul>  | Verification | On-going   | Contractor               |
| <b>Decommissioning</b> | <p>Decommissioning of camps has several potential impacts:</p> <ul style="list-style-type: none"> <li>• Local employment and provision of local goods and services at camps will no longer be required;</li> <li>• Locals employed and previously accommodated in camps will no longer have access to services and benefits available at camps (e.g. health services, recreation facilities); and</li> <li>• Infrastructure which provides benefits to communities may no longer be maintained (e.g. roads, camp boreholes) and may be decommissioned and removed.</li> </ul> | <ul style="list-style-type: none"> <li>• Contractor is to follow retrenchment procedure contained in Labour and Worker Conditions Management Plan (if available)</li> <li>• Where Community requests, some infrastructure and services may be retained as advised by the FPMU and the World Bank: <ul style="list-style-type: none"> <li>○ Disturbed areas will be reinstated;</li> <li>○ Where practicable, Contractor will return camp areas to former landforms;</li> <li>○ No facilities will be maintained in or near especially environmentally or socially sensitive areas; and</li> <li>○ Where there are negative consequences of induced access, the facility will also be decommissioned, and the area reinstated.</li> </ul> </li> </ul> | Verification | On-going   | Contractor and FPMU/SPIU |

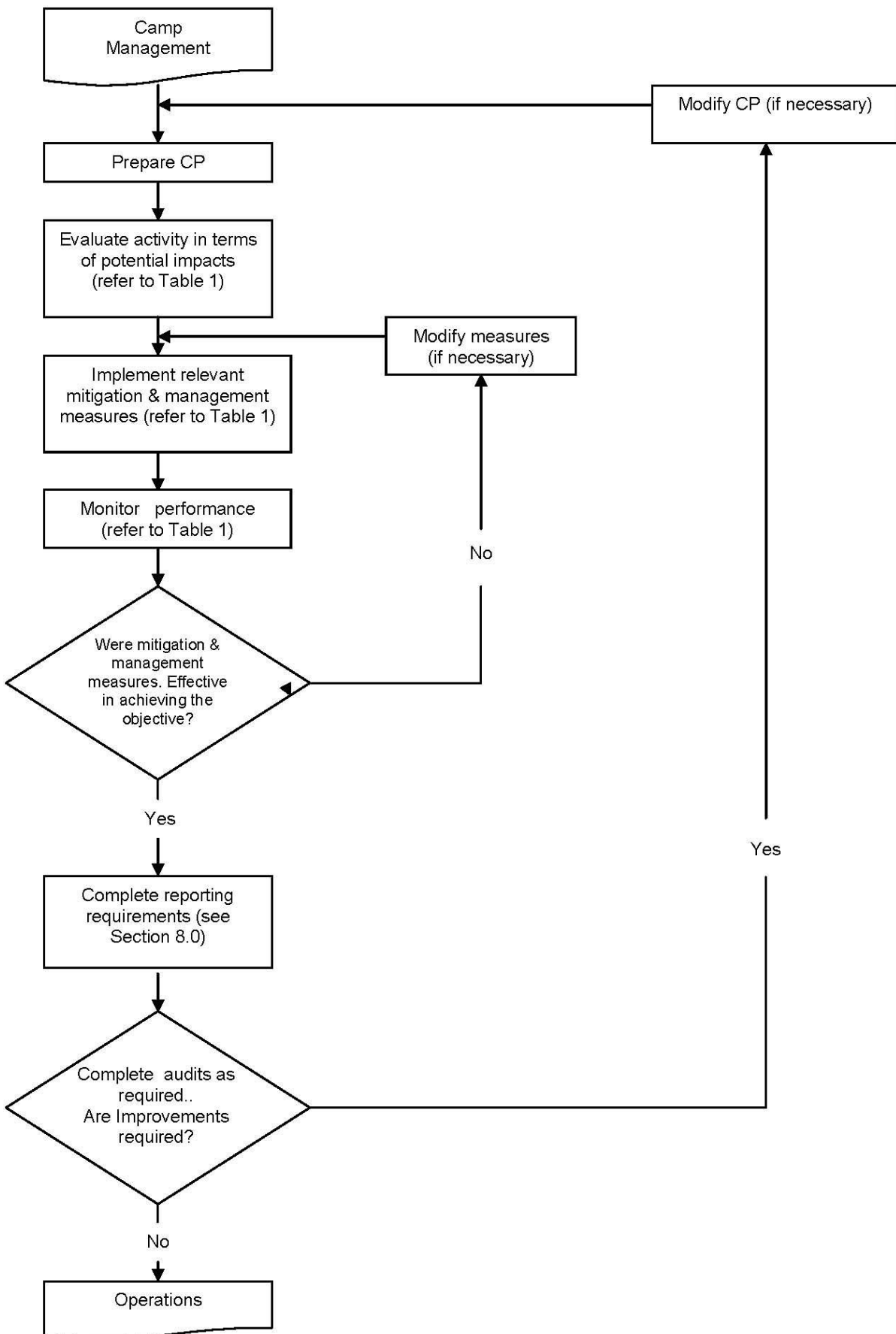


Figure 1: Camp Management Process

## APPENDIX 11 : LABOUR INFLUX PLAN

This plan identifies labour requirements and sets out the procedures for addressing labour conditions and risks associated with the proposed project, which is aimed at helping Niger State RAAMP to determine the resources necessary to address project labor issues.

| Sub-Category         | Worker Impacts/Risks  | Project Impacts/Risks   | Mitigation Measures  | Monitoring | Monitoring Frequency           | Responsibility |
|----------------------|---|---|--|------------|--------------------------------|----------------|
| Employment           | Influx of many foreigners into project community  | Competition on livelihood and job opportunity with locals   | 60% of unskilled labour shall be from the project community. Where possible qualified skilled workers on contract shall also be sourced within the community   | Verify     | Onset of Project and bi-weekly | ESO; SSO       |
| Housekeeping.        | The general appearance of the camp deteriorates making camp life unpleasant.  | The overall camp experience is compromised which in turn leaves workers demoralised and unproductive.   | Ensure that camp grounds and common areas are routinely cleaned and organised with appropriate signage in place, and that grounds are maintained (e.g., grassed areas are regularly mown).<br><br>Establish easily accessible, designated smoking areas which are clearly highlighted and regularly cleaned. | Verify     | Monthly                        | ESO; SSO       |
| Recreation.          | Workers spend most of their time in the camps and could become disenchanted and bored. They may want to leave the camps and go into the local towns and villages in search of recreation. | Tensions arise from the local communities as workers impact their activities in search of recreation. An increase in alcohol consumption and prostitution could result due to the influx of workers into local communities. | Provide appropriate recreational facilities and activities. These should be discussed with the camp residents committee.   | Assessment | Quarterly                      | ESO; SSO       |
| Spiritual /Religion. | Workers will want access to places of worship for their chosen religion. They may leave the camps and go into the local towns and villages in search of an appropriate place of worship.  | Tensions arise from the local communities as workers impact their activities.   | Provide appropriate places of worship where residents express a need for this in accordance with cultural sensitivities, and assess transport arrangements on a case-by-case basis.<br><br>Ensure that equipment and facilities are kept clean and well maintained.  | Assessment | Quarterly                      | ESO; SSO       |

|                      |  |  |  |            |           |          |
|----------------------|--|--|--|------------|-----------|----------|
| Security.            | Inconsistent and aggressive behaviour of security personnel towards workers can result in tensions and conflict in the workplace and a perception of human rights abuses.  | Insufficient training and control of security personnel can lead to the inappropriate use of force, while protecting Project workers and assets, or inappropriate behaviour towards local populations, resulting in human rights claims. | Ensure that camp security personnel meet at least the following requirements: <ul style="list-style-type: none"> <li>• Have not been implicated in past abuses</li> <li>• Are trained in appropriate conduct towards workers and community members including: <ul style="list-style-type: none"> <li>o Exercising constraint and caution and understand how force may be used</li> <li>o Respecting human rights</li> <li>o Behaving consistently</li> <li>o Knowing and abiding by applicable laws</li> <li>o Fostering good community relations through their interaction and behaviour towards the workforce and communities</li> </ul> </li> </ul> | Assessment | Quarterly | ESO; SSO |
| Community relations. | Communities are negatively impacted by camp activities: noise, waste, traffic, lighting and so forth. This may result in negative actions towards camp operations such as road closures and the prevention of workers or suppliers from entering the worksite. | Workers are stopped from going to work, which affects productivity.  | Implement control measures to avoid and minimise the impacts of camp and living conditions on communities.<br><br>Limit foreign worker interaction with communities and provide cultural sensitivity awareness training to facilitate appropriate interaction with communities.  | Assessment | Quarterly | ESO; SSO |

## APPENDIX 12: COMMUNITY AFFAIRS, SAFETY, HEALTH, ENVIRONMENT AND SECURITY (CASHES) PLAN

The contractor recognizes that failure to perform its duties with the highest sense of responsibility and in line with laid down procedures, regulations and standards could result in accidents, incidents or dire consequences. It is the company's belief that good CASHES performance is an integral part of efficient and profitable business management. We shall therefore:

- Provide and maintain safe and healthy working environment and conditions, taking account of any statutory requirement of our client and the national regulatory agencies.
- Ensure that no activity shall be carried out unless it is safe to the environment, workers and third parties.
- Provide training and instruction to enable employees to perform their job safely and efficiently.
- Make available all necessary safety devices and protective equipment and enforce their use.
- Maintain a constant and continuing interest in environment, health and safety matters application to the company's activities, in particular by consulting and involving employees and clients where ever possible.
- Ensure that there exist adequate facilities and avenues for consultation between our company and clients/projects host communities.
- Comply with the provisions and implementation of supplementary plans in this ESMP such as TMP, WMP, Borrow Pit Management Plan, OHS Plan, Code of Conducts and General Conditions for Contract
- The company will give full backing to this policy and to the company HSE Officer, whose function it shall be to monitor and operate this policy.

A sample generic CASHES Plan is presented below:

| Potential Risk   | Mitigation Plan   |
|--|---|
| Disturbance from project activities such as noise, emissions, movement of vehicles/equipment | <ul style="list-style-type: none"> <li>• Contractors to minimise noise by retrofitting equipment with noise mufflers</li> <li>• Contractors to maintain equipment regularly and use BAT/BEP technologies to minimise emissions</li> <li>• Water roads in built up areas frequently to reduce dust</li> <li>• Avoid construction activities before 8.00am and after 7.00pm</li> <li>• Project SPIU to establish and implement an effective GRM to enable timely receipt and resolution of complaints</li> </ul>  |
| Increased risks of accidents from project activities   | <ul style="list-style-type: none"> <li>• Contractors to demarcate/cordon off construction areas and lit up adequately at night, fence out danger zones and keep out of reach.</li> <li>• Restricted access to be placed at construction sites using caution signs and manned personnel</li> <li>• Adequate road signs to warn pedestrians and motorists of construction activities, diversions, etc. shall be provided at appropriate points.</li> <li>• Drivers should be competent and trained by FRSC</li> <li>• Ensure the use of flagmen at strategic locations such as junctions, pedestrian crossings, near schools and other public facilities etc.</li> <li>• Implement associated plans including Traffic Management Plan, Burrow pit reclamation plan, OHS plan, WMP etc.</li> </ul> |
| Exposure to social risks such as theft, vandalism, STIs/STDs, GBV/SEA/SH, child labor        | <ul style="list-style-type: none"> <li>• Contractor to strictly implement the code of conduct for all workers</li> <li>• Contractor shall enforce a 'closed' camp policy unless otherwise agreed and approved by Company. Workers will comply with the agreed camp closure hours</li> <li>• Ensure that children and minors are not employed directly or indirectly on the project</li> </ul>   |
| Increased risk of COVID-19 contamination   | <ul style="list-style-type: none"> <li>• COVID-19 prevention mechanisms shall also be put in place including access to handwashing, regular health checks and reporting.</li> <li>• Minimise the need for public gatherings and where required safe practices such as use of nose masks, handwashing/sanitiser should be used</li> <li>• Workers to comply with the COVID-19 regulations in Appendix 12</li> </ul>  |
| Competition for scarce resources such as water   | <ul style="list-style-type: none"> <li>• Contractors to provide alternative source of water for construction, staging area and campsite.</li> <li>• Community sources of water will not be exploited by the contractors</li> </ul>  |
| Pollution of the environment from different waste categories                                 | <ul style="list-style-type: none"> <li>• Contractor to sensitise workers on the provisions and implementation of the WMP and monitor compliance</li> <li>• Contractor to avoid littering the project areas with spoils/unsuitable and shall not restrict access to community assets with waste.</li> </ul>  |

## **APPENDIX 13: SAMPLE CHANCE FIND PROCEDURE FOR THE PROTECTION OF PHYSICAL RESOURCES**

Though the project area does not have sacred or cultural sites, these chance find procedures are provided as a plan in the event of such encounter during project activities.

Chance find procedures will be used as follows:

- a) Stop all construction activities immediately in the area of the chance find;
- b) Delineate the discovered site or area;
- c) Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a guard/NSCDC/NPF shall be present until the responsible local authorities and the equivalent take over;
- d) Notify the supervisory Engineer who in turn will notify the village head of the discovery. Also, the supervisory engineer to notify the SPIU (within 24 hours or less);
- e) Responsible local authorities and the national authority for Antiquities would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the relevant (within 72 hours). The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values;
- f) Decisions on how to handle the finding shall be taken by the responsible authorities. This could include changes in the layout (such as when findings are irremovable remain of cultural or archaeological importance) conservation, preservation, restoration and salvage;
- g) Implementation for the authority decision concerning the management of the finding shall be communicated in writing and
- h) Construction work could resume only after permission is given from the responsible authority for Antiquities concerning safeguard of the heritage.

These procedures must be referred to as standard provisions in construction contracts, when applicable.

During project supervision, the SPIU and FPMU shall monitor the above regulations relating to the treatment of any chance find encountered.



## **APPENDIX 14: SAMPLE OUTLINE FOR SECURITY RISK MANAGEMENT PLAN**

The contractor shall pay necessary attention to ensuring security of life & property during the execution of this contract according to the scope of works. In ensuring that this role is carried out, the following will be given priority:

### **1. Management Commitment and Responsibilities**

Management is committed to ensuring that the following are in place:

- Providing up to date information regarding the security management mechanism, tools & updates in and around the work sites
- Ensure necessary early warning system is deployed to respond to security emergencies in the workplace by:
- Development of a specific step-by-step approach to security response
- Establish a security task force to respond to specific hazards, which is to be deployed in the case of security emergency (kidnapping, insurgency etc.)
- Employing the appropriate personnel for the role of security personnel/advisor(s) and security staff
- Prioritize training of security personnel
- Enforcing disciplinary actions as needed to enforce security compliance
- Promoting interaction and assistance with regulatory and response agencies such as the Nigerian Police Force & Nigerian Military armed forces.

### **2. Threat Assessment and Analysis**

A vital component of this Security Management Plan is the identification of internal and external threats. The mechanisms for identifying threats shall comprise but will not be limited to:

- Have in place and periodically update a threat matrix that will be submitted to management for review and approval.
- Undertake periodic drills that will include responses to:
  - Bomb threats
  - A violence in the workplace situation – potential or actual
  - Domestic violence occurring within our facilities
  - General evacuation requirements due to a technical, human or natural threatOthers as may be determined by the General Manager or Security Management Committee

Threats will be qualified utilizing a threat matrix, or other tool that compares operations to threats, and their likelihood and severity. Where possible, mitigating actions and recommendations will be initiated.

### **3. The Role of the Security Focal Person or Manager**

In the minimum, the contractor will have a security manager or focal staff that will be responsible for all security related issues in the workplace. The role of this security focal person includes:

- Lead role in threat assessments
- Program maintenance and updates
- Incident response and coordination
- Chair of the Security Program Committee
- Training Responsibilities
- Coordination with other Departments
- Coordination with agencies and response units

### **4. Employee security education and training**

The company-training security program will ensure:

- Employee duties and responsibilities
- Event-specific responsibilities
- Threat or event reporting
- Back-to-work/check-in requirements
- Potential disciplinary actions
- Dealing with the media, regulatory agencies, or other entities outside the company

### **5. Management and Supervisor Education and Training**

For Managers and Supervisors, our program focuses upon:

- Individual or Department duties
- Knowledge and deployment of response protocols
- Assuring employee and other constituent welfare
- Threat or event reporting
- Back-to-work/check-in requirements
- Potential disciplinary actions
- Dealing with the media, regulatory agencies, or other entities outside the company

### **Program Exercises and Drills**

The training and education activities that will be undertaken for the purposes of implementing this Security Management Plan shall be one of the following: case studies, desktop exercises, or small and/or large-scale exercises involving response pattern to adopt in the face of clear and present threats e.g. insurgent attacks.

## APPENDIX 15: LABORATORY RESULTS OF ENVIRONMENTAL STUDIES

### Air Quality

As summarized in Table 1.1 to 1.4, VOC, SO<sub>2</sub>, CO and CO<sub>2</sub> concentrations were detected of all the Ten gaseous pollutants measured along and around the project corridors during the study.

Since H<sub>2</sub>S, SO<sub>2</sub> and NH<sub>3</sub> were not detected in any of the sampling locations along and around the project corridor during the study, they were however taken to be within their recommended limits. This implies that NO<sub>2</sub> concentration was within the 0.04 – 0.06ppm limit by FMEEnv. Ammonia (NH<sub>3</sub>) concentration in these locations was within the 0.28ppm limit by FMEEnv. Nigeria has no limit for H<sub>2</sub>S at present in the ambient environment. CO concentrations were detected and the value detected in these locations was within 10 ppm daily ambient limit. SO<sub>2</sub> concentrations were also not detected daily limit of 0.01 ppm.

VOC concentration range of 0.0ppm to 0.5ppm was detected in all the sampling locations within and along the proposed project corridor. The three major forms of VOCs of environmental concern are benzene, toluene and xylene (BTX). The long-term limits of benzene, toluene and xylene are 1.5 ppm, 0.6 ppm, and 0.7 ppm respectively. These were not breached at all the sampling locations. The FMEEnv/NESREA limit of 1.9ppm was also not breached at all the sampling locations. However, the WHO limit of 6.3ppm was not breached at all the sampling locations.

Carbon dioxide is essentially an asphyxiant gas with only mild toxic properties and no cumulative effects. *The recommended exposure limit by Occupational Health and Safety Administration (OSHA) (The Health and Safety Executive Guidance Note EH 40 - Occupational Exposure Limits) for indoor air quality for carbon dioxide is 5,000 ppm (0.5%) by volume calculated as an eight hour time - weighted average concentration in air, or 15,000 ppm (1.5%) for a 15 minute period. There are no stipulated limits for indoor concentrations.*

The concentration of Carbon Dioxide measured along and around the proposed site corridor ranged from 499ppm to 621ppm.

Particulates were detected in all the sampling locations along and around the proposed project corridor (Table 1 - 4). These were measured to be, 4.6 – 18.1µg/m<sup>3</sup>, 6.0 – 33.3µg/m<sup>3</sup>, 7.5 – 39.7µg/m<sup>3</sup> and 8.3 – 28.03µg/m<sup>3</sup> for PM<sub>2.5</sub>, PM<sub>5.0</sub>, PM<sub>10</sub> and TSP concentrations respectively.

**Table 1.1: Air Quality along Kuyi – Kampala Road Corridor**

| Parameters/Location      | Latitude |         | Noise | CH <sup>4</sup> | ppm |     |                 |                 |                 |                  | NH3  | PM 2.5 | PM 5.0 | PM 10 | TSP   | TEMP | RH. | WS  |
|--------------------------|----------|---------|-------|-----------------|-----|-----|-----------------|-----------------|-----------------|------------------|------|--------|--------|-------|-------|------|-----|-----|
|                          |          |         |       |                 | VOC | CO  | CO <sup>2</sup> | NO <sup>2</sup> | SO <sup>2</sup> | H <sub>2</sub> S |      |        |        |       |       |      |     |     |
| AQ 1                     | 9.66667  | 6.43074 | 49.1  | ND              | 0.1 | 2.2 | 621             | 0.02            | ND              | ND               | ND   | 13.0   | 19.2   | 25.5  | 28.3  | 33   | 63  | 1.2 |
| AQ 2                     | 9.67125  | 6.42963 | 41.5  | ND              | 0.3 | ND  | 503             | 0.01            | ND              | ND               | ND   | 13.8   | 19.6   | 31.6  | 46.2  | 37   | 53  | 0.8 |
| AQ 3                     | 9.67687  | 6.42256 | 45.4  | ND              | 0.3 | 1.0 | 510             | 0.03            | ND              | ND               | ND   | 14.2   | 24.3   | 51.5  | 98.2  | 40   | 47  | 0.6 |
| AQ 4                     | 9.67838  | 6.41036 | 50.7  | ND              | 0.3 | 2.0 | 499             | 0.01            | ND              | ND               | ND   | 16.3   | 28.8   | 78.2  | 165.2 | 37   | 53  | 1.3 |
| AQ 5                     | 9.68288  | 6.40733 | 41.9  | ND              | 0.2 | ND  | 503             | 0.02            | ND              | ND               | ND   | 16.9   | 26.0   | 46.1  | 67.6  | 39   | 50  | 1.4 |
| AQ6                      | 9.67635  | 6.41067 | 45.7  | ND              | 0.2 | 3.5 | 534             | 0.02            | ND              | ND               | ND   | 30.0   | 58.8   | 218.7 | 506.0 | 42   | 44  | 0.9 |
| AQ 7                     | 9.65927  | 6.41749 | 47.9  | ND              | 0.3 | 4.0 | 502             | 0.04            | ND              | ND               | ND   | 15.9   | 25.4   | 47.8  | 61.7  | 39   | 49  | 0.4 |
| Area of influence 1      | 9.66865  | 6.41309 | 66.3  | ND              | 0.3 | 5.0 | 506             | 0.03            | ND              | ND               | ND   | 29.4   | 69.2   | 282.3 | 995.6 | 38   | 51  | 0.7 |
| Area of influence 2      | 9.66874  | 6.41272 | 56.9  | ND              | 0.3 | 4.3 | 507             | 0.04            | ND              | ND               | ND   | 16.9   | 31.3   | 75.6  | 126.9 | 41   | 45  | 1.1 |
| Control                  |          |         | 68.5  | ND              | 0.3 | 6.1 | 509             | 0.03            | ND              | ND               | ND   | 18.8   | 30.7   | 50.3  | 61.1  | 35   | 55  | 1.3 |
| FME <sub>Env</sub> Limit |          |         |       |                 |     |     | 10.0            |                 | 0.04            | 0.01             | 0.01 | 0.28   |        |       |       | 250  |     |     |

**Table 1.2: Air Quality along 35Km Beji-Makera-Jangara Road Corridor**

| Parameters / Location    | Latitude   |            | Noise | CH <sup>4</sup> | ppm |     |                 |                 |                 |                  | NH3  | PM 2.5 | PM 5.0 | PM 10 | TSP   | TEM P. | RH. | WS  |
|--------------------------|------------|------------|-------|-----------------|-----|-----|-----------------|-----------------|-----------------|------------------|------|--------|--------|-------|-------|--------|-----|-----|
|                          |            |            |       |                 | VOC | CO  | CO <sup>2</sup> | NO <sup>2</sup> | SO <sup>2</sup> | H <sub>2</sub> S |      |        |        |       |       |        |     |     |
| AQ 1                     | 9.62976072 | 6.31179697 | 41.5  | ND              | 0.1 | 2.2 | 621             | 0.04            | ND              | ND               | ND   | 14.5   | 20.2   | 2557  | 28.3  | 32     | 62  | 1.3 |
| AQ 2                     | 9.622819   | 6.295986   | 49.2  | ND              | 0.3 | ND  | 503             | 0.01            | ND              | ND               | ND   | 13.9   | 19.6   | 31.6  | 46.2  | 37     | 53  | 0.7 |
| AQ 3                     | 9.619315   | 6.291378   | 45.4  | ND              | 0.2 | 1.0 | 510             | 0.03            | ND              | ND               | ND   | 14.2   | 24.3   | 51.5  | 98.2  | 40     | 46  | 0.7 |
| AQ 4                     | 9.61436    | 6.283877   | 47.9  | ND              | 0.3 | 2.0 | 499             | 0.01            | ND              | ND               | ND   | 16.4   | 28.8   | 78.2  | 165.2 | 37     | 53  | 1.2 |
| AQ 5                     | 9.61214    | 6.274204   | 41.9  | ND              | 0.2 | ND  | 503             | 0.02            | ND              | ND               | ND   | 16.5   | 26.0   | 46.1  | 67.6  | 39     | 50  | 1.4 |
| AQ6                      | 9.61134    | 6.267422   | 45.6  | ND              | 0.2 | 3.5 | 534             | 0.02            | ND              | ND               | ND   | 30.0   | 58.8   | 218.7 | 502.5 | 42     | 45  | 0.9 |
| AQ 7                     | 9.546849   | 6.201878   | 50.3  | ND              | 0.3 | 4.0 | 502             | 0.03            | ND              | ND               | ND   | 15.9   | 25.4   | 47.8  | 62.7  | 38     | 50  | 0.4 |
| AQ 8                     | 9.53283    | 6.172361   | 65.7  | ND              | 0.3 | 5.0 | 506             | 0.03            | ND              | ND               | ND   | 29.4   | 70.2   | 262.3 | 994.6 | 38     | 51  | 0.7 |
| AQ 9                     | 9.542417   | 6.080183   | 56.6  | ND              | 0.3 | 4.3 | 507             | 0.04            | ND              | ND               | ND   | 16.9   | 31.3   | 75.6  | 125.9 | 42     | 45  | 1.2 |
| AQ 10                    | 9.55067    | 6.052412   | 68.5  | ND              | 0.3 | 6.1 | 509             | 0.03            | ND              | ND               | ND   | 18.8   | 30.7   | 50.3  | 61.2  | 36     | 54  | 1.3 |
| FME <sub>Env</sub> Limit |            |            |       |                 |     | -   | 10.0            |                 | 0.04            | 0.01             | 0.01 | 0.28   |        |       |       | 250    |     |     |

**Table 1.3: Air Quality along 10Km Patishin-danko-Masallaci Road Corridor**

| Parameters/Location | Latitude |          | Noise | CH <sup>4</sup> | ppm |     |                 |                 |                 |                  | NH3 | PM 2.5 | PM 5.0 | PM 10 | TSP   | TEMP | RH. | WS  |
|---------------------|----------|----------|-------|-----------------|-----|-----|-----------------|-----------------|-----------------|------------------|-----|--------|--------|-------|-------|------|-----|-----|
|                     |          |          |       |                 | VOC | CO  | CO <sup>2</sup> | NO <sup>2</sup> | SO <sup>2</sup> | H <sub>2</sub> S |     |        |        |       |       |      |     |     |
| AQ 1                | 8.989075 | 5.94455  | 41.5  | ND              | 0.1 | 2.2 | 621             | 0.04            | ND              | ND               | ND  | 14.5   | 20.2   | 2557  | 28.3  | 32   | 62  | 1.3 |
| AQ 2                | 8.996883 | 5.932012 | 49.2  | ND              | 0.3 | ND  | 503             | 0.01            | ND              | ND               | ND  | 13.9   | 19.6   | 31.6  | 46.2  | 37   | 53  | 0.7 |
| AQ 3                | 8.997535 | 5.927961 | 45.4  | ND              | 0.2 | 1.0 | 510             | 0.03            | ND              | ND               | ND  | 14.2   | 24.3   | 51.5  | 98.2  | 40   | 46  | 0.7 |
| AQ 4                | 8.997732 | 5.926482 | 47.9  | ND              | 0.3 | 2.0 | 499             | 0.01            | ND              | ND               | ND  | 16.4   | 28.8   | 78.2  | 165.2 | 37   | 53  | 1.2 |
| AQ 5                | 8.996894 | 5.921491 | 68.5  | ND              | 0.3 | 6.1 | 509             | 0.03            | ND              | ND               | ND  | 18.8   | 30.7   | 50.3  | 61.2  | 36   | 54  | 1.3 |

|              |  |  |  |  |   |      |  |      |      |      |      |  |  |  |     |  |  |  |
|--------------|--|--|--|--|---|------|--|------|------|------|------|--|--|--|-----|--|--|--|
| FMEEnv Limit |  |  |  |  | - | 10.0 |  | 0.04 | 0.01 | 0.01 | 0.28 |  |  |  | 250 |  |  |  |
|--------------|--|--|--|--|---|------|--|------|------|------|------|--|--|--|-----|--|--|--|

**Table 1.4: Air Quality along Kotangora Road Corridor**

| Parameters/<br>Location | Latitude: | Latitude: | Noise | CH <sup>4</sup> |     |      |                 |                 |                 |                  | NH3  | PM<br>2.5 | PM<br>5.0 | PM<br>10 | TSP   | TEMP | RH. | WS  |
|-------------------------|-----------|-----------|-------|-----------------|-----|------|-----------------|-----------------|-----------------|------------------|------|-----------|-----------|----------|-------|------|-----|-----|
|                         |           |           |       |                 | VOC | CO   | CO <sup>2</sup> | NO <sup>2</sup> | SO <sup>2</sup> | H <sub>2</sub> S |      |           |           |          |       |      |     |     |
| AQ 1                    | 10.34048  | 5.457009  | 41.5  | ND              | 0.1 | 2.2  | 621             | 0.04            | ND              | ND               | ND   | 14.5      | 20.2      | 2557     | 28.3  | 32   | 62  | 1.3 |
| AQ 2                    | 10.33512  | 5.454331  | 49.2  | ND              | 0.3 | ND   | 503             | 0.01            | ND              | ND               | ND   | 13.9      | 19.6      | 31.6     | 46.2  | 37   | 53  | 0.7 |
| AQ 3                    | 10.33056  | 5.436426  | 45.4  | ND              | 0.2 | 1.0  | 510             | 0.03            | ND              | ND               | ND   | 14.2      | 24.3      | 51.5     | 98.2  | 40   | 46  | 0.7 |
| AQ 4                    | 10.32427  | 5.432737  | 47.9  | ND              | 0.3 | 2.0  | 499             | 0.01            | ND              | ND               | ND   | 16.4      | 28.8      | 78.2     | 165.2 | 37   | 53  | 1.2 |
| AQ 5                    | 10.32351  | 5.432308  | 41.9  | ND              | 0.2 | ND   | 503             | 0.02            | ND              | ND               | ND   | 16.5      | 26.0      | 46.1     | 67.6  | 39   | 50  | 1.4 |
| AQ6                     | 10.33397  | 5.403727  | 45.6  | ND              | 0.2 | 3.5  | 534             | 0.02            | ND              | ND               | ND   | 30.0      | 58.8      | 218.7    | 502.5 | 42   | 45  | 0.9 |
| AQ 7                    | 10.33463  | 5.402743  | 50.3  | ND              | 0.3 | 4.0  | 502             | 0.03            | ND              | ND               | ND   | 15.9      | 25.4      | 47.8     | 62.7  | 38   | 50  | 0.4 |
| FMEEnv Limit            |           |           |       |                 | -   | 10.0 |                 | 0.04            | 0.01            | 0.01             | 0.28 |           |           |          | 250   |      |     |     |

## Water Quality

The environmental baseline data of water quality of the proposed project area are presented in this sub-section. There was no surface water samples obtained, while for groundwater four (4) field samples were collected and analysed in a laboratory (**Green Eco Technology Resource Limited**) approved by the Federal Ministry of Environment (FMEnv). The water samples were preserved in an iced cool container before transportation to the laboratory within six hours.

## Ground Water

### Physico-Chemical Characteristics of Ground Water

The chemistry of groundwater varies from place to place depending on the nature of the sub-soils and rocks that it passes through. Daly (1994) observed that in areas where limestone bedrock and limestone-dominated sub-soils are common; groundwater is often 'hard', containing high concentrations of calcium, magnesium, and bicarbonate. However, in areas where volcanic rocks of sandstones are present, softer water is normal. Therefore, in considering the impact of human activities, it is necessary to first consider the natural (or baseline) water quality. Groundwater is usually considered pure and safe to drink as it undergoes a filtering and cleansing process through a subsoil cover and rock medium that surface waters do not have. However, this does not guarantee groundwater purity. Problems can arise either due to the natural conditions in the ground or pollution by human activities.

**Temperature:** The temperature of the groundwater of the study area ranged from 26.12- 26.7 °C during the study period. This is in compliance with FMENV regulatory limit of (35 – 45)°C.

**pH:** The pH of the groundwater of the study area during the study ranged from 7.1 – 7.2 which fails within the FMEnv acceptable limit 6.5 – 9.2.

**Electrical Conductivity:** The conductivity values ranged from 26.0 – 94.0 µS/cm. Electrical Conductivity is the ability of a solution to permit the flow of electrical current. It varies with the number and type of ions in the solution. The conductivity in water is proportional to the concentration of dissolved solids, mostly inorganic salts. The higher the salinity of water the higher the conductivity value (Kiely, 1998).

**Dissolved Oxygen:** The DO levels of the groundwater in the area during the study period ranged between 4.5 mg/l – 7.5 mg/l with mean concentration of 6 mg/l

**Chloride:** chloride which is a function of the salinity level of the water was analyzed ranged from 27.7 mg/l – 35 mg/l with mean concentration of 31.35 mg/l. This is a measure of solids of oxides and chlorides in water. It affects the taste of a groundwater quality.

**Nutrients:** the concentrations of nitrates and nitrites study ranged from 9.40 – 21.00 mg/l with mean concentration as 15.20 mg/l and 0.10 - 0.59 mg/l with mean concentration of 0.345 mg/l respectively. Phosphate values in the groundwater around the study area ranged from 0.30 mg/l – 1.2 mg/l with mean value of 0.21 mg/l while sulphate ranged between 55.00 – 57.6 mg/l with mean concentration of 56.3 mg/l. The concentration of nitrates ( $\text{NO}_3^-$ ) was between 0.23 - 0.38 mg/l during the study period. Sulphates ( $\text{SO}_4^{2-}$ ) were below detection limit while Phosphate result ranged from 0.03 to 5.5 mg/l during the study period.. Nutrients includes the ionic forms ( $\text{NO}_3^-$ ,  $\text{PO}_4^{3-}$  and  $\text{SO}_4^{2-}$ ) and utilizable forms of nitrogen, phosphate and sulphur respectively. Nitrate ( $\text{NO}_3^-$ ) is one of the most common contaminants identified in groundwater. It is highly mobile and under wet conditions, it is easily leached out of the rooting zone, through soil and permeable subsoil.  $\text{NO}_3^-$  is a good indicator of contamination by fertilizers and waste organic matter. The consumption of nitrate rich water by children may give rise to a condition known as methaemoglobinaemia, also called blue boy syndrome (Kiely, 1998). Sulphates ( $\text{SO}_4^{2-}$ ) are also good indicators of contamination by fertilizers and waste organic matter. Many aquatic and microscopic organisms utilize sulphate for their growth. Phosphate will stimulate the growth of plankton and other aquatic plants, which provide food for fish.

**Cations:** the concentration of magnesium ranged 7.50 - 17.35 mg/l in all the underground water studied while calcium concentration ranged from 12.50 mg/l to 30.00 mg/l with mean value of 41.25 mg/l. Ammoniacal nitrogen ranged between 7.5 – 1.5 mg/l in the groundwater around

the study area. Sodium, potassium, magnesium, ammonium and calcium ions (Na<sup>+</sup>, K<sup>+</sup>, NH<sub>4</sub><sup>+</sup> and Ca<sup>2+</sup>) are common cations that are essential macro nutrients present in a water environment.

**Heavy Metals in Groundwater:** the following metals were analysed in the groundwater – Arsenic, Chromium, Zinc, Copper, Iron, Lead, Manganese and Cadmium. Arsenic was not detected in the water and Cadmium was 0.002 mg/l in Boko and Mosalaci water samples respectively. However, Copper, Zinc, Iron and Manganese were detected in the following concentrations respectively: 0.09 – 1.00 mg/l, 0.30 – 1.50 mg/l, 0.46 – 0.6 mg/l and 0.029 – 1.15 mg/l. Their mean concentrations in the same order are 0.545 mg/l, 0.90 mg/l, 0.53 mg/l and 0.59 mg/l.

The assessment of heavy metal status is because of the concerns relating to their presence in water. Such concerns are toxicity, bioaccumulation and hazards to human health (GEMS 1992). The detailed heavy metal concentrations in boreholes water of the study area are presented in the physico-chemical quality of the groundwater in the study area as analysed during the study can be summarized as follows:

The general appearance of the groundwater is generally clear with colour being less than 5Hz. This will enhance the aesthetics and acceptability of the water for usage. The odour of the water is acceptable while the electrical conductivity was higher than WHO standard of 1 mg/l for drinking water. Some of the groundwater samples were clear while some were slightly turbid. The mean pH of the groundwater is acidic while the TDS is within WHO acceptable limit for drinking water.

The groundwater in the area is soft water i.e., it contains lower levels of calcium and magnesium which concentrations are within WHO acceptable limit for groundwater. Groundwater chloride content within the study area is within acceptable limit. Sulphate remained undetected in any of the water samples while the phosphate content is within acceptable limit. The heavy metal content of the water was equally analysed. Obtained results showed that some of the heavy metals are not detected in the water namely Arsenic, Lead, Cadmium and Chromium. Others are detected but within acceptable limits. They are Iron, Copper, Manganese and Zinc. The mean Dissolved Oxygen obtained during the study conformed to WHO standard of 7.5 mg/l. The excellent physicochemical quality and low heavy metal concentrations of the boreholes in the study area may stem from the fact that soil is a natural filter where processes such as filtration, adsorption, biodegradation, ion exchange and dispersion may reduce concentration of contaminants to a great extent (Adeyinka *et al*, 1999; Okokoyo and Rim-Rukeh, 2004).

#### Microbiology of Ground Water (Bore Hole)

The distribution of heterotrophic bacteria and fungi and hydrocarbon utilizes in the underground water samples collected at different sampling stations is presented in Heterotrophic bacteria abundance was observed to vary from 2.0 x10<sup>5</sup> - 3.0 x10<sup>5</sup> CFU/ml during the study. Total heterotrophic fungi were observed to range from 1.0 x10<sup>2</sup> to 4.0 x10<sup>2</sup> CFU/ml during the study. Hydrocarbon utilizing bacteria (HUB) population was observed to vary from 8.0 x10<sup>1</sup>- 18.0 x10<sup>1</sup> and Hydrocarbon utilizing fungi (HUF) was observed to range from 0.00 - 1.0 x10<sup>1</sup>. Total Coliform was absent in the groundwater studied during the exercise. The percentage Hydrocarbon Utilizers abundance obtained during the study ranged from 0.0400% to 0.0600 %.

**Table 2 Abundance of Microbes in the Groundwater Samples**

| S/N | Sample Code | Range CFU/ml                | Mean CFU/ml           |
|-----|-------------|-----------------------------|-----------------------|
| 1.  | THB         | 2.0 – 3.0 x 10 <sup>5</sup> | 1.5 x 10 <sup>5</sup> |
| 2.  | THK         | 1.0 – 4.0 x 10 <sup>2</sup> | 2.5 x 10 <sup>2</sup> |
| 3   | THM         | 2.0 – 3.0 x 10 <sup>5</sup> | 1.5 x 10 <sup>2</sup> |
| 4   | THJ         | 2.0 – 3.0 x 10 <sup>5</sup> | 1.5 x 10 <sup>2</sup> |

Source: GreenEco Fieldwork (2023)

**Table 3. Summary of Physico-Chemical Results of Borehole in the study Area**

| Parameters | Methodology | Result Of Chemical Analysis of Borehole  |   |                                    | GW Mosalaci (8.98923769 5.94447976) | FMENV Limit |
|------------|-------------|--|---|------------------------------------|-------------------------------------|-------------|
|            |             | GW Bako Borehole (9.68287345 6.40682378) | GW Kampala Borehole (9.65898905 6.41765571) | GW Jangara (9.55079712 6.05248368) |                                     |             |
|            |             |  |   |                                    |                                     |             |

|                                    |                |          |              |              |         |                    |
|------------------------------------|----------------|----------|--------------|--------------|---------|--------------------|
| Colour                             |                | Brownish | Very Turbid  | Very Turbid  | Turbid  | Colourless & Clear |
| Odour                              |                | Pungent  | Strong Odour | Strong Odour | Pungent | Odourless          |
| pH @25°C                           | Electrometric  | 7.2      | 7.1          | 7.2          | 7.1     | 6.5 – 9.2          |
| Temp. °C                           | Thermoelectric | 26.7     | 26.2         | 26.3         | 26.4    |                    |
| Turbidity NTU                      | Turbidimetric  | 99       | 250          | 245          | 150     |                    |
| E.C. µS/cm                         | Electrometric  | 90       | 540          | 530          | 98      |                    |
| TSS mg/l                           | Gravimetric    | 100      | 265.00       | 260.00       | 120     |                    |
| TDS mg/l                           | Electrometric  | 42       | 273          | 270          | 46      | 2000.00            |
| Alkalinity mg/l                    | Colorimetric   | 65.7     | 60.5         | 60.4         | 65.7    |                    |
| BOD mg/l                           | Nanometric     | 10.5     | 2.7          | 2.5          | 9.5     | 50.00              |
| COD mg/l                           | Reflux         | 40.5     | 620          | 615          | 47.5    |                    |
| DO mg/l                            | Electrometric  | 4.5      | 7.5          | 7.5          | 4.5     |                    |
| T. Hardness mg/l                   | Colorimetric   | 78       | 62.5         | 62.4         | 78      | 500.00             |
| SO <sub>4</sub> <sup>2-</sup> mg/l | Colorimetric   | 55       | 57.6         | 57.5         | 55      | 400                |
| NO <sub>3</sub> <sup>-</sup> mg/l  | Colorimetric   | 9.40     | 20           | 21           | 9.40    | 50.00              |
| NO <sub>2</sub> mg/l               | Colorimetric   | 0.10     | 0.59         | 0.57         | 0.10    | 2.00               |
| NH <sub>4</sub> mg/l               | Colorimetric   | 1.5      | 7.5          | 7.3          | 1.5     |                    |
| Fe <sup>2+</sup> mg/l              | Colorimetric   | 0.6      | 0.46         | 0.48         | 0.6     | 1.00               |
| Pb <sup>2+</sup> mg/l              | Colorimetric   | 0.001    | 1.28         | 1.28         | 0.001   | <1.00              |
| Zn <sup>2+</sup> mg/l              | Colorimetric   | 1.50     | 0.30         | 0.30         | 1.50    | 15.00              |
| Cu <sup>2+</sup> mg/l              | Colorimetric   | 1.00     | 0.09         | 0.09         | 1.00    | 1.50               |
| Mg <sup>2+</sup> mg/l              | Colorimetric   | 7.50     | 17.35        | 17.30        | 7.50    | 150                |
| Mn <sup>2+</sup> mg/l              | Colorimetric   | 1.05     | 0.035        | 0.029        | 1.05    | 0.50               |
| Ca <sup>2+</sup> mg/l              | Colorimetric   | 30.0     | 12.5         | 12.5         | 30.0    | 200                |
| As mg/l                            | Colorimetric   | ND       | ND           | ND           | ND      |                    |
| K <sup>2+</sup> mg/l               | Flametric      | 16.3     | 91.5         | 91.0         | 16.3    |                    |
| Na <sup>2+</sup> mg/l              | Flametric      | 6.4      | 91.3         | 91.2         | 6.4     | 600.00             |
| Cl <sup>-</sup> mg/l               | Titrimetric    | 27.7     | 35           | 35           | 27.7    |                    |
| Cr mg/l                            | Colorimetric   | 0.97     | 11.22        | 11.20        | 0.97    | <1.00              |
| Barium mg/l                        | Titrimetric    | 0.27     | 0.17         | 0.17         | 0.27    |                    |
| HCO <sub>3</sub> <sup>-</sup> mg/l | Titrimetric    | 48.5     | 40.7         | 40.7         | 48.5    |                    |
| Cd mg/l                            | Colorimetric   | 0.002    | ND           | ND           | 0.002   | <1.00              |
| PO <sub>4</sub> mg/l               | Colorimetric   | 0.30     | 1.20         | 1.20         | 0.30    |                    |
| VSS mg/l                           | Titrimetric    | 30.00    | 180.5        | 180.0        | 35.00   |                    |
| Boron mg/l                         | Colorimetric   | ND       | 0.30         | 0.25         | ND      |                    |

### Field Observation and Soil Sampling

Field observations and soil sampling were carried out on the project location and its area of influence and extending same to the control points for soil study. Field soil morphological description following the procedure in the 'Guideline for Soil Survey and Profile Description' (FAO, 2006) was adopted. Soil sampling was carried out using Dutch Soil Auger with stainless steel tip. Bulk/composite soil samples were collected by bulking at least 10 core soil samples from land area that is 2 – 5 metres spatially spread around a central sampling location. This approach was adopted because Turk and Foth (1997) indicated that bulk/ composite rather than core soil sample gives better representation of an area and reduces micro-variabilities due mainly to anthropogenic (i.e. human and land use) effects. Depth of soil sampling was 0 – 30 cm in view of the widespread intensive cultivation and partly built up nature of the study area with mosaic of fallow area. All the soil observation and sampling points were geo-referenced using hand-held GPS.

### Field Quality Control (QC) and Quality Assurance (QA) Measures

To ensure that representative soil samples were collected on the field, several core soil samples were bulked to give one composite/ bulk soil sample per sampling location. Collection of composite/ bulk soil samples eliminates possible micro-variabilities on the field (Sparks *et al.*, 1996; Thien and Gravel, 1997; Turk and Foth, 1997). Dutch Soil Auger with Stainless Steel at the Tip was used for soil sampling to prevent contamination of the samples with the sampling equipment. Further, the soil sampling equipment (soil auger and core sampler) were thoroughly cleaned and rinsed with distilled water before mopping it dry with tissue paper after the completion of soil sampling at every soil sampling location so as to prevent cross-contamination of the soil samples. Bulking of soil samples was carried out in a plastic bucket lined with aluminum foil sheet, and the homogenization of the core samples was achieved using stainless steel spatula. Soil samples meant for physical & chemical properties and heavy metals determinations were kept in polyethylene bags, while those meant for microbiological analysis were kept in sterilized bottles. Soil samples to be used for THC/Oil and grease (O&G) determinations were stored in glass bottles. All the soil samples collected for various laboratory analyses were properly labeled to indicate sampling location, soil depth, sample number and date of sampling. On the field and in transit en-route to the laboratory, microbiology and THC/O&G samples were kept in a cooler with ice-chest. In the laboratory pending analyses, the samples were transferred into a refrigerator until they were finally analyzed. Chain of Custody Form was also kept to track sample movement.

### Laboratory Analysis

Table 4. gives the summary of the analytical methods that were employed while detailed analytical procedures are provided in the appendix for soils. All the soil samples meant for the various determinations were analyzed within the withholding period as specified in the relevant sections of Methods of Soil Analysis, Parts II & III (Sparkset *et al.*, 1996) and EGASPIN (DPR, 2002). Soil sample analyses were carried out in FMEnv accredited Greeneco Laboratories.

**Table 4 Summary of the methods employed for the analysis of the soil samples.**

| Parameter  | Method   |
|--|--|
| <i>Physical Soil Properties</i>                  |  |
| Particle (Grain) Size Distribution               | Hydrometer (Bouyoucos, 1951)   |
| Porosity   | Cylindrical Method (Sparks <i>et al.</i> , 1996)   |
| Bulk density                                     | Gravimetric method (Blake and Hartge, 1986)  |
| Texture  | Textural Triangle  |
| <i>Organics Content of the Soil Samples</i>      |  |
| Total Hydrocarbon Content (THC)/Oil & Grease     | Xylene extraction followed by the use of Spectrophotometer   |
| Total Organic Carbon (TOC)                       | Dichromate Wet Oxidation Digestion (Walkley and Black, 1934) as reviewed by Sparks <i>et al.</i> , 1996  |
| <i>Metal Content of the Soil Samples</i>         |  |
| Exchangeable Bases/Cations (K, Na, Ca, Mg)       | Ammonium Acetate Extraction, followed by the use of Flame Photometry (K & Na) and Atomic Absorption Spectrophotometry (Jones, 1988) for Ca & Mg. |
| Heavy metals (Cd, Cr, Cu, Fe, Pb, Zn, Co, Ni, V) | Acid Digestion, followed by the use of Atomic Absorption Spectrophotometry (AAS) (Jones, 1998; Allen, 1974)                                      |
| <i>Chemical Soil Properties</i>                  |  |
| pH   | Glass electrode pH meter   |
| Total Nitrogen                                   | Macro Kjeldahl (Jackson, 1962) and Sparks <i>et al.</i> (1996)   |
| Available phosphorus                             | Colorimetric (Jones, 1998; Murphy and Riley, 1962)   |
| Exchangeable acidity                             | Sparks <i>et al.</i> (1996)  |

### Laboratory QA/QC

Soil sample handling, preservation and analysis in the laboratory were in accordance with the provisions in the Environmental Guideline and Standard in Nigeria by the FMEnv and as in other Internationally acclaimed publications such as the "Methods of Soil Analysis by Sparkset *et al.* (1996) Parts II & III. The analytical methods used were those that are specified in Internationally Published Methods and Procedure.

**Table 5 Soil Sampling Locations, Their Coordinates and Brief Description of their Immediate Environment**

| Field Code | Coordinates of Sampling Location |            | Elevation (m.a.m.s.l.) | Brief Description of Immediate Surrounding of the Soil Sampling Location |
|------------|----------------------------------|------------|------------------------|--|
|            | Lat. (°N)                        | Long. (°E) |                        |  |



|     |  |  |     |   |
|-----|--|--|-----|---|
| SP1 |  |  | 497 | A typical savannah woodland along a rocky outcrop. Rural, within human settlement. Surrounding is impacted by anthropogenic activities. |
| SP2 |  |  | 499 | A degraded woodland. Mosaic of farmland and fallow.   |

m.a.m.s.l. = meters above mean sea level; SP = Soil sampling location; SPC = control soil sampling location

### Soil Type

Soils in the study area were developed in Basement Complex rocks comprising older granite, undifferentiated granites of migmatites and granitic gneisses with characteristic aeolian deposits from loessial material (Maniyunda *et al.*, 2017), and according to D'Hoore (1964), soils in the study area are highly weathered and markedly laterized by the loss of silica. The soils are generally brownish to reddish brown in colour, with little profile morphology, texturally sands and loamy sands (Bashir and Bubbenzer, 1991). In the Soil Map of the World, FAO (1996) grouped the soils as Ferruginous Tropical Soils, and correlated as Haplustults(USDA-SSS, 2014).

### Soil Quality

#### Physical Properties of the Soils

To assess the quality of soils in the study area, several 0 –15 and 15 – 30 cm soil samples (n = 10) that were widely spatially spread within the project location and two control areas (SPC1 & SPC2) were collected and analyzed. The particle size distribution and texture of the soil samples are presented in Table 6. The soils are mostly, 52-76 % sand, with an average of  $62.2 \pm 7.02$  % sand, with silt accounting for 14-34 % (mean  $24.6 \pm 6.19$  %) and clay 10-16 % (average  $13.2 \pm 2.15$  %) (Table 6). Therefore, the soils are predominantly sandy loam (SL) in texture. From the particle size data along with the predominant brownish soil colour coupled with moderately low standard deviation of 7.02 for the sand; 6.19 for silt and 2.15 clay, there is clear evidence of homogeneity within and around the project location (Table 6). The moderately high content of silt in the soils predisposes the soils to encrustation with potential of increased storm water following the formation of crust especially when the soils are bare. Land clearing and site grading should therefore be carefully planned to avoid excess land take. Maintenance of the statutory 30% green area within the project location should be carefully observed and comply with. The bright brownish soil colour shows that the soils are well drained internally and ferruginized (i.e., well aerated). Consequently, the soils within and around the project location are not envisaged to be physically aggressive as to enhance rapid external corrosion of buried metals. However, the moderately high amount of silt combined with clay predisposes the soils to subsidence especially when wet. Therefore, appropriate foundation that can support heavy load against subsidence should be considered for buildings at the site.

**Table6 Spatial Distribution of the Physical Characteristics of the Soils and their Statistical Summary**

| Field Code | Coordinates of Soil Sampling Location |            | Particle Size Distribution (%) |      |      | Texture |            |
|------------|---------------------------------------|------------|--------------------------------|------|------|---------|------------|
|            | Lat (oN)                              | Long. (oE) | Sand                           | Silt | Clay |         |            |
| SP1        |                                       |            | 0-15                           | 62   | 26   | 12      | Sandy loam |
|            |                                       |            | 15-30                          | 66   | 21   | 13      | Sandy loam |
| SP2        |                                       |            | 0-15                           | 56   | 30   | 14      | Sandy loam |
|            |                                       |            | 15-30                          | 54   | 28   | 18      | Sandy loam |

### Chemical Characteristics of the Soils

Table 7 presents the data on the chemical properties of the soil, spatially spread soil samples within and around the project location. The essence is to assess the chemical characteristics of soils within the area of influence of the project as at the time of field investigation. The pH varies from 4.46-6.07 with an average of  $5.28 \pm 0.62$ . In general, the soils are slightly to strongly acid and thus have the potential of being chemically aggressive. Soils with low pH are reported to be chemically aggressive (Turk and Foth, 1997; Sparks *et al.*, 1996). Except for the available phosphorous whose standard deviation is 2.47, the standard deviations (Std.) for all of the other chemical parameters that were determined were very low, generally less than one. The low Std. is indicative of sufficiently homogeneous chemical nature of the soils. Further is that there is no unusual value in any of the chemical parameters that was determined including the available-P, probably suggestive of the 'chemically unpolluted/uncontaminated nature' of the study area in regards to soil chemical properties. Specifically, within the study area, the organic carbon (OC) content, and hence, the organic matter (OM) are both low and are within the range commonly obtained in unpolluted/uncontaminated mineral soils. Similarly low are the total nitrogen (TN) and the exchangeable bases ( $Ca^{2+}$ ,  $Mg^{2+}$ ,  $K^+$

and Na<sup>+</sup>) as all the values reported are within the normal range commonly obtained in unpolluted/uncontaminated mineral soils. With soil pH of mostly close to 6, the exchangeable acidity is expected to be low (Brady, 2002), hence, the very low exchangeable acidity concentrations that were reported. The oil and grease (O&G) otherwise referred to as total hydrocarbon content (THC) concentrations were similarly very below, generally between 1.00 and 2.00 mg/kg in all of the sampling locations. In general, from the soil chemical characterization data, there was no evidence of bioaccumulation and or pollution of soils in the study area as at the time of field investigation.

**Table 7: Spatial Distribution of the Chemical Characteristics of Soils in the study Area and their Statistical Summary**

| Field Code | Coordinates of Soil Sampling Location |            |       | pH                 |                      | Avail-P        | OC   | OM   | TN   | Exch. Bases |      |      |      | Exch. Al | ECEC  | THC  |
|------------|---------------------------------------|------------|-------|--------------------|----------------------|----------------|------|------|------|-------------|------|------|------|----------|-------|------|
|            |                                       |            |       | (H <sub>2</sub> O) | (CaCl <sub>2</sub> ) |                |      |      |      | Ca          | Mg   | K    | Na   |          |       |      |
|            | Lat (oN)                              | Long. (oE) |       | (ppm)              | (%)                  | (Cmol/kg soil) |      |      |      | (ppm)       |      |      |      |          |       |      |
| SP1        | 9.666201                              | 6.430877   | 0-15  | 6.03               | 5.60                 | 3.77           | 0.39 | 0.67 | 0.04 | 5.52        | 2.71 | 0.84 | 3.22 | 1.21     | 13.51 | 1.23 |
|            |                                       |            | 15-30 | 6.01               | 5.42                 | 3.34           | 0.25 | 0.34 | 0.02 | 5.02        | 2.63 | 0.54 | 2.94 | 0.99     | 12.22 | 1.21 |
| SP2        | 9.677857                              | 6.414607   | 0-15  | 5.56               | 4.86                 | 3.23           | 0.39 | 0.67 | 0.07 | 5.52        | 2.72 | 0.84 | 3.21 | 1.21     | 13.50 | 1.22 |
|            |                                       |            | 15-30 | 5.21               | 4.44                 | 3.12           | 0.24 | 0.32 | 0.04 | 4.98        | 2.43 | 0.56 | 2.96 | 0.98     | 13.48 | 1.08 |

**APPENDIX 16: PICTURES OF SEASONAL STREAMS ALONG THE PROJECT CORRIDOR**

