



**Agro-Climatic Resilience in Semi-Arid Landscapes (ACReSAL) Project
Final Report of the Environmental and Social Management Plan (ESMP)
For Ankpa Gully Erosion Project,
Kogi State**



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LIST OF ACRONYMS AND ABBREVIATIONS

ACReSAL	-	Agro-Climatic Resilience in Semi-Arid Landscapes
AIDS	-	Acquired Immuno-Deficiency Syndrome
ARAR	-	Applicable or Relevant and Appropriate Requirements
BAT	-	Best Available Technology
BOD	-	Biochemical Oxygen Demand
CBO	-	Community Based Organizations
CITES	-	Convention on the Prevention of the international trade in Endangered Species
COD	-	Chemical Oxygen Demand
CSOs	-	Civil Society Organisations
DO	-	Dissolved Oxygen
EA	-	Environmental Assessment
KSME	-	Kogi State Ministry of Environment
ESS	-	Environmental and Social Specialists
EHS	-	Environmental, Health and Safety
EIA	-	Environmental Impact Assessment
EO	-	Environmental Officer
ESIA	-	Environmental and Social Impact Assessment
EMS	-	Environmental Management System
ESMF	-	Environmental and Social Management Framework
ESMP	-	Environmental and Social Management Plan
FEPA	-	Federal Environmental Protection Agency
FGD	-	Focus Group Discussion
FGN	-	Federal Government of Nigeria
FI	-	Financial Intermediary
FME _{nv}	-	Federal Ministry of Environment
FPMU	-	Federal Project Management Unit
FRN	-	Federal Republic of Nigeria

FRSC	-	Federal Road Safety Commission
GBV	-	Gender Based Violence
GDP	-	PAGE 1
GHGs	-	Greenhouse Gases
GPS	-	Global Positioning System
GRA	-	Government Reserved Area
H ₂ S	-	Hydrogen Sulphide
HIV	-	Human Immuno-Deficiency Virus
HND	-	Higher National Diploma
HSE	-	Health, Safety and Environment
IDI	-	In-Depth Interviews
ITCZ	-	Inter Tropical Continental Zone
IUCN	-	International Union for Conservation of Nature
KII	-	Key Informant Interviews
ISO	-	International Standard Organization
LGA	-	Local Government Area
MDAs	-	Ministries, Departments and Agencies
M&E	-	Monitoring and Evaluation
MEPU	-	Ministry of Environment and Public Utilities
MoU	-	Memorandum of Understanding
MSDS	-	Material Safety Data Sheet
NAP	-	National Agricultural Policy
ND	-	Not Detected
NEWMAP	-	Nigeria Erosion and Watershed Management Project
NEP	-	National Policy of the Environment
NESREA Agency	-	National Environmental Standards and Regulations Enforcement
NIWA	-	Nigeria Inland Waterways Authority
NPC	-	National Population Commission

NS	-	Not Specified
NTU	-	Nephelometric Turbidity Unit
OND	-	Ordinary National Diploma
OP	-	Operational Policies
PAP	-	Project Affected Persons
PEM	-	Project Environmental Management
PMU	-	Project Management Unit
POI	-	Point of Interest
PPE	-	Personal Protective Equipment
PVC	-	Poly vinyl chloride
RAP	-	Resettlement Action Plan
SEA	-	Sexual Exploitation and Abuse
SLM	-	Sustainable Land Management
SSO	-	Social Safeguards Officer
SOP	-	Standard Operation Procedures
SPM	-	Suspended Particulate Matter
SPMU	-	State Project Management Unit
STD	-	Sexually Transmitted Diseases
TC	-	Tropical Continental
TDS	-	Total Dissolved Solids
TM	-	Tropical Maritime
ToR	-	Terms of Reference
TSS	-	Total Suspended Solids
VOC	-	Volatile Organic Compounds
WHO	-	World Health Organization

EXECUTIVE SUMMARY

ES 1 Project Background

The Federal Government of Nigeria (FGN) has embarked on an agro-climatic resilience in semi-arid landscapes (ACReSAL) project with the World Bank. The project will help Nigeria address critical challenges of regional desertification control and landscape management. It is proposed to be supported with initial financing with \$700 million from the World Bank.

The project has four (4) components/phases which include:

- a) Dryland Management: Support Strategic Watershed Planning processes, prioritize major investments to address desertification and land degradation in northern Nigeria at the Federal and State levels and complement investments at community level
- b) Community Climate Resilience: Improve agro-climatic resilience at community and household levels by promoting locally adapted Sustainable Land and Water Management (SLWM) strategies and through climate-smart approaches to agricultural and natural resource management
- c) Institutional Strengthening and Project Management: Improve the enabling institutional and policy foundation for integrated landscape management in Nigeria from ACReSAL activities to longer-term national framework and support overall project monitoring and management
- d) Contingency Emergency Response: This is a component that could be used to provide immediate support to an eligible crisis or emergency

The project implementation arrangement is designed to collaborate with Federal and State Ministries, Departments and Agencies (MDAs), Local Governments, Communities, and Civil Society Organizations (CSOs). Specifically, the MDAs include those responsible for Planning, Economy, Agriculture, Environment, Water Resources, Finance, Works, Transport, Power, and Emergency Response and those focused on Climate and Hydrological Information or Watershed/Basin regulations.

The ACReSAL project is being operationalised in 19 States and FCT in Nigeria's arid and semi-arid areas. These States include Adamawa, Bauchi, Kwara, Niger, Kaduna, Gombe, Sokoto, Nasarawa, Borno, Kebbi, Katsina, Plateau, Benue, Kogi, Kano, Jigawa, Taraba, Yobe, and Zamfara States and are located in the Sahel, Sudan Guinea Savanna and Southern Guinea ecosystem, characterised by dry semi-arid conditions, low precipitation, and sparse vegetative cover.

The project's environmental and social safeguards concerns will be addressed through two national instruments already prepared under the project: an Environmental and Social Management Framework (ESMF) and a Resettlement Policy Framework (RPF). These framework instruments are being translated to specifically cost, measurable, and monitorable actions for specific intervention sites through the preparation of site-specific management and action plans to associated risks and triggered hazards.

ES 2 Description of the Proposed Intervention

Geographically, the entire study area extent (project affected section of Ankpa) lies within Longitude 7°37'31.69" - 7°38'47.22" east of the Greenwich meridian and between Latitude 7°24'14.15" - 7°25'40.98" north of the equator. The proposed remediation works at the Ankpa flood and erosion intervention site involves the construction of side drainages that will channel runoff from many adjoining streets through surface drains to the Maboro river and construction of roads (Enekpoli road, Water Work road, Ogaji road, Charles road, Ankpa-Olubojo axial road etc). Part of the solution will also involve construction of channels / drains with normal discharge, maintenance and resurfacing of existing drains, construction of many single cell culvert, construction of retention ponds and stabilizing the erosion through re-vegetation

The proposed intervention in all includes the following:

1. Assessment of drainage features within the catchment area to determine their suitability
2. Construction of roadside drains, and field inlets to convey surface runoff safely through the community
3. Rehabilitation and upgrade of roads to an asphalt surfaced road and provide side drains
4. Construction of catch pit, rectangular concrete channel and drop structure that convey runoff safely through the community
5. Construction of Side drain that collect and direct uncoordinated surface runoff into a drainage system that will convey it safely to the discharge point by means drains and energy dissipating structure
6. Construction of Side drain and Underground box culverts that collect and direct uncoordinated surface runoff into a drainage system that will convey it safely to the discharge point by means drains and underground system.
7. Reclamation of degraded land by means of vegetation.

ES 3 Rationale for the ACReSAL Intervention

The socioeconomic implications of erosion on the communities in the Ankpa erosion site are numerous. Houses are regularly eroded, and properties worth millions of naira are often damaged. Access roads are cut off at the peak of the rainy season, and some roads have been cut off, making residents vacate already occupied houses. The yearly colossal losses will be mitigated if the flooding and erosion problem is properly addressed and appropriate flood control structures are introduced. Life and property will also be safeguarded. The pressure on the natural environment exacerbated by the increased urbanisation of the city has led to increased housing structures that have increased the concrete area over the drainage area of the city. This is irrespective of the already poor drainage conditions of the area owing to its geology and soil types. A combination of these has rapidly encroached on marginal lands along the slopes and even valleys of the drainage area of the major river in the landscape. These are already threatening, if not drastically destroying, the drainage channels of these rivers and their tributaries. Human activities like waste and refuse dumping into the drainage basins have further aggravated the surface water drainage in the area. The erosion particles are transported downslope into the drainage streams and rivers, adding to the sediment loads, cumulatively affecting the water flow in the drainage, stream and rivers. During heavy downpours, excessive runoff is generated due to low infiltration

triggered by the high concrete area, and silted channels lead to flood issues downstream. The need for the proposed project in the Ankpa erosion site of Kogi State must be balanced as different aspects of the socioeconomic lives of the area will be restored and enhanced in some quarters. Access to community facilities and infrastructures will be enhanced. At the same time, the entire ecological landscape will be restored and redesigned to enhance the environment's sustainability. Also, the anthropogenic activities of the area will be properly re-organised.

Specifically, the proposed intervention project aims to tackle the erosion problem in the area by:

1. Creating a backbone drainage system which will drain the flow through, providing facilities with sufficient capacity to intercept surface flows into the underground system;
2. Attenuating flows in the drainage system to minimise the dimensions of the underground drainage system;
3. Discharging the stormwater as the drainage system exits the town and
4. Rehabilitating the damaged rural gravel streets.

ES 4 Rationale for the ESMP

At project preparation, Eight Environmental and Social framework instruments were prepared: an Environmental and Social Management Framework (ESMF), a Resettlement Policy Framework (RPF), an Integrated Pest Management Plan (IPMP), a Stakeholders Engagement Plan (SEP), a Labour Management Procedure (LMP), Gender Based Violence Action Plan, (GBVAC), Environmental and Social Commitment Plan (ESCP) and a Security Risk Management Framework. These ESF instruments are frameworks that must be translated into specific cost, measurable, and monitorable actions for specific site intervention by preparing site-specific management and action plans. Thus, the need for the Ankpa ESMP cannot be overemphasised.

The civil work activities considering the nature of the work required to rehabilitate the Ankpa degraded gully watershed, the World Bank ESS1 Assessment and Management of Environmental and Social Risks and Impacts will apply. The Nigeria EIA Act will also apply due to the envisaged civil works. Thus, there is a need to prepare an Environmental and Social Management Plan (ESMP) to address all environmental and social concerns related to the proposed construction and channelisation activities.

Some potential impacts that may arise during the proposed works include the generation of construction wastes while others could arise from noise/air pollution, accidents from the movement of equipment and materials to the site, occupational health & safety risks, risks associated with labour influx (security threat, gender-based violence (GBV), particularly Sexual Exploitation and Abuse/Sexual Harassment.

(SEA/SH) due to labour influx may lead to increase in STIs/STDs), community health and safety issues, arrangements for employment and accommodation of workers to be engaged in project activities, and issues related to working conditions (including

periods of sickness and quarantine), grievance and disturbance to physical and cultural resources among others need to be addressed by ESMP and measures to mitigate these will be proffered in it..

ES 5 Objective and Scope of the Consultancy Services

The objective of the consulting services is to update the Environmental and Social Management Plans (ESMPs) for projects in Ankpa Gully site in Kogi State in line with the World Bank/IDA Environmental and Social framework. ESMP assist in eliminating adverse environmental and social impacts, offsetting them, or reducing them to acceptable levels. The ESMP also includes 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.

This ESMP 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 also include the measures required to implement the above actions, costing, and responsibility, addressing the adequacy of the monitoring and institutional arrangements in the intervention site.

The study aims to achieve the following objectives:

- Potentially screens out environmentally unsound activities.
- Identify all risk/hazards associated with the proposed activities and identify mitigation measures to reduce, offset, or eliminate adverse impacts including costs estimation.
- Propose modified designs to reduce environmental and social impacts.
- Identify feasible alternatives.
- Predict significant adverse impacts.
- Engage and inform potentially affected communities and individuals.
- Influence on decision-making and the development of terms and conditions.

ES 6 Policy, Legal, Regulatory and Administrative Frameworks

National Policy & Legal Regulatory Requirements

- National Policy on the Environment 1989 Revised 1991
- National Erosion and Flood Control Policy 2005
- Environmental Impact Assessment Act No. 86, 1992 (*FMEEnv*)
- The National Guidelines and Standards for Environmental Pollution Control in Nigeria 1991
- National Guidelines on Environmental Management Systems (1999)
- National Air Quality Standard Decree No. 59 of 1991
- National Environmental Standards and Regulations Enforcement Agency Act (NESREA Act) 2007
- Land Use Act 1978 *Modified* 1990
- Endangered Species Act 1985
- FEPA/ FMEEnv. EIA Procedural Guidelines 1995
- S.1.15 National Environmental Protection (The Management of Solid and Hazardous Wastes Regulations) 1991

- Public Health Law
- Workmen Component Act 1987 Revised 2010
- Environmental and Social Management Framework and RPF for ACReSAL Project

Kogi State Policy & Regulatory Instruments

- Kogi State Ministry of Environment
- Kogi State Environmental Protection Board
- Kogi State Sanitation & Water Management Board
- Kogi State Town Planning & Land Development
- Kogi State Project Management Unit (Kogi ACReSAL SPMU) ACReSAL

ES 7 World Bank Environmental and Social Safegurd Standards Applicable to Kogi State- ACReSAL AnkpaGully Site.

Except for the ESS 7 (Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities) and ESS 9 (Financial Intermediaries) all other World Bank Environmental and Social Standards (ESS) are applicable.

Environmental and Social Standards (ESS)	Description	Applicability to the proposed KogiState ACRESAL project	
		Yes	No
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	This overarching standard sets out the Borrower's responsibilities for assessing, managing and monitoring E&S risks and impacts associated with each stage of a program supported by the Bank through Investment Project Financing, in order to achieve E&S outcomes consistent with Bank's ESS.	[x]	[]
ESS 2: Labour and Working Conditions	ESS 2 recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. Borrowers can promote sound worker-management relationships and enhance the development benefits of a program by treating workers in the program fairly and providing safe and healthy working conditions	[x]	[]
ESS 3: Resource Efficiency and Pollution Prevention and Management	ESS 3 recognizes that economic activity and urbanization often generate pollution to air, water, and land, and consume finite resources that may threaten people, ecosystem services and the environment at the local, regional, and global levels	[x]	[]
ESS 4: Community Health and Safety	ESS 4 recognizes that program activities, equipment, and infrastructure can increase community exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration or intensification of impacts due to program activities.	[x]	[]
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	ESS 5 recognizes that program-related land acquisition and restrictions on land use can have adverse impacts on communities and persons. This may cause physical or economic displacement.	[x]	[]

ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	ESS 6 recognizes that protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development.	[x]	[]
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	This ESS applies to a distinct social and cultural group identified as “Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, indigenous ethnic Minorities etc.”	[]	[x]
ESS 8: Cultural Heritage	ESS8 sets out measures designed to protect cultural heritage throughout the program life cycle.	[x]	[]
ESS 9: Financial Intermediaries	This ESS applies to Financial Intermediaries (FIs) that receive financial support from the Bank	[]	[x]
ESS 10: Stakeholder Engagement and Information Disclosure	This ESS recognizes the importance of open and transparent engagement between the Borrower and program stakeholders as an essential element of good international practice.	[x]	[]

ES 8 Biophysical Environment

The Ankpa gully erosion and flood site is located in Kogi State. The project area includes five (5) villages under threat by erosion. The terrain of the study area includes both stable land surface and erosional land surfaces. The area is made up of high-level erosion surface, which are characterized by steep-side granite hills with elevation of about 1,000 ft. The uplands of Ankpa are underlain by igneous and metamorphic rocks of the basement complex, which outcrop as massive ridges and rocky hills all over the area. The Mabol (Anambra) is the biggest river in Igala land. With respect to air quality of the project area the concentrations of gaseous parameters are relatively low and are within the Federal Ministry of Environment (FMEnv) limits. The result of noise measurement shows that the mean noise levels in virtually all the measured stations are below the FMEnv 90dB (A) limit for 8-hour operation.

The pH of the soil ranged between 4.7 and 5.9 for the topsoil (0-20 cm) and between 4.0 and 6.0 at the subsoil. The exchangeable potassium is moderately high. While potassium ranged from 6.88 to 10.73 Cmol/kg in the topsoil and 4.88 to 5.12 Cmol/kg in the subsoil at the Ankpa location soils indicated that the values ranged from 10.49 to 22.68 and from 5.12 to 14.15 Cmol/kg in the topsoil and subsoil respectively. Generally, the order of concentration of the base cations in the soil during at Ankpa is as follows: K > Ca > Mg. Concerning hydrology, the results for the water samples show that value of cadmium for water samples collected at Ofejiji, Ogaji and Eniokpoli were much higher than the permissible limits by both FMEnv/WHO and the Nigeria Industrial Standard for drinking water quality and hence will have serious health impacts on the people considering that many of them drink from the river and/or its tributaries.

Ankpa erosion sites have open spaces that are bare of vegetation and relatively eroded with a few isolated trees. The identified trees, shrubs, herbs and grasses are sparse and scattered around the residential areas except around the Ofejiji area where there occurred some thick brushes. Some common plant types include the cashew, mango, neem tree, flame of the forest, Cassia, Iroko tree, Albizia, clusters of bamboo, etc., while the identified shrubs include Jatropa, Gliricidia, etc. The Faunas in the study area are not IUCN threat status classified.

ES 9 Socio-Economic Characteristics

The project area is in Ankpa LGA, Kogi State; hence the population size of Ankpa in relation to the population size of Kogi State was studied. Annual growth rate of Kogi State is put at 3.05% (NPC, 2007); this growth rate is assumed for all its LGAs including Okene. The population of Ankpa LGA was thus estimated to be 0.404 m in 2020. From the respondents interviewed, males represent 68% of the population and females account for 32%. This distribution emphasizes the significance of tailoring interventions to address specific gender-related needs and challenges. This distribution could have implications for workforce participation, income distribution, and overall economic dynamics. The age distribution reveals a dominant working-age population between 18-45 (48%) that presents an opportunity for engaging in agricultural revitalization, while there is presence of both young adults below 18 (8%) and elderly residents between 46 and above (42%).

The diversified age groups represent a diverse set of stakeholders. Involving all age groups in project planning and decision-making can foster a sense of ownership, community cohesion, and sustainability. Most residents in Ankpa are married, accounting for 60% of the population, potentially contributing to a sense of stability and community cohesion. A few are single (16%) or separated (16%) and others are widowed (8%). Ankpa exhibits religious diversity, with Christianity (52%) being the majority religion, followed by Islam (32%) and a smaller portion (16%) adhering to traditional beliefs. This diversity can lead to a rich cultural and religious tapestry within the community. However, it's important for community leaders and members to foster understanding and respect among different religious groups to promote social cohesion and minimize potential conflicts. Most households in Ankpa fall within the range of 6-10 members, comprising 56% of the total households with other larger households with 11+ members accounting for 36%. Resource allocation and community support systems should be designed to accommodate the needs of larger households. The Igala ethnic group forms the majority comprising 72% of the population. This is followed by Bini (20%) while Esan represents a smaller portion (8%). Provide project information in multiple languages if necessary and utilize culturally sensitive communication approaches to reach all segments of the community. Respondents' educational qualification in Ankpa are: tertiary education (college of education, polytechnic etc) (32%), University graduates (28%) secondary school certificate holders (16%), university postgraduate (8%) and primary school leavers. Those with no formal education account for 12%.

The primary livelihood source in Ankpa is farming 32%, This is followed by artisanal activities at 12%. Daily laborers contribute significantly at 20%, while trading and shopkeeping involve 8% of respondents in diverse scales. Employed individuals receiving a salary make up 8%, civil servants represent 4%, and the unemployed account for another 8.0% of the population. Since farming plays a significant role in the community's economy, the project might consider initiatives to improve agricultural practices, provide access to modern farming techniques, and enhance market linkages for agricultural products. With respect to income, (36%) claimed they earn less than 10,000 naira. Many of them are daily labourers, artisans and farmers

who could not estimate their monthly income because they have not been keeping records. Other respondents earning between 11,000 – 20,000 naira represent 28%, 12% earn between 21,000-30,000 naira while those that earn between 31,000 - 40,000 naira and income above 41,000 naira account for 8% each. This indicates that a significant portion of the community may be experiencing financial challenges, potentially affecting their overall quality of life, access to basic needs, and ability to save. The transportation landscape in Ankpa community is primarily dominated by motorcycles (76%), indicating their affordability and accessibility. Car ownership is low (8%), potentially due to economic constraints, while a diverse range of options, including bicycles (8%), taxis (4%), and trucks (4%), demonstrates adaptability.

According to the respondents, the common source of water for drinking, cooking, bathing and washing are boreholes (72%), hand-dug wells (12%), rain harvesting (12%) and others (4%). The heavy reliance on boreholes might make the community vulnerable to disruptions if these sources break down or face maintenance issues. Diversifying the water supply sources can help mitigate this risk and ensure continuous access to clean water. 84% of respondents reported that their present state of health is affected by Gully Erosion/Flood, while 16% mentioned no impact. Among those affected, the reported health issues include skin diseases (14%), cough (23%), and catarrh (5%), malaria (36%). About 84% also stated that the illness become severe during flood seasons while others (16%) reported no significant change. The higher prevalence of conditions like malaria and water-borne diseases highlights the importance of sanitation and water quality improvements to prevent disease transmission during flood events.

ES 10 Consultations: Stakeholders, Expectations of the Project

S/N		Town Hall Meeting (All)	PAPs	Elders	Women	Youth
	Community Name	Ankpa ((Ofejiji, Olubojo, Ogaji, Eniokpoli-Area 1 and Water Side)	Ankpa (Ofejiji, Olubojo, Ogaji, Eniokpoli-Area 1 and Water Side)	Ankpa (Ofejiji, Olubojo, Ogaji, Eniokpoli-Area 1 and Water Side)	Ankpa (Ofejiji, Olubojo, Ogaji, Eniokpoli-Area 1 and Water Side)	Ankpa (Ofejiji, Olubojo, Ogaji, Eniokpoli-Area 1 and Water Side)
	Stakeholder engaged	Residents/Business owners within the gully Catchment, PAP, Traditional Institution, Religious organization and LGA representative	PAPs	Elders	Women	Youth (Male & Female)
	Date	11/08/23	11/08/23	11/08/23	11/08/23	11/08/23
	Location	Christ Evangelical Fellowship of Nigeria (C.E.F.N) Church	Christ Evangelical Fellowship of Nigeria (C.E.F.N) Church	Christ Evangelical Fellowship of Nigeria (C.E.F.N) Church	Christ Evangelical Fellowship of Nigeria (C.E.F.N) Church	Christ Evangelical Fellowship of Nigeria (C.E.F.N) Church
	Language	Igala and English.	Igala and English.	Igala and English.	Igala and English.	Pidgin-English and

	Information Shared	Current situation of the gully.	Current situation of the affected property and other affected livelihoods sources	Gully Situation and Impacts	Gender Issues and Gully impacts	English Project Issues over the life time
	Key Stakeholder's concerns	• destruction of underground pipes • Insecurity of equipment • Immediate implementation of the project • Need to update the design • Youth employment • SEA issues by contractors workers • Loss of economic trees • sustainability of the project due to the lack of sanitary facilities in most household	• Proper valuation including economic trees • Payment of compensation	• Immediate commencement and completion of the project in record time • A solid construction intervention • Poverty alleviate; • Payment of compensation • Provision of other facilities such as boreholes. • Adherent to cultural rites	• Readiness to work in various capacities during project implementation. • Support for business • No GBV/SAE issues	• Sexual affairs with married women by contractors and their worker is not acceptable in the community. • Youth employment • Oppression by the foreigners.
	Response	The consultant and Kogi ACREsAL EO assured the stakeholders that their concerns will be looked into.	The consultant and Kogi ACREsAL EO assured the PAP that their properties will be correctly valued using current market price and compensation will be paid.	The consultant and Kogi ACREsAL EO assured the stakeholders that their concerns will be looked into.	The consultant and Kogi ACREsAL EO assured the stakeholders that their concerns will be looked into.	The consultant and Kogi ACREsAL EO assured the stakeholders that their concerns will be looked into.
	Action	Kogi State ACREsAL	Kogi State ACREsAL	Kogi State ACREsAL	Kogi State ACREsAL	Kogi State ACREsAL
	Time Frame	Immediate/During project implementation	Before civil work commence	Immediate/During project implementation	Immediate/During project implementation	Immediate/During project implementation

ES 11 Summary of Impacts of the project

Positive Environmental Impacts of the Proposed Project Activities

- Minimisation of Gully/Flood Activities;
- Rehabilitation of degraded lands and their conversion into productive land use;

- Reducing disaster risks in the project area;
- Increased Value for Structural and Landed Properties;
- Improved environment and aesthetics of the area.
- Afforestation benefits;
- Advantages of Water-harvesting; and
- Reduction in storm water runoff.

Positive Social Impacts of the Proposed Project Activities

- Safety of lives and properties;
- Rehabilitation of degraded lands and their conversion into productive land;
- Improved commercial activities;
- Employment opportunities;
- Securing public infrastructures;
- Improve the environment and aesthetics of the area;
- Increase accessibility to people's homes; and
- Sustainable water supply for domestic uses.

ES 12: Summary of Main Environmental and Social Safeguards Issues

Environmental and Social Issues	Anticipated Risk/Impact	Probability of Impact and Impact	Mitigation Measures
Air Quality	Increase in dust generation and spread of dust	Prob: 4, Impact: 3 Risk: Medium	▪ Regular damping of unpaved roads or exposed soils/ground to control dust/particulate matter and keep it down. ▪ Limit active construction activities to not more than a total of 500 meters at a time on a 2.0 km road length section to minimize dust. ▪ Locate material stockpile areas as far as practicable away from sensitive receptors.
	Increase in emission of air pollutants from vehicles, plant and equipment, machinery	Prob: 3, Impact: 3 Risk: Medium	▪ Ensure vehicles/machines are switched off when not in use. ▪ Ensure only vehicles required to undertake works are operated on-site. ▪ Ensure all construction vehicles, plant and machinery are well maintained and in full operating condition
Waste Management	Oil and other potential contaminants are not properly collected, managed and/or disposed	Prob: 3, Impact: 3 Risk: Medium	▪ Proper storage, transport and disposal of hazardous wastes (oily wastes, used batteries, fuel drums) in the designated areas by the national authorities
	Construction waste and solid waste generated are not properly managed or disposed	Prob: 3, Impact: 3 Risk: Medium	▪ Recyclable waste (including oil and some construction waste) collected separately and disposed of correctly and/or approved facility as per the regulatory requirements

Noise and Vibration	Public nuisance caused by construction/operation activities	Prob: 4, Impact: 3 Risk: Medium	- Install noise reduction devices such as silencers and mufflers as appropriate to mobile plant and equipment. - Limit the active construction site to not more than 500 meters per 2.0 km lengths - Limit work to daylight hours. Schedule noisy construction activities during specific times in the day especially near the sensitive receptors. - Identify and avoid the adjacent highly sensitive receptors to vibrations - Through implementation of SEP, ensure nearby communities should be given advance notice on timing of works, as well as details of the GRM in the event of issues.
Flora and Fauna	New flora and weed species introduced (greening)	Prob: 3, Impact: 3 Risk: Medium	Ensure that any manure or soil applied are free of seeds, and that the seeds used for the catchment rehabilitation are weed free
	Disturbance of fauna and their habitat	Prob: 2, Impact: 2 Risk: Low	Construction activities (such as operation of concrete mixing plants) and use of equipment and in daylight hours
Land	Blockages of drains and waterways due to construction activities	Prob: 3, Impact: 3 Risk: Medium	Proper stockpiling of construction materials, spoils (on flat areas and away from drainage routes)
	Erosion and sedimentation caused by construction works	Prob: 3, Impact: 3 Risk: Medium	- Silt fences, grassed buffer strips and bioengineering measures to be installed to reduce water velocity. - Avoid long exposure of opened excavated/cut areas
	Borrow pits within road/gully/drainage easement located near to community and left exposed	Prob: 3, Impact: 3 Risk: Medium	- Quarry materials (such as the stones and gravel required for the road works) will be sourced from an established quarry. - Project engineer to be advised of selection of suppliers in advance. - Engineer and the local authorities to be advised in advance of areas with road reserve to be excavated for materials - All works sites, particularly excavations, to be appropriately signed and made safe in terms of community.
Social Management	Lack of Stakeholders Engagement	Prob: 4, Impact: 1 Risk: Low	- Prepare and Implement the - Stakeholders Engagement Plan (SEP).
	Limited participation and involvement of women, youth, people with disabilities (PWD) and	Prob: 3, Impact: 2 Risk: Medium	- Prepare and implement a robust Gender - Action Plan (GAP)

	other vulnerable people		
	Involuntary resettlement, relocation or households or associated impacts	Prob: 4, Impact: 4 Risk: Low	Screening of sub-project and ensure that the sub-project does not result in significant involuntary resettlement or associated impacts.
	Lack of employment for local community due to imported workers	Prob: 3, Impact: 3 Risk: Medium	Ensure that the contractor hire local labour (especially unskilled labour) from the host community
	Lack of involvement of women, youths and other vulnerable people	Prob: 3, Impact: 3 Risk: Medium	- Gender and Action Plan developed and implemented - Compliance with the GRM
Cultural Heritage	Project is likely to be near to an important Archaeological and/or Cultural Heritage	Prob: 3, Impact: 1 Risk: L	- Undertake screening of sub-project. - Works to avoid known cultural heritage sites. - Prepare and adopt a Chance-Find Procedure (CFP) in case unknown artifacts discovered during works
Health, safety and security	Health and safety of road users and community	Prob: 3, Impact: 3 Risk: Medium	- Training provided to construction workers, adequate signage and warnings to road users to be in place. - Adequate information provided to the host community about the safety measures and emergency protocols
	Prevalence and spread of COVID-19 and communicable disease	Prob: 3, Impact: 3 Risk: Medium	- Ensure that Contractor's workers are fully vaccinated, COVID awareness and precautionary measures among workers and community Ensure construction workers observe - Covid-19 prevention measures such as always wearing masks, regularly washing hands, etc
	Risk of increased SEAH and GBV particularly due to influx of workers	Prob:1, Impact: 3 Risk: Low	- Implementation of GAP - Code of Conduct to include SEAH and GBV prevention - PMU will request that contractors, suppliers and partners adhere to zero tolerance for SEAH and GBV and commit to taking adequate action if faced with SEAH allegations - Contractual arrangements can be terminated if breaches confirmed
	GBV exacerbation by labour influx	Prob: 2, Impact: 3 Risk: Medium	- Gender issues to be included in the ESIA/ESMP - Implementation of GAP - Code of Conduct to include SEAH and GBV prevention - PMU will request that contractors, suppliers and partners adhere to zero tolerance for SEAH and GBV and commit to taking adequate action if faced with SEAH allegations.

Labour and working conditions	Poor working conditions and workers health, work related incidents and injuries	Prob: 3, Impact: 3 Risk: Medium	▪ Prepare and implement the OHSMP ▪ Train all staff in emergency preparedness and response. ▪ Keep a First Aid Kit on site and ensure that drinking water is provided. ▪ Personal Protection Equipment (PPEs) are provided to workers
Security Risks	Theft/burglary, Kidnapping& Banditry, flood, and Herdsmen issues amongst others	Prob: 3, Impact: 4 Risk: High	▪ Refer to the ACReSAL Security Risk Management Framework and Kogi State ACReSAL SMP. ▪ Continuous intensive monitoring of security risk and immediate response to risk ▪ Work with all necessary security agents especially the police and local vigilantes for adequate security and early information.
Social Sensitive Receptors	Injury and incidents, Lateness	Prob: 3, Impact: 4 Risk: High	▪ Fencing of Schools, clinics and other socially sensitive establishments along the RoW. ▪ Stop Work during Critical hours of opening and closing periods. ▪ Ensure the passage to access such sensitive receptors is well cordoned during construction.

ES 13 Analysis of Alternatives

Three standards were set for the analysis of project alternatives, these are *General Safeguard of Environment and Human Health (General protection mechanisms)*; *Short-Term Usefulness*; and *Long-Term Effectiveness and Permanence*. The result of these analyses produces: *Right Away Action*. Analysis was based on three activities [Biological works only, Civil works only and The Civil works / Biological & the construction of Hard Structures (Technological Option)]. It was concluded that a combination of the Civil and Biological works (Technological Option) will provide a long-term effectiveness that will address the Ankpa gully/flood intervention erosion malaise.

ES 14 Environmental and Social Mitigation Measures

Environmental and Social Mitigation Measures were prepared for all the identified potential impacts.

Pre-Construction: Proper awareness/sensitization of the host community on the project and involvement of community during preparation and implementation.

Construction: The expected activities during constructions include: Excavation, Channelization, Concretisation, and Filling; Lining, Gabion drop structures and Re-vegetation.

Some of the recommended mitigation measures include: a distance gap of 30 metres between heavy duty machinery and filling material from the gully channel; avoidance of vibration induced machines; lowering of overhand before using excavator with a boom of at least 25 meters, limiting of civil work to dry season where applicable, tree

planting, proper handling of waste, spraying of water to prevent dust, use of PPE, where possible, construction activities should be limited to day time, ensuring that all regulations on wild animals and their related habitats are strictly adhered to, prioritizing GBV/SEA, HIV/AIDS and STD awareness programme and placing speed limits signboards at strategic locations. COVID-19 regulations / protocols including social distancing, use of facemask and handwashing should be strictly adhered to. Also, the Contractor and Consultants are expected to hire, to the maximum extent, skilled and unskilled workers from affected local communities in the project area.

Operation: Maintenance operations should be designed according to environmental safety guidelines, periodic checks on ambient environmental quality particularly air and provision of speed limits signboards.

ES 15 Occupational Health and Safety/Community Health and Safety Management Plan

Occupational Health and Safety (OHS)

The OHS plan will address issues such as:

- The proper provision and use of personnel protective equipment (PPE) such as safety boots, respirators, eye protection, hearing protection, gloves, and hardhats;
- Analysis of risks associated with job activities in order to develop standard requirements for PPE on a job-specific and station-specific basis;
- Provision of training on the proper use of PPE and penalties for the improper use of PPE;
- Training on the proper and safe use of all equipment in workshops, garages, the plantation, nurseries, and mills;
- Physical barriers so that unauthorized personnel are not admitted to areas where dangerous equipment is in use;
- Training related to job-specific risks and activities, including:
- Electrical installations (e.g. electric shock on direct contact with conductors and indirect contact with masses powered up, burns, fire and explosion);
- Mechanical equipment (e.g. tool blasting or matter risk, crushing of fingers, wounds, equipment shock);
- Lifting devices (e.g. crushing risk, injury caused by appurtenances, falling, collision); machinery and vehicles (e.g. risk of accident on contact with other materials, collision with or knocking down of persons, obstacle shock, fall by the operator, collision with a vehicle or machine);
- Hand tools, electric or other welding equipment (e.g. risk of injury, electrocution, poisoning, dazzle);
- Workshops and garages (e.g. risk of mechanical injury, shock and collision with machines); Sterilizers and boilers (e.g. risk of burns due to heat and steam from furnace, explosion risk); and
- Power plant, processing lines and workshops (e.g. noise-related risks, electrocution risk) provision of properly trained and equipped first aid personnel including a well-stocked pharmacy, a treatment room with beds, and an ambulance for any worksite injuries.

ES 16 Worker's Training and Orientation Plans on Prevailing Health Issues

The details of the workers training plans follows the comprehensive details as provided by:

- World Health Organisation - WHO <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public>
- United States Centre for Disease Control <https://www.cdc.gov/coronavirus/2019-nCoV/index.html>
- Nigeria Centre for Disease Control (NCDC) <https://covid19.ncdc.gov.ng/report/>

ES 17 Grievance Redress Mechanism (GRM)

The Kogi State ACReSAL has established a Grievance Redress Framework (Annex 6) following the World Bank's approaches to GRM and FPMU guidelines. The framework has five levels of addressing grievances (Level 1: Community Level of Grievance Redress; Level 2: Local Government/ Community Grievance Redress Committee (LGRC); Level 3: State Grievance Redress Committee (SGRC); Level 4: National Grievance Redress Committee (NGRC) and Level 5: the Courts). It should be noted that grievances should follow the level sequence based on the demands and outcomes of the issues at hand. However, when the parties involved in grievances have utilised the provisions of the first four levels, they can then utilise the Law Courts (Level 5).

ES 18 Labour Influx and Child Labour

The project may face the problem of an influx of non-local labour and working conditions issues. This may be because skilled labourers might not be available in as required within the community of the project site. The project will take concrete measures to mitigate potential labour influx-related risks such as workers' sexual relations with minors and the potential consequential pregnancies, the presence of sex workers in the community, the spread of HIV/AIDS, COVID-19, sexual harassment of female employees, child labour and abuse, inadequate resettlement and fear of retaliation, failure to ensure community participation, poor labour practice, and lack of road safety. These risks if and or when they occur at all, require careful consideration to improve social and environmental sustainability, resilience and social cohesion. Hence, the project will include mitigation measures such as: (a) evaluating living conditions of workers' camps and ensuring suitable living conditions; (b) establishing and enforcing a mandatory Code of Conduct for the company, managers and workers, and an Action Plan for execution; (c) ensuring suitable location for these camps; (d) taking countermeasures - indicated in the Social Management Plan - to reduce the impact of the labour influx on the public services; and, (e) devising and implementing a strategy for maximizing employment opportunities for local population, and proper gender balancing.

ES 19 Gender-Based Violence / Sexual Exploitation and Abuse

The stakeholders claimed that GBV/SEA is rare in the area. This is not unexpected as cases of GBV are often denied publicly by under-reporting. However, a literature review of the issue shows that GBV is prevalent in the project area and might include Intimate Partner Violence (IPV), public harassment including, verbal insults, physical abuse, rape, harmful widowhood practices and women and child trafficking. To avoid attachment of the same to the proposed project, a GBV workshop was conducted to

sensitize the SPMU, Contractors and consultants' staff on the key principle and specific requirements to address GBV/SEA have been included in the bidding documents ('pre-qualification and 'employers' requirements'). Also, the SPMU has a qualified GBV/SEA specialist who is to manage any GBV/SEA case that might arise in connection with the project activities. Hence, specific measures to reduce and mitigate the risk of GBV/SEA in the project will include:

- i) GBV/SEA assessment of the project;
- ii) mandatory contractors' code of conduct on sexual harassment;
- iii) appointment of NGO to monitor GBV/SEA in ACReSAL Project;
- iv) community and workers' sensitization on GBV/SEA;
- v) provision of referral units for survivors of GBV/SEA;
- vi) provisions in contracts for dedicated payments to contractors for GBV/SEA prevention activities against evidence of completion;
- vii) contractor and SPMU requirement to ensure a minimum target of female employment with incremental rewards for the obtainment of this target;
- viii) Inclusion in the focal NGO's ToR services for managing social risks associated with GBV/SEA in the project;
- ix) Building and improving SPMUs, Ankpa community and other relevant stakeholders' capacities to address risks of GBV/SEA by developing and providing guidance, training, awareness, and dissemination of relevant GBV/SEA materials to communities;
- x) Strict adherence to the "*Reporting and Response Protocol*" provided in this ESMP to guide relevant stakeholders in case of GBV/SEA incidents;
- xi) Identifying development partners and cultivating pragmatic partnerships on GBV/SEA prevention measures and referral services; and
- xii) Strengthening consultations and operationalizing GBV/SEA-specific grievance redress mechanisms.

ES 20 Stakeholder / Citizen's Engagement

The Kogi State ACReSAL has been implementing its Citizen/Stakeholders Engagement Plan since the inception of the Project. Major milestones covered in the Ankpa gully/flood intervention include:

- Identification of Project stakeholders;
- Summary of past consultation efforts from baseline study and GIS mapping;
- Establishment of site committee
- Stakeholder engagements during ESMP data collection

Other planned consultation efforts to prepare for construction activities include;

- Stakeholder engagement during consultancy services;
- Stakeholder engagement during construction;
- Stakeholder engagement during operations;
- resources for stakeholder engagement;
- monitoring and reporting on stakeholder engagement; and
- Formation of the site monitoring committees for Ankpa gully/flood intervention Erosion Site.

ES 21 ESMP Implementation Schedule:

S/N	Mitigation measures for:	Mitigation Timeline (Monthly)											
		1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th
1.	Pre-construction phase												

	i. Land Acquisition												
	ii. Community sensitivity of the project												
2.	Construction phase												
	1. Environmental impacts												
	2. Biological impacts												
	3. Socioeconomic impacts												
	4. Public health												
3.	Operation and maintenance phase												

ES 22 ESMP Cost Analysis:

S/N	ESMP Activities (Monitoring)	Cost Estimate (\$) Implementation	Cost Estimate (₦) Monitoring
1	<i>Pre-construction Phase</i>	20150	15,400
2	<i>Construction Phase</i>		
	Environmental Impacts	6110	5100
	Biological Impacts	2130	1700
	Socioeconomic Impacts	14970	9750
	Public Health Impacts	6300	5500
	Sub-Total	29510	22050
3	<i>Operation Phase</i>	11300	9400
	Total for Construction Impact Mitigation Implementation and Monitoring	60960	46850
4	<i>Institutional Capacity Reinforcement Programme</i>		
	Kogi State ACReSAL including the Officers of the relevant MDAs, (Monitoring). Contractor Staff (Implementation)	2,500	4,500
	Community representative capacity building		5,500
5	Total for Institutional Capacity	2,500	10,000
	Total for Mitigation Implementation and Monitoring	63460	56850
	10% Contingency	6346	5685
	Grand Total	69,806	62,535

ES 23 ESMP Recommendation

- Implementation of RAP before the commencement of the project.
- Capacity building of the project site committee members, PAP and other stakeholders to ensure effective and efficient contribution;
- Complete compliance with the mitigation measures in the ESMP at all stages of project implementation by all actors in project delivery; and
- Adequate awareness creation in the area of water harvesting as this will reduce surface run-off, especially during the rainy season thereby preventing flooding and subsequent erosion.
- Development of water-harvesting measures
- Extensive afforestation program

ES 24 ESMP Disclosures

After a review and clearance by the World Bank, the ESMP will be disclosed at the FMEnv, SME and the host LGA offices as well as at the World Bank website. The purpose will be to inform stakeholders about the project activities, impacts, anticipated and proposed environmental management actions as well as to obtain the certificate of conformity from the Federal Ministry of Environment after necessary mitigation measures monitoring had been conducted.

CHAPTER ONE

INTRODUCTION

1.1 Background

Nigeria experiences a diverse climate that ranges from arid in the north to tropical in much of the south and is listed among the countries most exposed to climate risks. Temperature increases of 0.03°C per decade were observed between 1901 and 2016, with more robust increases occurring over the last 30 years of 0.19°C per decade. It is also projected that the duration of heat waves will increase, with the most significant increases in the north. Projections indicate increased precipitation in all areas of Nigeria, but the number of days with extreme rainfall will also increase. Climate change is profoundly affecting Nigeria's economy. It is estimated that 2-11 per cent of Gross Domestic Product (GDP) could be lost due to a decline in agricultural productivity and activities related to agriculture. A drop of 10 to 25 per cent in agricultural productivity and a shrinking of GDP by 4.5 per cent by 2080. Agricultural yield has already fallen by 50 per cent in some parts of the north.

The country faces a high-water scarcity hazard level, with droughts expected to occur on average every five (5) years, with potentially increased frequency due to climate change. Water scarcity threatens food security, livelihoods, and productivity, exacerbating fragility and increasing violence risk. In addition, seasonal variability in rainfall has affected groundwater recharge, surface water availability for irrigation, power generation, navigation, and other economic activities. Persistent water shortages, especially in the extreme north, will exacerbate land degradation, desertification, and habitat loss. Inaction (business-as-usual) could cost the country an estimated 6 to 30 per cent of GDP by 2050, affecting the livelihoods of millions of households. Better environmental and water resources management and resilience against disaster and climate risks (largely water-related) are needed to sustain economic growth and protect the most vulnerable.

In realisation of the preceding, the Federal Government of Nigeria (FGN) has embarked on an agro-climatic resilience in semi-arid landscapes (ACReSAL) project with the World Bank. The project will help Nigeria address critical regional desertification control and landscape management challenges. It is proposed to be supported with initial financing with \$700 million from the World Bank.

The project has four (4) components which include:

- a) Dryland Management: Support Strategic Watershed Planning processes, prioritize major investments to address desertification and land degradation in northern Nigeria at the Federal and State levels and complement investments at community level
- b) Community Climate Resilience: Improve agro-climatic resilience at community and household levels by promoting locally adapted Sustainable Land and Water Management

(SLWM) strategies and through climate-smart approaches to agricultural and natural resource management

- c) Institutional Strengthening and Project Management: Improve the enabling institutional and policy foundation for integrated landscape management in Nigeria from ACReSAL activities to longer-term national framework and support overall project monitoring and management
- d) Contingency Emergency Response: This is a component that could be used to provide immediate support to an eligible crisis or emergency

The project implementation arrangement is designed to collaborate with Federal and State Ministries, Departments and Agencies (MDAs), Local Governments, Communities, and Civil Society Organizations (CSOs). Specifically, the MDAs include those responsible for Planning, Economy, Agriculture, Environment, Water Resources, Finance, Works, Transport, Power, and Emergency Response and those focused on Climate and Hydrological Information or Watershed/Basin regulations.

The ACRESAL project is being operationalised in 19 States and FCT in Nigeria's arid and semi-arid areas. These States include Adamawa, Bauchi, Kwara, Niger, Kaduna, Gombe, Sokoto, Nasarawa, Borno, Kebbi, Katsina, Plateau, Benue, Kogi, Kano, Jigawa, Taraba, Yobe, and Zamfara States and are located in the Sahel, Sudan Guinea Savanna and Southern Guinea ecosystem, characterised by dry semi-arid conditions, low precipitation, and sparse vegetative cover.

The environmental and social safeguards concerns will be addressed through two national instruments already prepared under the project: an Environmental and Social Management Framework (ESMF) and a Resettlement Policy Framework (RPF). These framework instruments are being specifically translated to cost, measurable, and monitorable actions for specific intervention sites through the preparation of site-specific management and action plans to manage associated project risks and triggered hazards.

ESMF. In general, this ESMF specifies the procedures to be used for preparing, approving and implementing (1) 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. ESMPs are essential elements for Category B projects.

RPF. The RPF applies when land acquisition leads to the temporary or permanent physical displacement of persons, and/or loss of shelter, and /or loss of livelihoods and/or loss, denial or restriction of access to economic resources due to project activities. It sets out the resettlement and compensation principles, organisational arrangements, and design criteria to be applied to meet the needs of project-affected people. It specifies the contents of a Resettlement Action Plan (RAP) for each package of investments.

ESMP is site-specific and consists of a well-documented set of mitigation, monitoring, and institutional **actions** to be taken before and during implementation to eliminate all adverse environmental and social impacts, offset them, or reduce them to acceptable levels. Each ESMP also includes the measures needed to implement these actions, addressing the monitoring and institutional arrangements adequacy for the upper and lower watersheds in the intervention site. The ESMP report shall conduct the following studies on Baseline inventory, Stakeholders Identification and Consultation, Labour influx and Gender issues, Citizen Engagement, Gender Based Violence issues and Grievance Redress Mechanism.

GBV/SEA: This involves the mainstreaming of Gender Based Violence and Sexual Exploitation and Abuse risks under the project activities.

Kogi State was a beneficiary in the concluded and closed multi-sectoral Nigeria Erosion and Watershed Management Project (ACReSAL), which the World Bank, Global Environment Facility, the Special Climate Change Fund, and the Government of Nigeria financed. During the ACReSAL project activities, the initial studies, including the ESMP to address prioritised degraded land, were carried out. The actual implementation of the rehabilitation of some prioritised degraded lands, including the Ankpa gully site, could not take place under ACReSAL. The Kogi State ACReSAL Project Management Unit of the Kogi State Ministry of Environment intends to apply a portion of the proceeds of the ACReSAL credit to update the Ankpa ESMP studies before the intervention occurs.

1.2 Description of the Proposed Intervention

Geographically, the entire study area extent (project affected section of Ankpa) lies within Longitude 7°37'31.69" - 7°38'47.22" east of the Greenwich meridian and between Latitude 7°24'14.15" - 7°25'40.98" north of the equator. Some of the landmarks within the study area that are threaten by the erosion activities or that may be inaccessible as a result of the degraded roads are schools, religious buildings and small scale retail activities. The proposed remediation works at the Ankpaflood and erosion intervention site involves the construction of side drainages that will channel runoff from many adjoining streets through surface drains to the Maboro River and construction of roads (Enekepoli road, Water Work road, Ogaji road, Charles road, Ankpa-Olubojo axial road, Ofejiji road etc). Part of the solution will also involve construction of channels / drains with normal discharge, maintenance and resurfacing of existing drains, construction of many single cell culvert, construction of retention ponds and stabilizing the erosion through re-vegetation

The proposed intervention in all includes the following:

1. Assessment of drainage features within the catchment area to determine their suitability
2. Construction of roadside drains, and field inlets to convey surface runoff safely through the community
3. Rehabilitation and upgrade of roads to an asphalt surfaced road and provide side drains

4. Construction of catch pit, rectangular concrete channel and drop structure that convey runoff safely through the community
5. Construction of Side drain that collect and direct uncoordinated surface runoff into a drainage system that will convey it safely to the discharge point by means drains and energy dissipating structure
6. Construction of Side drain and Underground box culverts that collect and direct uncoordinated surface runoff into a drainage system that will convey it safely to the discharge point by means drains and underground system.
7. Reclamation of degraded land by means of vegetation.

Construction activities include carrying out all demolitions identified by RAP, excavations, filling and compaction for all concrete structures, culvert construction, haulage of laterite to the site, filling of the sides of the culvert and compaction, construction of the drainage channel and roads, filling of the sides of the drainage channel and the area from the road level to the culvert, planting of trees, site clean-up and removal of all equipment from the site. Revegetation activities will involve planting of vetiver grass and Bamboo trees. These plants are native to the site, highly adaptable to the environment, have high reproductive capability, roots of high tensile strength, and are available commercially. The vetiver grass will be used across the entire gully site while the Bamboo will be used in areas where the gully is significantly wide. Also, revegetation activities of planting vetiver grass and Bamboo trees will be carried out for the restoration of burrow pit sites.

Operation and maintenance phase activities will include Ensuring the free flow of water in the channel constructed, nurturing the grasses and plants used to stabilise the gully and continuous awareness of negative attitudes and behaviours that can cause damage to the facilities provided. Figures 1.1, 1.2 and 1.3 show Ankpa Erosion Control - Engineering Design Showing Proposed Drainage Pathways in Red; Ankpa Engineering Design Showing Sections of Proposed Drainage [Enlarged] and Ankpa Engineering Design Showing Cross-Sections of Proposed Drainage respectively. The risks associated with the activities were identified in the ESMP and mitigation measures for the potential risks developed. Also, various plans for the activities are included in the annexes.

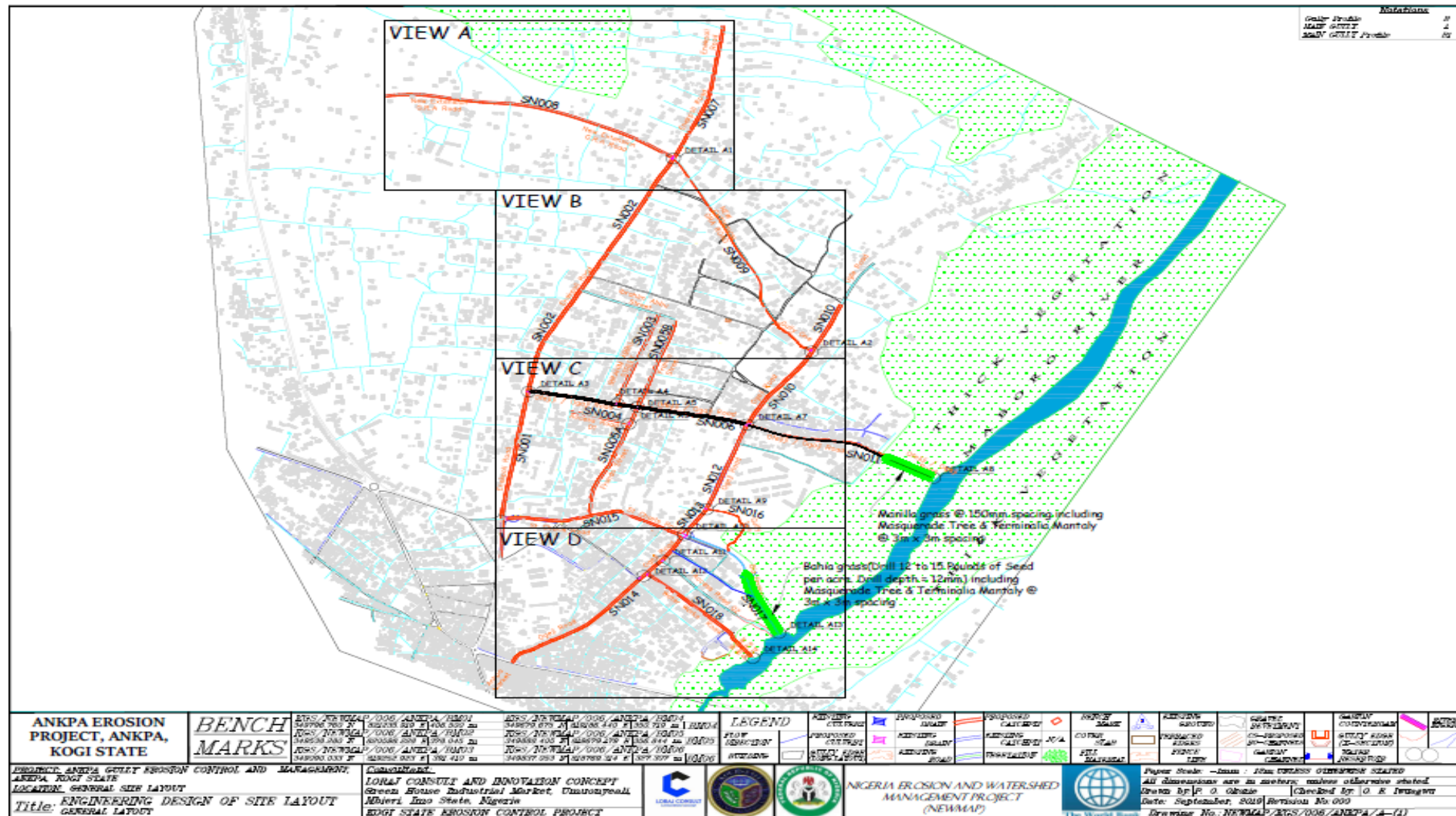


Fig 1.1: Ankpa Erosion Control - Engineering Design Showing Proposed Drainage Pathways in Red

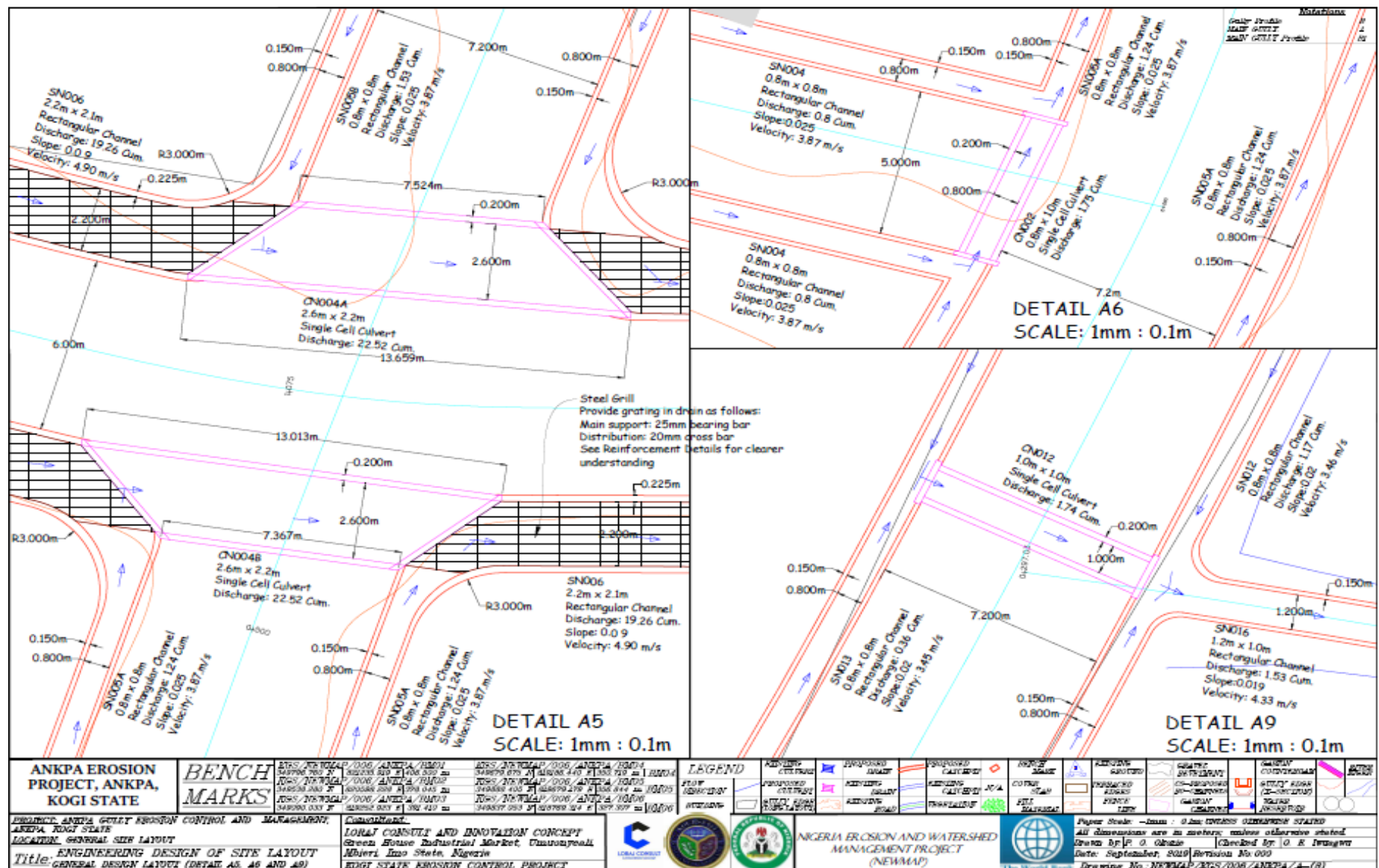
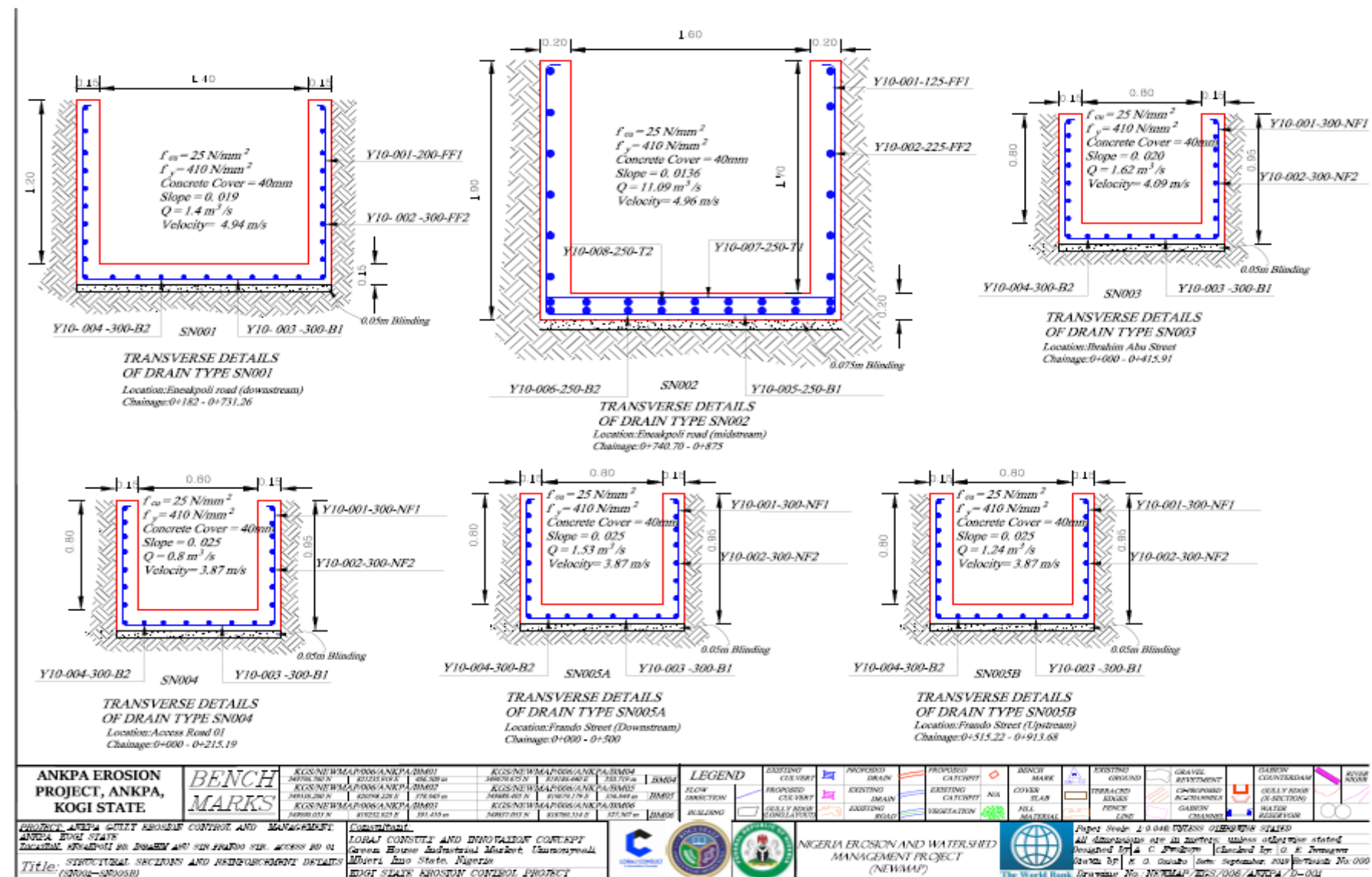


Fig 1.2: Ankpa Engineering Design Showing Sections of Proposed Drainage [Enlarged]

Fig 1.3: Ankpa Engineering Design Showing Cross-Sections of Proposed





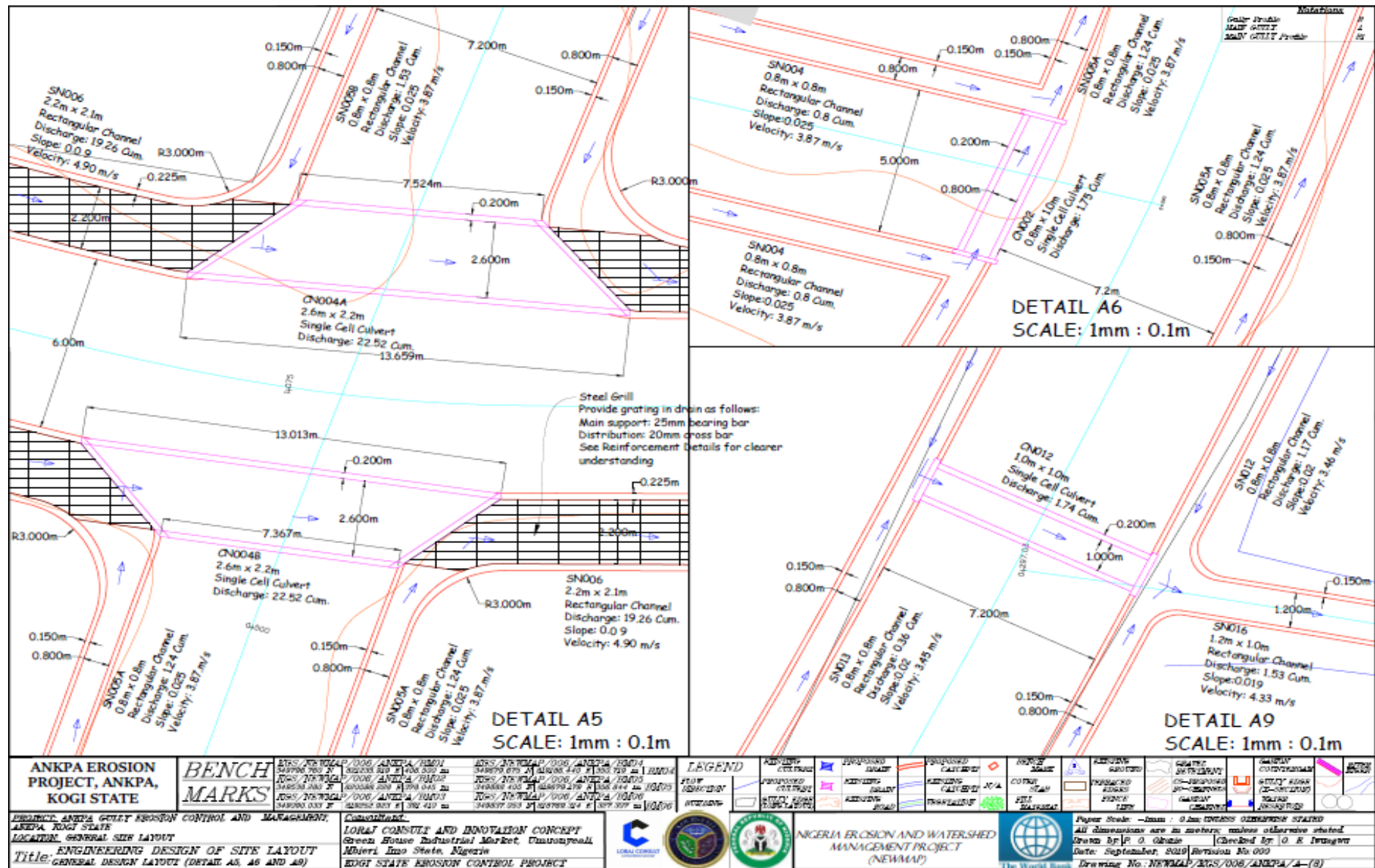


Fig 1.5: Ankpa Engineering Design Showing Sections of Proposed Drainage [Enlarged]

Fig 1.6: Ankpa Engineering Design Showing Cross-Sections of Proposed Drainage

1.3 Rationale for Kogi State ACReSAL Intervention

The socioeconomic implications of erosion on the communities in the Ankpa erosion site are numerous. Houses are regularly eroded, and properties worth millions of naira are often damaged. Access roads are cut off at the peak of the rainy season, and some roads have been cut off, making residents vacate already occupied houses. The yearly colossal losses will be mitigated if the flooding and erosion problem is properly addressed and appropriate flood control structures are introduced. Life and property will also be safeguarded. The pressure on the natural environment exacerbated by the increased urbanisation of the city has led to increased housing structures that have increased the concrete area over the drainage area of the city. This is irrespective of the already poor drainage conditions of the area owing to its geology and soil types. A combination of these has rapidly encroached on marginal lands along the slopes and even valleys of the drainage area of the major river in the landscape. These are already threatening, if not drastically destroying, the drainage channels of these rivers and their tributaries. Human activities like waste and refuse dumping into the drainage basins have further aggravated the surface water drainage in the area. The erosion particles are transported downslope into the drainage streams and rivers, adding to the sediment loads, cumulatively affecting the water flow in the drainage, stream and rivers. During heavy downpours, excessive runoff is generated due to low infiltration triggered by the high concrete area, and silted channels lead to flood issues downstream. The need for the proposed project in the Ankpa erosion site of Kogi State must be balanced as different aspects of the socioeconomic lives of the area will be restored and enhanced in some quarters. Access to community facilities and infrastructures will be enhanced. At the same time, the entire ecological landscape will be restored and redesigned to enhance the environment's sustainability. Also, the anthropogenic activities of the area will be properly re-organised.

Specifically, the proposed intervention project aims to tackle the erosion problem in the area by:

1. Creating a backbone drainage system which will drain the flow through, providing facilities with sufficient capacity to intercept surface flows into the underground system;
2. Attenuating flows in the drainage system to minimise the dimensions of the underground drainage system;
3. Discharging the stormwater as the drainage system exits the town and
4. Rehabilitating the damaged rural gravel streets.

1.4 Rationale for the ESMP

At project preparation, Eight Environmental and Social standards framework instruments were prepared: an Environmental and Social Management Framework (ESMF), a

Resettlement Policy Framework (RPF), an Integrated Pest Management Plan (IPMP), a Stakeholders Engagement Plan (SEP), a Labour Management Procedure (LMP), Gender Based Violence Action Plan, (GBVAC), Environmental and Social Commitment Plan (ESCP) and a Security Risk Management Framework. These ESF instruments are frameworks that must be translated into specific cost, measurable, and monitorable actions for specific site intervention by preparing site-specific management and action plans. Thus, the need for the Ankpa ESMP must be balanced.

The civil work activities considering the nature of the work required to rehabilitate Ankpa degraded gully watershed, the World Bank ESS1 Assessment and Management of Environmental and Social Risks and Impacts will apply. The Nigeria EIA Act will also apply due to the envisaged civil works. Thus, there is a need to prepare an Environmental and Social Management Plan (ESMP) to address all environmental and social concerns related to the proposed construction and channelisation activities.

Some potential impacts that may arise during the proposed works include the generation of construction wastes while others could arise from noise/air pollution, accidents from the movement of equipment and materials to the site, occupational health & safety risks, risks associated with labour influx (security threat, gender-based violence (GBV), particularly Sexual Exploitation and Abuse/Sexual Harassment.

(SEA/SH) due to labour influx may lead to increase in STIs/STDs), community health and safety issues, arrangements for employment and accommodation of workers to be engaged in project activities, and issues related to working conditions (including periods of sickness and quarantine), grievance and disturbance to physical and cultural resources among others need to be addressed by ESMP and measures to mitigate these will be proffered in it.

1.5 Objective and Scope of the Consultancy

The objective of the consulting services is to update the Environmental and Social Management Plan (ESMP) for projects in Ankpa, Etahi Gully and Ankpa Channelization sites in Kogi State in line with the World Bank/IDA guidelines. ESMP assist in eliminating adverse environmental and social impacts, offsetting them, or reducing them to acceptable levels. The ESMP also includes 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.

The study aims to achieve the following objectives:

- Potentially screens out environmentally unsound activities.
- Identify all risk/hazards associated with the proposed activities and identify mitigation measures to reduce, offset, or eliminate adverse impacts including costs estimation.

- Propose modified designs to reduce environmental and social impacts.
- Identify feasible alternatives.
- Predict significant adverse impacts.
- Engage and inform potentially affected communities and individuals.
- Influence on decision-making and the development of terms and conditions.

1.6 Approach/Methodology for the ESMP Study

The approach and methodology for the ESMP involved the following:

- desktop study; review of design reports and literature;
- reconnaissance visits and site inspections;
- public/stakeholder consultations and involvement;
- data collation, analysis and reporting;
- identification and assessment of environmental and social impacts;
- mitigation measures;
- monitoring and management plan.

1.6.1 Review of Available Literature

Information from relevant documents from the project proponents and other documents on the projects will immensely help the ESMP study. Key documents reviewed for this study include:

- The initial Ankpa ESMP prepared under NEWMAP
- ACReSAL - Environmental and Social Management Framework (ESMF);
- Resettlement Policy Framework (RPF);
- Integrated Pest Management Plan;
- Stakeholders' engagement Plan;
- Labour Management Procedure;
- Security Risk Management Framework;
- ACReSAL Project Appraisal Document (PAD);
- ACReSAL Project Implementation Manual (PIM);
- Intervention design; and
- All information collected in the past for the preparation of ESMP for NEWMAP/ACReSAL or related projects in the state

1.6.2 Field Surveys / Site Inspection and and Public/Stakeholder Consultations

The field surveys for the proposed intervention include inspections of the proposed intervention areas to confirm the environmental and social issues and conditions to be affected or are likely to develop from the implementation of the project. This enabled the

consultant to appraise the project area of influence and the nature of the biophysical environment to be affected (especially current land and water use). The relevant baseline data will also be obtained. The socioeconomic characteristics of the environment to be potentially impacted by the project, including the neighbouring rural communities, and the current infrastructural status in the project area will be updated.

The second field survey to update the data was also carried in August 2023. The activity also involves consultation with relevant stakeholders to obtain their comments and update their concerns on the proposed project concerning the potential environmental and socioeconomic issues while assuring them of readiness of ACReSAL to implement the intervention.

1.6.3 Public/Stakeholder Identification and Consultations

The project proponents have been engaged to understand the project scope, design and implementation and obtain relevant documents. Key primary and secondary stakeholders will also be consulted to obtain their comments and concerns on the proposed project concerning the potential environmental and socioeconomic issues. Details of consultations will be provided in Chapter 4 of the report.

CHAPTER TWO

INSTITUTIONAL AND LEGAL FRAMEWORK

2.0 Introduction

This chapter discusses Nigeria's national policy, legal, regulatory and administrative frameworks that steer environmental sustainability of developmental activities in the country. The chapter also provides a detail discussion of the local laws and policies on such developmental activities. Specifically, Kogi State policies, legislation, regulations and guidelines on environmental issues that are applicable to the proposed projects by the Kogi State ACReSAL are focused in the chapter. Also, the World Bank Environmental Standards (ES) were ascertained and those that applied by the proposed Kogi State ACReSAL project in Ankpa gully intervention are discussed. In summary, a number of national and local environmental guidelines applicable to the operations of the project in Kogi State are specifically discussed in the chapter.

2.1 Federal / Kogi State Policy, Legal, Regulatory and Administrative Frameworks

Projects of environmental concerns such as those within the scope of the ACReSAL project are expected to meet the requirements laid by governmental administrative frameworks from the federal to the state levels. The Federal and Kogi State policies, legal and administrative machineries that are relevant to the project are presented in detail in Table 2.1.

Table 2.1: Federal and Kogi State Policies, Legislation, Regulations and Guidelines

Federal Policies				
S/N	Policy Instrument	Year	Provision	Relevance to the Proposed Project
1	National Policy on the Environment	1989 revised 1991, 1999 and 2017	This describes both the conceptual and theoretical framework and strategies for achieving sustainable development in Nigeria. The policy identifies key sectors requiring integration of environmental concerns and sustainability with development. The goal of the policy is to achieve sustainable development and seeks in particular to: i. Enhance the quality of the environment; ii. Promote the sustainable use of natural resources; iii. Restore and maintain the ecosystem and ecological processes and preserve biodiversity;	The National Policy on the Environment is relevant to the proposed project as it provides the frameworks for the Ministry of Environment participation in the project through approval of the environmental and social safeguards documents and monitoring activities to ensure sustainable project activities.

			iv. Raise public awareness and promote understanding of linkages between environment and development; and v. Cooperate with government bodies and other countries and international organizations on environmental matters	
2	National Erosion and Flood Control Policy	2005	This addresses the need to combat erosion in the country through the procedure outline in the National Action Plan for Flood and Erosion and Technical Guidelines.	The policy is the platform under which the ACReSAL project could address flood issues such as being experience in Ankpa catchment.
3	Agricultural Promotion Policy-The Green Alternative and the National Agricultural Technology and Innovation Policy (NATIP)	(APP-2016-2020) and (2022-2027).	The policy develops the framework for facilitating business alliances, promotion of greater farmers-agri-business linkages, and support for critical infrastructure in the value chain development. The policy thrust promotes climate-smart agriculture through the following strategies: i. Increasing public awareness on climate-smart agriculture; ii. Improving management of land, water, soil and other natural resources; iii. Strengthening of Institutional linkages and partnerships for ensuring climate-smart agricultural governance, policies, legislations and financial mechanisms; iv. Conducting Environmental impact assessment on major agricultural programs; v. Promoting the use of renewable energy with the involvement of private sector; vi. Government facilitating the production and use of soil map to improve land use and management practices; and vii. Government promoting the increased adoption of	The policies are relevant to component 4 of the ACReSAL project especially on climate climate-smart approaches to agricultural and natural resource management.

			global best practices in handling climate change, including the aspects of adaptation, mitigation and carbon credit	
3	National Gender Policy	2006	The goal of the National Gender Policy is to build a just society devoid of discrimination, harness the full potentials of all social groups regardless of sex or circumstance, promote the enjoyment of fundamental human rights and protect the health, social, economic and political well-being of all citizens in order to achieve an equitable rapid economic growth; evolve an evidence-based planning and governance system where human, social, financial and technological resources are efficiently and effectively deployed for sustainable development.	The policy is relevant to the project as it provides the guidelines on non-discriminatory approach to development.
4	National Policy on Climate Change	2012	The strategic goal of the Climate Change policy is to foster low-carbon, high growth economic development and build a climate-resilient society through the attainment of the following objectives: - Implement mitigation measures that will promote low carbon as well as sustainable and high economic growth; - Enhance national capacity to adapt to climate change; - Raise climate change-related science, technology, research, and development to a new level that enables the country to better participate in international scientific and technological cooperation on climate change; - Significantly increase public awareness and involve private sector participation in addressing the challenges of climate change; and - Strengthen national institutions and mechanisms (policy,	The policy is applicable as it compliment ACRReSAL component four on Climate Resilience: Improve agro-climatic resilience at community and household levels by promoting locally adapted Sustainable Land and Water Management (SLWM) strategies and through climate-smart approaches to agricultural and natural resource management

			legislative and economic) to establish a suitable and functional framework for climate change governance. The policy elaborates on adaptation and mitigation programs and actions in key sectors including energy, agriculture, water, transport and human settlement.	
Federal Legal/Regulatory Instrument				
1	Environmental Impact Assessment Act, Cap E12,	LFN 2014	The EIA Act sets out the general principles, procedures and methods to enable the prior consideration of environmental impact assessment on certain public or private programs. It further provides that before a decision is taken to undertake or authorize the undertaking of any activity, those matters that may likely or to a significant extent affect the environment or have an environmental effect on those activities shall first be taken into account. There are nineteen thematic areas of mandatory study activities. The drivers of deforestation and forest degradation for which mandatory study is required include agriculture, infrastructure, logging and conversion of forest to other land use, mining and housing. Environmental sensitivity and the area coverage of a program are some of the criteria for an EIA	Relevant to ACReSAL project development of safeguard's instrument and implementation especially, the ESIA and ESMPs of which the Ankpa ESMP is not an exception.
2	The National Guidelines and Standards for Environmental Pollution Control in Nigeria	1991	These represent the basic instrument for monitoring and controlling pollution in Nigeria	Relevant to the proposed Ankpa construction activities which has potential for polluting te environment if necessary guidelines and mitigation measures outline in this ESMP are not adhered to.
3	National Guidelines on Environmental Management Systems	(1999)	This establishes the requirements for an Environmental Management System (EMS) in all organizations/facilities in Nigeria.	Relevant to ACReSAL project development of safeguard's instrument and implementation especially, the ESIA and ESMPs of which the Ankpa ESMP is not an exception.
4	National Air Quality Standard Decree No. 59 of	1991	This defines the levels of air pollutants that should not be exceeded in order to protect public health.	Relevant to the proposed Ankpa construction activities which has potential for polluting te environment if necessary guidelines and mitigation measures outline in this ESMP are not adhered to.

5	The National Environmental Standards and Regulations Enforcement Agency Act (NESREA Act)	2007	This makes provision for solid waste management and its administration and prescribes sanctions for offences or acts, which run contrary to proper and adequate waste disposal procedures and practices.	Relevant to ACReSAL project development of safeguard's instrument and implementation especially, the ESIA and ESMPs of which the Ankpa ESMP is not an exception. It is also relevant with respect to monitoring of the bio-physical components of the environment.
6	Child Rights Act	2003	The Act serves as the legal documentation and protection of Children rights and responsibilities in Nigeria. It also serves as a legislation against Human trafficking since it forbids children from being "separated from parents against their will, except where it is in the best interests of the child.	Relevant to ACReSAL and indeed Ankpa construction activities and project implementation especially with respect to child trafficking for labour activities in construction site.
7	Employee's Compensation Act	2010	The Act makes provisions for compensations for any death, injury, disease or disability arising out of or in the course of employment; and for related matters.	Relevant to protect the right of workers at all levels and stages in the case of unforeseen circumstances of death and disability
8	Land Use Act	1978 Modified 1990 and 2004	This is the primary legal means to acquire land in the country. The Act vests all land in the territory of each state in the federation in the Governor of the State and requires that such land shall be held in trust and administered for the use and common benefit of all Nigerians in accordance with the provisions of this Act	Relevant to the project in the sense that there will be need to acquire land on the right of way of the Ankpa channel
9	Criminal Code		The Nigerian Criminal Code makes it an offence punishable with up to 6 months imprisonment for any person who: - Violates the atmosphere in any place so as to make it noxious to the health of persons in general dwelling or carry-on business in the neighbourhood, or passing along a public way: or - Engages any act which is, and which he knows or has reason to believe to be likely to spread the infection of any disease dangerous to life, whether human or animal.	The code is relevant to the project as it spelt out punishment for any act that could put the larger community in health crises. It is binding on the contractor not to engage in any act or process that could jeopardize the health of the people.
10	Endangered Species Act	1985	This provides for conservation and management of wildlife in Nigeria and the protection of some of her endangered species from extinction as a result of	Relevant to Ankpa channelization project by ensuring the protection of endanger species of flora and fauna. The Ankpa channel traverse vegetated areas within an urban

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			over exploitation.	setting and could harbour some rare species.
11	FEPA/ FMEEnv. EIA Procedural guidelines	1995	These indicate the steps to be followed in the EIA process throughout program life cycle.	Ensure proper steps are followed in the preparation and approval of environmental impact assessment documents.
12	S.I.15 National Environmental Protection (The Management of Solid and Hazardous Wastes Regulations)	1991	Regulates the collection, treatment, and disposal of solid and hazardous waste for municipal and industrial sources and give the comprehensive list of chemicals and chemical waste by toxicity categories	Protect the environment from the use of hazardous material especially during construction phase.
13	S.I.9 National Environmental Protection (The NEP (Pollution Abatement in Industries and Facilities Generating Waste) Regulations)	1991	These are the imposed restrictions on the release of toxic substances and requirements of Stipulated Monitoring of pollution to ensure that permissible limits are not exceeded during and after the program.	Relevant as it imposed restrictions on the release of toxic substances.
15	National Health Act	2014	It provides a legal framework for the regulation, development, and management of Nigeria's Health System	Relevant as it provides basic regulation on the management of Nigeria's health including the health of the workers who will work on the Ankpa channelization project
16	Environmental Sanitation Edits, Law and Enforcements		This deals with the general environmental health and sanitation. Implementation and enforcement in the state.	Relevant as it affect the general environmental management of the project area
17	Workmen Compensation Act	1987 Revised 2010	This provides for occupational health and safety.	It is relevant as workers will be involved and their safety need to be safeguarded
18	Violence Against Persons (Prohibition) Act	2015	The Act was necessitated as a result of agitations for protection of persons against different forms of violence. The Act has strengthened advocacy against rape, female genital mutilation, partner battery, stalking, harmful widowhood practices while prohibiting all forms of violence, including physical, sexual, psychological, domestic, harmful traditional practices and discrimination against persons. It also provides maximum protection and effective remedies for victims and punishment of offenders. The Act is a key instrument for addressing GBV in Nigeria.	Relevant as it protect both the contractor and the workers from both internal and external violence.
Federal Institutional Framework				
1	The Federal Ministry of Environment (FMEEnv)		The FMEEnv is the government agency charged with the responsibility to administrate and enforce environmental laws	The project is domicile in the Ministry, The Ministry will provide approval for the safrguds instrument prepared, will involve in

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			in Nigeria. The FMEnv prohibits public and private sectors from embarking on major developmental programs or activities without due consideration, at early stages, for environmental and social impacts. In addition to the EIA Act, the Ministry has produced sectorial including sectorial guidelines on infrastructure development which will be duly considered in the implementation of this program	monitoring activities and provide the leadership in mainstreaming environmental activities into the project.
2	Federal Ministry of Agriculture and Rural Development		The Federal Ministry of Agriculture and Rural Development (FMARD) has the responsibility of optimizing agriculture and integrating rural development for the transformation of the Nigerian economy, with a view to attaining food security and positioning Nigeria as a net food exporter for socio-economic development.	Will ensure the land reclaimed are put to proper use in a sustainable manner.
3	The Federal Project Management Unit (FPMU) ACRReSAL		The Federal Project Management Unit (FPMU) headed by a Federal Coordinator hosted by FMEnv is responsible for the overall coordination of the project	The general coordination of the ACRReSAL project.
Kogi State Policy & Regulatory Instruments				
1	Kogi State Ministry of Environment		This Ministry is saddled with the responsibility for environmental management including degradation prevention and pollution reduction	The Kogi-State ACRReSAL is domicile in the Ministry and the Ministry will involved in monitoring activities
2	Kogi State Environmental Protection Board		This arm of government is responsible for environmental protection, proper waste management and disposal.	Will involve in environmental monitoring activities
3	Kogi State Sanitation & Water Management Board		This board is saddled with the overall environmental sanitation and water management responsibilities with special focus on potable water.	Ensure compliance to sanitation regulation at the project site and the sustainable use of water resource during the phases of the project
4	Kogi State Town Planning & Land		This agency is charged with the	Ensure setback are maintained and project put the setback to sustainable use

	Development		responsibility for land use allocation, gazette management and acquisitions and public land acquisition projects.	
5	Kogi State Project Management Unit (Kogi ACReSAL SPMU) ACReSAL		The Kogi State Project Management Unit (Kogi-SPMU) headed by the State Coordinator and hosted by the Ministry of Environment is responsible for the coordination of ACReSAL projects in Kogi State. The coordinator is thus directly responsible for coordinating activities of the Site intervention, including the implementation of this ESMP.	The Kogi ACReSAL SPMU is the proponent.

2.2 Development Financial Institutions (DFIs) Environmental and Social Requirements

The commitments of DFIs to Environmental and Social Governance in program financing are embedded in developed standards known as safeguards policies. This includes the ESS of World Bank, and IFC performance Standards amongst others.

2.2.1 World Bank Environmental and Social Standards Triggered by Kogi state ACReSAL Project

The World Bank Environmental and Social Safeguard Standards are the cornerstones of the Bank's support for sustainable poverty reduction. The main objective of these policies is to prevent and mitigate undue harm to people and their respective environment during or as a result of the developmental processes. These policies also provide the guidelines for the Bank and the borrower staff in the identification, preparation, and implementation of programs and projects. Table 2.2 provides the World Bank Environmental and Social Standards triggered by ACReSAL and those applicable to Kogi State ACReSAL Ankpa gully erosion site.

Table 2.2: World Bank Environmental and Social Standards Applicable to Kogi State-ACRESAL Ankpa Gully Erosion Site.

Environmental and Social Standards (ESS)	Description	Applicability to the proposed KogiState ACRESAL project	
		Yes	No
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	This overarching standard sets out the Borrower's responsibilities for assessing, managing and monitoring E&S risks and impacts associated with each stage of a program supported by the Bank through Investment Project Financing, in order to achieve E&S outcomes consistent with Bank's ESS.	[x]	[]
ESS 2: Labour and Working Conditions	ESS 2 recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. Borrowers can promote sound worker-management relationships and enhance the development benefits of a program by treating workers in the program fairly and providing safe and healthy working conditions	[x]	[]
ESS 3: Resource Efficiency and Pollution Prevention and Management	ESS 3 recognizes that economic activity and urbanization often generate pollution to air, water, and land, and consume finite resources that may threaten people, ecosystem services and the environment at the local, regional, and global levels	[x]	[]
ESS 4: Community Health and Safety	ESS 4 recognizes that program activities, equipment, and infrastructure can increase community exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration or intensification of impacts due to program activities.	[x]	[]
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	ESS 5 recognizes that program-related land acquisition and restrictions on land use can have adverse impacts on communities and persons. This may cause physical or economic displacement.	[x]	[]
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	ESS 6 recognizes that protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development.	[x]	[]
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	This ESS applies to a distinct social and cultural group identified as "Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, indigenous ethnic Minorities etc."	[]	[x]
ESS 8: Cultural Heritage	ESS8 sets out measures designed to protect cultural heritage throughout the program life cycle.	[x]	[]
ESS 9: Financial Intermediaries	This ESS applies to Financial Intermediaries (FIs) that receive financial support from the Bank	[]	[x]
ESS 10: Stakeholder Engagement and Information Disclosure	This ESS recognizes the importance of open and transparent engagement between the Borrower and program stakeholders as an essential element of good international practice.	[x]	[]

2.2.2 World Bank Environmental, Health and Safety (EHS) Guidelines

The World Bank Group EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). The EHS Guidelines are designed to assist managers and decision-makers with relevant industry background and technical information. This information supports actions aimed at avoiding, reducing, and controlling potential EHS impacts during the construction, operation, and decommissioning phase of a project.

The applicable World Bank Group EHS Guidelines to the ACRESAL project are:

General Environmental, Health and Safety (EHS) Guidelines (2007)

- EHS Guidelines for Forest Harvest Operations (2007)
- EHS Guidelines for Annual Crops Production (2016)
- EHS Guidelines for Perennial Crops Production (2016)

2.2.3 International Conventions and Agreements

Several international regulations, protocols, treaties and conventions have been signed by countries of the World. The conventions are aimed at halting environmental degradation and protecting human health against possible adverse effects. Expectedly, Nigeria subscribes to a number of these International Regulations and Conventions that are related to Environmental Protection. Table 2.3 shows some of the international conventions, agreements and protocols to which Nigeria is a signatory and applicable to the Kogi State ACRESAL project sites.

Table 2.3: International Conventions, Agreements and Protocols to which Nigeria is Signatory and Applicable to the Proposed Kogi State ACRESAL Project

International conventions, agreements and protocols	Applicable to ACRESAL		Applicability to program due to
	Yes	No	
Both the Vienna convention for the protection of the Ozone Layer and the Montreal protocol for Control of Substances that deplete the ozone layer.	[x]	[]	Agricultural works may extend to the forest area. There will be reduction in tree taxonomy and biomass leading to reduction in carbon sink and release of ODS gasses. Some of the crops may also be emitting or when burnt transmit ODS substances
Basel convention on the prevention of trans-boundary movement of hazardous wastes and their disposal.	[x]	[]	Hazardous chemicals might be used as pesticides
Convention on the prevention of the international trade in endangered species (CITES).	[]	[x]	No endangered species(s) of any kind was identified in the program area.
Convention on Biodiversity.	[x]	[]	Agricultural activities may extend to forest area. This will disturb biodiversity in the area.
Convention on climate change.	[x]	[]	Proposed activities will result in both systemic and cumulative environmental change; thereby contributing to a sustained increase in temperature.
Convention on Desertification.	[x]	[]	Proposed activities may result in deforestation.
Convention on Persistent Organic Pollutants.	[x]	[]	Organic pollutant may be used for agricultural activities.
World Health Organization (WHO) Health and Safety Component of EIA, 1987.	[x]	[]	Proposed activities may be injurious to man and the environment

Table 2.4: Gap between National Legislations, Policies and Regulations and the World Bank Policies

Category	Nigerian Law	World Bank ESS	Measures to Filling the Gaps
Assessment and Management of Environmental and Social Risks and Impacts	Nigeria require the preparation of an EIA to address all environmental and social risks issues for all developmental project	The World Bank ESS 1 also stipulated the preparation of an ESIA for its developmental assisted project. For proper Assessment and Management of Environmental and Social Risks and Impacts	The World Bank and the Nigeria Law on the management of the environment are similar and clearly documented
Labour and Working Conditions	The labour and working conditions are stated in various acts, policies, legislations and regulation guidelines.	The World Bank ESS 2 properly document the Labour and Working Conditions to be used for its assisted projects.	The ESMP has synchronized the various Policies, Legislation, Regulations and Guidelines on Labour and working condition.
Resource Efficiency and Pollution Prevention and Management	The Nigeria Resource Efficiency and Pollution Prevention and Management and stated in various acts, policies, legislations and regulation guidelines.	The World Bank ESS 3 Resource Efficiency and Pollution Prevention and Management documented the approaches to be used resource efficiency and pollution prevention to be used for its assisted projects.	The ESMP has synchronized the various Policies, Legislation, Regulations and Guidelines on Resource Efficiency and Pollution Prevention and Management. In anycase, both the World Bank and the Nigeria legislations have adequate guidelines for managing pollution.
Community Health and Safety	Community Health and Safety are also well documented in various acts, policies, legislations and regulation guidelines.	The World Bank ESS 4: Community Health and Safety properly documented the activities to safeguards the community health and safety	The ESMP has synchronized the various Policies, Legislation, Regulations and Guidelines on Community Health and Safety. Both the World Bank safeguards and the Nigeria legislation safeguards the community health and safety of the people in project areas.
Category	Nigerian Law	World Bank ESS 5	Measures to Filling the Gaps
Minimization of resettlement	No requirement to consider all options of project design in order to minimize the need for resettlement or displacement	Involuntary resettlement should be avoided where feasible, or minimized, exploring all viable alternative project designs	Design of footprints of project-related activities, will be undertaken so as to minimize resettlement.
Information and Consultation	It is lawful to revoke or acquire land by the governor after issuance of notice. No consultation is required.	PAPs are required to be meaningfully consulted and participate in the resettlement process	PAPs shall be meaningfully consulted and engaged in the resettlement process
Timing of Compensation	The law is silent on timing of payment	This requires that compensation implementation will take precedence before construction or displacement	Compensation and resettlement implementation to take place before construction or displacement
Livelihood restoration	Makes no proscription on livelihood restoration measures	It requires that vulnerable PAPs have to be rehabilitated	Livelihood restoration measures will be put in place for vulnerable PAPs
Grievance Process	The land use and allocation committee appointed by the Governor is vexed with all disputes/grievances and compensation matters	This requires that a grievance redress mechanism be set early constituting the representative of PAPs and, prefers local redress mechanism. The law court is the last resort when available mechanism or outcome is unsatisfactory to PAP	A grievance redress committee (GRC) shall be established early and existing local redress process shall be considered to address issues of project induced grievances. PAPs or their representatives shall be members of the GRC.
Community land with customary right	Compensation in cash to the community, chief or leader of the community for the benefit of the community	Land for land compensation or any other in-kind compensation agreed to with the community	Land for land compensation or any other in-kind compensation agreed to with the community

Kogi State Agro-Climatic Resilience in Semi-Arid Landscapes Project (Kogi-ACReSAL)

Agricultural land	Entitled to alternative agricultural land ¹	Land for land compensation	Land for land compensation
Fallow land	No compensation	Land for land compensation	Land for land compensation
Statutory and customary right Land Owners	Cash compensation equal to the rent paid by the occupier during the year in which the right of occupancy was revoked	Recommends land-for-land compensation or other form of compensation at full replacement cost.	Recommends land-for-land compensation or other form of compensation at full replacement cost.
Land Tenants	They are entitled to compensation based upon the amount of rights they hold upon land.	Are entitled to some form of compensation whatever the legal recognition of their occupancy.	Are entitled to some form of compensation whatever the legal recognition of their occupancy.
Squatters	These are not entitled to compensation for land, but are entitled to compensation for crops.	These are to be provided with resettlement assistance in addition to compensation for affected assets; but no compensation for land	Are to be provided resettlement assistance in addition to compensation for affected assets; but no compensation for land
Owners of “Non-permanent” Buildings	Cash compensation based on market value of the building (that means depreciation is allowed)	Entitled to in-kind compensation or cash compensation at full replacement cost including labour and relocation expenses, prior to displacement.	Entitled to in-kind compensation or cash compensation at full replacement cost including labour and relocation expenses, prior to displacement.
Owners of “Permanent” buildings, installations	Resettlement in any other place by way of reasonable alternative accommodation or Cash Compensation based on market value.	Entitled to in-kind compensation or cash compensation at full replacement cost including labour and relocation expenses, prior to displacement.	They are entitled to in-kind compensation or cash compensation at full replacement cost including labour and relocation expenses, prior to displacement.
Biodiversity Conservation and Sustainable Management of Living Natural Resources	The Nigeria laws on Biodiversity Conservation and Sustainable Management of Living Natural Resources well documented in various acts, policies, legislations and regulation guidelines.	The World Bank ESS 6 properly document the Biodiversity Conservation and Sustainable Management of Living Natural Resources within the princint of its project area.	The approach of the Nigeria National legislations and policies and that of the World Banl ESS 6 are similar in the biodiversity conservation and sustainable management of the living natural resources.
Cultural Heritage	Although there are legislations to safeguards cultural heritage in Nigeria, the implementation of such legislations and policies is very weak.	The World Bank ESS 8 properly documented the steps to take for chance find as well as to safeguards Cultural and historical sites and heritage.	The Kogi State ACReSAL will follow the World Bank ESS 8 on the implementation of the cultural heritage.
Stakeholder Engagement and Information Disclosure	The Nigeria EIA act and other legislations and policies required proper Stakeholder Engagement and Information Disclosure	The World Bank ESS 10 mandated Stakeholder Engagement and Information Disclosure on all assisted project by the World Bank.	The Nigeria Laws and the World Bank ESS 10 Stakeholder Engagement and Information Disclosure are similarand continuous through the project life cycle.

2.3 Institutional Framework

ACRESAL involves many federal and state ministries, departments and agencies (MDAs), local governments, communities, and the civil society. This is because effective implementation of projects requires inter-ministerial coordination, collaboration, and information sharing at all levels of government. Thus, each component, sub-component and activity is to be implemented through relevant federal and state MDAs. The various

¹ Nigerian Land Use Act 1978, (2004 LFN)

MDAs include those responsible for planning, economy and finance, works, agriculture, water resources, forests, transport, power, emergency response, as well as those focused on climate and hydrological information or watershed/ basin regulation. However, the Kogi State government has the primary responsibility for land management and land allocations of the project site.

The Federal Ministry of Environment (FMEnv) is the lead implementing agency for ACRESAL. The Federal Project Management Unit (FPMU) headed by a Federal Coordinator hosted by FMEnv is responsible for the overall coordination. The Kogi State Project Management Unit (Kogi-SPMU) headed by the State Coordinator and hosted by the Kogi State Ministry of Environment is responsible for the coordination in Kogi State, including the implementation of this ESMP. Both the federal and state levels coordinating units have environmental officers responsible for the mainstreaming of environmental issues into the ACRESAL sub-projects.

2.4 Environmental and Social Management Framework for the ACReSAL:

The ESMF guiding the implementation and mainstreaming of environmental and social inclusiveness into the ACReSAL projects is comprehensive and adequate. The ESMF identified the clear process for environmental and social screening; the anticipated environmental and social impacts were robust and they reflect the reality of the experience during implementation. Also, the approach to mitigation measures were properly stated; the monitoring programme was clearly spelt out in the ESMF. Also, the general activities including supervision, surveillance, spot checking reporting and evaluation were clearly defined in the ESMF. The tools for monitoring activities include preparation of baseline Environmental and Social Impact Assessment (ESIA) and specific ESMPs for major interventions, visitation, check list interview, report writing and report analysis. The frequency of visitation was stated while the organization responsible for monitoring was identified. The ESMF also identified some stakeholders and developed steps for further identification of stakeholders during the project implementation; it developed the mechanism for continuous public involvement and stakeholder's participation and consultation as well as gender mainstreaming and vulnerability assessment. The ESMF specifically address the issue of climate change and provides guidelines in project implementation such that the already pathetic situation is not further worsen.

CHAPTER THREE

DESCRIPTION OF EXISTING ENVIRONMENT

3.0 Introduction

The main physical and biological characteristics of the state and project site are summarized below.

3.1 Location

Kogi state lies on latitude 7.49°N and longitude 6.45°E and is one of the states in the middle belt identified geopolitically as the north central zone of Nigeria Fig. 3.1). It has a total land area of 28,313.53 square kilometers. It shares common boundaries with ten (10) states and the Federal Capital Territory (FCT). To the North; it shares boundaries with Niger, FCT, and Nassarawa, to the West by Kwara, Ekiti, Ondo, Edo, and Delta, while to the East by Benue, Anambra and Enugu states.

The state was created on 27th August 1991 with its administrative headquarters in Lokoja. It is structured into 21 LGAs. The common indigenous ethnic groups found in the state include, Igala, Ebira, Okun, Bassa Komo, Bassa Nge, Kakanda, Kupa, Ogori, Nupe, Oworo etc., while other groups from other parts of Nigeria such as the Igbo, Hausa, Edo etc, are also domiciled in the state. The four major languages spoken as first language in Kogi State include Igala, Ebira, Nupe and Yoruba. The official language among the many ethnic groups remains English language.

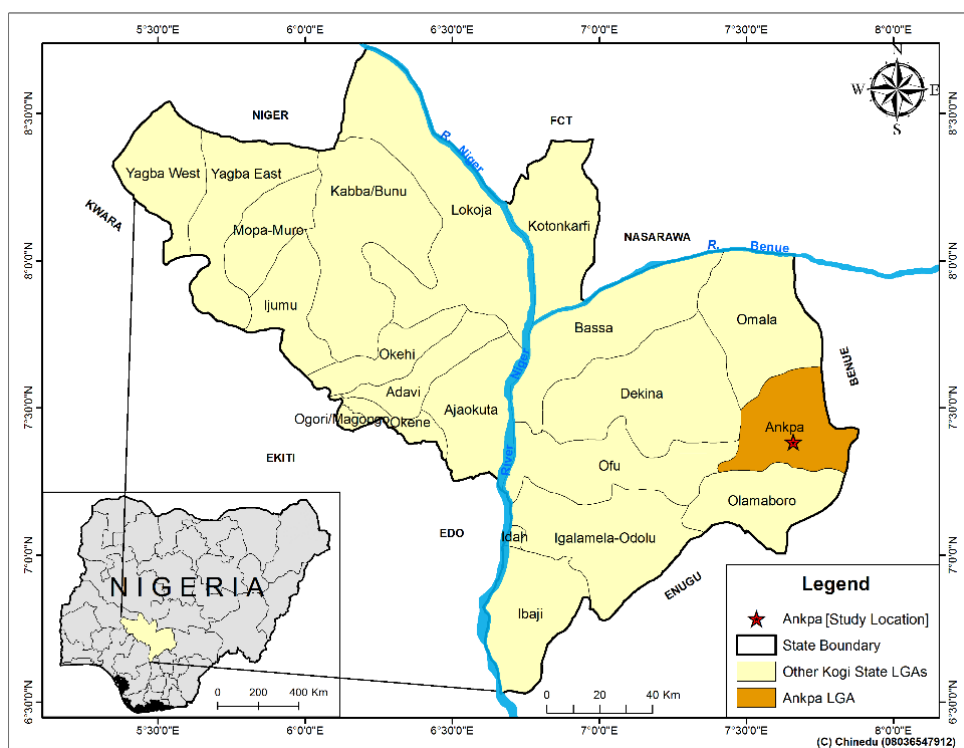


Fig. 3.1: Map of Kogi State showing Project Location

Specifically, the project area lies within Longitude $7^{\circ}37'31.69''$ - $7^{\circ}38'47.22''$ east of the Greenwich meridian and between Latitude $7^{\circ}24'14.15''$ - $7^{\circ}25'40.98''$ north of the equator. Coordinates (start and end point) of each of the project affected roads by the environmental issue (erosion menace) are shown in Table 1. In total, the length of the erosion ravaged road considered for the intervention is about 11 Km.

The project area (Fig 3.2a and Fig 3.2b) include five (5) villages in Ankpa town under threat by erosion. In the central to northern parts, the image clearly reveals evidence of bare and eroded surfaces, as well as major access roads and streets which are both untarred and exposed to the erosion menace. Most of the inhabitants of the area are generally Igalas, with few populations of non-indigenes. Majority of the inhabitants are farmers and the crops grown mainly in the area are cassava, yam, maize, and oil palm.

Besides the densely populated south western parts of the old Ankpa town as shown here, there is evidence of further urban expansion into previously known farmlands and forested areas, both in the northern part (around Olubojo, Area - Eneokpoli and Ogaji) and across the Mabolo river, southeast of the area as shown. Field observations also reveal that the entire slopes of the river valley, trending in the Northeast-Southwest direction are easily prone to erosion, especially as increased surface runoff is generated by urbanization.

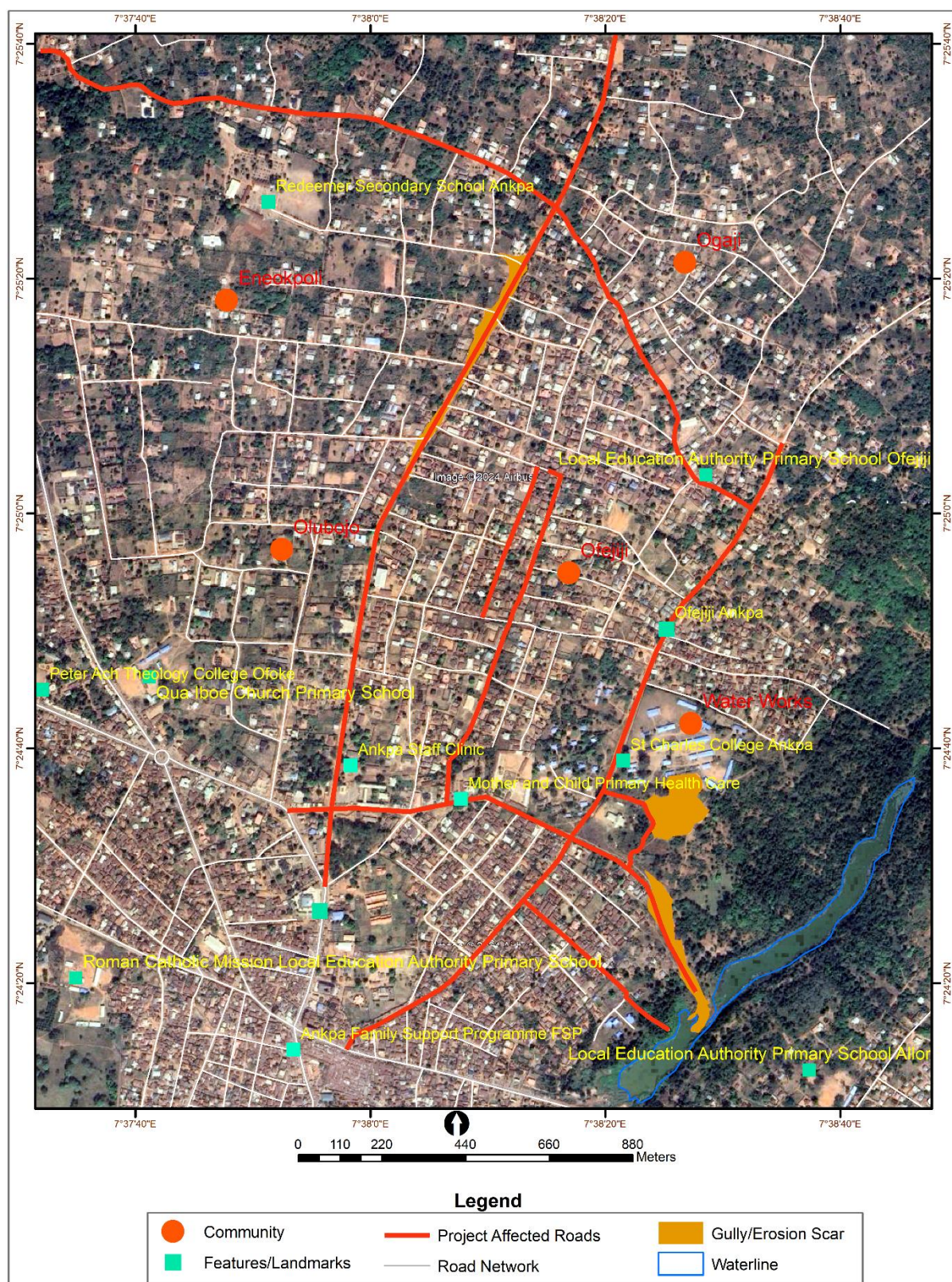


Figure 3.2a: Satellite imagery of a section of Ankpa town depicting erosion scar and proposed roads project

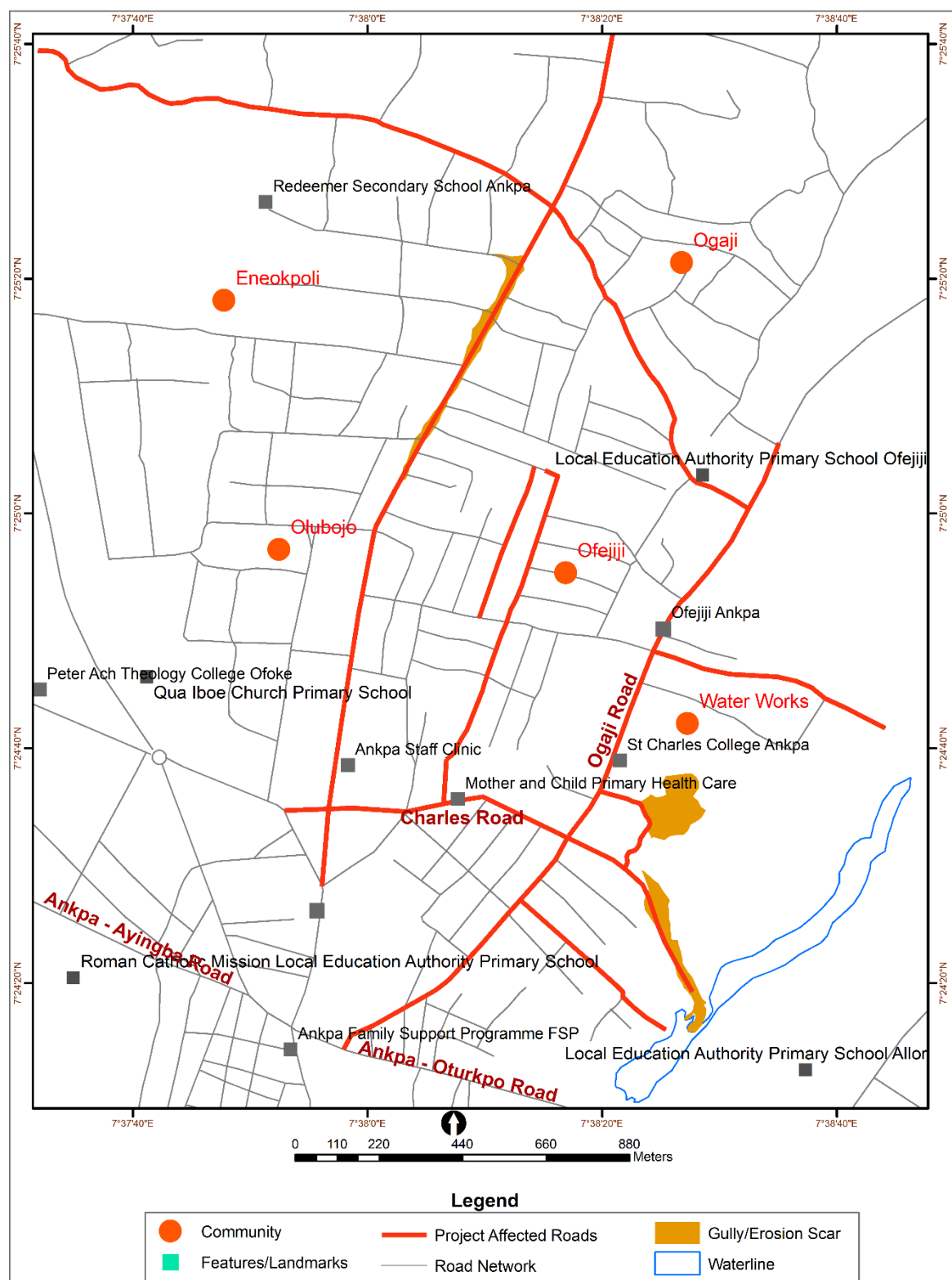


Figure 3.2b: Project affected roads, erosion scars, and features within the study area

3.2 Physical Environment

3.2.1 Geology, Relief and Drainage

Geology: Kogi state has two main rock types, namely, basement complex rocks of the Precambrian age in the western half of the state and extending slightly eastwards beyond the lower Niger valley and the older sedimentary rocks in the eastern half. The geology of the area is mostly sedimentary terrain comprising of Clay, fine grains and sand stones. The various sedimentary rock groups extend along the banks of Rivers Niger and Benue and south-eastwards through Enugu and Anambra states, to join the Udi Plateau.

Relief and Drainage: The land rises from a about 300 meters along the Niger Benue confluence, to the heights of between 300 and 600 meters above sea level in the uplands. Agbaja Plateau, which ranges from 335 to 366 meters above sea level, and the much higher Okoro Agbo hills at Ogidi in Ijumu LGA are some of the predominant to landforms of the state. The state is drained by the Niger and Benue rivers and their tributaries.

The confluence of the Niger and Benue rivers which could be viewed from the top of Mount Patti is located within the state. The Benue River is navigable as far as Garua in the rainy season floods, but up to Makurdi in Benue State in the dry season (Iloeje, 1979).

The Mabololo (Anambra) is the biggest river in Igala land. Mabololo, Okura, Ubele and Ofu rivers run off the Dekina, Ankpa, and Oturkpo watershed. Osome ra Falls at Kilometre Four on Okene, Ajaokuta Road, of Ofejiji Falls in Okura, Olafia and Egeneja Warm Spring in Bassa Local Government Area are other drainage features.

The bigger rivers have wide flood plains such as the portion of the lower Niger in Kogi state, which is more than 1,600 meters wide at Lokoja, while the small streams have narrow valleys. The general rain is undulating and characterized by high hills, Jos plateaus and numerous inselbergs and elongated ridges.

3.2.2 Climate

The state has an annual rainfall of between 1,100mm and 1,300mm. The rainy season lasts from April to October. The dry season, which lasts from November to March, is very dusty and of cold as a result of the north-easterly winds, which brings in the harmattan.

Fig 3.1 shows the precipitation amounts for Ankpa. The precipitation figure for Ankpa shows how many days per month, certain precipitation amounts are reached.

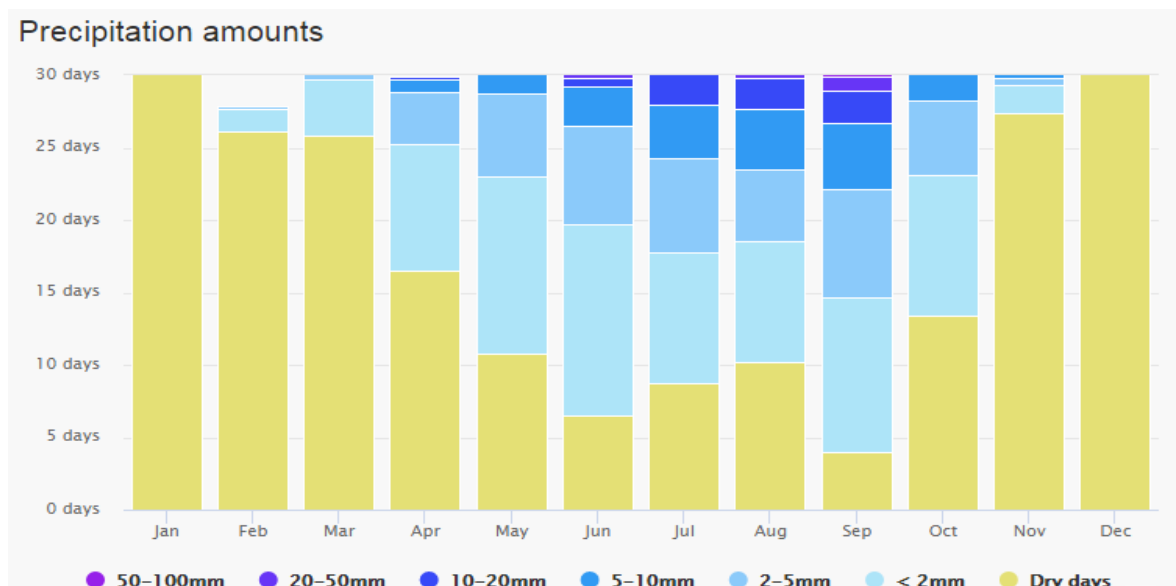


Fig. 3.3: Precipitation Amounts for Ankpa from January to December

(Source: www.meteoblue.com)

Fig. 3.4 shows the highest temperature for Ankpa and displays how many days per month the area reaches certain temperatures.

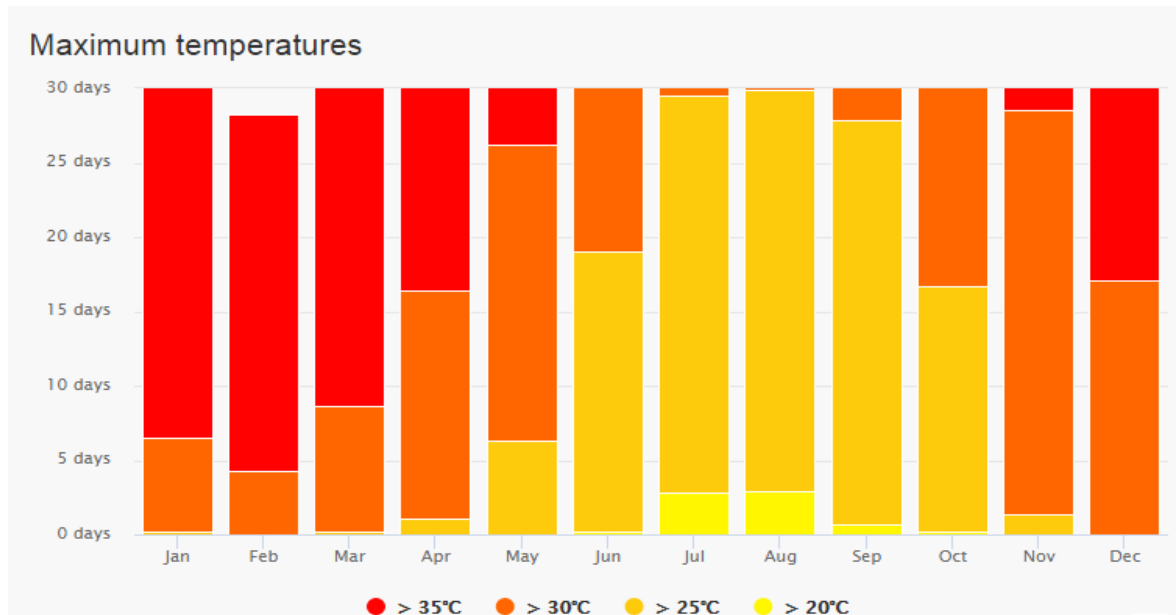


Fig. 3.4: Maximum Temperatures in Ankpa LGA from January to December

(Source: www.meteoblue.com)

Fig 3.5 shows the average temperatures and precipitation for Ankpa Local Government Area.

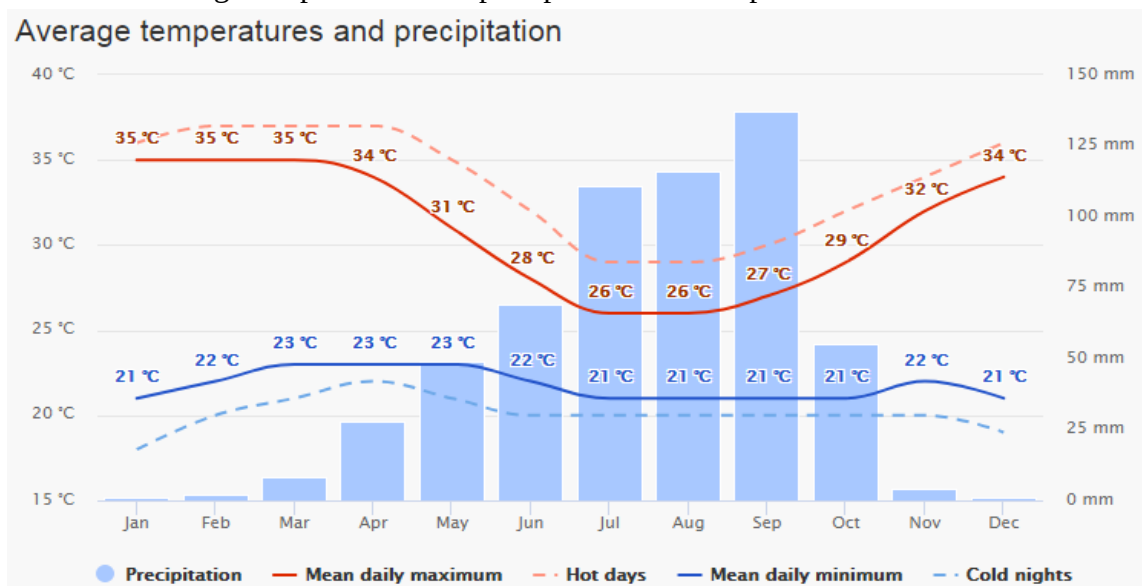


Fig. 3.5: Average Temperatures and Precipitation for Ankpa LGA

(Source: www.meteoblue.com)

The "mean daily maximum" (solid red line) shows the maximum temperature of an average day for every month for Ankpa. Likewise, "mean daily minimum" (solid blue line) shows the average minimum temperature. Hot days and cold nights (dashed red and blue lines) show the average of the hottest day and coldest night of each month of the last 30 years.

Fig 3.6 shows the cloudy, sunny and precipitation days in Ankpa LGA.

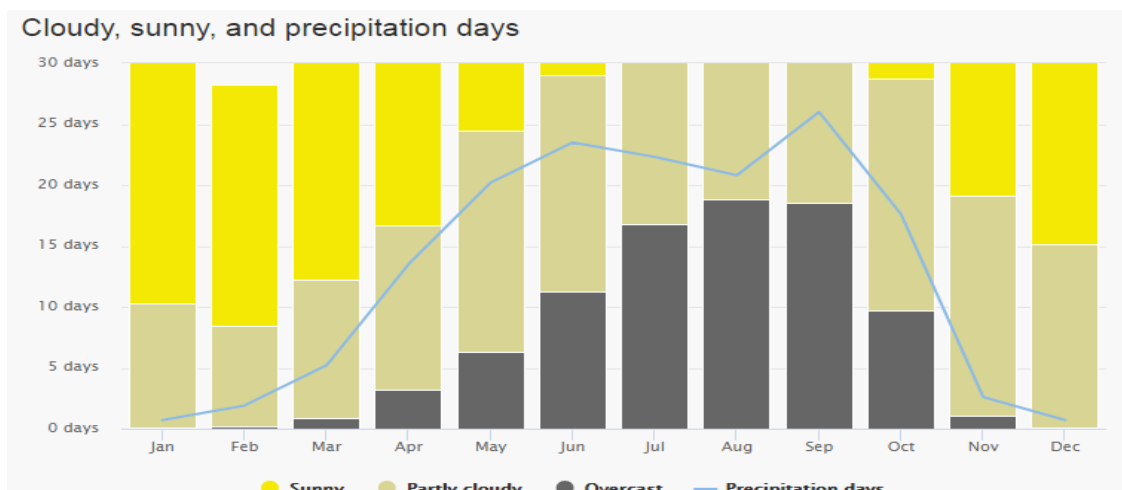


Fig. 3.6: Cloudy, Sunny, and Precipitation Days in Ankpa LGA

(Source: www.meteoblue.com)

The graph shows the monthly number of sunny, partly cloudy, overcast and precipitation days. Days with less than 20% cloud cover are considered as sunny, with 20-80% cloud cover as partly cloudy and with more than 80% as overcast.

Fig 3.7 shows the wind speed for Ankpa LGA. The Figure shows how many days within one month Ankpa can be expected to reach certain wind speeds. Monsoons create steady strong winds on the Tibetan Plateau from December to April, but calm winds from June to October.

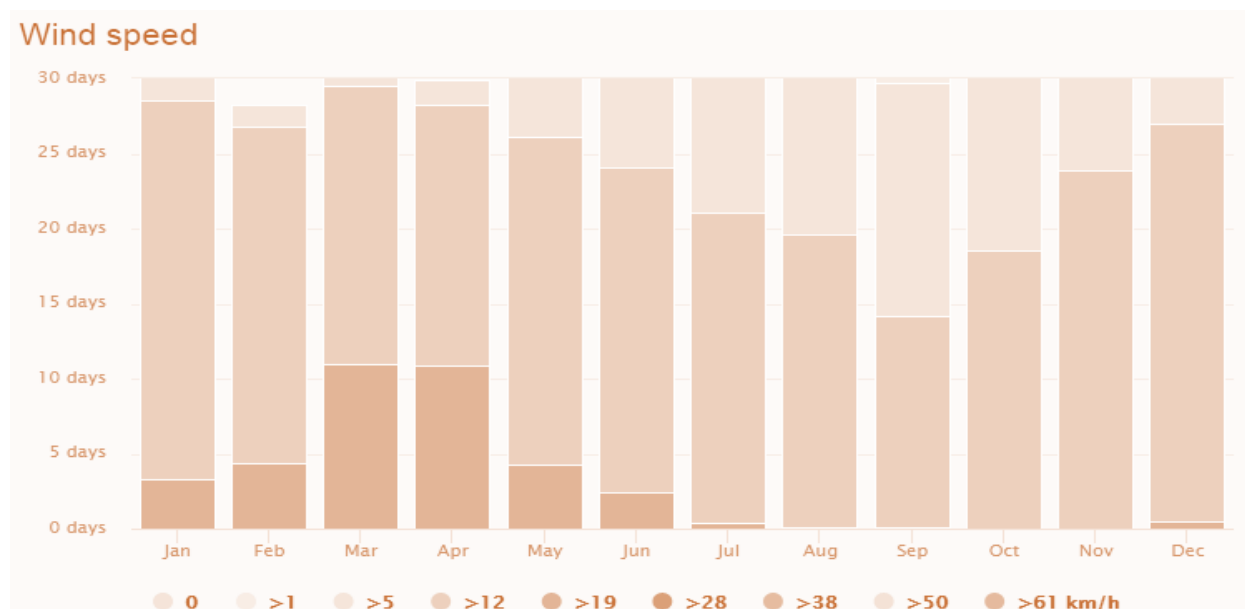


Fig. 3.7: Wind Speed for Ankpa LGA from January to December

(Source: www.meteoblue.com)

Figure 3.8 shows how many hours per year the wind blows from the indicated directions.

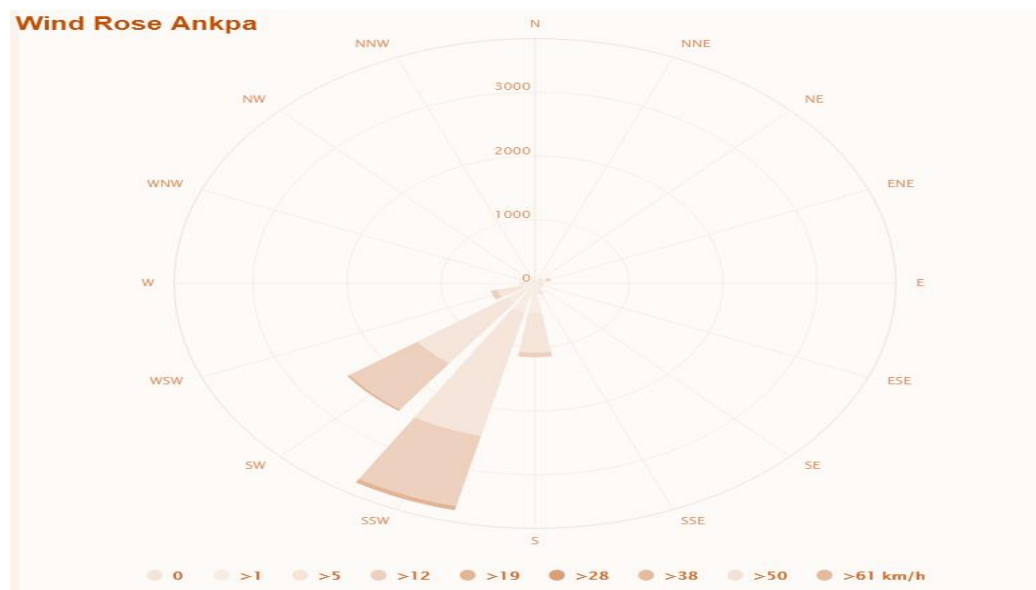


Fig. 3.8: Wind Rose for Ankpa in km/h (Source: www.meteoblue.com)

The wind rose for Ankpa shows how many hours per year the wind blows from the indicated direction.

3.2.3 Soils and Vegetation

Soils: The flood plains of the Niger and Benue River valleys in Kogi State have the hydromorphic soils which contain a mixture of coarse alluvial and colluvial deposits (Areola, 1985). The alluvial soils along the valleys of the rivers are sandy, while the adjoining laterite soils are deeply weathered and grey or reddish in colour, sticky and permeable.

Vegetation: The vegetation is mostly of Guinea savannah. The rain forest belt (selva type) covers Dekina, Ofu, Ankpa, Olamaboro, Idah and Bassa local government areas with rich deciduous and occasional stunted trees including palms, Iroko, mahogany, akee apple and other towering trees. Other LGAs are in the guinea savannah or parkland savannah belt with tall grasses and some trees.

These are green in the rainy season with fresh leaves and tall grasses, but the land is open during the dry season, showing charred trees and the remains of burnt grasses. The trees which grow in clusters are up to six meters tall, interspersed with grasses which grow up to about three meters.

These trees include locust bean, Shea butter, oil bean and the isoberlinia trees. The different types of vegetation are, however, not in their natural luxuriant state owing to the

careless human use of the forest and the resultant derived deciduous and savannah vegetation.

3.2.4 Ecological Problems

The ecological problems in the state are not necessarily peculiar to it. Some of these include leaching, erosion and general impoverishment of the soil. These problems are compounded by the annual bush burning of the savannah that further exposes the top soil to more erosion. Floods pose a problem on the flood plains during the rainy season, while aridity is a problem to several areas at short distances from the rivers during the dry season. Much damage is done to land and property as a result of these phenomena.

The affected Ankpa township gully site enjoys ample rainfall; annual mean rainfall ranges from 1000mm to 1300mm per annum, with rainfall more intense during the month April through October. The vegetation is mostly of Guinea savannah. The geology of the area is mostly sedimentary terrain comprising of Clay, fine grains and sand stones.

3.3 Soil Physical and Chemical Properties

3.3.1 Bulk Density, Total Porosity and Hydraulic Conductivity

Bulk density is an important soil parameter, influencing water infiltration and plant root health. *It is* defined as the dry weight of soil per unit volume of soil. It affects infiltration, rooting depth/restrictions, available water capacity, soil porosity, plant nutrient availability, and soil microorganism activity, which influence key soil processes and productivity.

Soils with a bulk density higher than 1.6 g/cm³ tend to restrict root growth. Bulk density increases with compaction and tends to increase with depth. High bulk density is an indicator of low soil porosity and soil compaction. It may cause restrictions to root growth, and poor movement of air and water through the soil. Compaction can result in shallow plant rooting and poor plant growth, influencing crop yield and reducing vegetative cover available to protect soil from erosion. By reducing water infiltration into the soil, compaction can lead to increased runoff and erosion from sloping land or waterlogged soils in flatter areas. The bulk density, total porosity and hydraulic conductivity are presented in Table 3.1. The values are in a range suitable for plant growth and water infiltration.

Table 3.1: Some Physical Properties of Soil Samples Collected From Different Locations At Ankpa

S/N	Location Ankpa	Coordinate	Sampling code	Sampling depth (cm)	Bulk density (g/cm ³)	Total porosity (%)	Hydraulic conductivity (cm ³ /hr)
1	Ofejiji	7.41229 ⁰ N	1A	0 – 20	1.55	41.51	50.58
		7.64406 ⁰ E	1B	20 – 40	1.81	31.69	8.43
2	Olubojo (1)	7.41325 ⁰ N	2A	0 – 20	1.42	46.42	59.01
		7.63656 ⁰ E	2B	20 – 40	1.53	40.38	27.82
3	Olubojo (2)	7.41875 ⁰ N	3A	0 – 20	1.58	40.00	50.58
		7.64133 ⁰ E	3B	20 – 40	1.56	41.13	21.07
4	Ogaji	7.40506 ⁰ N	4A	0 – 20	1.47	44.53	47.21
		7.63819 ⁰ E	4B	20 – 40	1.75	33.95	7.59
5	Eniokpoli	7.42525 ⁰ N	5A	0 – 20	1.41	46.79	59.83
		7.63772 ⁰ E	5B	20 – 40	1.69	36.23	12.69
Source: Measurement at the Project Site							

Table 3.2: Laboratory Analysis Result of Soil Samples Collected from Different Locations At The Project Sites Ankpa

Description/ Unit	Parameters	FMEnv Permissible Limits/max permissible Limits	Sample Code									
			A1	A2	A3	A4	A5					
			Depth (Cm)									
			0-20	20-40	0-20	20-40	0-20	20-40	0-20	20-40	0-20	20-40
	PH - H ₂ O	6.0-9.0	5.1	5.1	4.7	4.1	5.0	4.0	5.9	6.0	5.0	4.1
	PH - KCL		4.5	4.3	4.1	3.9	4.4	3.8	5.0	5.0	4.2	3.8
	OM (%)	2.0%*	1.11	0.39	0.66	0.03	0.66	0.20	0.86	0.20	0.72	0.20
	Total N (%)	0.20%*	0.14	0.11	0.14	0.10	0.07	0.06	0.10	0.10	0.098	0.08
Exchangeable Base (Cmol/kg Soil). (cmol/kg x 390=mg/kg)	Ca ²⁺	10-20 cmol/kg	2.0	1.6	1.0	1.0	1.2	1.0	1.6	2.6	1.4	1.0
	Mg ²⁺	3-8cmol/kg**	0.2	0.8	1.0	0.2	1.2	0.6	BDL	BDL	0.4	0.4
	K ⁺	0.7-1.2 cmol/kg**	7.07	5.12	7.80	4.88	6.88	5.12	10.73	6.34	9.02	5.12
	Zn	10-300mg/kg***	3.4	2.4	2.4	1.8	0.2	4.2	2.6	3.2	4.4	2.0
	Cl ⁻	200.0	159.53	248.15	212.7	212.7	212.7	230.4	177.3	212.7	212.7	195.0
Ppm (mg/kg)	Cd	0.01	29.09	25.21	21.33	27.15	27.15	27.15	9.70	21.33	19.39	21.15
	Cu	0.05, (2- 100mg/kg****)	0.30	0.30	0.12	0.12	0.12	0.06	0.24	0.06	0.18	BDL
	Fe ³⁺	3.0	BDL	BDL	0.02	0.09	BDL	0.02	BDL	BDL	BDL	BDL
	Pb	0.1	BDL	BDL	BDL	0.08	BDL	BDL	BDL	BDL	BDL	BDL
	SO ₄ ⁺	500	2.60	0.21	2.6	0.16	0.16	2.60	0.21	0.21	2.60	0.21
	PO ₄		11.33	10.20	11.33	6.80	10.20	9.07	14.73	14.73	7.93	9.07

Source: Measurement at the Project Site

Note: Detection limit is < 0.01 and < 0.1 (for Zn)

Note: *FPDD (1990), ** Holland et al (1989), *** Bohn et al (1885)

BDL = Below detection level



Fig. 3.9: Study Area Map Showing Soil Sampling Points

3.3.2 Soil pH (Reaction)

Soil reaction, a measure of the free hydrogen ion (H^+) concentration of soil solution is expressed term of pH values. The availability of nutrient elements and biochemical reactions in the soil are influenced by the value of the free H^+ concentration in a soil. In strongly acidic soils for instance basic cation uptake by plants roots is inhibited. In addition, beneficial soil microorganisms are affected by soil reaction. Therefore, soil pH is the foundation of all essentially all soil chemistry and soil nutrient reactions.

The pH of the soil of Ankpa soils ranged 4.7 to 5.9 at the topsoil (0-20 cm) and from 4.0 to 6.0 at the subsoil for pH measured in water while the values ranged from 4.1 to 5.0 at the topsoil and from 3.8 to 5.0 at the subsoil for pH measured in KCl (Table 3.3). The pH values measured in water were higher relative to the values measured with KCl, at the Ankpa project site, thus indicating that the soil is not highly degraded and as such the

cation exchange site is predominated by negatively charged soil colloids (clay minerals and humus).

3.3.3 Organic Matter and Nitrogen

Soil organic matter consists of dead, decayed, and decomposing animals and plants remains. Organic matter content of soils is source of nutrients such as nitrate, (oxidized form of nitrogen), phosphorus, and sulphur and also serves as source of nutrients for soil microorganisms. The organic carbon of soil is an important element in maintaining its good physical conditions and significantly affects its productivity. The organic matter (OM) content of the soils of Ankpa ranged from 0.66 to 1.11 % at the topsoil and from 0.03 % to 0.39 % at the subsoil (Table 3.3). In addition, the results show that values of organic matter were higher in the topsoil than in the subsoil at Ankpa. The difference in organic matter values at the topsoil and subsoil could be due to the greater release of organic matter at the topsoil during the decomposition of deposited dead organic matter and plant litter on the surface soil. However, the generally low level of organic matter may be due to the high rate of decomposition of organic matter occasioned by adequate aeration.

Nitrogen is one of the macro nutrient elements in soils that have very significant effect on plants growth. Plant growth is limited by nitrogen more than by any other plant nutrient element. Its deficiency in plants is often quickly observed by the yellowing of leaves and stunting of the plants. The values of nitrogen varied from very low to moderate at the both Ankpa as values of 0.15%, 0.15% - 0.20%, and >2.0% are classified as low, medium, and high respectively. The values at Ankpa soils ranged from 0.07 to 1.14 % and from 0.06 to 0.11 % at the topsoil and subsoil respectively (Table 3.3).

3.3.4 Exchangeable Cations (Nutrient Elements)

Exchangeable cations refer to the positively charged ions which are adsorbed to the surfaces of clay particles or organic matter in the soil. Some of the cations include, calcium, potassium and magnesium. The total number of these positively charged ions is known as the cation exchange capacity. Several soil properties such as acidity, nutrient availability and nutrient leachability depend on the relative proportions of the cations present. The cation exchange sites of the soils at Ankpa are dominated by monovalent cations, mostly potassium (Tables 3.3). The exchangeable potassium is moderately high. While potassium ranged from 6.88 to 10.73 Cmol/kg in the topsoil and 4.88 to 5.12 Cmol/kg in the subsoil at the Ankpa location soils indicated that the values ranged from 10.49 to 22.68 and from 5.12 to 14.15Cmol/kg in the topsoil and subsoil respectively. The values for calcium and magnesium are shown. Generally, the order of concentration of the base cations in the soil during at Ankpa is as follows: $K > Ca > Mg$.

3.4 Noise Measurement

Loss of hearing is certainly the most well-known adverse effect of noise, and probably the most serious. Other detrimental effects of noise include tinnitus (ringing in the ears), interference with speech communication and perception of warning signals, disruption of job performance, annoyance and extra-auditory effects. The fact that the equipment that will be used for construction in the site will generate some noise suggests that the noise level will increase when construction starts. The map showing the noise sample location is presented in figure 3.8, while the result of the noise level is presented in Table 3.3.

Table 3.3: Result of the Noise Measurement at the Project Site

S/N	Location	GPS Coordinates	Digital Sound Level	FME _{env} Limit for 8-hour operation
	Ofejiji	7°24.768'N; 7°38.543'E	45.6 - 69.1 dba	90dB (A)
	Olubojo 1	7°24.833'N; 7°38.286'E	40.5 - 52.0 dba	90dB (A)
	Olubojo 2	7°24.972'N; 7°38.030'E	44.3 - 55.2 dba	90dB (A)
	Ogaji	7°25.113'N; 7°38.594'E	38.9 - 68.4 dba	90dB (A)
	Eniokpoli	7°25.369'N; 7°38.233'E	54.2 - 64.2 dba	90dB (A)

Source: Measurement at the project site

The result of noise measurement shows that the mean noise levels in virtually all the measured stations are below the FME_{env} 90dB (A) limit for 8-hour operation. Levels in excess of 60dB (A) were recorded at locations where contributions from local traffic were significant at the time of visit

3.5 Ambient Air Quality

The ambient air quality around the proposed project was measured at five points around the project area. The air quality parameters of the project site were measured using the MSA gas monitor. Table 3.4 shows the parameters of the air quality samples collected, while Figure 3.8 shows the map of the location and sample points for the air quality samples. The measurements of the air quality from different locations along the project corridor were all below the recommended limit.

Table 3.4: Result of Air Quality Measurements at Ankpa

S/N	Parameters	NESREA ug/m3	RESULTS (PPM)					METHOD
			A1	A2	A3	A4	A5	
1	Hydrogen Sulphide(H ₂ S)	5	0.00	0.00	0.00	0.00	0.00	MSA Alt Air Multigas Detector (direct reading in- situ combined with Time Weighted Averages)
2	Carbon monoxide (CO)	500	0.00	0.00	0.00	0.00	0.00	
3	Nitric Oxide (NO)	300	43.75	43.75	43.75	43.75	43.75	
4	Nitric dioxide (NO ₂)	300	9.6	9.6	9.6	9.6	9.6	
5	Sulphur dioxide	500	7.9	7.9	7.9	7.9	7.9	
6	Hydrogen Cyanide (HCN)	NS	26.3	26.3	26.3	26.3	26.3	
7	Ammonia (NH ₃)	NS	21.9	21.9	21.9	21.9	21.9	
8	Chlorine (Cl ₂)	NS	8.8	8.8	8.8	8.8	8.8	
9	Oxygen	NS	20.8	21.2	21.3	21.3	21.2	

A1 – Ofeijiji ($7^{\circ}24.768'N$ $7^{\circ}38.543'E$); A2 - Olubojo 1($7^{\circ}24.833'N$ $7^{\circ}38.286'E$),
 A3 - Olubojo 2 ($7^{\circ}24.972'N$ $7^{\circ}38.030'E$); A4 – Ogaji ($7^{\circ}25.113'N$ $7^{\circ}38.594'E$),
 A5 - Eniokpoli ($7^{\circ}25.369'N$ $7^{\circ}38.233'E$); MSA= Mine safety appliances

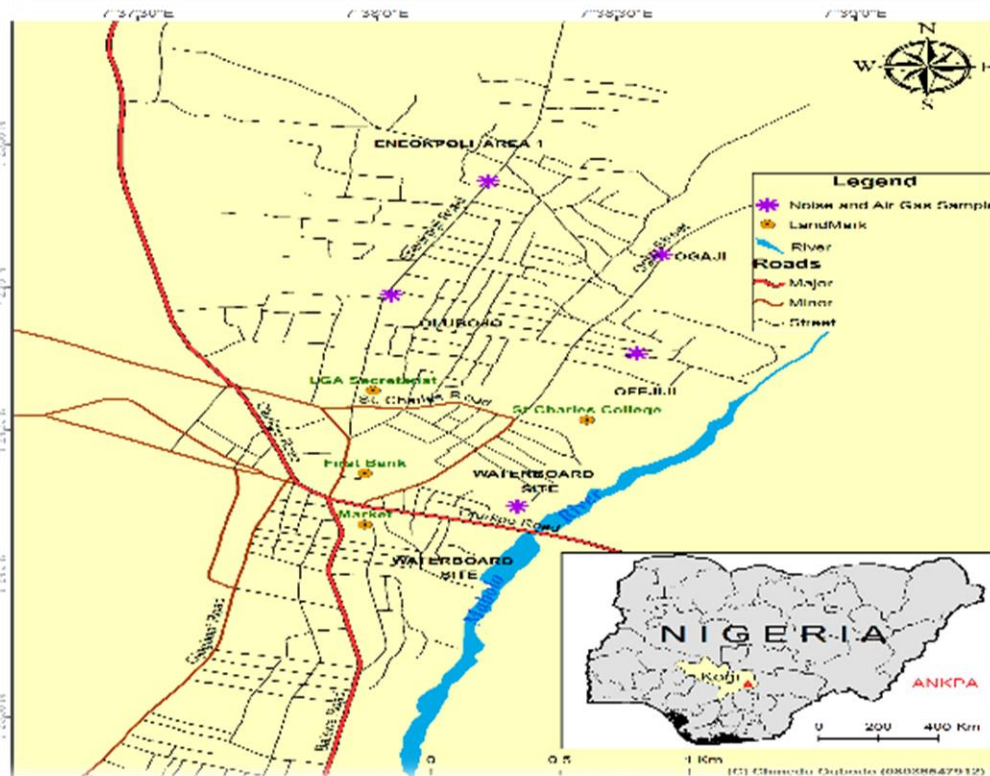


Fig. 3.10: Map Showing the Noise and Air Quality Sampling Locations

3.6 Water Quality

Surface water samples were collected from local stream that run between Ogaji and Ofeijiji areas and empty into Mabolo River while borehole water samples were collected from Olubojo and Eniokpoli areas. The in-situ water quality were measured during the course of the field work. The coordinates of water sampling points and result is presented in Tables 3.5 and 3.6 below. Considering that the water samples were collected from flowing streams/river and boreholes, and are often used as drinking water by the residents of the communities around them, the maximum permitted by Nigeria Industrial Standard for drinking water quality and the health impacts were also included. All the collected samples were analysed at the Soil Science Postgraduate Laboratory, Department of Soil Science, University of Nigeria, Nsukka

The results for the water samples show that value of cadmium for water samples collected at Ofeijiji, Ogaji and Eniokpoli were much higher than the permissible limits by

both FMEnv/WHO and the Nigeria Industrial Standard for drinking water quality and hence will have serious health impacts on the people considering that many of them drink from the river and/or its tributaries.

Table 3.5: Coordinates of Water Sampling Points at Ankpa Local Government Area

S/N	Sample Code	Location	Coordinate	Source
1	Ankpa (A1)	Ofeiji	7.41244 ⁰ N ; 7.64403 ⁰ E	Surface Water (River)
2	Ankpa (A2)	Olubojo (1)	7.41325 ⁰ N; 7.63656 ⁰ E	Underground Water (Borehole)
3	Ankpa (A3)	Olubojo (2)	7.41746 ⁰ N; 7.63947 ⁰ E	Underground Water (Borehole)
4	Ankpa (A4)	Ogaji	7.40508 ⁰ N; 7.63819E	Surface Water (River)
5	Ankpa (A5)	Eniokpoli	7.42525 ⁰ N; 7.63772 ⁰ E	Underground Water (Borehole)

Source: Measurement at the project site, 2023

Table 3.6: Laboratory Analysis Result for Surface and Ground Water Samples from Ankpa (A1 and A4 are surface water while A2, A3 and A5 are ground water)

S/N	Parameter	A1	A2	A3	A4	A5	FMEnv/WHO Permissible limit	Nigeria Industrial Standard for drinking water quality- maximum permitted	Health Impact
1	Ph	4.2	4.5	6.5	6.2	6.1	6.5-8.5	6.5-8.5	None
2	Electrical Conductivity (μ S/cm)	1.0	3.0	3.0	11	2.0	50-125	1000	None
3	Sulphate (SO_4^{2-}) (mg/L)	BDL	BDL	BDL	BDL	BDL	200	100	None
4	Chlorides (mg/L)	0.06	0.053	0.053	0.105	0.038	250	250	None
5	Colour Haze Unit	17500	20000	17500	20000	17500	15 TCU		
6	Phosphate (PO_4^-) (mg/L)	3.627	BDL	0.907	1.813	59.842			
7	Odour (TON)	NIL	NIL	NIL	NIL	NIL	odourless		
8	Salinity (mg/L)	640	1920	1920	7040	1280	-		
9	Manganese (mg/L)	0.16	0.16	0.08	0.20	0.08	0.05	0.2	Neurological disorder
10	Iron (Fe^{2+}) (mg/L)	BDL	BDL	BDL	BDL	BDL	0.3	0.3	None
11	Zinc (Zn^{2+}) (mg/L)	0.16	0.16	0.44	0.56	0.24	-	3	None
12	Cadmium (Cd^{2+}) (mg/L)	1.16	BDL	BDL	0.388	0.776	0.01	0.003	Toxic to the Kidney
13	Copper (Cu^{2+}) (mg/L)	BDL	BDL	BDL	BDL	6.042	1	1	Gastrointestinal disorder
14	Lead (Pb^{2+}) (mg/L)	BDL	BDL	BDL	BDL	BDL	0.01	0.01	Cancer, interference with vitamin D metabolism, affect mental development in infants, toxic to the central and peripheral nervous system
15	Dissolved Oxygen (DO), (mg/L)	8.5	9.7	10.0	10.1	9.9	7.5		

16	BOD (mg/L)	BDL	BDL	BDL	BDL	BDL	80
17	Total Hardness (mg/L)	0.24	0.36	0.16	0.52	1.36	200
18	Temperature °C	32	32	32	32	32	<40

Note: Detection limit is < 0.01 and < 0.1 (for Zn); BDL = Below detection level;

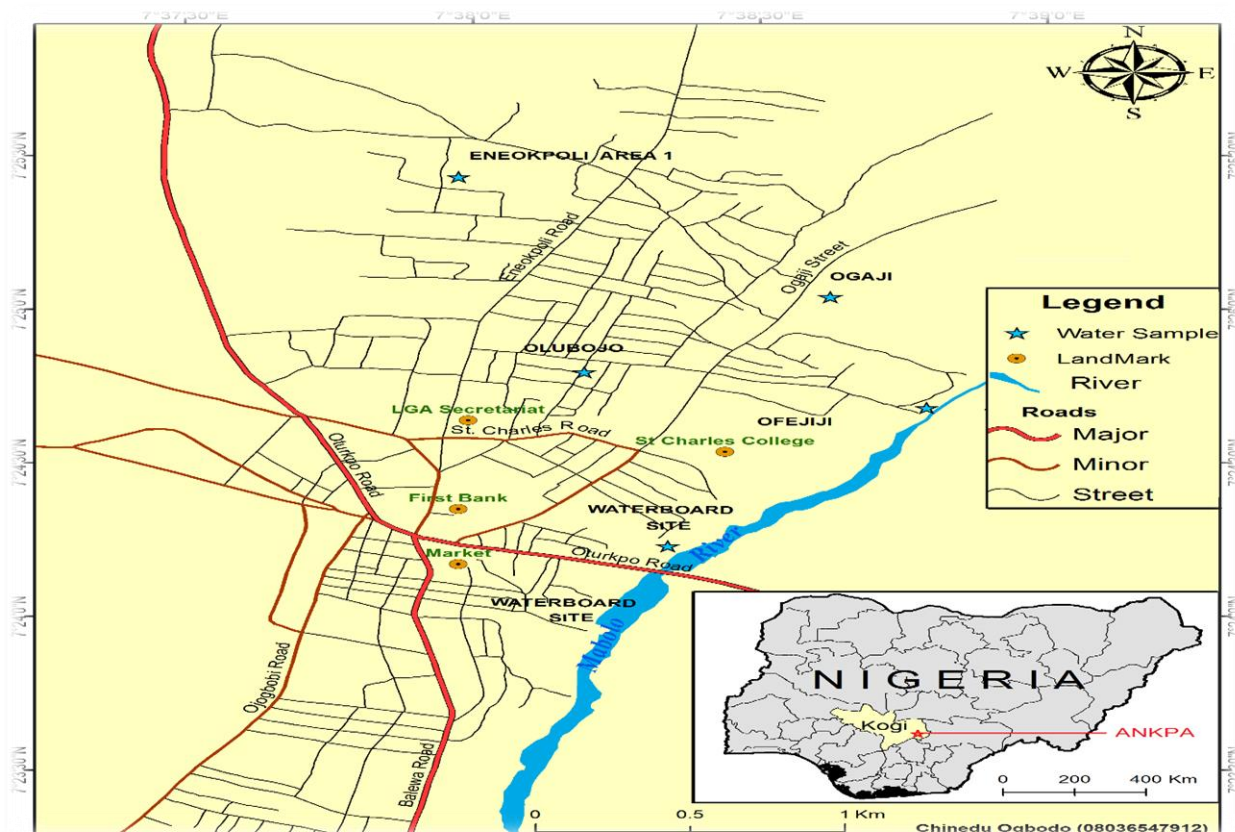


Fig. 3.11: Map Showing Water Sampling Locations

3.7 Biological Environment

3.7.1 Plant Biodiversity

Ankpa erosion sites located in Ankpa local government area have open spaces that are bare of vegetation and relatively eroded with a few isolated trees. The identified trees, shrubs, herbs and grasses are sparse and scattered around the residential areas except around the Ofejiji area where there occurred some thick brushes. The summary of the plant biodiversity in the project community in the watershed is presented in Table 3.7. The Table shows that, the plant biodiversity is limited to a few scattered trees and herbs downstream near the Ofejiji River. Some common plant types include the cashew, mango, neem tree, flame of the forest, Cassia, Iroko tree, Albizia, clusters of bamboo, etc., while the identified shrubs include Jatropha, Gliricidia, etc. See Table 3.8 below for more details on the plant species found in Ankpa town catchment area.

Table 3.7: Plant Biodiversity in Ankpa Town Catchment Area

Trees species	Common Name	Family	No. of Shrubs (0.5- 4m)	No. of Trees (>4m)	Height of tallest trees (m)	Stem diameter (cm)
<i>Anacardium occidentale</i>	Cashew			5	8.5	30.2
<i>Anacardium occidentale</i>	Cashew			7	8	27
<i>Elaeis guinensis</i>	Oil palm			4	12	57.3
<i>Irvingia spp</i>	Bush mango			2	22.5	44.6
<i>Chlorophora excels</i>	Iroko			1	24	54
<i>Terminalia superb</i>	Umbrella tree			1	23	60.5
<i>Cassuarvina equistifolia</i>	Cassuarina			1	31	54
<i>Mangifera indica</i>	Mango	Anacardiaceae		1	22	52
<i>Mangifera indica</i>	Mango	Anacardiaceae		1	7.5	46.2
<i>Mangifera indica</i>	Mango	Anacardiaceae			22	49.7
<i>Cassia stamea</i>	Cassia				21.5	36.6
<i>Terminalia superb</i>	Black edo				34	102
<i>Irvngia Senegal</i>	Bush mango				23	46.1
<i>Anacardium occidentalic</i>	Cashew				11	23.9
<i>Anacardium occidentalic</i>	Cashew				11.5	20.7
Shrubs						
<i>Annona spp</i>		Annonaceae	Clump			
<i>Alchona cordifolia</i>			Clump			
<i>Jathropha indica</i>			Clusters			
<i>Rawoltia vomitoria</i>			several			
Herbs						
<i>Schrankia leptocarpa</i>	Sensitive plant	Fabaceae	Common			
<i>Sporobolus pyramidalis</i>	Cat's tail	Poaceae				
<i>Centrosema pubeseens</i>	Centro	Fabaceae	Common			
<i>Chromolaena odorata</i>	Siam weed	Asteraceae				
<i>Ageratum conyzoides</i>	Goat weed	Asteraceae				
Grass						
<i>Imperatacylindrica</i>	Blady grass	Poaceae				
<i>Panicum maximum</i>	Guinea grass	Poaceae	Common			

Source: Baseline Survey, 2023.

3.7.2 Wildlife Biodiversity

Focus group discussions conducted among the community members in the various communities within the project area show that the most commonly seen domestic and wild animals were local fowl, goat and sheep as well as reptile, rodents and other small animals. Wild animals rarely seen are parrot and buffalo, while those under extinction, according to the local people are chimpanzee, fox, and rhinoceros. Table 3.8 below shows the wildlife in the project area as identified during the baseline survey within the Ankpa catchment area.

Table 3.8: Wildlife Biodiversity of Ankpa Catchment Area

Mammals	Scientific Names	Order	Family	Abundance Status
Mona monkey	<i>Cercopithecus mona</i>	Primate	Cercopithecidae	Rare
Grasscutter/greater cane rat	<i>Thyronomys swinderianus</i>	Rodentia	Thryonomyidae	Rare
Rock hyrax	<i>Procavia capensis</i>	Hyracoidea	Procaviidae	Rare
Nigerian mole-rat	<i>Fukomys foxi</i>	Rodentia	Bathyergidae	Common
Birds				
Stone partridge	<i>Ptilopachus petrosus</i>	Galliformes	Odontophoridae	Rare
Guinea fowl	<i>Agelastes niger</i>	Galliformes	Numididae	Common
Cattle egret	<i>Bubulcus ibis</i>	Pelecaniformes	Ardeidae	Common
Common Kestrel	<i>Falco tinnunculus</i>	Falconiformes	Falconidae	Rare
Reptiles & Amphibians				
Rough green snake	<i>Opheodrys aestivus</i>	Squamata	Colubridae	Common
Common water frog	<i>Eleutherodactylus marnockii</i>	Anura	Leptodactylidae	Common
Common agama	<i>Agama agama</i>	Squamata	Agamidae	Common
Chameleon	<i>Chamaeleo calyptratus</i>	Squamata	Chamaeleonidae	Common
Snails				common
Invertebrates				
Grasshoppers		Orthoptera	Euschmidtinae	Common
Beetles		Coleoptera	Curculionidae	Common
Sawflies		Hymenoptera		Common
Bees		Hymenoptera		Common
Wasps		Hymenoptera		Common
Butterflies		Orthoptera		Common
Moths		Orthoptera		Common

Source: Baseline Survey, 2023.

CHAPTER FOUR

SOCIO-ECONOMIC CHARACTERISTICS AND CONSULTATION WITH STAKEHOLDERS

4.1 Socio-Economic Characteristics

This chapter discusses themes and topics on population, land use, planned development activities, settlement and community structures, employment, distribution of income, goods, and services, recreation, health, and cultural properties as they are concerned with the project area. Specifically, the chapter entails a detail discussion of the following:

- Socio-Economic Assessment: Analysis of existing livelihood opportunities, income, gender characteristics, age profile, health, transport access, existing community structures at the watershed, community, household, and individual levels etc;
- Gender Based Violence: Analysis of the status of GBV/SEA in the project community and related issues;
- Grievance Redress Mechanism: Analysis of existing formal and informal grievance redress mechanisms in and around the intervention area;
- Public Consultation: Presentation of consultations with relevant stakeholders and affected persons; and
- Other relevant topics.

4.1.1 Data Collection Methodology

Methods employed in gathering data on the socioeconomic characteristics of the project community to ensure adequate and wide coverage are highlighted as follows:

- Reconnaissance survey;
- Preparation/design of survey material;
- Field data collection (structured questionnaire administration);
- Consultations with groups and stakeholders;
- Consultation with community health facility personnel;
- Field/direct observation; and
- Literature review (secondary data collection).

4.1.2 Overview of Data Collection Methodology

A reconnaissance survey of the project community was carried out prior to the field data gathering. This was done to enable the consultant to structure/design a comprehensive survey material (questionnaire). The questionnaire was structured to capture important socioeconomic variables of the project community and it was randomly administered. Furthermore, notices were given to various groups ahead of consultation with stakeholders. This was to enable the various groups such as community elders, project affected peoples (PAPs), women association, youths, and artisans etc prepare themselves

and attend the stakeholders meeting. In addition, various health facilities within the community were also visited and interviewed on issues relating to the health of the locals and GBV treatments.

A literature review, particularly on the history of the community, prevalence of gender-based violence and population characteristics was also carried out. Data on population of the study area was sourced from the National Population Commission (NPC) and the Nigeria Bureau of Statistics (NBS). Other activities engaged in during the data gathering exercises are field observations (photographs and note taking), minutes of meetings held, attendances of meetings, and contacts of key persons met. These are attached as annexures.

4.2 Socio-Economic Assessment

The Socio-Economic Assessment covers population characteristics, demographics, education, employment, healthcare, housing, assets, communication, transportation, standard of living, and social services. It delves into cultural practices, environmental factors, livelihoods, and community development initiatives. The assessment highlights challenges and opportunities, considers community influence, positive and negative impacts of the project, and concludes with actionable recommendations for improvement.

4.2.1 Population Characteristics of the Project Area

Official highest resolution of available population information in Nigeria is available at the Local Government Area (LGA) level. The project area traverses Ankpa of Kogi State, hence, as shown in **Table 4.1** state's population size of Ankpa in relation to the population size of Kogi State was studied. Annual growth rate of Kogi State is put at 3.05% (NPC, 2007); this growth rate is assumed for all its LGAs including Ankpa. As shown in the **Table 4.1**.

Table 4.1: Kogi state and Ankpa LGA Population Size (Estimation) and Projection

	Year	Total
Kogi State	1991	2,147,756
	2006	3,314,043
	2016	4,473,500
	2020	5,043,961
Ankpa LGA	1991	*****
	2006	266,176
	2016	359,300
	2020	404,624

Source: National Bureau Statistics (2012)

4.2.2 Demographic Characteristics of Sampled Population

Table 4.2 gives a description of the socioeconomic characteristics of the respondents in the study community. Demographic variables such as respondent's gender, age, marital

status, religion, household size and ethnic group are described. This information would present an understanding of the profile of the respondents in the project community.

Table 4.2: Respondent's Demographic Characteristics

Indicators	Options	Respondents (%)	Findings
Gender	Male	68	From the respondents interviewed, males represent 68% of the population and females account for 32%. This distribution emphasizes the significance of tailoring interventions to address specific gender-related needs and challenges.
	Female	32	
Age	Below 18 yrs.	8	The age distribution reveals a dominant working-age population between 18-45 (48%) that presents an opportunity for engaging in agricultural revitalization, while there is presence of both young adults below 18 (8%) and elderly residents between 46 and above (42%). The diversified age groups represent a diverse set of stakeholders. Involving all age groups in project planning and decision-making can foster a sense of ownership, community cohesion, and sustainability.
	18-45 years	48	
	46-65 years	32	
	Above 66 years	12	
Marital Status	Single	16	Most residents in Ankpa are married, accounting for 60% of the population, potentially contributing to a sense of stability and community cohesion. A few are single (16%) or separated (16%) and others are widowed (8%).
	Married	60	
	Divorced/Separated	16	
	Widowed	8	
Religion	Islam	32	Ankpa exhibits religious diversity, with Christianity (52%) being the majority religion, followed by Islam (32%) and a smaller portion (16%) adhering to traditional beliefs. This diversity can lead to a rich cultural and religious tapestry within the community. However, it's important for community leaders and members to foster understanding and respect among different religious groups to promote social cohesion and minimize potential conflicts.
	Christianity	52	
	Traditional	16	
Household size	1-5	8	Most households in Ankpa fall within the range of 6-10 members, comprising 56% of the total households with other larger households with 11+ members accounting for 36%. Resource allocation and community support systems should be designed to accommodate the needs of larger households.
	6-10	56	
	11-15	20	
	16 and above	16	
Ethnic	Igala	72	The Igala ethnic group forms the majority comprising 72% of the population. This is followed by Bini (20%) while Esan represents a smaller portion (8%). Provide project information in multiple languages if necessary and utilize culturally sensitive communication approaches to reach all segments of the community.
	Bini	20	
	Esan	8	
Residential Status	Permanent resident	80	Of the sampled population, 80% represents those who are permanent residents of Ankpa community while back
	Back home	20	

Indicators	Options	Respondents (%)	Findings
Duration in the community	(returnee)		home(returnee) account for 20%.
	More than 10 years	88	In addition, a high proportion of the permanent residents (88%) have lived for more than 10 years in the project area while others have lived in the area for between 2-9 years (12%). This implies that they have stayed long enough in the project area to provide reliable information on the socio-economic condition of the community.
	2-9 years	12	

4.2.3 Respondents' Educational Status

Education gives awareness and necessary knowledge of the basic projects and activities carried out in any environment and facilitates ease of communication. Kogi state is home to the Federal University Lokoja, Kogi State University, Anyigba, Federal Polytechnic Idah, Kogi State Polytechnic (Lokoja), Federal College of Education (Okene), College of Education (Ankpa), College of Agriculture Kabba, Kogi State College of Education, Technical (Kabba), and The Private Salem University. There are college of nursing and midwifery in Obangede, School of health tech in Idah and ECWA School of Nursing in Egbe.

As shown in Figure 4.1, respondents' educational qualification in Ankpa are: tertiary education (college of education, polytechnic etc) (32%), University graduates (28%) secondary school certificate holders (16%), university postgraduate (8%) and primary school leavers. Those with no formal education account for 12% each. Considering the diverse education levels, the project should use different communication methods for simplicity with lower education levels and complexity for higher education levels. It should also encourage collaboration among residents with diverse skills, promoting a holistic problem-solving approach.

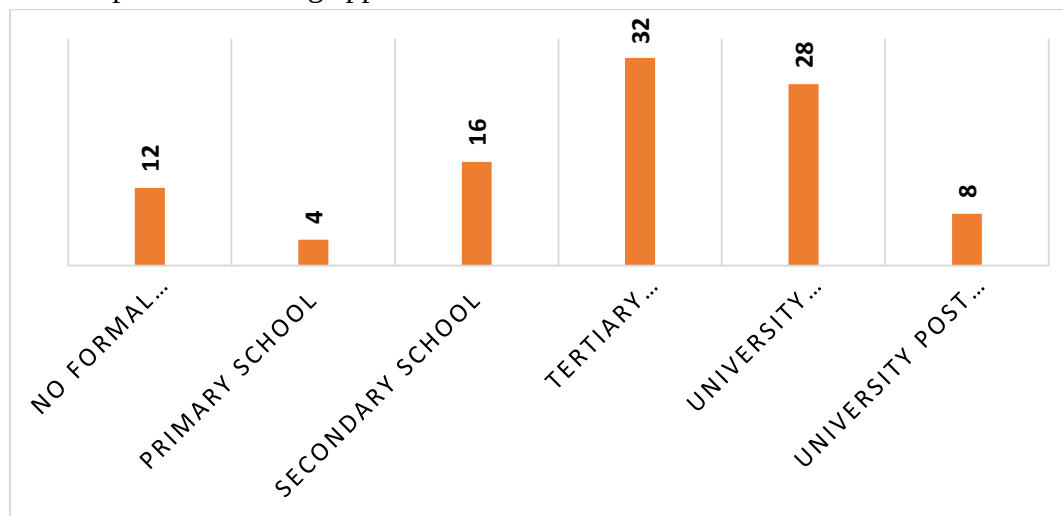


Fig. 4.1: Respondents' Educational Status

4.2.3.1 Household Members' Educational Status

About 84% of the surveyed households have at least one member attending school while 16% stated contrary. The high school attendance reflects a positive environment for educational initiatives and potential receptiveness towards project interventions related to education. The distribution of education levels indicates that most respondents have education up to primary school (48%), followed by senior high/technical level (24%), and followed by post-secondary education (19%) and junior high (10%). The education levels indicate a need to focus on improving access to higher education and skill development programs.

Most respondents (33%) indicated that their ward take an hour+ to reach school, while significant proportions take 15-60 minutes (24%). Those who indicated 5-15 minutes represent 19%, 30-60 minutes (14%) and <5 minutes (10%). This indicates a need to focus on improving access to higher education and skill development programs. The primary mode of transport to school is on motorcycle (55%), followed by foot (25%), mini-bus (10%), taxi (5%) and tricycle (5%). Understanding the transportation challenges and educational aspirations of the community can foster more effective community engagement. By addressing these challenges, educational institutions and policy makers of ACReSAL project intervention can show their commitment to supporting the community's educational needs.

4.2.4 Respondents' Occupational Characteristics

As seen in Figure 4.2, the primary livelihood source in Ankpa is farming, engaging 32% of residents, followed by artisanal activities at 12%. Daily laborers contribute significantly at 20%, while trading and shopkeeping involve 8% of respondents in diverse scales. Employed individuals receiving a salary make up 8%, civil servants represent 4%, and the unemployed account for another 8.0% of the population. Since farming plays a significant role in the community's economy, the project might consider initiatives to improve agricultural practices, provide access to modern farming techniques, and enhance market linkages for agricultural products.

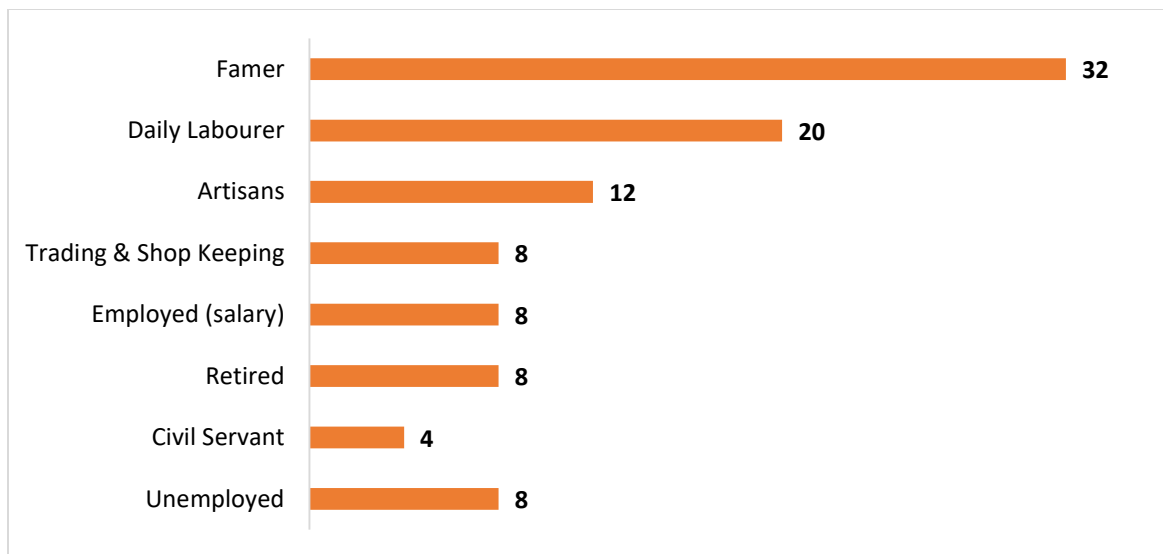


Fig. 4.2: Respondents' Livelihood Characteristics

4.2.5 Respondents' Income Characteristics

From the surveyed population, majority of the respondents in Ankpa (36%) claimed they earn less than 10,000 naira. Many of them are daily labourers, artisans and farmers who could not estimate their monthly income because they have not been keeping records. Other respondents earning between 11,000 – 20,000 naira represent 28%, 12% earn between 21,000-30,000 naira while those that earn between 31,000 - 40,000 naira and income above 41,000 naira account for 8% each. This indicates that a significant portion of the community may be experiencing financial challenges, potentially affecting their overall quality of life, access to basic needs, and ability to save.

Other obtainable sources of income were also identified by the respondents. 16% of the respondents receive money from family members who live elsewhere which could be contributing to their overall income and financial stability while others (84%) do not receive any external financial support, with increases reliance on their own incomes and local resources. As indicated, remittances received range from 5,000 naira to 10,000 monthly.

As seen in Figure 4.3, the distribution of total household monthly incomes in Ankpa community is diverse, with notable concentrations in the 91,000 - 100,000 range (20%) and lower incomes (<10,000) at 8%, indicating both economic diversity and potential disparities requiring attention for equitable development. Other income ranges are 11,000 – 20,000 (16%), 51,000 – 60,000 (8%), 21,000 – 30,000 (4%), 21,000 – 30,000 (4%), 21,000 – 30,000 (4%) while 36% of the respondents find it difficult to estimate their monthly income due to a lack of financial records. However, it may be that they do not

feel comfortable disclosing their income to a third party as that practice is not very common in Nigeria.

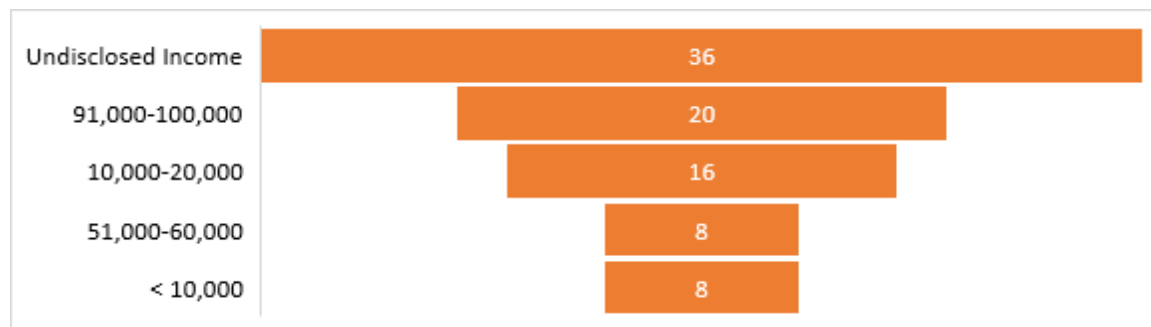


Fig. 4.3: Respondents' Total Household Income

4.2.6 Respondents' Assets

The below subsections highlight various means of living of the residents in Ankpa community. It emphasizes on the residents' assets and household items, communication technology, comfort and convenience, transportation modes, housing characteristics, sanitation and housing tenure.

4.2.6.1 Prevalence of Household Items among the Residents of Ankpa Community

The Ankpa community demonstrates ownership of essential electronics and health-consciousness, with 100% ownership of DVD players and refrigerators, as well as universal access to mosquito nets. Communication technology is well-adopted, with radio/tape recorders (91.7%), televisions (81.8%), and mobile phones (81.3%) offering potential for information dissemination. Additionally, a focus on comfort is evident through high ownership of furniture (87.5%) and prevalent cooking facilities (83.3% stoves), while varying technology ownership highlights opportunities for enhancing digital literacy and communication infrastructure to support community development.

4.2.6.2 Respondents' Prevalence of Transport Modes

As shown in Figure 4.4, the transportation landscape in Ankpa community is primarily dominated by motorcycles (76%), indicating their affordability and accessibility. Car ownership is low (8%), potentially due to economic constraints, while a diverse range of options, including bicycles (8%), taxis (4%), and trucks (4%), demonstrates adaptability. The community's inclination towards sustainable transport and the presence of varied modes of transport highlight opportunities for improved safety, infrastructure, and environmentally friendly initiatives.

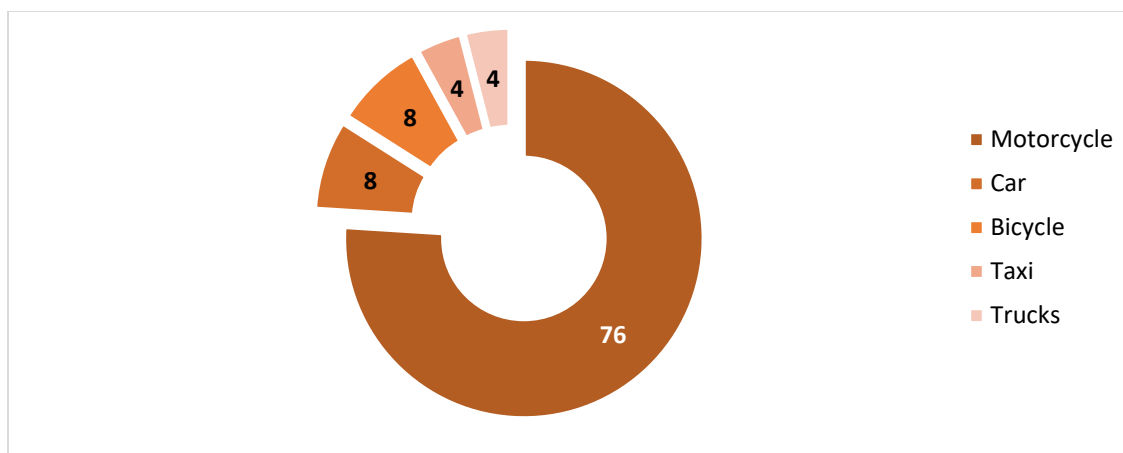


Fig. 4.4: Respondents' Prevalence Mode of Transport

4.2.6.3 Housing Characteristics

The housing characteristics of residents in Ankpa community suggest a community in transition, with a predominant preference for durable housing and modern roofing materials. Majority (80%) of the respondents in Ankpa indicated that they live in cemented block houses while 20% indicated plastered mud houses. The roofing materials indicated are corrugated iron (52%), aluminium (44%), and asbestos (4% each). A high proportion (64%) of the respondents indicated that their floors were made of concretes while others stated tiles (20%) and (16%) earthen materials. The types of toilet facility indicated are pit latrine (56%), water closet (32%) toilet facility outside dwelling (8%) and pier latrine (4%). As for the Number of rooms in each household, 3-4 represent 68% while those living in 1-2 represent 32%. Other structures on the plot are animal pen (75%), granary (13%) and shops (13%). The tenure of the housing and land is presented in Figure 4.5. As shown, 72% of the sampled population in Ankpa indicated they own the houses they live in, 24% live in rented apartments while 4% occupy rent-free. Similarly, 76% of the respondents claimed that they own the land they occupy while 16% and 8% of the respondents are respectively occupying a rented land and occupied rent-free land.

Challenges such as sanitation infrastructure gaps and the need for affordable housing options require targeted interventions to improve overall living standards while maintaining a balance between traditional practices and modernization.

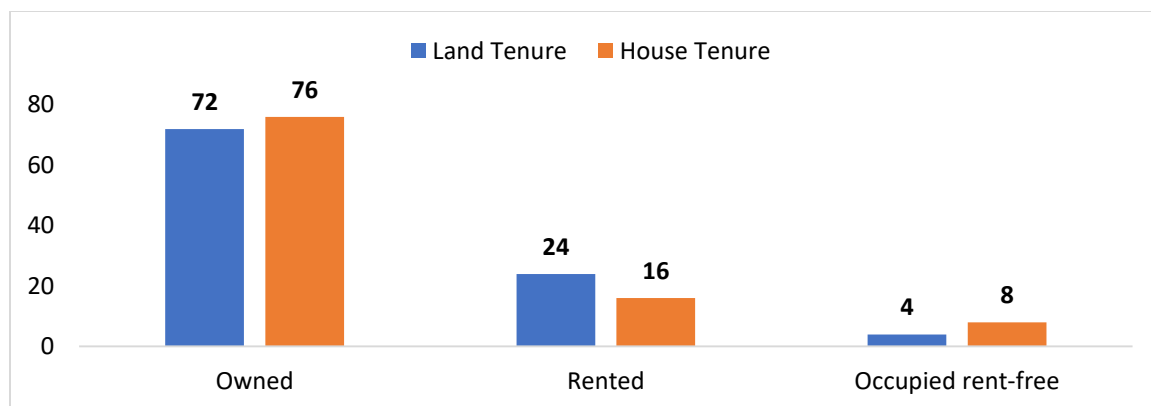


Fig. 4.5: Respondents Land and House Tenure

4.2.7 Household Solid Waste Management

As shown in Figure 4.6, the waste management methods adopted by the respondents in Ankpa include dumping of wastes in the community refuse/garbage pit/dumpsite (36%), indiscriminate deposit of refuse at the backyard of their houses (32%), burning after gathering of wastes (20%) and other respondents dump their refuse in waterbody (4%). The prevalence of these less environmentally friendly methods might be indicative of a lack of proper waste management infrastructure and services in the community. The Local Government Authority and the State Government in collaboration with the community needs to invest in waste collection, segregation, and disposal facilities to provide residents with safer and more sustainable waste management options.

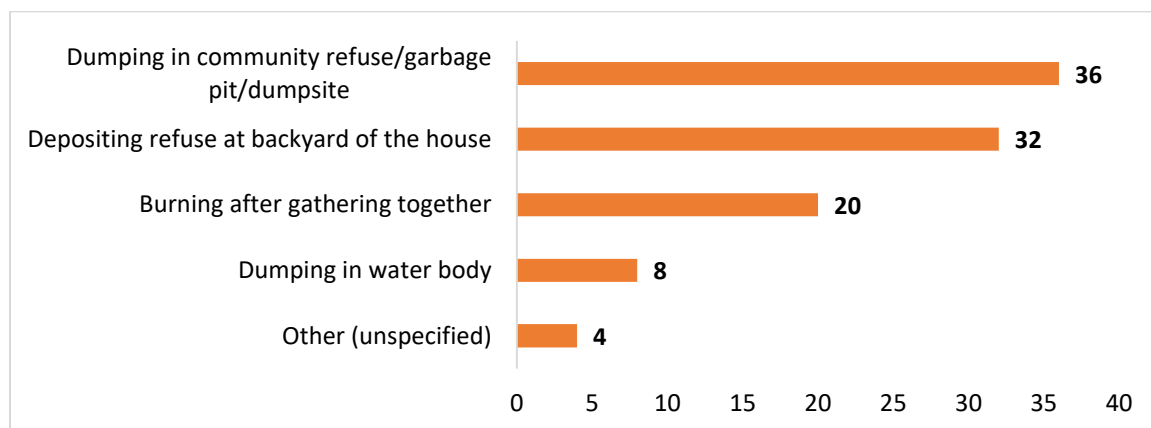


Fig. 4.6: Solid Waste Management

4.2.8 Sources of Energy

Majority of the respondents in Ankpa indicated Generator (32%) and torchlight battery (28%) as major sources of lighting. Others include lantern (20%), PHCN (8%), wood and kerosene (4% each). The responses indicate a lack of reliable and widespread access to modern electricity sources in the Ankpa community. Residents rely on a mix of

alternative sources such as generators, lanterns, and torchlight batteries. This situation highlights the need for comprehensive efforts to improve energy infrastructure, provide reliable electricity, and promote safer and more sustainable lighting options.

Firewood is the primary cooking method used by all surveyed residents of the Ankpa community. Gas (83%) and coal (33%) are other secondary options were mentioned. The prevalence of using multiple cooking sources indicates that residents might employ a combination of traditional and modern methods based on availability, affordability, and convenience.

4.2.9 Sources of Water

Figure 4.7 shows the sources of water supply for households in Ankpa community. According to the respondents, the common source of water for drinking, cooking, bathing and washing are boreholes (72%), hand-dug wells (12%), rain harvesting (12%) and others (4%). The heavy reliance on boreholes might make the community vulnerable to disruptions if these sources break down or face maintenance issues. Diversifying the water supply sources can help mitigate this risk and ensure continuous access to clean water.

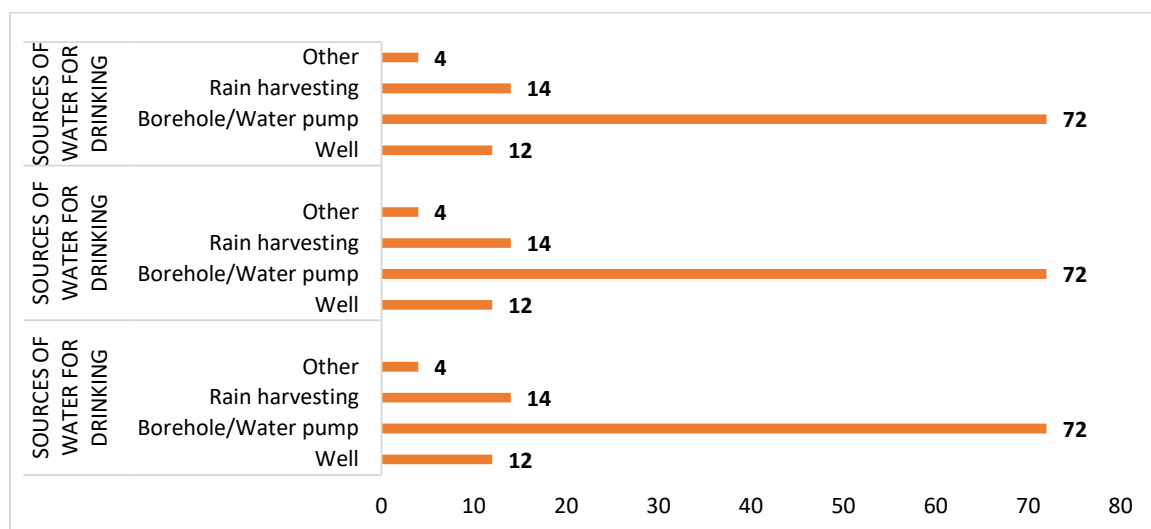


Fig. 4.7: Respondents Sources of Water for Household Uses

4.2.10 Respondents' Standard of Living and Perceived Impact of Proposed Intervention

As shown in Figure 4.8, 36% of respondents reported that their standard of living has improved over the previous three years, while 24% claimed it had remained the same. There appears to be a significant proportion of respondents (40%) whose standard of living has worsened. This could indicate economic challenges or changes in the community's overall economic conditions.

There is a perceived connection between environmental conditions and living standards. About 32% of respondents believe that the state of the environment has propelled the decline in their standard of living while others (68%) indicated otherwise. This highlights the importance of addressing environmental issues to uplift the community's socio-economic well-being.

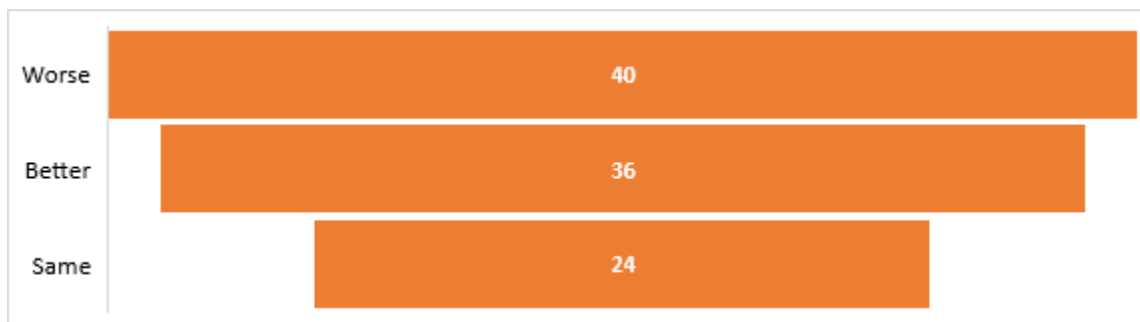


Fig. 4.8: Respondents Views on their Present Standard of Living

There is optimism about the effectiveness of the proposed intervention among those who recognize the environment's influence. Among those who believe the environment has impacted their standard of living, 88% think that the proposed intervention will improve the situation while 12% indicated contrary. This suggests that community members have hope in the intervention's potential positive outcomes.

When asked about how the intervention will improve the situation, most respondents (72%) believed they would benefit indirectly. Various responses were provided by other respondents (28%), including better environment, better living conditions, construction of drainage for water flow, flood and erosion prevention, livelihood improvement, and more. The intervention should be designed to address these various aspects comprehensively to have a meaningful impact.

4.2.11 Impact of the Ankpa Gully Erosion/Flood on the Residents

As shown in Figure 4.9, all the respondents in Ankpa claimed that the gully has affected them in some way. This suggests that Gully Erosion/Flood is a significant concern in the community, potentially leading to various challenges for the residents. The majority of those affected (56%) reported damage to their buildings or properties due to Gully Erosion/Flood. 12% mentioned economic losses resulting from their inability to access or operate means of livelihoods. A significant proportion (20%) reported damage to farmlands, which could have implications for food security and agricultural productivity. A smaller percentage (8%) experienced actual loss of landed or building property due to the erosion/flood while 4% of the respondents mentioned damage to household utensils and personal belongings.

Given the high percentage (56%) of reported damage to buildings and properties, the project should prioritize strengthening infrastructure resilience. This might involve engineering solutions such as reinforced foundations, flood-resistant materials, and improved drainage systems.

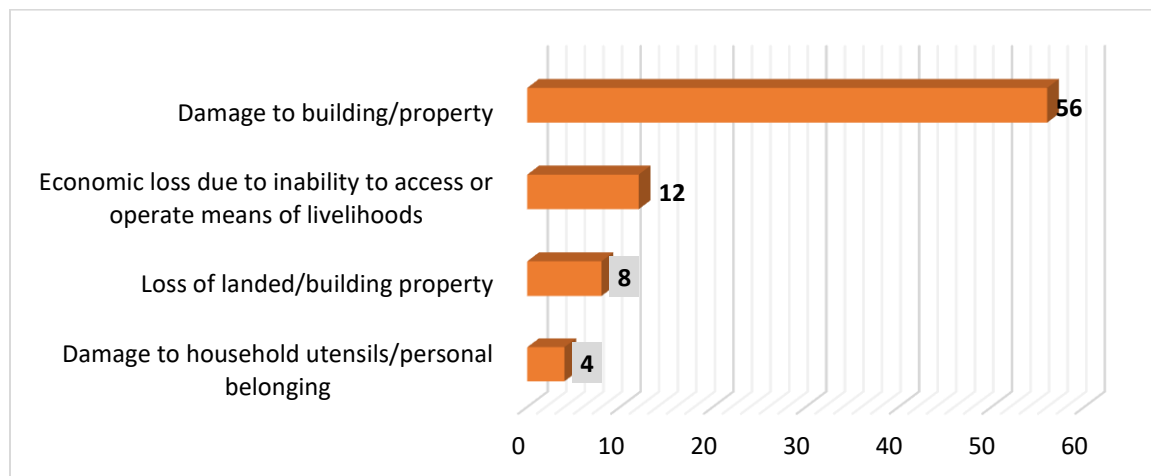


Fig. 4.9: Impact of the Gully Erosion on the Respondents

Furthermore, most respondents (21%) in the community indicated that the gully has prevented their children from going to school many times, with the situation happening often (62%). 29% noted that it had happened frequently while others stated rarely (10%).

4.2.12 Respondents' Health Status and Potential Impact of Proposed Intervention

The following subsection delves into the health status of the respondents and assesses the potential ramifications of the proposed intervention. It explores how the proposed measures could influence the well-being of the individuals surveyed, shedding light on the broader implications of the intervention on their health and overall quality of life.

4.2.12.1 Respondents' Underlying Ailment and Sickness and Related Concerns

Malaria affects a large portion (68%), followed by typhoid fever (24%). This highlights the need for better vector control and hygiene. Respiratory issues like asthma (8%) and whooping cough (20%), along with hypertension (20%), are common. Eye pains (12%) and cataracts (4%) are notable. Targeted interventions and health education are vital to address these conditions and improve Ankpa's health.

As seen in Figure 4.10, 48% of respondents feel the proposed intervention at the Ankpa gully erosion site will have an impact on their health, while the remaining 52% do not. The disparities in perceptions point to the necessity for clear communication and interaction with the community to address concerns and offer information about the potential health effects of the intervention. As shown in Figure 4.10, concerns raised by

people who fear their health would be harmed include ground water contamination (33%), surface water contamination (17%), creating breeding grounds for disease vectors (8%) and noise/air pollution (42%). These concerns underline the importance of conducting a thorough environmental impact assessment and implementing stringent mitigation techniques to prevent contamination and pollution during the building and implementation phases.

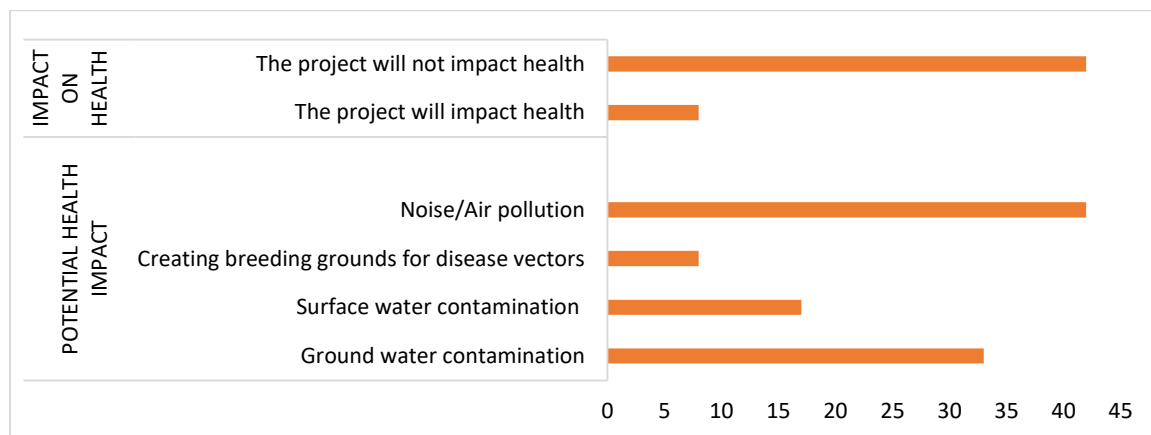


Fig. 4.10: Potential Impact of Proposes Intervention on Respondents' Health

About 96% of respondents provided suggestions on how to avert health risks during the construction and implementation of the intervention. The most common suggestions are unspecified. The respondents might be uncertain about the potential risks and challenges involved, leading them to withhold suggestions due to a lack of confidence in their accuracy. 4% mentioned controlling erosion through government aid. The community's input is valuable for designing effective risk mitigation measures. The high percentage of unspecified strategies suggests a need for further engagement to clarify and gather specific suggestions from the community. As the implementation progresses, continuous community engagement, transparent communication, and adherence to best environmental practices are essential to ensure that the health and well-being of Ankpa community residents are safeguarded throughout different phases of the intervention.

4.2.12.2 Effect of Gully on Respondents' Present State of Health

The result show 84% of respondents reported that their present state of health is affected by Gully Erosion/Flood, while 16% mentioned no impact. Among those affected, the reported health issues include skin diseases (14%), cough (23%), catarrh (5%), malaria (36%). About 84% also stated that the illness become severe during flood seasons while others (16%) reported no significant change. The information highlights the need for urgent public health interventions to address the health challenges brought about by gully erosion and flooding in Ankpa community. The higher prevalence of conditions like

malaria and water-borne diseases highlights the importance of sanitation and water quality improvements to prevent disease transmission during flood events.

As shown in Figure 4.11, around 92% of respondents prefer to attend a hospital or clinic when they are sick while 8% buy drug from nearby chemist. This indicates a relatively high trust in formal medical institutions for addressing health concerns in Ankpa. It was also reported that 74% of respondents visited a hospital or clinic within the last six months, while 9% had their last visit over five years ago. Additionally, 8% purchased drugs from nearby chemists. This implies a need to focus on improving healthcare services to ensure all community members have regular access to medical care, and to address any barriers that might discourage timely healthcare-seeking behaviour.

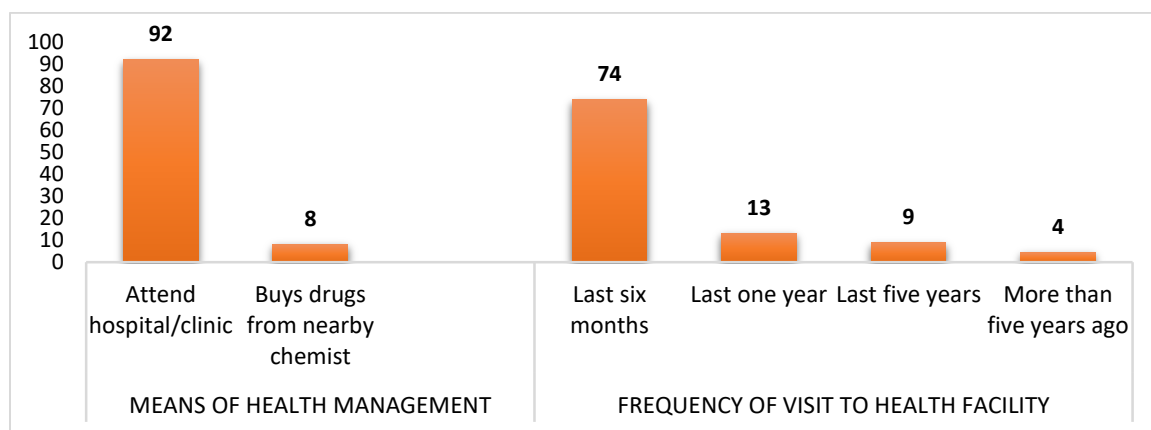


Fig. 4.11: Respondents' Health Management and Visit to Health Facility

4.2.13 Community Environmental Concerns (CEC)

This section focuses on prevailing and projected environmental issues within the community. It covers the current environmental challenges, as well as anticipated impacts during and after project construction. Measures to alleviate these concerns and promote long-term sustainability should be considered.

4.2.13.1 Environmental Problems Which Ankpa Community Currently Experience

A significant portion of the respondents highlighted the issue of poor drainage system (32%) and bad roads (32%) as a major environmental problem in the community. Poor drainage can lead to property damage, diseases, and disruptions in daily life while the presence of bad roads can hinder transportation, accessibility, and economic activities. On the other hand, bad roads can increase travel time and maintenance costs for vehicles, impacting the overall quality of life and economic prospects for the residents. Addressing this issue is crucial to ensure the well-being and safety of the community members.

4.2.13.2 Environmental Problems Envisaged at Phases of the Intervention Project

The environmental problems during the proposed project construction and operation envisaged by the communities (respondents) are shown in Table 4.3. Therefore, their views/fears will have to be allayed as much as possible during the phases of the intervention project.

Table 4.3: Environmental Problems Envisaged At Phases Of The Intervention Project

During Construction	Response (%)	During Operation	Response (%)
	Ankpa		Ankpa
Erosion problems	24.0	Bad road	32.0
Poor drainage system	16.0	Erosion problems	20.0
Bad road	12.0	Destruction of infrastructures	16.0
Soil infertility	12.0	Flooding	12.0
Low visibility	12.0	Poor drainage system	8.0
Flooding	12.0	Soil infertility	4.0
Environmental degradation	8.0	Low visibility	4.0
Encroachment of land properties	4.0	Environmental degradation	4.0

4.2.13.3 Environmental Problems Envisaged at Phases of The Intervention Project

While most of the respondents (96%) indicated that the project will not affect any valued resource/cultural property, 4% of the respondents stated otherwise and indicated displacement of such valued cultural properties. Ensuring transparency and open dialogue could help address any overlooked concerns or misconceptions that might have led to the low percentage of respondents expressing worry.

4.2.14 Intervention Project Activities Impact Evaluation

There is awareness about the gully erosion intervention by ACReSAL in Ankpa. The respondents are all aware of the proposed intervention and all of them heard about it during community meetings (80%) and via media; TV, radio, newspaper and internet (20%). Most of the community members (84%) have a positive outlook on the project's impact on restiveness, indicating a level of acceptance and confidence in the intervention. Others (16%) indicated the following potential triggers for restiveness: disrespect of norms and culture, possible theft of sacred items and local people not considered for employment during construction.

As mentioned by the respondents in Ankpa, the positive impacts expected as indicated by (84%) from the proposed intervention are good road infrastructure for ease of accessibility, drainage and environmental improvements, erosion and soil improvement, livelihood and good environment and water provision. A notable proportion (16%) of

respondents anticipate indirect benefits from the project. Indirect benefits might include improvements in the local economy, social interactions, and overall quality of life for everyone.

As indicated by the respondents, some of the positive impacts expected from the intervention are compensation for those whose properties will be affected (44%), employment of locals during construction (28%), capacity building for maintenance during implementation (24%) and community input into final engineering design (4%).

About 36% of respondents from the Ankpa community have expressed significant concerns about the potential negative impacts of the proposed intervention project on their livelihoods and the environment. These concerns include property destruction and encroachment, environmental degradation and pollution, noise pollution and infrastructure damage, balancing environmental protection and property rights, livelihood disruption and displacement. Approximately 64% of Ankpa community residents do not foresee any negative impacts resulting from the proposed intervention project. This suggests that a significant portion of the community may be cautiously optimistic about the project's potential effects on their livelihoods and the environment. However, it's important for project planners and stakeholders to engage with the community to ensure that their concerns are adequately addressed and that potential impacts, even if not immediately evident, are thoroughly evaluated.

4.3 Analysis of the Status of GBV/SEA in the Project Community and Related Issues

Gender-based violence, or GBV, is one of the oppressive forms of gender inequality, posing a fundamental barrier to the equal participation of women and men in social, economic, and political spheres. GBV affects both men and women, but women are much more vulnerable because violence reflects and reinforces existing interchangeably. GBV according to (Arango et al. 2014) includes among others:

- Intimate partner violence,
- Non-partner sexual assault,
- Female genital mutilation,
- Sexual exploitation and abuse,
- Child abuse,
- Child marriage

Such violence impedes gender equality and the achievement of a range of development outcomes. Gender violence precludes individuals from contributing to or benefiting from development initiatives by limiting their choices and ability to act (UN General Assembly 2006). In the project area, views from the public consultation revealed that GBV incidents are rare. This is not surprising as GBV is often denied or silenced by under-reporting, societal stigmatization of victims or by institutional weakness/failure in terms

of absence of effectual and accessible reporting mechanisms and protection services at community level (Para-Mallam, 2018).

Odekunle et al (2019) in the study of the prevalence and pattern of gender-based violence as seen at Federal Medical Centre, Lokoja, revealed that 8.9% of patients examined during the study period, had features of GBV. GBV was found to be commonest within the age range of 20 to 29 years (38.5%) and most of them were females (95.7%). Sexual violence was the commonest type of GBV experienced by the respondents in the study population (65.2%) followed by physical violence (53.3%).

Oduenyi et al (2017) also opined Gender-based violence is an issue of concern in Kogi State but presently not being responded to adequately. Rape was reported to be the commonest form of GBV occurring in the selected communities in Kogi State followed by intimate partner violence (IPV). The existing government structure for social services through the social welfare departments is skeletal and not properly coordinated. The strong socio-cultural factors surrounding GBV also make isolated medical care inadequate therefore, there is the need to strengthen the capacity of the service providers on GBV case management and massive sensitization of all stakeholders and multi-sectoral collaboration amongst GBV actors to ensure optimal health outcome of GBV survivors. Referral services for GBV are widespread across the state and can also be found within the project area (Annex VIII). It can be concluded from the above analysis that GBV is prevalent in the project area and will probably rise due to the influx of migrants. There is therefore the need to provide measure to mitigate and manage this risk.

4.3.1 Gender-Based Violence/Sexual Exploitation and Abuse

Respondents' views (knowledge) on the prevalence of gender-based violence within the project community were thus assessed. A summary of their responses is shown in Tables (4.4 – 4.12).

4.3.1.1 Provisions Restricting Women Access to Health and Other Social Services

There are existing customs, traditions and common practices that restrict women from having access to health and social services in the community. Table 4.4 below shows that women in Ankpa community are least restricted from having certain health services; they are least restricted by their husbands or a male figure.

Table 4.4: Provisions Restricting Women Access to Health and Other Social Services

Are there restrictions which....	Ankpa	
	Yes (%)	No (%)
require the consent of a male relative/husband for a married woman's medical examination or treatment or access to contraceptives or abortion;	20.0	80.0
require parental consent in case of adolescents' access to contraceptives or abortion;	20.0	80.0

allow medical practitioners to refuse provision of a legal medical service on grounds of conscientious objection	12.0	88.0
prohibit certain medical services, or require that they be authorized by a physician, even where no medical procedure is required; in particular	20.0	80.0
are allowed to undergo IUDs (intrauterine devices) or hormonal contraceptives	16.0	84.0
are allowed emergency contraceptives, including the morning-after pill,	24.0	76.0
are allowed sterilization on request;	20.0	80.0
request on early abortion (in first trimester of pregnancy) are granted;	20.0	80.0
medically assisted or allowed on reproduction (e.g., in vitro fertilization)	12.0	88.0

4.3.1.2 Criminalization of Sexual Exploitation and Abuse

As shown in Table 4.5, certain acts such as home births by obstetricians or midwives and transmission of HIV or other venerable diseases by women are generally not criticized in the project community while child marriage, female genital mutilation, adultery, abortion, prostitution, sexual orientation and gender identities, are not encouraged in the communities.

Table 4.5: Sexual Exploitation Criminalization

Are the following criminalized in the project area:	Ankpa	
	Yes (%)	No (%)
transmission of HIV or other venereal diseases by women only	32.0	68.0
female genital mutilation	28.0	72.0
child marriage	28.0	72.0
home births with an obstetrician or midwife	24.0	76.0
Abortion	32.0	68.0
Adultery	64.0	32.0
Prostitution	68.0	32.0
sexual orientation and gender identity (homosexuality, lesbianism, transgender, etc)	80.0	20.0
violations of modesty or indecent assault (e.g. not following dress code)	76.0	24.0

4.3.1.3 Provisions in Criminal Law that Treats Women and Men Unequally

As shown in Table 4.6, certain acts such as sentencing for the same offense, especially capital punishment, stoning, lasing, imprisonment, etc are generally not criticized in the project community.

Table 4.6: Criminal Law that Treats Women and Men Unequally

Are there any provision in criminal law that treat women and men unequally regarding...	Ankpa	
	Yes (%)	No (%)
Procedure for collecting evidence	20.0	80.0
Sentencing for the same offense, especially capital punishment, stoning, lasing, imprisonment, etc	16.0	84.0
So called “honour crimes” (are they tolerated for the perpetrator to avoid prosecution or to be less severely punished if the woman is skewed?)	28.0	72.0

4.3.1.4 Respondents Views on Purpose of Criminalizing Gender-Based Violence

As shown in Table 4.7 below, most respondents across the project community indicated that sexual exploitation is criminalized to prevent unwanted pregnancies, sexually transmitted diseases (STD) and promote a healthy lifestyle for teenage girls.

Table 4.7: Are There Legal Obligations To Provide Health Education In School?

Criminalized to:	Ankpa	
	Yes (%)	No (%)
Are there legal obligations to provide health education in school?	44.0	56.0
If yes, do they cover?		
Prevention of sexually transmitted disease	40.0	60.0
prevent unwanted pregnancies	40.0	60.0
promote a healthy lifestyle, including prevention of dietary disorders of teenage girls, including anorexia and bulimia	36.0	64.0
promote psychological/psychiatric training on self-control of aggression, including sexual aggression	24.0	76.0

4.3.1.5 Respondents Views on Data Disaggregated by Age and/or Sex

As shown in Table 4.8 below, most respondents across the project community indicated that a notable portion of respondents acknowledged low incidence of data disaggregation in various form.

Table 4.8: Are There Any Statistical Data Disaggregated By Age And/Or Sex?

Are there any statistical data disaggregated by age and/sex (collected over the last 5 years) regarding	Ankpa	
	Yes (%)	No (%)
Malnutrition	24.0	76.0
Maternal mortality	20.0	80.0
Maternal morbidity including obstetrics fistula	24.0	76.0
Adolescent childbearing	24.0	76.0
Health consequences of physical, psychological, sexual and economica gender-based violence	24.0	76.0
Incidence of HIV/AIDS and sexually transmitted diseases	36.0	64.0
Drug abuse	32.0	68.0
Alcohol addiction	28.0	72.0
Legal abortions	32.0	68.0
Death resulting from legal abortions	32.0	68.0
Illegal abortions	32.0	68.0
Death resulting from illegal abortions	28.0	72.0
Use of contraceptives, including mechanical and hormonal (including emergency contraceptives)	32.0	68.0
Sterilization on request	28.0	72.0

4.3.1.6 Respondents Views on Data Disaggregated by Age and/or Sex

As shown in Table 4.9 below, most respondents across the project community indicated that a notable portion of respondents acknowledged low incidence of statistical data disaggregation in various related and unrelated cases.

Table 4.9: Are There Any Statistical Data Regarding Reported/Unreported Case?

Are there any statistical data and/or estimations regarding the numbers of reported and/or unreported cases and convictions for	Ankpa	
	Yes (%)	No (%)
Female genital mutilation	28.0	72.0
Illegal voluntary abortion	24.0	76.0
Forced abortions	24.0	76.0
Forced sterilizations	24.0	76.0
Malpractices in cosmetic medicine	24.0	76.0
Obstetric violence	24.0	76.0

4.3.1.7 Measures and Programmes for to Increase Women Safety in Public Spaces

Most respondents in the sampled population indicated there are no measures and programs undertaken to increase women's safety (e.g., in public urban spaces, in public transportation, etc.) in their communities. The responses are summarised in table 4.10.

Table 4.10: Measures and Programs for Women

Measures and Programmes for to Increase Women Safety	Ankpa	
	Yes (%)	No (%)
Any measures and programs undertaken in order to increase women safety (e.g., in public urban spaces, in public transportation)	52.0	48.0
Are there any statistics on crimes amounting to violence against women in public spaces and/or domestic violence	32.0	68.0
Is the sex of the victim reflected in the police, prosecutors and courts records	40.0	60.0
Are there any data and/or results of research on the detrimental influence of the feelings of insecurity and unsafety on women's mental health	24.0	76.0

4.3.1.8 Measures and Programmes for Women with Special Provisions for their Children

As shown in Table 4.11, most respondents in the sampled population indicated there are no specific health and safety protective measures for women, and/or with special provisions for mothers with young children, in "closed" institutions including in their community.

Table 4.11: Measures and Programs for Women with Special Provisions for their Children

Are there specific health and safety protective measures for women, and/or with special provisions for mothers with young children, in “closed” institutions including in...	Ankpa	
	Yes (%)	No (%)
Prisons (e.g., measure like Bangkok rules)	16.0	84.0
Police detention cells	16.0	84.0
Psychiatric hospitals	12.0	88.0
Pre-deportation centres	12.0	88.0
Camps for displaced women and families (if relevant)	16.0	84.0
Nunneries	12.0	88.0
Women’s shelters	20.0	80.0

4.3.1.9 Measures and Programmes for Women in Place of Medical and Legal Issues

As shown in Table 4.12, most respondents indicated there are no specific training programs in place for medical and legal professionals on the issue of gender-based discrimination in the area of health and safety while a few stated the contrary in Ankpa.

Table 4.12: Measures and Programs for Women in Place of Medical and Legal Issues

Measure and Programs for Women	Ankpa	
	Yes (%)	No (%)
Are there specific training programs for medical and legal professionals on the issue of gender-based discrimination in the area of health and safety?	32.0	68.0
Do they cover the issues connected with specific women’s needs in the area of health?	36.0	64.0
Specific women’s vulnerability to be victims of gender-based violence or specific crimes	28.0	72.0
The nature of gender-based violence	36.0	60.0
Its occurrences and symptoms	28.0	72.0
Methods of detection	32.0	68.0
Medical protocols	52.0	48.0
Influence of gender-based violence, in particular, sexual violence on the future behaviours of victims (post-traumatic stress symptoms, etc.)	52.0	48.0

4.3.2 Measures of Gender Equity at the Proposed Project Community

Figure 4.12 shows the ways in which gender equity is practiced in both communities. In Ankpa, it includes giving females equal opportunities and access to education and employment (84%), electing women into public offices (12%), ensuring quotas on gender in the leadership of community-based organizations (4%). These insights suggest that the community recognizes the importance of various strategies for achieving gender equity. The project should consider initiatives that align with these values and priorities, fostering women's participation in leadership, education, and employment opportunities while also addressing underrepresentation through targeted measures.

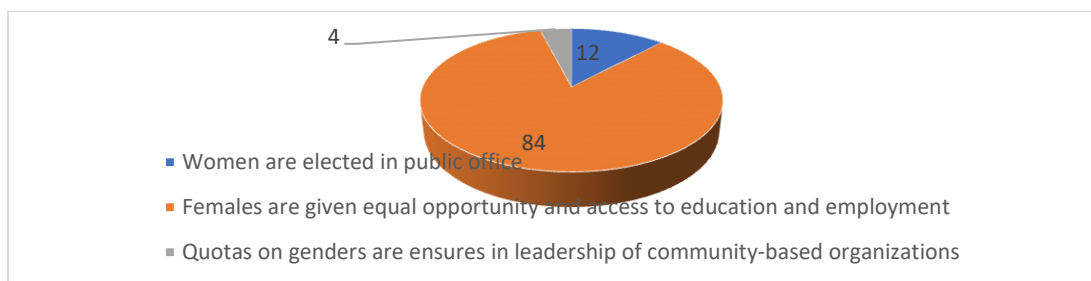


Fig. 4.12: Measures of Gender Equity at the Proposed Project Community

4.4: Social Sensitive Receptor along the RoW of Civil Activities

Table 4.13 shows the social sensitive receptor along the RoW of civil work activities. It should be noted that there is no protected or reserved forest within the Ankpa gully catchment. Table 4.13 shows the Social Sensitive Receptor along the RoW of Civil Works and there is no sensitive area within the sub-catchments of gully watershed. However, fencing of identified social sensitive receptors, to prevent any accident such as LEA Primary School Ejegbo and St Charles College Ankpa during construction phase is highly recommended.

Table 4.13: Social Sensitive Receptor along the RoW of Civil Works

Road No.	Start		End		Road Length (m)	Avg, Road width (m)	Socio-economic receptor	Remarks
	Longitude	Latitude	Longitude	Latitude				
1	7°37'56.24"	7°24'28.55"	7°38'21.03"	7°25'41.03"	2,394	12.5	Religious buildings, petty trading, & health facility	Ankpa –Olubajo axial road
2	7°38'15.44"	7°25'26.03"	7°37'35.59"	7°25'36.74"	1,313	5.6	LEA Primary School Ejegbo and road businesses	Eneokpoli community road
3	7°38'15.44"	7°25'26.03"	7°38'31.91"	7°24'59.21"	985	5.4	LEA School Ofeijiji and road businesses	Ogaji community road
4	7°37'57.96"	7°24'14.23"	7°38'35.00"	7°25'5.64"	1,998	9.2	St Charles College Ankpa Water works, religious buildings, and petty business	Ogaji street down to Oturpko road
5	7°38'13.02"	7°24'26.99"	7°38'21.90"	7°24'18.96"	408	6.8	Waterworks facility and road businesses	
6	7°38'17.15"	7°24'32.33"	7°37'56.76"	7°24'34.79"	658	9.4	Mother and Child Primary Health Care and petty trading	Charles road
7	7°38'6.46"	7°24'35.14"	7°38'11.82"	7°24'50.69"	513	6.0	Federal Staff Clinic	
8	7°38'11.82"	7°24'50.69"	7°38'16.20"	7°25'2.99"	403	6.83	Petty trading and religious building	
9	7°38'9.61"	7°24'51.14"	7°38'14.28"	7°25'3.79"	418	5.2	Petty trading and religious building	
10	7°38'19.82"	7°24'36.14"	7°38'22.09"	7°24'30.11"	291	4.5	Petty trading and religious building	
11	7°38'17.14"	7°24'32.20"	7°38'27.61"	7°24'19.39"	538	9.5	Water works	Water works road
12	7°38'39.24"	7°24'44.08"	7°38'24.25"	7°24'48.12"	514	7.1	Religious and small scale	Ofeijiji community

							businesses	road
13	7°38'24.25"	7°24'48.12"	7°37'59.46"	7°24'52.93"	776	8.6	Petty trading	Ofejiji community road

4.5 Grievance Redress Mechanisms in and Around the Intervention Area

The Grievance Redress Mechanism (GRM) is part of the broader process of stakeholder's engagement, accountability, quality and compliance assurance in the project designed to solving disputes at the earliest possible time, which is in the interest of all parties concerned.

4.5.1 Grievance Redress Mechanism (GRM) Objective

The objectives of the grievance redress mechanism are to:

- provide an effective avenue for aggrieved persons to expressing their concerns and resolving disputes that are caused by the project;
- promote a mutually constructive relationship among community members, project affected persons, government and other stakeholders;
- prevent and address community concerns,
- assist larger processes that create positive social change; and
- identify early and resolve issues that would lead to judicial proceedings.

4.5.2 GRM structure

4.5.3 Site level Grievance Redress Cell (GR Cell)

Site level Grievance Redress Cell (GR Cell)

The site level GR Cell is the first and lowest grievance redress mechanism in the Kogi State ACReSAL GRM. The GR Cell at this level will resolve simple project-activity related issues between; members of a PAPs and community members; members of the PAPs and other members of the community; members of community and the contractor. The Site level GR Cell is made up of 7 members with at least 2 positions assigned to women. The committee amongst others must ensure that they discuss and display complaints procedures and available uptake channels in ways that are easily accessible to their members and members of the community. The uptake channels at this level should include among others; verbal complaints to members of the Grievance Focal Points (GFPs), written complaints in complaint boxes in the community, through phone calls to the chairman and/or secretary telephone lines. All complaints are expected to be resolved and the complainant officially notified within 15 Days of receipt of the complaint by the committee. Where additional time is required, the complainant is updated of actions being taken within every 7 Days until the complaint is resolved. In all, the complaint at this level is expected to be resolved within 30 days. However, after a complaint is

certified unresolvable at the GR Cell level or the issue requires arbitration, the committee secretary will refer it to next higher level GRM.

The responsibilities of GR Cell shall include the following:

- Review, consider and resolve grievances site level;
- Conduct fact-finding pertaining to grievances;
- Resolve grievances within a period of one week;
- Undertake analysis of data on grievances and use this to make informed decisions;
- Maintain confidentiality if complainants wish to remain confidential; and
- Maintain an updated GRM Complaints Log/ database/MIS.

4.5.4 Grievance Focal Points (GFPs)

Grievance Focal Points (GFPs) will be nominated by the community. These will be men and women whom the community can easily approach. Grievances can be received by GFPs in writing or by word of mouth, and recorded in the grievance register by the Secretary or the Community Liaison Officer (CLO). The GFPs for the Kogi State ACReSAL Ankpa Gully intervention includes

- i. The Chairman,
- ii. The Secretary
- iii. The Women leader
- iv. The Youth leader
- v. Representative of the traditional institution
- vi. The Community Liaison Officer (CLO) appointed by the sub-project Implementation Partners (Consultants/ Contractors/)
- vii. Community Member

The GFPs committee will be identified by the relevant community in consultation with the Social Safeguard team of SPIU and CLO. The GFP would be responsible for making the community aware of the following components:

- Inform people about the GRM and how it works, and their options depending on the types of complaint;
- Types of grievances not acceptable/eligible to the GRM;
- Intake channels at the GRM, e.g., toll free number, phone numbers, postal, email and website, and information that should be included in a complaint; and
- Inform the Complainant of the investigation results and the action taken, and option of appeal if not satisfied with the outcome.

4.5.5 PIU Level GRM

A Grievance Redress Committee (GRC) has been established at Kogi State ACReSAL PIU office which shall resolve the grievances of affected persons/parties received at the PIU level. If a grievance remains unresolved at the PIU level despite making best efforts till the stipulated time of 21 days, it will either be retained for another 21 days with prior agreement of the Project Coordinator and the complainant, or sent to Project Steering Committee (PSC) for resolution, depending on the GRC's assessment on which is the best option to facilitate a resolution. The GRC will function as a dedicated body that ensures the grievance redress process is effective and efficient. The SPIU Grievance Redress Committee comprise Project Coordinator, Technical Specialist, M&E, Environmental, Social Safeguard & Resettlement and Gender Specialists of Kogi State ACReSAL. The Social Safeguards is the Focal Person/Convener. Decisions or findings taken in the GRC would be binding upon the Consultants/Contractors/Suppliers. The PIU will issue public notices to inform the public about the Grievance Redress Mechanism (GRM) sub-project area. The contractor will also display prominent signage containing the contact details of GRC in the Ankpa gully site. The complainant(s) can lodge their grievances through toll free number provided by the SPIU. The Social Safeguard Specialist will be the designated focal person to receive complaint(s) in writing, through calls, fax and emails. The Social Safeguard will maintain a complaints database which will be digitized and available and will communicate with the Contractor, Site Engineers/field(s) managers/Contractors Safeguards officer.

The responsibilities of the GRC at PIU are:

- The Social Safeguard Specialist shall be the focal person for GRC, which is responsible for logging the complaint and date of receipt onto the complaint database and informing the Contractors;
- The GRC will coordinate with local government to receive project-related complaints made directly to them;
- The GRC shall review, consider and resolve grievances related to environmental, social, gender and other issues during implementation received at the PIU level;
- The GRC is responsible for investigating the complaint to determine its validity and assess whether the source of the problem is due to project activities and identifying appropriate corrective measures. If corrective measures are necessary, GRC, will instruct the Contractors to take necessary action;
- Resolve grievances presented to the GRC within a period of two weeks;
- Inform the Complainant of the investigation results and the action taken;
- Undertake analysis of data on grievances and use this to make informed decisions;
- GRC decisions, if not acceptable to the complainant(s), can be appealed to the Project Steering Committee;
- Maintain an updated online GRM database/Complaints Logs

4.5.6 Appeals at the Project Steering Committee (PSC) Level

Appeals at the Kogi State ACReSAL Project Steering Committee (PSC) Level

The Kogi Coordination Office GRC is expected to resolve project-activity related issues such as: resettlement and compensation for damages; Gender Based Violence (GBV) or sexual exploitation; contractor impunity or highhandedness etc. This committee shall be the apex authority of the Kogi State ACReSAL GRM which will make recommendations for action to the State Project Coordinator (SPC) in the case of issues of extreme importance, or make referral to the National Coordination Office in the case of grievances that are either unresolvable at the committee level or found to be extraneous to the execution of the project. The Kogi State ACReSAL Coordination Office Grievance Redress Committee shall be established and chaired by the Honourable Commissioner, Ministry of Environment and Natural Resources. The Livelihood Safeguards Officer of the Kogi State ACReSAL shall serve as the committee secretary. The Kogi State ACReSAL Coordination Office GRC is expected to finalise mediation on grievances within 10 working days. The complainant/survivors confidentiality should also be kept in mind when reporting any incidences.

4.5.7 GRM for workers

Community Liaison Officer (CLO) will serve as Grievance Focal Point (GFP) for workers/labor complaints at site level. If the issue is successfully resolved, no further follow-up is required, and the case shall be documented and closed. In case the grievance is unresolved at the sites/contractors level, the workers may directly approach GRC about their grievance. The prominent signage containing the contact details of GRC will be display in Igala and Ibira languages at the Ankpa gully site.

4.5.8 Grievance Redress Mechanisms for GBV and SEA/S in the Project Community and Related Issues

Gender Based Violence or GBV is any threat or harm inflicted on a person because of their gender in all forms of abuse including sexual, physical, emotional, and psychological harms. It is one of the oppressive forms of gender inequality, posing a fundamental barrier to the equal participation of women and men in social, economic, and political spheres. GBV affects both men and women, but women are much more vulnerable because violence reflects and reinforces existing interchangeably. GBV includes among others:

- Intimate partner violence (IPV);
- Non-partner sexual assault;
- Female genital mutilation;
- Sexual exploitation and abuse;
- Child abuse;
- Child marriage.

Such violence impedes gender equality and the achievement of a range of development outcomes. Gender violence precludes individuals from contributing to or benefiting from

development initiatives by limiting their choices and ability to act (UN General Assembly 2006).

Oduenyi (2017) in the report of the Gender Based Violence (GBV) Rapid Assessment and Service Mapping Report for MCSP-supported Facilities in Kogi and Ebonyi States revealed that women in Kogi and Ebonyi states experience high rates of GBV, particularly rape and IPV (Intimate Partner Violence) but there is a low level of reporting of GBV cases both for healthcare and law-enforcement.

In the proposed intervention area (Ankpa community), views from the public consultation revealed that there are GBV incidents issue but most are not reported. This is not unexpected as GBV is often denied or silenced by under-reporting, societal stigmatization of victims or by institutional weakness/failure in terms of the absence of effectual and accessible reporting mechanisms and protection services at community level (Para-Mallam, 2018). The existing government structure for social services through the social welfare departments is skeletal and not properly coordinated. The strong socio-cultural factors surrounding GBV also make isolated medical care inadequate. Thus, there is the need to strengthen the capacity of the service providers on GBV case management and massive sensitization of all stakeholders and multi-sectoral collaboration amongst GBV actors to ensure optimal health outcome of GBV survivors. Referral services for GBV are wide-spread across Kogi State and can also be found within the project area (Annex X).

It can be concluded from the above analysis that the uncertain situation of GBV incidents in the proposed intervention area may probably rise due to the influx of migrants. There is therefore the need to provide measures to mitigate and manage this risk.

4.5.9 Role of Contractor in GRM Complaints Register

The Contractor will maintain a complaint register at the campsite office to document all complaints received from the local communities. The register will also record the measures taken to mitigate these concerns. The final report regarding complaint closing will be communicated to CSC/SMPs, the relevant field(s) manager is responsible to provide the record to GRC/PIU. The PIU shall carry out the monitoring of the implementation of measures for the eradication of complaints.

4.5.10 Reporting and Monitoring

The GR Cell will enter the project affected people (PAPs) concerns/grievances at site level. The PIU gender specialist will be responsible for managing GBV and SEA/SH-related complaints at the project/PIU level. Kogi State ACReSAL PIU will develop specific procedures to ensure complainants are able to register their grievances confidentially, and in a discreet manner. GBV/SEA/SH related complaints will be communicated to World Bank no later than 48 hours after being received by the GR Cell (site level) or by the GRC (PIU level). The GRC will record the complaint, investigation, and subsequent actions and results in the monthly Environmental Management and Monitoring reports and Monthly Progress Report by Contractors. In the construction and

initial operational periods, the PIU will periodically report progress to the World Bank, including reporting complaints and their resolution. The tracking and documenting of grievance resolutions within the GRC PIU will include the following elements:

- tracking forms and procedures for gathering information from project personnel and complainant(s);
- computerized grievance database with dedicated staff to update the database routinely;
- systems with the capacity to analyze information to recognize grievance patterns, identify any systemic causes of grievances, promote transparency, publicize how complaints are being handled, and periodically evaluate the overall functioning of the mechanism;
- processes for informing stakeholders about the status of a case; and
- procedures to retrieve data for reporting purposes, including the periodic reports to the PIU and GRC, reports into the monthly ESMP Compliance monitoring report to the World Bank.

4.5.11 Existing GRMin the Project Area

It is a fact, that where human exists there cannot but be issues of disagreement. It is therefore important that measures are put in place to address any form of disagreement or grievances that may arise. Different formal and informal grievance redress mechanisms exist in Ankpa communities in particular and Kogi State in general to resolve complaints that might emanate from the proposed intervention project. Some of the existing tools/mechanisms include the following:

- **Formal Mechanisms**

The formal system of dispute resolution in and around the project area consists of the following:

- **Kogi State Ministry of Environment:** This is the legally authorized body exclusively responsible for the management of issues pertaining to the environment. Specifically, the agency is responsible for waste management, flood and erosion control, forest depletion and degradation and general environmental and atmospheric pollution. This ministry is made up of different departments.
- **Kogi State Ministry of Justice:** The Kogi State Judiciary is the ministry responsible for interpreting the law and prosecuting offenders.
- **National Environmental Standards and Regulations Enforcement Agency (NESREA):** NESREA has the responsibility for the protection and development of the environment, biodiversity conservation and sustainable development of Nigeria's natural resources in general and environmental technology, including coordination and liaison with relevant stakeholders within and outside Nigeria on matters of enforcement of environmental standards, regulations, rules, laws, policies and guidelines. Some of the functions of the agency relating to dispute resolution are:
 - coordinate and liaise with, stakeholders, within and outside Nigeria on matters of environmental standards, regulations and enforcement;

- enforce compliance with laws, guidelines, policies and standards on environmental matters;
 - conduct environmental audit and establish data bank on regulatory and enforcement mechanisms of environmental standards other than in the oil and gas sector;
 - ensure that environmental projects funded by donor organisations and external support agencies adhere to regulations in environmental safety and protection;
 - create public awareness and provide environmental education on sustainable environmental management;
 - promote private sector compliance with environmental regulations other than in the oil and gas sector.
- **Public Complaints Commission:** The commission is independent of government bureaucracy and is given extensive powers regarding disclosures and access to all government information. The commission is empowered to enforce compliance in order to obtain the necessary information that will facilitate impartial investigation in order to arrive at a fair and equitable decision. Investigation of complaints is provided at no cost to the citizen as well as non-citizen resident in the country and they are treated with the confidentiality they deserve. The commission put high priority on being accessible to the citizen and fulfil this commitment by not only having offices in thirty-six (36) state of the federation and Abuja (FCT) but also having five (5) zonal offices in each state of the federation.
 - **National Human Rights Commission:** The National Human Rights Commission serves as an extra-judicial mechanism for the respect and enjoyment of human rights. It also provides avenues for public enlightenment, research, and dialogue in order to raise awareness on Human Rights issues. The focus area of the NHRC are
 - The Rights of Women and Gender Related Matters;
 - Child Rights;
 - Freedom of Expression and the Media;
 - Human Rights Defenders;
 - Labour;
 - Right to Health;
 - Refugees Internally Displaced Persons, Migrants and Asylum seekers;
 - Environment, Niger Delta and Development,
 - Food and Shelter;
 - Right to Education; and
 - Freedom of Religion or Belief and Peaceful Assembly.
 - **The Nigeria Police:** The Police is an agency of the executive arm of the Federal Government of Nigeria that maintains law and order in the country. Unlike the military, the Nigeria Police investigate and prosecute cases in the law courts. It plays a vital role in ensuring peaceful coexistence among the citizens.

- **Informal Systems**

The informal system of dispute resolution includes the following:

- Interpersonal and family level dispute resolution;
- Traditional rulers and community heads; and
- Religious leaders.

4.5.12 Evaluation of the Strengths and Weaknesses of the Existing Grievance Redress Mechanisms in the Project Area

The strength and weaknesses of the existing grievance redress institutions are outlined in table 4.14.

Table 4.14: Strengths and Weaknesses of existing Grievance Redress Mechanisms in project Area

S/N	Dispute Resolution Systems	Strengths	Weaknesses
Formal			
1	The Kogi State Ministry of Environment	The Kogi State Ministry of Environment and other parastatals under it are well positioned to receive, investigate and mediate on issues bordering on environmental management in Kogi state.	The office of Kogi State Ministry of Environment is located in the state capital. Aggrieved persons will therefore have to travel to their office at the State Secretariat Phase II Complex, Lokoja to report any misgivings. This may be counter-productive.
2	The Kogi State Ministry of Justice (Court of law)	The Kogi State Judiciary comprises the High Courts, Magistrate Courts and Customary Courts each with its own Rules. The formal law court system meets majority of the technical requirements for the resolution of potential project-related grievances.	There is constant pressure on the courts which makes formal litigation in courts unattractive, cumbersome, technical, time-consuming and expensive. Reliance on the court for the resolution of all disputes will cause long delays in the project.
3	National Environmental Standards and Regulations Enforcement Agency (NESREA)	The agency, which is the regulatory arm of the Federal Ministry of Environment, has 6 Zonal Headquarters and 22 State Offices which accepts environmental complaints from the public and investigates same. The state offices are manned by State Coordinators who report to the agencies headquarter in Abuja.	NESREA has office in Kogi State where individual, group of people or corporate organization could lodge environmental complaints. This may not be easily accessible to aggrieved project beneficiaries in Omigbo (Kaba).
4	Public Complaints Commission (PCC)	The Public Complaints Commission has offices in thirty-six (36) state of the federation and Abuja (FCT) with five (5) zonal offices in each state of the federation.	The functions, powers, and jurisdiction of the commission is unknown to a lot of people. The commission is also inadequately staffed with men and women of integrity. Funding is equally a major challenge as it hampers the operations of the Commission. Kogi state office is Opposite SSGs Office, Beside Township Stadium Complex, Lokoja, Kogi State. Area offices are

			in Omigbo, Adavi, Idah, Kabba, Koto Karfi, Ofu, Okene, Yagba-east and Yagba-west.
5	The Nigeria Police	The police force is an agency of the executive arm of Federal Government of Nigeria that maintains law and order in the country. It plays a vital role in ensuring peaceful coexistence among the citizens. The Nigeria Police have offices in all parts of the State. They are widespread and well structured. The organizational structure of the Police Force in Kogi is represented as shown below: • Zonal Headquarters • State Commands Headquarters • Divisional Police Headquarters • Police Station • Police Post • Village Police Post. By this structure, the Police operational crime-fighting and peace-keeping function is felt by and accessible to the populace all over the state. The project site has a police post.	The Police is mostly perceived by the public as an appendage of the government in power and very often ineffective to provide sufficient and acceptable resolutions that would be favourable to the citizen. There is also the perception that issues are often escalated by the Police as such the police is not often the best point of call for a project-based complainant.
Informal			
6	Community Associations	All executives and ex-officio of Community Association are charged with the responsibility of resolving conflicts within their group. These individuals are well-positioned to resolve disputes using the group's constitution, guiding principles and rules and regulation where they exist.	There are a lot of instances where members decide to flaunt the rules and regulation of the group without corresponding penalties. This makes the grievance redress roles of the groups ineffective.
7	Traditional rulers and community heads	There is a formidable traditional system for the resolution of conflict in Ankpa. It was noted that matters first get to the • Community chief. If it is not resolved at this level, it is referred to the • Ward head. If it is not resolved at this level, it is referred to • The township head. If it is not resolved at this level, it is referred to • (Overall head of Igala land; The Attah Igala in Idda)	Although these institutions due have some kind of constitutional backing especially at the Kingship level, there is however, the view that they lack human and material capacity to record and maintain dispute resolution system on a continuing basis especially at the community chief level.

However, Kogi State ACReSAL has established a Grievance Redress Framework (Annex 6) following the World Bank's approaches to GRM and FPMU guidelines. The

framework has five levels of addressing grievances (Level 1: Community Level of Grievance Redress; Level 2: Local Government/ Community Grievance Redress Committee (LGRC); Level 3: State Grievance Redress Committee (SGRC); Level 4: National Grievance Redress Committee (NGRC) and Level 5: the Courts). It should be noted that grievances should follow the level sequence based on the demands and outcomes of the issues at hand. However, when the parties involved in grievances have utilized the provisions of the first four levels, they can then utilize the Law Courts (Level 5).

4.6 Public Consultation

The public consultation for the proposed intervention work in the project area entails the town hall meeting, after which the group was divided into focus group meetings with the three major demographic groups (Elders, Youth and Women). The summary of the issues raised is outlined in table 4.15.

4.6.1 Objectives of the Public Consultation

Stakeholders' engagement is essential in achieving the major objectives of any project implementation and sustainable development. Participatory approaches in project planning and implementation enhance project policy, ownership and sustainability and also empower targeted beneficiaries.

The objectives for stakeholders' engagement and sensitization include but not limited to the following;

- i. To create general public awareness and understanding of the project, and ensure its acceptance;
- ii. To develop and maintain avenues of communication between the project proponent, stakeholders and PAPs in order to ensure that their views and concerns are incorporated into the project design and implementation with the objectives of reducing, mitigating or offsetting negative impacts and enhancing benefits from the project;
- iii. To inform and discuss about the nature and scale of possible adverse impacts of the rehabilitation work and to identify and prioritize the mitigation measures for the impacts in a more transparent and direct manner;
- iv. To document the concerns raised by stakeholders and PAPs so that their views and proposals are mainstreamed to formulate mitigation and benefit enhancement measures;
- v. To sensitize other MDAs, local authorities, Non-governmental Organizations (NGOs) and Community Based Organizations (CBOs) about the project and solicit their views and discuss their share of responsibility for the smooth functioning of the overall project operations; and
- vi. Reducing conflict between stakeholders, project proponents PAPs.
- vii. To develop stakeholder's capacity in the areas sustainable project management.

4.6.2 Identified Stakeholders

The stakeholders of the Ankpa intervention were identified during the public consultation activities. The Identified stakeholders Include:

- Project Affected Persons (PAP);
- Owners of Business and structural properties within the watershed and its immediate environment;
- Traditional Institutions of Omigbo Community, Kabba;
- Local Government Authority;
- Relevant MDAs of the State Government; and
- Religious Organisations.
- Security Agents

4.6.3 Stakeholders Engagement/Consultation

Table 4.15 shows the summary table indicating Stakeholders Engagement/Consultation. Plate 4.1 show photograph of meeting with some photographs during the town hall meeting session.

Table 4.15: Summary table indicating Stakeholders Engagement/Consultation,

S/N		Town Hall Meeting (All)	PAPs	Elders	Women	Youth
	Community Name	Ankpa ((Ofejiji, Olubojo, Ogaji, Eniokpoli-Area 1 and Water Side)	Ankpa (Ofejiji, Olubojo, Ogaji, Eniokpoli-Area 1 and Water Side)	Ankpa (Ofejiji, Olubojo, Ogaji, Eniokpoli-Area 1 and Water Side)	Ankpa (Ofejiji, Olubojo, Ogaji, Eniokpoli-Area 1 and Water Side)	Ankpa (Ofejiji, Olubojo, Ogaji, Eniokpoli-Area 1 and Water Side)
	Stakeholder engaged	Residents/Business owners within the gully Catchment, PAP, Traditional Institution, Religious organization and LGA representative	PAPs	Elders	Women	Youth (Male & Female)
	Date	11/08/23	11/08/23	11/08/23	11/08/23	11/08/23
	Location	Christ Evangelical Fellowship of Nigeria (C.E.F.N) Church	Christ Evangelical Fellowship of Nigeria (C.E.F.N) Church	Christ Evangelical Fellowship of Nigeria (C.E.F.N) Church	Christ Evangelical Fellowship of Nigeria (C.E.F.N) Church	Christ Evangelical Fellowship of Nigeria (C.E.F.N) Church
	Language	Igala and English.	Igala and English.	Igala and English.	Igala and English.	Pidgin-English and English
	Information	Current	Current	Gully Situation	Gender Issues	Project Issues

Kogi State Agro-Climatic Resilience in Semi-Arid Landscapes Project (Kogi-ACReSAL)

	Shared	situation of the gully.	situation of the affected property and other affected livelihoods sources	and Impacts	and Gully impacts	over the life time
	Key Stakeholder's concerns	• destruction of underground pipes • Insecurity of equipment • Immediate implementation of the project • Need to update the design • Youth employment • SEA issues by contractors workers • Loss of economic trees • sustainability of the project due to the lack of sanitary facilities in most household	• Proper valuation including economic trees • Payment of compensation	• Immediate commencement and completion of the project in record time • A solid construction intervention • Poverty alleviate; • Payment of compensation • Provision of other facilities such as boreholes. • Adherent to cultural rites	• Readiness to work in various capacities during project implementation. • Support for business • No GBV/SAE issues	• Sexual affairs with married women by contractors and their worker is not acceptable in the community. • Youth employment • Oppression by the foreigners.
	Response	The consultant and Kogi ACREsAL EO assured the stakeholders that their concerns will be looked into.	The consultant and Kogi ACREsAL EO assured the PAP that their properties will be correctly valued using current market price and compensation will be paid.	The consultant and Kogi ACREsAL EO assured the stakeholders that their concerns will be looked into.	The consultant and Kogi ACREsAL EO assured the stakeholders that their concerns will be looked into.	The consultant and Kogi ACREsAL EO assured the stakeholders that their concerns will be looked into.
	Action	Kogi State ACREsAL	Kogi State ACREsAL	Kogi State ACREsAL	Kogi State ACREsAL	Kogi State ACREsAL
	Time Frame	Immediate/During project implementation	Before civil work commence	Immediate/During project implementation	Immediate/During project implementation	Immediate/During project implementation

The main issues expressed by the stakeholders during the public consultation with regards to the proposed intervention in the project area include:

1. **Updating of Engineering Design.** New areas affected by the gully need to be captured by the engineering drawing for rehabilitation.
2. **Employment of youth in the community.** The consultant emphasized that youth, especially those within the unskilled labour group will be employed by the contractor based on the agreement ACRReSAL had with them.
3. **Non-payment/Payment of inadequate compensation for Resettlement:** The consultant explained that another team of consultant would be visiting the site to prepare a Resettlement Action Plan (RAP). This entails assessing and valuing structures and all cultural activities that would be affected by the proposed intervention based on the designed engineering drawing.
4. **Fear of delay in the implementation of the proposed project.** The consultant/ACReSAL Environmental Safeguard Officer reassured the community that the project would not be abandoned further. The project-affected persons were informed that due-diligence would be done before the implementation. The ESMP is one of the reports that must be submitted before the implementation of the project.
5. **Hijack of the project by politicians:** The consultant noted that members of the site-monitoring committee would be selected democratically. No instance of hijack would occur. The major beneficiary of the project however is the community as the intervention will improve the security of lives and property and the community's economic advancement.
6. **Existence of some cultural rites in the community.** This issue was addressed by the consultant who noted that the community's fears and concerns would be documented and communicated to the contractor and other consultants. He further explained that the World Bank Safeguard Policy on Cultural Heritage addresses such issues of physical and cultural resources.
7. Security of the equipment



Plate 4.1: Cross Section During Community Stakeholder’s Engagement (2023)

The community’s expectations and other concerns during the construction and operation phases are as follows:

- a. New areas affected by the gully need to be captured by the engineering drawing for rehabilitation
- b. The community members were concerned that the project will take away many of their economic trees permanently.
- c. Adequate security of the equipment by the contractors
- d. Concern for the destruction of underground pipes in some locations

- e. Provision of other basic infrastructure such as borehole.
- f. Job opportunity for the youths.

They also welcome the innovations by the ACReSAL approach including issues of water harvesting, domestic cooking energy initiatives and other related watershed management approach. They express their willingness to learn and also fully participate at all level of implementation.

4.6.4 Stakeholders Engagement Plan (SEP)

The stakeholder engagement plan allows the project manager to devise a systematic approach to ensure expectations, decisions, risk/issues and project progress information is delivered to the right person at the right time with the most efficient and effective level of information. Table 4.16 shows Ankpa gully Intervention stakeholder's engagement plan.

Table 4.16: Ankpa Gully Erosion Intervention Stakeholder Engagement Plan (SEP)

S/N	Stakeholder	Engagement Method	Venue	Frequency
1	Community Members of Ankpa community Watershed	Town Hall Meeting	Village Square	Monthly During Pre-Construction and Construction phases
2	Project Affected Persons (PAP);	Meetings	Kogi State ACReSAL Office / Project Site	Monthly During Pre-Construction and as the need arises during construction
3	Traditional Institutions	FGD/IDI	Palace/Project Site	Monthly
4	Local Government Authority	Meeting	LGA Secretariat	Bi-Monthly / As the need arise
5	MDAs	Meeting	MDA Office / Project Site	As the need arises with particular MDA
6	Religious Organisations	FGD	Religion Centre / Project Site	Bi-Monthly / As the need arise
7	Security Agents	FGD	Police / NSCDC Office and Project Site	Monthly / As the need arise

CHAPTER FIVE

ASSESSMENT OF POTENTIAL IMPACTS AND ANALYSIS OF ALTERNATIVES

5.0 Introduction

This section contains a summary of the potential environmental and social impacts that are likely to result from the Ankpa erosion control project as a result of the interaction between the project components and the environmental elements. The environmental and social impact is described for the pre-construction, construction and operation phases. Adverse impacts are likely to occur during pre-construction, construction and operation phases of the project. These may be: pollution of water resources (surface and groundwater) and soil, degradation of landscape and soil erosion because of improper disposal of excavated materials and construction waste, spillage of oil and toxic substances during the construction, use of temporary construction sites (camps, machinery sites, storage facilities, etc.), use of borrow pits; temporary air pollution (dust) related to increased truck traffic during the construction; noise and vibration disturbances during trench excavation; impacts on historic-cultural monuments or artefacts; hydrological issues because of improper operation maintenance of the flood control structures. On the positive angle, the construction will reduce/forestall flooding which is a regular occurrence in the area. The stakeholders during the consultation indicated that they have experienced flooding which had destroyed their farmlands and even caused drowning of children. It will also lead to job creation as unskilled youths in the area will be engaged as labourers during construction works.

5.1 Assessment of Potential Adverse Impacts

The impact of each phase is assessed qualitatively through the relevant environmental and social media which are:

- a. Environmental media – flora and fauna, Soil and Vegetation, Air, Water,
- b. Social media - Community Structure, Livelihood, Community Infrastructure, Population/Demographics, Public Health, Land Use and security risk.

The detail of the method employed for impact identification and evaluation is presented below.

5.1.1 Impact Identification and Evaluation

The identification and management of impacts associated with work activities were based on a risk assessment method which involves:

- Identification of intervention activities that may interact with the site environment.
- Implementing controls to reduce the risk of impacts.
- Monitoring the effectiveness of the controls.

The key activities of the proposed intervention work were identified and then interacted through the path-ways (or events) that may cause impacts on the environment. The associated potential impacts were then identified and listed. The risk of the impacts occurring was analysed by determining the consequence severity of the impacts and the likelihood of consequences occurring. The severity of the consequences was determined using a Consequence Severity Table and the likelihood of an impact resulting from a pathway was determined with a Likelihood Ranking Table and then the level of risk was determined using a Risk Matrix (Table 5.1).

To prevent or minimise the impacts, controls were placed on the pathways in this order of priority:

- Elimination of the activity.
- Substitution with a lower risk activity.
- Best solutions (engineering and administrative) to reduce the impact of the event and/or control the activity.
- Clean up or remediation measures to mitigate impacts after an event.
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Table 5.1: Consequence Severity, Likelihood Ranking & Risk Matrix Tables

Consequence Severity Table						
Level		Consequence				
1	Insignificant	No detective impact to the existing environment				
2	Minor	Short term or localized impact				
3	Moderate	Prolonged but recoverable impact on the environment and commercial industries				
4	Major	Prolonged impact to the environment which may not be recoverable and threatens an ecological community, the conservation of species or the sustained viability of commercial industries				
5	Catastrophic	Non-recoverable change to existing environment leading to loss of endangered species or creation of human health risk				
Likelihood Ranking Table						
Level		Likelihood				
A	Almost certain	The incident is expected to occur most of the time (i.e. every time)				
B	Likely	The incident will probably occur in most circumstances (i.e. regularly, weekly)				
C	Moderate	The incident could occur at sometime (1.e. quarterly)				
D	Unlikely	The incident could occur at some time during the life of the project				
E	Rare	The incident may occur only in exceptional circumstances and may never happen				
Risk matrix Table						
Likelihood		Consequences				
		Insignificant	Minor	Moderate	Major	Catastrophic
A	Almost Certain	S	S	H	H	H
B	Likely	M	S	S	H	H
C	Moderate	L	M	S	H	H
D	Unlikely	L	L	M	S	H
E	Rare	L	L	M	M	S

Where

- **H (High impact) - Senior management involvement and planning needed**
- **S (Significant impact) - Senior management attention needed and careful planning and implementation**
- **M (Moderate) - Impact Management responsibility must be specified**
- **L (Low impact) - Manage by routine procedures.**

Source: Adapted from ESMP Nguzu Edda Gully Erosion Site in Ebonyi State

5.1.2 Positive Environmental Impacts

- *Improved Livelihoods:* The project will lead to creation of employment for local people who will be involved in the clearing of the site. This will thus enhance the income and livelihoods of the people and reduce poverty.
- *Increase in Business Opportunities and Employment (Social Benefit):* There would be increased business opportunities for local enterprises which would be able to win subcontracts from the contractor during the project. Also, there would be employment opportunities for local people, in particular youth and women, because of demand for labour for un-professional jobs, increased demand for food, drinks, and manufactured consumer products especially telephone card from the construction workers.
- *Environmental Stability:* The construction of the Ankpa erosion control structures will stabilize the environment. First the incidence of flood disaster in the area will be considerably reduced thus leading to soil stabilization reduced loss of agricultural land and productivity. Also watershed management through planting of vegetative cover for soil protection will also provide carbon sequestration and help prevent erosion.
- *Social and Health Benefits:* Reduced flooding will lead to reduction in mosquito infestation and resultant malaria attack on the communities around the project site. This will thus lead to enhanced economic activity as loss of days of work due to malaria infestation will be forestalled. Also, the livelihoods of the community people will be enhanced especially as the local people will be trained on maintenance of the structures.
- *Community Infrastructure:* The intervention will facilitate the sustainability of road and culverts in the area there by enhancing the welfare of the community.
- *National Development:* The impacts of the project on national development are largely positive. The project will alleviate poverty, improve economic well-being and health conditions of the people and will contribute to the attainment of the millennium development goals.
- *Improved environment and aesthetics of the area:* Environmental aesthetics including the landscape, scenery and the view of the town from the perspective of the gully eroded area will be improved by the project. This is because botanical cosmetic trees for land degradation control will be planted to perform the dual role of erosion control and land beautification.
- *Afforestation benefits:* Afforestation help reduce the impact of flooding by delaying and reducing the size of floods, dispersing the water in a more gradual manner than over bare

ground. Afforestation also provides other environmental benefits, including increasing the soil quality and organic carbon levels in the soil, avoiding erosion and desertification. Afforestation is also able to reduce air pollution via the trees' absorption and filtration of pollutants, including carbon monoxide, sulfur dioxide, and ozone, in addition to CO₂. Afforestation protects the biodiversity of plants and animals which allows the sustenance of ecosystems that provide clean air, soil fertilization, etc

- *Advantages of Water-harvesting:* Water harvesting reduces stormwater runoff from an area. The elimination of runoff also reduces contamination of surface water with pesticides, sediment, metals, and fertilizers. By reducing stormwater runoff, water harvesting reduces a storm's peak flow volume and velocity in local creeks, streams, and rivers, thereby reducing the potential for streambank erosion. Water harvesting systems can also be employed as simple and effective methods to meet a municipality's stormwater management program requirements of individual properties. It is an excellent source of water for plants and landscape irrigation since it has no chemicals such as fluoride and chloramines (chlorine).

5.1.3 Negative Environmental Impacts

5.1.3.1 Pre-Construction Phase

- *Flora and Fauna:* Some plant species may be crushed by heavy duty equipment during movement to site thereby retarding their growth or even death of the plants. Also noise and vibration from vehicles and equipment during movement to site could scare away animals and lead to displacement of fauna around the project site. Vegetation cover in the site will be removed during clearing operation which may lead to loss of flora and fauna species especially insects that cannot move like mammals.
- *Soil and Land Degradation:* Movement of heavy-duty equipment to site can lead to soil compaction and equally predispose the area to soil erosion. Soil compaction reduces root growth and inhibition of phosphorous and potassium uptake. During clearing of the site, there is also tendency for the productive top soil to be removed affecting plant growth and equally predisposing the area to erosion. There could also be Soil contamination resulting from the release of chemicals (lubricant, fuel, paint) from the machineries during land clearing.
- *Air Quality:* Release of dust and emissions from vehicles transporting equipment to site will deteriorate local air quality. Also, Land clearing prior to construction works will lead to generation of dust particles from exposed soil with resultant deterioration in air quality as well as the deposition of dust particles on the surface of plants leaves, reducing thus the capturing of sunlight and limiting the photosynthesis function of green plants, with its consequence in the purification of the air from the CO₂. In addition, gaseous

emissions from equipment and machineries used in clearing could also contribute to poor air quality.

- *Noise Pollution:* Movement of heavy-duty vehicles transporting equipment could generate noise and vibration. This could impact negatively on the health of the workers and those living in the vicinity of the construction site. Also, as earlier stated, noise and vibration from vehicles and equipment during movement to site could scare away animals.
- *Water and Access to water:* Land clearing will expose soils to runoffs and siltation of surface water bodies resulting in reduced water quality and reduced access and use. Oil spills could also contaminate surface and underground water.
- *Public Health and Safety Including Health of Site Workers:* The transport/movement of construction materials will introduce a number of heavy trucks on the access road and this could increase the risk of motor accidents and result in vehicular-pedestrian conflicts. Also, exposure to dusts and gaseous emissions (as indicated above) could give rise to respiratory and eye related problems while continuous exposure to noise could adversely affect the health and quality of life of workers. In addition, exposure of workers to poisonous plants, insects and wild animals, for example snakes, during site clearing could lead to health problems.

5.1.3.2 Construction Phase

- *Flora and Fauna:* The construction of Ankpa erosion control structures would likely delay or even stop the re-growth of cleared vegetation during the pre-construction phase, disturbance of the natural landscape and disfiguring of the natural morphology. Also as a result of these, the habitat's associated fauna will be completely lost. On the other hand, planting of vegetative cover as part of watershed management will lead to some restoration of flora and fauna species.
- *Soil and Land Degradation:* Earth-moving equipment such as excavators will be used in cutting and excavation during the construction of the flood control structures. This equipment will affect soil quality and stability exposing the soil to erosion. Also the use of the equipment will lead to soil compaction resulting in the breakdown of soil structure which will potentially decrease the drainage of the areas. Furthermore, oil or grease and other hazardous products from construction machinery also constitute potential sources of soil pollution. In addition, burrow pits created during construction especially as a source of laterite if not covered after construction work could also predispose the area to erosion.
- *Waste Management:* Activities at construction sites will produce construction wastes such as excavated soils and debris. Excavated waste piles on road sides could obstruct the general public, the movement residents, vehicular traffic and workers as well as affect the aesthetics of the environment. Also, wastes generated from project activities such as cement bags, paint drums and debris and household waste from construction camp will also result in pollution of the environment.

- *Air Quality:* The construction could result in the emission of dust and other odours that may lead to the reduction of air quality. Air Quality will also be impacted by emissions from vehicles, earthmoving equipment and released particulate matters as various equipment rated between 200-600 horsepower and burning diesel fuel will be operated during construction activities. The USA EPA AP-42 Emission Factors for diesel industrial engines was used to estimate emissions from construction equipment. Table 5.2 shows estimated emission from construction site.

Table 5.2: Estimated Emissions from Construction Equipment

Constituents	Quantity Emitted (kg/day)
Nitrates	160
Carbon monoxide	6400
Sulphates	10
Particulates less than 10µm	10
Carbon dioxide	15300
Aldehydes	10

Source: Estimations based on USA EPA AP-42 Emission Factors

- *Noise Pollution:* Loud noise and vibrations may result from the use of excavating machines and heavy generators.
- *Access to water and water pollution:* Also, considering that Ankpa River along Otukpo road is a major source of water for the communities, the people may no longer have access to the river during and possibly after the construction. There is also possibility of water pollution resulting from the release of chemicals (lubricant, fuel, and paint) from the machineries. Also, runoff from spoils into surface water bodies could result in pollution and damage to aquatic ecosystem. Run-off erosion may occur from unprotected excavated areas, especially burrow pits, during heavy rain resulting to sedimentation of the nearby water-bodies. There could also be contamination of surrounding water bodies through improper disposal of wastewater and sewage during construction.
- *Public Health and Safety Including Health of Site Workers:* Public health hazard may arise from pollutions in air, water and noise as a result of construction work sites, in particular, excavations as well as transportation and obstruction of roads may cause safety problems to the general public. The processes of construction such as handling of concrete mixing equipment, casting of concrete, iron bending and form work etc. might result in injuries for workers. Also, air and noise pollution which can trigger health risks for workers. The civil work contractor will have to establish and operate a camp which will house offices, workshops etc. Potential impacts disposal of liquid and solid wastes, theft, alcoholism and sexually transmitted diseases (especially HIV/AIDS) and other communicable diseases due to free movement of construction workers into the communities.

- *Impact on Biodiversity and Loss of Habitat:* The level of work anticipated at the construction site will cause significant effects on the entire biodiversity of the project area. This is more so as most tree/shrubs within the catchment are relatively as dense as those within the natural watershed of the Ofeiji River. The cleared vegetation especially around the river will be recovered by planting small trees and plants. The construction works will not obstruct any major bird or animal migration routes. The impacts on biodiversity will also be negative but restricted to the site and the immediate local surroundings. Although some of the impacts will be reversible over the long term, the loss of habitat will be permanent. The magnitude of the impact will therefore be moderate.
- *Impact from Water harvesting:* Water harvesting systems require regular maintenance they may become prone to rodents, mosquitoes, algae growth, insects, and lizards. They can become breeding grounds for many animals if they are improperly maintained. Certain surface may seep chemicals, insects, dirt, or animal droppings that can harm plants if it is used for watering the plants. The construction of water harvesting facilities thus introduces human health risk and ecological risks. While the Human health risks include any adverse health effects in humans who may be exposed to chemicals in contaminated environmental media, now or in the future, the ecological risks include impact on the environment from the result of exposure to one or more environmental stressors such as chemicals, land change, disease, invasive species and climate change.

5.1.3.3 Operation Phase

- *Soil and Land:* During the operation phase, there could be hydrological issues of flooding, low flow, water stagnation and water logging especially if the flood structures are not maintained by clearing of blockages and de-silting. Also, flooding may re-occur if there is damage to the flood control structures.
- *Flora and Fauna:* Clearing of trees/bush around the flood control structures during maintenance operation could lead to depletion of flora and fauna species
- *Solid Waste:* Also, waste from de-silting of flood control structures could pose environmental problem if not properly disposed. Also, waste will be produced by clearance of trees/bush around the flood control structures during maintenance operation.

5.1.4 Negative Social Impacts

5.1.4.1 Construction Phase

- *Land Use:* Land acquisition may cause conflict if there is no adequate plan in place to address resettlement issues.
- *Livelihoods:* The construction of the Ankpa erosion control structures will also impact on the socio-economic life of the people in the area. Some economic activities and small businesses are carried out in the vicinity of the project site and these will likely be

disrupted during the construction work leading to loss of income and resultant increase in poverty. Also, there is possibility of loss of some economic crops especially palm trees, mango and cashew, and other economic trees, properties, and sources of livelihood due to construction work.

- *Community Infrastructure and Community Structure:* Short-term social adverse impacts may occur as a result of dislocation and demolishment, as needed, of private holdings appearing within the alienation zone of the project (temporary and permanent structures, trees, etc.) that may hinder the construction works. The project is not expected to impact on community structure as public consultation as part of this ESMP (see chapter 4) indicates that the communities welcomed the project as there are no conflicts in the communities as a result of the project.
- *Population/Demographics:* There will likely be an increase in population during the construction as many people, especially construction workers, will move into the area. This may result to some social vices crimes. Other factors that might lead to increase and / or decrease in population include level of economic development, educational facilities, social and cultural factors, female labour market participation, competition, low food supply, lack of space and level of medical provision.
- *Public Health:* The construction will also impact on the health of the people and animals in the location, especially on water sources. There might also be the spread of other types of diseases as well as a high risk of sexually transmitted diseases, for example, HIV/AIDS as a result of the movement of a lot of people, especially construction workers, into the area.
- *Social Sensitive Receptor along the RoW of Civil Activities:* There are some social sensitive landmarks such as LEA Primary School Ejegbo, St Charles College Ankpa, Waterworks, religious buildings, Mother and Child Primary Health Centre and Federal Staff Clinic amongst others on the RoW. The proposed activities will affect the access and functionality of these sensitive social receptors.
- *Security Risk:* The construction might pose a security risk such as theft/burglary, Kidnapping& Banditry, flood, and Herdsmen issues amongst others that necessitate protecting the life and property/equipment of project staff/affiliates, beneficiaries and the community where the project is sited.

5.1.4.2 Operation and Maintenance Phase

- *Livelihoods:* The operation and maintenance of the facility will equally impact on the livelihoods of the people in the communities as the maintenance work may not permit the locals who depend on the river for fishing to fish during the period thus leading to income loss.
- *Population/Demographics:* There may be influx of people to take advantage of the fact that flooding has been dealt with in the area, which may result to communal clash and increase in crime and communicable diseases.

- *Occupational Health and Safety:* There may be dangers to operation and maintenance workers for example, there could be falling and tripping during maintenance.

Furthermore, in presenting the summary of the impacts (Table 5.4), three criteria were used to summarize the impact on environment:

- The Severity of the impact on the existing environment (High (H), Medium (M), or Low (L))
- The Likelihood of the impact occurring (High (H), Medium (M), or Low (L))
- The Effect of the impact, whether beneficial (+) or adverse (-)

Other potential adverse social impacts that could arise during and after implementation of the project include: Social exclusion from project benefits such as employment, Exploitation of vulnerable (e.g. women and children)/ Human right violations, Competition for project-generated jobs leading to conflict, Community health and safety, Negative stakeholder feedback, complaints and grievances, Site & labour induced community security issues, Limited access to information and limited communication about the project (progress, potential delays etc.), Cultural heritage impacts, Traffic Management (focusing on blockage of access, traffic diversion and/or road closure), Impacts on HSE of Community & Construction Workers (Community Health & Safety), Damage to Physical Infrastructure, Labour Influx, Gender Base Violence (GBV), Sexual Exploitation & Abuse and Child Labour. The mitigation measures for these impacts are presented in table 5.3, 5.4 and 5.5 as well as in the Environmental and Social Mitigation and Monitoring Plan tables in chapter six.

5.2 Potential Impact/risk evaluation and Mitigation measures

5.2.1 Evaluation and Mitigation measures for impact/risk (Pre-Construction)

Table 5.3 shows evaluation and mitigation measures for potential impact/risk (Pre-Construction)

Table 5.3: Evaluation and Mitigation measures for potential impact/risk (Pre-Construction)

Media	Potential Impact	Project Development Phase	Significance	Probability of Impact and Impact	Possible Mitigation Measures
Land acquisition for the intervention project Public Awareness	Conflict from the members of the community to vacate areas allocated for the project especially the drainage channel sites.	Pre-Construction	Substantial	Prob: 3, Impact: 4 Risk: High	• Legal check on land including traditional ownership • Negotiate with the rightful owner and avoid land speculators • Acquire proper documents from both the government and land owners

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Media	Potential Impact	Project Development Phase	Significance	Probability of Impact and Impact	Possible Mitigation Measures
Public Awareness	Pessimistic Community perception can disrupt the proposed project activities	Pre-Construction / Construction phases	Moderate	Prob: 3, Impact: 2 Risk: Medium	- Invest in public awareness - Understand the people's perception and respond to their issues positively
Labour influx	Risk to community health from HIV/AIDS/COVID-19 or other transmitted infections as a result of the presence of migrant construction labour.	Pre-Construction and Construction	Moderate	Prob: 3, Impact: 3 Risk: Medium	- Communities in which sub projects will be undertaken will be sensitized on the COVID 19 symptoms and preventive measures and against stigmatization of persons with COVID 19 and other infectious diseases using the mass media - Contact numbers (hotlines) of the nearest health facility will be pasted at vantage points in the communities, where the sub projects will be implemented - Workers will not be allowed to receive visitors in project/camp sites without the express permission of site supervisor.
Mobilisation	Noise and vibration from the use of motorized vehicles and equipment;	Pre-Construction	Substantial	Prob: 4, Impact: 3 Risk: Medium	- Maintain equipment and machineries adequately to reduce their noise levels - Fit machineries and heavy-duty equipment with exhaust mufflers/silencers to minimize noise generation - Avoid unnecessary idling of internal combustion engines
	Ambient air pollution from release of dusts and gaseous emissions;	Pre-Construction	Low	Prob: 2, Impact: 2 Risk: Low	- Suppress dust emissions by appropriate methods such as spraying water on soil - Ensure vehicles are in good working condition. - Ensure exhaust fumes from vehicles conform to applicable National standards and specifications
	Soil contamination from accidental leakage/spillage of fuel, oil and lubricants.	Pre-Construction	Negligible	Prob: 2, Impact: 2 Risk: Low Prob: 3, Impact: 3 Risk: Medium	- Ensure fuel storage tanks are leak-proof, - check daily & installed in a bunded area - Establish the procedures for storage & handling of hazardous materials. - Implement emergency response plan as part of OHS Plan to deal with spillage
Site clearing	Loss of soil quality from de-vegetation and erosion	Pre-Construction	Moderate	Prob: 3, Impact: 3 Risk: Medium	- Vegetation along drainage lines and gullies will be protected where practicable to provide natural attenuation of flows. - Area to be cleared will be kept to the minimum necessary to prevent disturbance of soils outside the boundary - No species of global conservation significance occurs at the protect sites and so it is not expected that such species will be affected - Workers would be advised that in the unlikely event animals are encountered, they are not to be killed; but instead caught and
	Impact on water quality	Pre-Construction	Moderate	Prob: 3, Impact: 3 Risk: Medium	
	Generation of vegetal wastes and other cleared materials	Pre-Construction	Moderate	Prob: 3, Impact: 3 Risk: Medium	

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Media	Potential Impact	Project Development Phase	Significance	Probability of Impact and Impact	Possible Mitigation Measures
	Impact on flora and fauna and wildlife	Pre-Construction	Moderate	Prob: 3, Impact: 3 Risk: Medium	- released into a similar environment. - Contractor to be aware of known cultural heritage sites - Flagging or physical barriers to be put in place if required. - Take precautions when excavating. - If any object or site discovered cease works and follow the - Chance-Find Procedure (CFP)
	Risk of diseases arising from indiscriminate waste disposal	Pre-Construction	Substantial	Prob: 2, Impact: 2 Risk: Low	
	Impact on site of cultural heritage	Pre-Construction	Moderate	Prob: 3, Impact: 3 Risk: Medium	
	Impact on intangible cultural heritage;	Pre-Construction	Moderate	Prob: 3, Impact: 3 Risk: Medium	
	Exposure of workers to occupational hazards.	Pre-Construction	Moderate	Prob: 3, Impact: 3 Risk: Medium	
Installation of the contractor's base camp Installation of the Staging area	Security issues that may lead to stealing of contractor equipment mobilized to site	Pre-Construction	Moderate	Prob: 3, Impact: 3 Risk: Medium	- Adequate security to be provided - Contractors to work with local security structure in addition to formal structure
	Impact on site of cultural heritage;	Pre-Construction	Moderate	Prob: 3, Impact: 3 Risk: Medium	Contractor to be aware of known cultural heritage sites
	Impact on intangible cultural heritage	Pre-Construction	Low	Prob: 3, Impact: 3 Risk: Medium	- Contractor to be aware of known cultural heritage sites - Flagging or physical barriers to be put in place if required. - Take precautions when excavating. - If any object or site discovered cease works and follow the Chance-Find Procedure (CFP)
	Exposure of workers to occupational hazards.	Pre-Construction Construction	Negligible	Prob: 3, Impact: 3 Risk: Medium	- Labour Management Plans shall be prepared by Project Contractor(s) based on the Project Labour Management Procedures for approval by the Bank/PMU to guide labour relations - Contractors and Sub-contractors will be required to hire labour through a structured HR process and not 'at the gate' - All workers will be given contracts specifying the type of work they are to undertake and their remuneration package as well as their conditions of service - All contracts will be vetted by the Ministry of Labour and Social Security before they are signed by workers - Contractors shall be required to consider alternative work schedules or shifts to accommodate the hiring of more female workers.

Media	Potential Impact	Project Development Phase	Significance	Probability of Impact and Impact	Possible Mitigation Measures
Material sourcing	Noise and vibration from the movement of motorized vehicles and equipment	Pre-Construction	Negligible	Prob: 4, Impact: 3 Risk: Medium	- Maintain equipment and machineries adequately to reduce their noise levels - Fit machineries and heavy-duty equipment with exhaust mufflers/silencers to minimize noise generation - Avoid unnecessary idling of internal combustion engines

5.2.2 Evaluation and Mitigation measures for potential impact/risk (Construction)

Table 5.4 shows evaluation and mitigation measures for potential impact/risk (Construction)

Media	Potential Impact	Project Development Phase	Significance	Probability of Impact and Impact	Possible Mitigation Measures
Air Quality	Potential for fugitive emission or particulate matter (dust) from earthworks, stockpile materials, heavy vehicles during construction /operation phase.	Construction Operation Decommissioning	Substantial Low Moderate	Prob: 4, Impact: 3 Risk: Medium	- Dust minimization measures shall be implemented including watering of the construction areas, including the road surfaces under construction. - Soil stockpiles and stores of friable material will be covered to reduce the potential for fugitive emissions of dust where possible. - Vehicles carrying friable materials will be enclosed or sheeted. - Loading, unloading and handling of dusty materials will only be carried out in designated areas. - Regular damping of unpaved roads or exposed soils/ground to control dust/particulate matter and keep it down. - Limit active construction activities to not more than a total of 500 meters at a time on a 2.0 km road length section to minimize dust - Workers would be provided with dust protection PPE
	Potential for road traffic exhaust emission (NOx, PM etc.) including dust from vehicular movement during construction / operation phase.	Construction Operation	Moderate Low	Prob: 3, Impact: 3 Risk: Medium	- Ensure vehicles/machines are switched off when not in use. - Ensure only vehicles required to undertake works are operated on-site. - Ensure all construction vehicles, plant and machinery are well maintained and in full operating condition. - Effective preventative maintenance established to ensure all construction equipment and electricity generators are maintained in good working order and do not adversely impact air quality due to inadequate maintenance or damage. - Concrete batching, crushing and screening plants will be fitted with dust extraction and / or suppression systems where necessary.
Noise and vibration	Potential for increased noise generation from construction machinery, earth moving equipment	Construction	Substantial	Prob: 4, Impact: 3 Risk: Medium	- Install noise reduction devices such as silencers and mufflers as appropriate to mobile plant and equipment. - Limit the active construction site to not

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Media	Potential Impact	Project Development Phase	Significance	Probability of Impact and Impact	Possible Mitigation Measures
	as a result of construction activities				more than 500 meters per 2.0 km lengths
	Vehicle movement both during construction, operation and decommissioning could cause increase noise	Construction Operation	Moderate Low		- Limit work to daylight hours. Schedule noisy construction activities during specific times in the day especially near the sensitive receptors - Advance notice will be given to communities if short-term noisy construction activities are to take place, which could cause these levels to be exceeded.
	Potential for project activities to cause vibration	Construction	Moderate		- Near places of worship, construction producing nuisance level noise be minimised or rescheduled so as not to occur on locally recognised religious day. - Work areas will be organised and operated strive to restrict noise levels to not exceed World Bank thresholds at the nearest sensitive receptor during normal activities. - If existing noise levels exceed these threshold values, the Project will not cause more than a 3dB increase in measured ambient levels during normal activities
Soils/Erosion	Potential impact on soils physical, chemical and biological properties from clearing, excavation during construction.	Construction Operation Decommissioning	Low	Prob: 3, Impact: 3 Risk: Medium	- Vegetation along drainage lines and gullies will be protected where practicable to provide natural attenuation of flows. - Where possible, drainage outlets will discharge into vegetated areas and not to exposed soil. - Slope stability measures will be incorporated such as benching and installation of erosion protection features such as silt barriers and sedimentation ponds. - Area to be cleared will be kept to the minimum necessary to prevent disturbance of soils outside the boundary
	Soil erosion from vegetation removal, soil exposure, excavations during construction and road rehabilitation.	Construction	Low		
	Potential for contamination from stockpile areas, wastes storage areas, fueling of vehicles	Construction Operation	Moderate		
Surface Water	Potential for water pollution from soil erosion during construction and extreme rainfall event	Construction	Substantial	Prob: 3, Impact: 2 Risk: Medium	- Refuelling, maintenance and wash-down of construction vehicles and equipment will only occur in designated areas and away from surface water bodies, and provided with secondary impermeable containment measures. - The construction contractor will be contractually required to take all reasonable precautions to prevent and clean up all spills / leaks, and take necessary measures to prevent materials from falling into the river or pollute soils or groundwater. - The Environmental and Social Management Plans including spills and waste management measures will be implemented. - For work to be undertaken close to surface water bodies measures will be taken to ensure that pollution of water resources does not occur
	Construction (eg. Spillage of oil, fuel and chemicals) activities may discharge contaminants into the water body	Construction Operation	Low	Prob: 3, impact: 2 Risk: Medium	
	Potential for wastewater discharges into water body during construction and operation	Construction Operation	Moderate	Prob: 3, Impact: 2 Risk: Medium	
Visual Aesthetics	Landscape impacts from site preparation and construction activities including vegetation	Construction	Low	Prob: 2, Impact: 2 Risk: Low	Construction material to be stacked in designated area and cordoned off.

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Media	Potential Impact	Project Development Phase	Significance	Probability of Impact and Impact	Possible Mitigation Measures
	removal and soil removal				
	Reduced aesthetic quality impact resulting from presence of equipment, vehicles and machinery and poor waste management practices	Construction	Low		
Wastes	Potential impact on existing waste management due to increase generation of waste streams	Construction	Low	Prob: 3, Impact: 3 Risk: Medium	- Waste bins will be provided at all construction sites for the disposal of the various types of wastes generated by the project. These bins will be clearly marked to facilitate segregation of waste, for collection, transportation and disposal. - Separation of domestic and hazardous waste at the source shall be strictly enforced. - Where possible, wastes will be re-used or recycled. This is a requirements for waste oils, other hydrocarbons and tires and other hazardous and non-hazardous wastes - Burning of waste will not be permitted - All personnel will be trained in the appropriate management of waste according to the WMP.
	Potential impact on environmental media (soil, water, air) and the community from waste transportation and disposal of spoils and contaminated materials.	Construction	Low		Proper storage, transport and disposal of hazardous wastes (oily wastes, used batteries, fuel drums) in the designated areas by the national/local authorities in accordance with National Environmental Law.
	Disposal of spoils in unsuitable areas such as hilly terrain could result in environmental impacts including erosion, water pollution, obstruction of drainage patterns, etc. spoils disposal will be particularly pertinent for the urban upgrading project and the landfill construction project.		Low		- In as far as practicable, spoils will be backfilled into the borrow pits as part of the rehabilitation of these borrow pits, which is a condition of the contractor contracts. - Side tipping of spoils in any hilly locations will be strictly prohibited. - Roads will be designed to achieve a balance between the amount of spoil produced from cuttings and that required for fill to minimise the need for disposal of surplus.
Vegetation	Potential impact on sensitive vegetation and increase in invasive species during construction and site clearing activities.	Construction	Low	Prob: 2, Impact: 2 Risk: Low	- Vegetation along drainage lines and gullies will be protected where practicable to provide natural attenuation of flows. - Area to be cleared will be kept to the minimum necessary to prevent disturbance of soils outside the boundary
	Impact on sensitive vegetation – crops, trees during site clearing activities.	Construction	Negligible		
Natural Habitat	Impact natural habitat during site clearing activities.	Construction	Negligible	Prob: 2, Impact: 2 Risk: Low	- Contractor to only use public non-productive land for laydown/equipment storage. - Ensure that stockpile is secured and stored in a safe place. - Vegetate stockpiles if storage required for long periods
Flood and landslide	Floods/landslide over slopes in the form of overland flow	Construction	Substantial	Prob: 4, Impact: 3 Risk: Medium	Prefer given not to work during rainy seasons Provide alternative drainage for rainwater if earthworks fill established drainage lines Best construction practices to

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Media	Potential Impact	Project Development Phase	Significance	Probability of Impact and Impact	Possible Mitigation Measures
					be employed Flood/landslide emergency to be employed by contractors.
GHG	Emissions from construction activities like fuel combustion, power generators, concrete batching plant, operational vehicles could cause adverse impacts on air quality affecting the health and welfare of people, crops and sensitive natural fauna and flora	Construction Operation	Moderate Low	Prob: 3, Impact: 3 Risk: Medium	Use of ozone depleting substances such as chlorofluorocarbons (CFCs), halons, carbon tetrachloride, trichloroethane and halogenated hydrobromofluorocarbons (HBFCs) will not be permitted.
Wildlife	Potential impact on wildlife as a result of loss of habitat during site clearing and construction activities including noise from vibration equipment	Construction	Negligible	Prob: 2, Impact: 2 Risk: Low	- No species of global conservation significance occurs at the protect sites and so it is not expected that such species will be affected - Workers would be advised that in the unlikely event animals are encountered, they are not to be killed; but instead caught and released into a similar environment.
	Potential impact on endangered and threatened species around the hilltop areas due to habitat loss during construction	Construction	Negligible (no endangered and threatened species)		
Aquatic life	Potential impact on aquatic life (fish spawning ground), from oil spillage and discharge of wastewater or other contaminants during construction.	Construction	Low	Prob: 2, Impact: 2 Risk: Medium	- The construction contractor will implement waste management and environmental health and safety plans to limit water pollution. - No species of global conservation significance occurs at the project sites and so it is expected that such species will not be affected. Aquatic bird species only occur a considerable distance away from the project sites.
Socioeconomic					
Job creation, flood control	Potential positive impact of the Project includes creation of employment, flood and improved access to basic services.	Construction Operation	Substantial		No mitigation required
	Increase in individual and household wellbeing due to increased income from direct and indirect employment	Construction Operation	Substantial		
Infrastructure service	Potential positive impact from improved access to healthcare facilities and health care	Construction	High	Prob: 3, Impact: 3 Risk: Medium	- Flag persons are to be provided where the plant cross/meet the community road. - The contractor's Community Liaison Officer collaborates with communities to identify sensitive areas and inform communities before movement. - Request for road closure must be approved by the relevant authority
	Potential strain on existing infrastructure and waste services due to increased population and increased vehicle from contractor presence in the community		Low		
Economics, Livelihood	Disruption of livelihood activities resulting from land acquisition for Project	Construction Operation	High	Prob: 3, Impact: 3 Risk:	- Stakeholders Engagement Plan developed and implemented - Develop and implement Resettlement

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Media	Potential Impact	Project Development Phase	Significance	Probability of Impact and Impact	Possible Mitigation Measures
	Temporary disruption of livelihood activities due to blockades, diversions, traffic etc., during construction	Construction	Moderate	Medium	Action Plan (RAP), • Ensure commensurate compensation • Develop livelihood restoration plan
	Potential economic loss due to damage to assets (e.g animals) from Project related activities	Construction Operation	Moderate Low		
Community health and safety	Risks of accident and injury during Project related activities	Construction Operation	Moderate Low	Prob: 3, Impact: 2 Risk: Medium	• Adequate signage and warnings including "highly-flammable", "no smoking" • Ensure that construction workers and host community are adequately informed, and aware
	Potential increase in disease (malaria, communicable diseases, HIV) due to migration of workforce to the community	Construction	Moderate		
	Potential mental issues caused by disruption of traditional support and community cohesion resulting from possible resettlement and compensation	Construction Operation	Substantial		
Community and social cohesion	Potential conflict and tension between communities, local leaders and Project proponent due to unmet expectations around Project benefits and employment	Construction Operation	Substantial	Prob: 3, Impact: 3 Risk: Medium	• Stakeholders Engagement Plan developed and implemented
Land use and Resettlement	Potential physical and economic displacement during land acquisition	Construction Operation	High	Prob: 3, Impact: 3 Risk: Medium	• Stakeholders Engagement Plan developed and implemented • Develop and implement Resettlement Action Plan (RAP), • Ensure commensurate compensation
	Potential increase in land disputes during resettlement and compensation	Construction Operation	High		
	Changes in land use (fishing, livestock rearing) resulting from land acquisition, resettlement, and compensation process	Pre-construction Operation Construction	High		
Labour and working condition	Potential injury or loss of life due to inadequate occupational health and safety standards.	Construction	Moderate	Prob: 3, Impact: 3 Risk: Medium	• Labour Management Plans shall be prepared by Project Contractor(s) based on the Project Labour Management Procedures for approval by the Bank/PMU to guide labour relations • Contractors and Sub-contractors will be required to hire labour through a structured HR process and not 'at the gate' • All workers will be given contracts specifying the type of work they are to undertake and their remuneration package as well as their conditions of service • All contracts will be vetted by the Ministry of Labour and Social Security before they are signed by workers • Contractors shall be required to consider alternative work schedules or shifts to accommodate the hiring of more female workers.
	Potential impact on wellbeing of workers due to discrimination, infringement on labour and employment rights (excessive working hours, forced labour)	Construction Operation	Low		

Media	Potential Impact	Project Development Phase	Significance	Probability of Impact and Impact	Possible Mitigation Measures
Labour influx	Risk to community health from HIV/AIDS/COVID-19 or other transmitted infections as a result of the presence of migrant construction labour.	Construction	Moderate	Prob: 3, Impact: 3 Risk: Medium	- Communities in which sub projects will be undertaken will be sensitized on the COVID 19 symptoms and preventive measures and against stigmatization of persons with COVID 19 and other infectious diseases using the mass media - Contact numbers (hotlines) of the nearest health facility will be pasted at vantage points in the communities, where the sub projects will be implemented - Workers will not be allowed to receive visitors in project/camp sites without the express permission of site supervisor.
	Risk of gender-based violence from migrant labour, which often remains away from home on the site.				- Certain employment opportunities on site should be preserved for vulnerable persons such as Persons Living with Disability and women e.g. wardens - A grievance mechanism system will be made available to all workers to report any issues associated with OHS and / or labour and working conditions - All workers will sign a Code of Conduct (CoC) prior to start work - Contractual clauses will be inserted in Contract Documents prohibiting the Contractors/Consultants and their employees from Forced Labour, Child Labour, that also makes reporting all Child Labour cases to law enforcement agencies, the Grievance Redress Committee and Project Consultant mandatory
GBV/SEA/SH	Unwanted aggressive advances, SEA/SH against women and children.	Construction	Substantial	Prob: 3, Impact: 2 Risk: Medium	- Clearly define the GBV requirements and expectations in the bid documents for a GBV action plan, Code of conduct for workers and adequate costing for implementing the GBV plan. - The contractor ESMP and should among others, set out the mechanism for receiving, reviewing and addressing GBV complaints in a confidential manner, workers SEA/SH code of conduct and the accountable framework, mapping of GBV response actors within the project areas and working with them to provide quality survivor centered services including case management, referral services and linkage to others services not provided by them, etc. - The supervising consultants' team should include a GBV specialist to supervise implementation of the contractor GBV plan. - Contractual Clauses on mandatory and regular training for workers on required lawful conduct and legal consequences for failure to comply with laws on non-discrimination and GBV will be inserted in the Contractors and Consultants Contracts as well as those of PMU staff; - Contractual Clauses with a commitment to cooperate with law enforcement agencies investigating cases of GBV will be inserted into the Contract Documents of the Contractors, Sub Contractors and

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Media	Potential Impact	Project Development Phase	Significance	Probability of Impact and Impact	Possible Mitigation Measures
					Supervising Consultant; - Workers of Project Consultants, Contractors and Sub Contractors will be made to sign Code of Conduct with acceptable behaviour and sanction against GBV; - Sensitization workshops/training on GBV/SEA/SH shall be undertaken for all employees of the Contractor/Supervising Consultant and Sub-Contractors; - Contractors shall provide contact numbers of the nearest law enforcement Agency Office, the Grievance Redress Committee Members and GBV/SEA Service Providers/FSU to workers and paste same at vantage points within the project zones/sites/communities; - Prohibition posters on sexual exploitation and harassment will be posted in and around the sites as well as in the project communities. - A helpline will be provided and disseminated in all the project communities and facilities by the ACC/EOC to deal with GBV/ SEA/H complaints
Cultural heritage	Sites or items of heritage significance could be found in the course of construction work.	Construction	Moderate	Prob: 2, Impact: 2 Risk: Low	- Contractor to be aware of known cultural heritage sites - Flagging or physical barriers to be put in place if required. - Take precautions when excavating. - If any object or site discovered cease works and follow the - Chance-Find Procedure (CFP)
Traffic	The increased vehicular movement and speed may result in road safety issues like traffic accidents.	Construction	Substantial	Prob: 3, Impact: 3 Risk: Medium	- Community consultations and meetings on the ongoing works and related hazards will be held. - Active sites will be sealed off from the public using reflective tapes and cones; where necessary road diversions will be created. - Safety initiatives will be developed and implemented, including: - Ensuring that only qualified (licenced) drivers operate machinery; - Implementing speed limits and traffic control measures in appropriate locations; - Implementing safety signage; - Installing speed control devices on trucks - Movement of large construction machinery will be guided by a flagwoman/flagman.
Security Risks	Theft/burglary, Kidnapping& Banditry, flood, and Herdsmen issues amongst others	Pre-construction, Construction and Operation	Substantial	Prob: 3, Impact: 4 Risk: High	- Refer to the ACReSAL Security Risk Management Framework and Kogi State ACReSAL SMP. - Continuous intensive monitoring of security risk and immediate response to risk - Work with all necessary security agents especially the police and

Media	Potential Impact	Project Development Phase	Significance	Probability of Impact and Impact	Possible Mitigation Measures
					local vigilantes for adequate security and early information.
Social Sensitive Receptors	Injury and incidents, Lateness	Construction	Substantial	Prob: 3, Impact: 4 Risk: High	- Fencing of Schools, clinics and other socially sensitive establishments along the RoW. - Stop Work during Critical hours of opening and closing periods. - Ensure the passage to access such sensitive receptors is well cordoned during construction.

5.2.3 Evaluation and Mitigation measures for Potential impact/risk (Operation)

Table 5.5 shows evaluation and mitigation measures for potential impact/risk (Operation)

Media	Potential Impact	Project Development Phase	Significance	Probability of Impact and Impact	Possible Mitigation Measures
Regular inspection	Generation of waste, spill of oil from equipment, loss of vegetation.	Operation	Low	Prob: 3, Impact: 3 Risk: Medium	- Ensure fuel storage tanks are leak-proof, - check daily & install in a bunded area - Establish the procedures for storage & handling of hazardous materials. - Implement emergency response plan as part of OHS Plan to deal with spillage
Desilting and clearance of drains, manholes	Poor visibility, Increase air pollution level / dust	Operation	Moderate	Prob: 3, Impact: 2 Risk: Medium	- Flagging or physical barriers to be put in place if required. - Take precautions when excavating. - Maintain equipment and machineries adequately to reduce their noise levels - Fit machineries and heavy-duty equipment with exhaust mufflers/silencers to minimize noise generation - Avoid unnecessary idling of internal combustion engines
Desilting drainage channels	Noise and vibration from machinery	Operation	Moderate	Prob: 3, Impact: 3 Risk: Medium	- Flagging or physical barriers to be put in place if required. - Take precautions when excavating. - Maintain equipment and machineries adequately to reduce their noise levels - Fit machineries and heavy-duty equipment with exhaust mufflers/silencers to minimize noise generation - Avoid unnecessary idling of internal combustion engines
	Obstruction to free flow of traffic during maintenance	Operation	Moderate	Prob: 3, Impact: 3 Risk: Medium	- Flag persons are to be provided where the activities cross/meet the community road. - The contractor's Community Liaison Officer collaborates with communities to identify sensitive areas and inform communities before movement. - Request for road closure must be approved by the relevant authority - Proper signage during activities - Active sites will be sealed off from the public using reflective tapes and cones; where necessary road diversions will be created. - Ensuring that only qualified (licenced) drivers operate machinery - Implementing speed limits and traffic control measures in appropriate locations; - Installing speed control devices on trucks - Movement of large construction machinery will be guided by a flagwoman/flagman

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Media	Potential Impact	Project Development Phase	Significance	Probability of Impact and Impact	Possible Mitigation Measures
Repair of damaged engineering structure	Noise and vibration from the use of motorized vehicles and equipment;	Operation	Moderate	Prob: 4, Impact: 3 Risk: Medium	- Maintain equipment and machineries adequately to reduce their noise levels - Fit machineries and heavy-duty equipment with exhaust mufflers/silencers to minimize noise generation - Avoid unnecessary idling of internal combustion engines
Cleaning of drainage channel to prevent mosquitoes	Spill from equipment could pollute surface and ground water	Operation	Moderate	Prob: 3, Impact: 3 Risk: Medium	- Vegetation along drainage lines and gullies will be protected where practicable to provide natural attenuation of flows. - Area to be cleared will be limited to the drainage channel - Workers would be advised that in the unlikely event animals are encountered, they are not to be killed; but instead caught and released into a similar environment. - Flagging or physical barriers to be put in place if required. - Take precautions when excavating.
Training of operators	Health and safety Issues	Operation	Moderate	Prob: 3, Impact: 3 Risk: Medium	- Provision of PPE for workers - Maintain equipment and machineries adequately to reduce their noise levels - Fit machineries and heavy-duty equipment with exhaust mufflers/silencers to minimize noise generation - Avoid unnecessary idling of internal combustion engines
Maintenance of equipment used	Health and safety Issues	Operation	Negligible	Prob: 4, Impact: 3 Risk: Medium	- Provision of PPE for workers - Maintain equipment and machineries adequately to reduce their noise levels - Fit machineries and heavy-duty equipment with exhaust mufflers/silencers to minimize noise generation - Avoid unnecessary idling of internal combustion engines
Sanitation and waste management system	Increase soil erosion, create gully and cause land degradation.	Operation	Moderate	Prob: 3, Impact: 3 Risk: Medium	- Vegetation along drainage lines and reclaimed land will be protected where practicable to provide natural attenuation of flows. - Where possible, drainage outlets will discharge into vegetated areas and not to exposed soil. - Slope stability measures should be protected and not temper with - Area to be cleared will be kept to the minimum necessary to prevent disturbance of soils outside the boundary - All waste and obstruction to free flow of water will be removed
Security Risks	Theft/burglary, Kidnapping& Banditry, flood, and Herdsmen issues amongst others	Pre-construction, Construction and Operation	High	Prob: 3, Impact: 4 Risk: High	- Refer to the ACReSAL Security Risk Management Framework and Kogi State ACReSAL SMP. - Continuous intensive monitoring of security risk and immediate response to risk - Work with all necessary security agents especially the police and local vigilantes for adequate security and early information.

5.3 Analysis of Alternatives

Analysis of alternatives is normally considered when carrying out environmental impacts of a proposed project. Although the Kogi State Government through the ACReSAL project office is committed to the implementation of the project, there is need to analyse the options available as regards the implementation of the project and the engineering options that could be employed in the execution of the project

5.3.1 Implementation Options

Under implementation, alternative site/location option was considered.

Alternative Site/Location Option

The erosion and the tributaries are considered the source of flooding in the area. Thus, the objective of reducing/stopping flooding in the area cannot be achieved if the project is moved to another area. This is not an option.

5.3.2 Engineering/Technology Options

Three engineering/technology options are considered as follows:

Hard Engineering

This involves the use of structures such as dams, levees and channel modification. Hard engineering structures are point specific. Channel widening increases the channel capacity but may lead to increased siltation. In urban areas, land may not be available for widening. Channel deepening can be achieved through dredging or narrowing the channel. It may, however, lead to increased bank instability. Channel straightening removes meanders in rivers, steepening the gradient and increasing water velocity, and therefore reducing the flood stage. In contrast, sinuous channels have low channel efficiency. Flood relief channels are used for by-passing existing urban areas where straightening is not an option. Large concrete channels are expensive to build, damage the river ecology and are visually unattractive, especially at low flow.

Levees on the other hand increase the carrying capacity of the channel but may increase the risk of flooding downstream. They may also increase sedimentation in the channel after the flood peaks have passed. In extreme conditions the level of the riverbed may rise so much that the riverbed level is higher than the floodplain. Levées are expensive, so are used to protect high-value property and vulnerable communities.

Also, various types of dam can be used to control and regulate water flow. These include:

- a. Retarding dams are simple structures that have an outlet at the base, allowing water to drain out at a set rate. They cannot hold back water permanently.
- b. Detention basins are used to store water in times of floods. They are used for farming (pastoral) and other low-intensity purposes, such as recreation, but not for buildings or other valuable purposes.
- c. Storage dams have gates or valves to store and regulate water flow.

Some of the disadvantages of dams include dam failure and flooding of upstream locations. In addition, the storage capacity of a dam decreases with time, as sedimentation fills the area behind it.

Hard engineering has a lot of environmental and ecological impacts. The main one is as regards the nature of natural rivers. Natural rivers have highly variable flow regimes with a variety of pools, riffles, meanders, inner cliffs and slip-off slopes however, river engineering produces a more uniform condition and a consequent reduction in biodiversity. Thus, hard engineering alone is not a reliable option.

Soft Engineering

Soft engineering techniques include the use of afforestation, terracing of slopes and the re-creation of floodplains. They are more extensive in area. Some of the methods used include topographical manipulation, surface and underground storage, gully control, vegetation cover management and flood proofing.

Topographic manipulation involves altering the length of the slopes. A long slope produces more run-off and erosion than a shorter one, since water velocities increase downslope. Topographic manipulation techniques include:

- a. Terraces – artificial vertical layers on a slope designed to reduce water movement. They increase infiltration and sediment deposition.
- b. Contour ploughing – this involves the ploughing of surfaces along the contours to reduce overland run-off.
- c. Strip cropping – alternate strips of different crops are grown to produce variations in interception and run-off.

Surface and underground water storage mostly occurs naturally such as in small lakes and swamps, but some may be artificial such as ponds. This technique is a process whereby

surface flows from flash floods are diverted by dykes to increase infiltration and protect areas from flooding. Gully control involves the building of dams to reduce the flow of water especially in mountainous areas.

Vegetation cover management helps to reduce flooding through increased interception, increased evaporation and evapotranspiration, increased infiltration and reduced run-off. In addition to providing above-ground protection from rain-drop impact, vegetation adds organic matter to the soil and binds the soil particles together.

Although soft engineering proves to be very useful in totality of flood control, it cannot completely be used to manage flood especially when they are heavy thus this is not a reliable option to be used in this case.

Trimming/Civil Engineering incorporated with flexible Structures/Vegetation

This is a combination of hard and soft engineering. It involves various articulated approach to handle safe flow of the water with less impact on the environment. First is the trimming of the water meander to obtain a relatively uniform flow and uniform velocity along the channel. This process involves excavating both within the water and on land which will result in aligned flow channel.

After the trimming, a combination of connecting drain and gabion wall (flexible structure) will be put in place to form the new water channel, thereafter re-vegetation of exposed soil followed. This technology is cost effective, high efficiency and environmentally friendly, as such it is considered most viable and sustainable.

If this option is well carried out immediately, it will help arrest and prevent further encroachment of the flood into farm lands and environs and facilitate the restoration of depleted farmlands and enhance viable socio-economic activities that will improve the livelihood of the people in the area. It will equally improve the microclimate condition of the area, preserve threatened farmland and infrastructure (roads and culverts); ease the fear and anxiety of people living in the project area and ultimately enhance the livelihoods of the people and reduce poverty.

CHAPTER SIX

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

6.0 Introduction

This chapter enlists and discusses the framework for the mitigation measures taken to address the adverse impacts identified in Chapter Five. It also discusses the fundamentals of the environmental and social management plan. Furthermore, it outlines the institutional responsibilities and accountabilities that will ensure that all the provisions are implemented under strict supervision. In addition, the cost implication of monitoring all the identified avenues was also outlined. More importantly; the mitigation measures outlined in this report are structured to curtail the potential adverse environmental and social impacts itemized in the previous chapters. The mitigation measures are specifically structured in line with the proposed Ankpa gully/flood intervention project. All these are discussed in detail in the subsequent subsections as follows:

- Description of proposed mitigation measures;
- Institutional responsibilities and accountabilities;
- Capacity building plan;
- Public consultation plan;
 - Description of grievance redress mechanism (in alignment with the ESMF, RPF, RAP, and Project Implementation Manual) to address situations of conflicts or disagreements about some of the project activities; and
 - Monitoring and evaluation plan, including suitable indicators for the proposed project
 - Specific ways that GBV risks are to be addressed in the project by identifying mitigation measures including development of a GBV Action plan with accountability and response from work
 - Costs of implementing the ESMP.

6.1 Discussion of the Proposed Mitigation Measures

The mitigation implementation plan articulates the Ankpa erosion control project impacts and mitigation measure and assigns responsibilities for their implementation. This helps to solve the problems of overlapping of functions and/or passiveness to actions that often trail project implementations. Timeline for implementation is also scheduled. The last item of the mitigation implementation plan is the costing of mitigation requirements. The essence of this is to assess all mitigation measures that have financial costing and integrate the costs into decision plan of KSG-ACReSAL projects so that proper and concise budget plan be made to avert delay or abandonment of the implementation as a result of funding constraints.

Construction Phase Mitigation

Generally, measures to prevent and/or minimize the degradation of landscapes and soil erosion, pollution of surface and groundwater resources and soils by construction of run-off shall be implemented by the contractor during the construction phase. This shall include, but may not be limited to,

- the use of already existing disposal sites;
- clear delineation of the zones for storage of materials and accumulation of wastes that will cause no damage to the vegetation cover and other components of the environment should be maintained by the contractor;
- ditches with gradient over 5% shall be reinforced by surface protection, steep slopes, if applicable, shall be strengthened by vegetation, grass and plants, concrete plates or gabions to avoid erosion;
- sites for storage of oil and chemicals shall be properly equipped to minimize the risks of polluting soils and waters;
- dust and noise from the construction site shall be minimized, especially in resident areas, public places, near schools, etc.
- In the project areas adjacent to specially protected areas, machinery shall not go beyond the alienation zone.
- There shall be no waste accumulations and waste disposal sites in the same areas.
- There shall be no use and storage of explosives and toxic and chemical substances.

Operation Phase Mitigation

During operation it is essential that flood/gully control structures, water harvesting structures and afforestation activities are periodically maintained to ensure proper water flow, to avoid stagnation, to prevent flooding and damages caused by frost.

Detailed and specific impacts and mitigation measures, responsible unit, cost and timing for each of the mitigation actions for Ankpa erosion control project is presented in Table 6.1-6.3 below.

6.2 Monitoring Plan

6.2.1 Introduction

The monitoring plan is a schedule that itemizes the varying mitigation measures associated with each sub-project phase and how implementation will be monitored. This is done for the purpose of ensuring that compliance is made consistent with the programme of mitigation of the ESMP. The monitoring plan helps to ensure timely project completion, implementation to specification and quality as well as detecting early possible variations in items that need to be addressed in the project implementation. Items of the monitoring plan includes; (1) mitigation measures, (2) monitoring indicator, (3) parameters to be monitored/measured, (4) monitoring device/equipment, (5) frequency of

monitoring, (6) monitoring responsibilities and (7) cost of monitoring (equipment, transportation and labour).

A fundamental approach in monitoring and evaluation segment of this project will avoid the linear conceptual model, in which monitoring and evaluation come in the end of the implementation processes however, it is recommended that monitoring will be a continuous process. Figure 6.1 shows the conceptual model for the monitoring process.

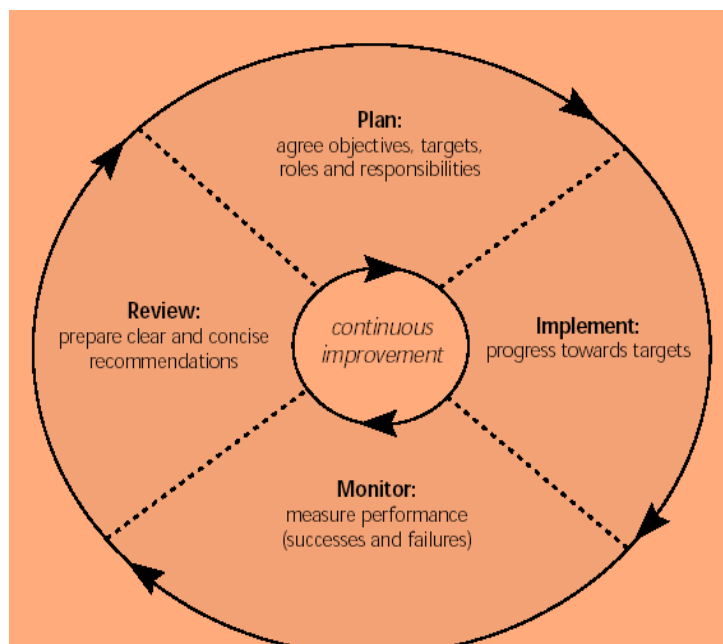


Fig. 6. 1: Conceptual Model (Adapted from National Biodiversity Strategy and Action Plan (NBSAP), 2004)

Generally, the parameters to be monitored during the pre-construction phase flora and fauna (loss of flora and fauna), air quality, impact on soil, borrow pits and dump sites, and access roads and movement, oil spills/contamination etc.

During the construction phase, parameters to be monitored include water and soil quality, suspended solids, oils, pH value, noise level, Air pollution /dust, Staff safety (protective equipment), Overall workers' camp site conditions, number of structures demolished and owners compensated etc.

In addition, during the operation phase, parameters to be monitored include waste disposal, quarterly clearing of canals, maintenance of canal beds and hydraulic structures, repair of collapsing sections etc. The site-specific monitoring plan for each of the construction phases is presented in Tables 6.1-6.3.

The impact and mitigation measures, unit responsible and cost for Ankpa erosion control project is presented in Table 6.1

Table 6.1: Environmental and Social Mitigation and Monitoring Plan during the Pre-Construction Phase

S/N	Activity	Potential Impacts	Mitigation/ Enhancement Measures	Mitigation Responsibility (Implementation)	Cost of Mitigation	Indicators/ Parameters	Measurement Method	Sampling Location	Frequency of Monitoring	Monitoring Responsibility (Supervision)	Cost	
											Implementation	Monitoring
											USD\$	USD\$
Environmental Impacts												
A1	• Mobilisation • Site clearing • Material sourcing • Staging area • Worker’s camp • Burrow pit site location	Noise and vibration from the use of heavy-duty trucks vehicles and equipment	• Keep equipment and machinery amply to reduce noise levels; • Fix machineries and heavy-duty equipment with exhaust mufflers/ silencers to minimize noise generation; • Keep internal combustion engines low.	Contractor		• Noise Levels (Not to exceed 90dB(A); • Records of Equipment Maintenance.	• In-situ measurement; • Complaint Register.	Construction Site and the surrounding area	Daily	Environmental Safeguards Officer (ESO), Kogi ACRESAL - SPMU Kogi State Ministry of Environment (KSME)	890	750
A2		Ambient air pollution from release of dusts and gaseous emissions	• Suppress dust emissions by appropriate methods such as spraying water on soil; • Ensure vehicles are in good working condition; • Ensure exhaust fumes from vehicles conform to applicable	Contractor		• Suspended Particulates (SPM), SO₂, NO_x, CO, THC; • Vehicle Exhaust Measurements; • Records of maintenance for all machineries and equipment;	• In-Situ Measurement	Construction Site and the surrounding area	Daily	ESO-Kogi ACRESAL SPMU KSME	890	750

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			National standards and specifications.									
A3		Soil contamination from accidental leakage/spillage of fuel, oil and lubricants	• Ensure fuel storage tanks are leak-proof; • checked daily & installed in a bonded area; • Establish procedures for storage & handling of hazardous materials; • Implement emergency response plan as part of OHS Plan to deal with spillage.	Contractor		• Soil quality parameters (especially hydrocarbon contaminants); • Compliance with fuel storage procedures.	• In situ/ and Laboratory analysis; • Visual observation.	Project site	Monthly	ESO-Kogi ACREsAL SPMU KSME	900	800
A4		Loss of soil quality from de-vegetation and erosion	• Avoid removal of vegetation and trees to the extent possible; • Protect all vegetation not required to be removed against damage; • Re-vegetate exposed soil quickly.	Contractor		• % of Vegetal Loss; • Revegetated areas.	• Visual estimate	Construction Site and surrounding area	During site clearing and construction	ESO-Kogi ACREsAL SPMU KSME	890	750
A5		Impact on fish habitat and water quality • Reduced primary productivity in fisheries, • Potential impact on	• Washing of Project plant and vehicles in watercourses will not be undertaken; • Avoid direct impacts (i.e. habitat	Contractor		• Records of fish catch; • Visual monitoring; • Probe monitoring.	• Complaint Register	Construction Site and surrounding area	During site clearing and construction	ESO-Kogi ACREsAL SPMU KSME	980	800

		fish spawning and bank-nesting • degradation of spawning habitat • Habitat loss, fragmentation and degradation leading to potential loss of species • restriction of fish movement and reduced reproductive success	disturbance in the channel) or increases in suspended sediments in the water in the rivers especially in the spawning season; • Daily visual monitoring of turbidity will be undertaken at gully erosion while works are being undertaken at that river; • Only essential construction vehicles (as approved by the Company) will be allowed to enter rivers or streams and only with prior examination of the vehicles for fuel/lubricant leaks; • The gully erosion contractor will prepare a plan to respond to an outbreak of pollution, including clean up and remediation for outbreak and liaison with									
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			downstream users.									
A6		Generation of vegetal wastes and other cleared materials	- Comply with the Waste Management Plan; - Promote waste avoidance; reduction; reuse and recycling as applicable; - Ensure proper handling, and disposal of wastes (especially contaminated soil, concrete, oils, grease, lubricants, metals, etc.).	Contractor		- Contractors Compliance to WMP; - On-site Waste management techniques.	- Visual observation; - Waste Tracking Report.	Constructi on Site and surroundin g area	Weekly	ESO-Kogi ACREsAL SPMU KSME	900	800
											5450	4650
Biological Impact												
A7	- Mobilisation - Site clearing - Material sourcing - Staging area - Worker's camp - Burrow pit site location	Impact on flora and fauna	Planting of trees and re-vegetation of affected area.	Contractor		- Area cleared outside the gully remediation corridor; - Extent of area cleared for installation; - Number of trees planted and area extent of lawns developed.	Visual observation	Constructi on Site and surroundin g area	Weekly	Kogi State ACREsAL -SPMU; Federal ACREsAL and Other relevant Ministries	2,200	1,500

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A8		Impact on Wildlife	Avoid protected area in project implementation	Contractor		- Number and extent of protected/conserved area developed; - Number of trees planted.	Visual observation	Construction Site and surrounding area	Weekly	Kogi State ACREsAL-SPMU; Federal ACREsAL and Other relevant Ministries	2,200	1,500
	Total										4,400	3,000
Socio-Economic Impacts												
A9	- Sensitisation - Mobilisation - Site clearing - Material sourcing - Staging area - Worker's camp	Loss of building, farmland as well as land-based livelihood including economic trees and crops	Implementation of measures outlined in the RAP which will outline the mitigation measures and compensation where eligible.	- Kogi ACREsAL SPMU; - Kogi State Town Planning & Land Development.	As documented in the RAP report	- RAP Prepared; - Implementations of the requirements of the resettlement instrument.	Assessment by the Kogi ACREsAL SPMU to determine if the objectives of the resettlement instrument have been achieved.	Impacted communities	All issues should be settled before the start of civil works	FPMU Kogi ACREsAL SPMU; Kogi State Town Planning & Land Development	As documented in the RAP report	
A10		Grievances and conflict arising potentially from members of the community asked to vacate areas allocated for the project	- Continuous community engagement/consultation; - Establishment of grievance redress mechanism (GRM) to receive and address concerns.	Social Safeguard Officers (SSO) – Kogi ACREsAL SPMU, GRCs		- Regular consultations with stakeholders and members of the communities ; - Implementation of GRM.	- Evidence of consultation, e.g., minute of meetings pictures; - Number of complaints received and resolved.	Impacted communities	Through out project implementations	FPMU Kogi ACREsAL SPMU;	2,200	1,500
A11		Security issues that may lead to stealing of contractor equipment mobilised to site	- Engage competent security personnel; - Provide adequate training of security personnel; - Disclose site	Contractor		Regular meetings with community heads	Log book	Community/project site	Monthly	Supervision Consultant Kogi ACREsAL SPMU;	2,200	1,500

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			security arrangements to the Police and host communities.									
A1 2		• Threat to community culture due to labour influx • Impact on site of cultural heritage • Impact on intangible cultural heritage (Oka festivals)	• Involve local community and opinion leaders in the project planning process; • Develop an induction program including a code of conduct for all workers; • Provide cultural sensitization training to improve awareness of and sensitivity of workers to local cultures, traditions and lifestyles. (Implement the PCRMP); • Minimize the disruption as a result of the relocation and removal of sacred sites; • Where possible, design or re-design Project components to avoid or minimize impacts to known physical cultural heritage	Contractor Kogi ACReSAL SPMU	As documented in the RAP report	• Implementations of the requirements of the code of conducts and the cultural sensitization programs; • Regular meetings with community heads; • RAP Prepared.	• Log book; • Assessment by the Kogi ACReSAL SPMU to determine if the objectives of the resettlement instrument have been achieved.	Community/project site	Monthly All issues regarding cultural heritage should be settled before the start of civil works	Kogi ACReSAL SPMU; Supervision Consultant	2,300 As documented in the RAP report	1,750 As documented in the RAP report

			resources based on input from cultural heritage specialists; • Avoidance of shrines determined to be very important to the local community; • If shrines considered important to the local community cannot be avoided, consultation with the local community will occur to offer compensation for the loss of the cultural resource or to inquire about the possibility of relocating the resource; • Sensitise all workers on the restriction during the series of festivals (Oka festival); • Educational, awareness-raising and information programmes, aimed at the general public, in particular construction										
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			workers from other communities; • Identify and define the various elements of this intangible cultural heritage including festivals with the participation of communities and relevant non-governmental organisations; • Consultation with chief priest and community elders on the required compensation; • Adopt a general policy of respect aimed at promoting the function of these intangible cultural heritages and at integrating the safeguarding of such heritage into project planning programmes; • The impact on cultural areas will be further examined through the RAP study.									
A1 3		Exposure of workers to	• Implement site specific OHS	Contractor		• Contractors Compliance	• Routine Inspection;	Constructi on Site/	Weekly	ESO-Kogi ACREsAL	1200	1000

		occupational hazards	Plan: • 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; • Adequate safety signage on construction sites should be installed to alert community/drivers/pedestrians; • Lighting and/or reflective tapes and signage integrated in all worksites for safety at night; • Appropriate security measures in place to prevent harassment or kidnapping (see			to Occupation safety and Health (OSH)/Health Safety and Environment (HSE) Plan; • Compliance to use of PPEs; • HSE Statistics (FAC, LTI, etc.); • No of workers trained.	• HSE Reports.	Campsite/ Staging areas/ borrow pit areas		SPMU KSME Supervision Consultant		
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			OHS plan).									
A1 4		Conflict arising from the poor employment/engagement of local labour for site clearing	Employment of local labour should be maximized by ensuring the submission of statement of intent to employ local labour as a condition in the procurement document for the contractor.	Contractor		• No. of local labour used	• Log book	Constructi on Site	Weekly during Pre- Constru ction	Kogi ACR eSAL SPMU	1200	1000
											9,100	6,750
Public Health Impacts / COVID 19												
A1 5	• Mobilisation • Site clearing • Material sourcing • Staging area • Worker's camp • Burrow pit site location	Risk of diseases arising from indiscriminate waste disposal Risk of contracting COVID 19	• Develop a site specific HSE plan; • Comply with the waste management plan; • Comply with ACR eSAL COVID 19 guidelines and NCDC PROTOCOL.	Contractor		• Workers Using PPE; • HSE Statistics (FAC, LTI, etc.).	• Routine Inspection; • HSE Reports.	Project site	Daily during Pre- Constru ction	ESO-Kogi ACR eSAL SPMU and SSO KSME	1200	1000
	Total										1200	1000
Total												15400

6.2.2 Environmental, Socio-Economic, Public Health and Covid-19 Impacts Mitigation and Monitoring Plan during the Construction Phase

Table 6.2 shows the ESMP for Environmental, Ecological, Socio-Economic, Public Health and Covid-19 Impacts Mitigation and Monitoring Plan during the Construction Phase. The Mitigation / Enhancement Measures and Mitigation responsibility (Implementation) were identified. The Monitoring indicators, Method of measurement, Frequency of measuring, Monitoring responsibility and the Cost of monitoring are properly documented.

Table 6.2: Environmental and Social Mitigation and Monitoring Plan during the Construction Phase

S/N	Activity	Potential Impacts	Mitigation/ Enhancement Measures	Responsibility (Implementation)	Cost of Mitigation		Indicators/ Parameters	Method of Measurement	Sampling Location	Frequency of Monitoring	Responsibility (Supervision)	Cost (USD\$)	
					(USD\$)	NGN						Implementation	Monitoring
					(USD\$)	(USD\$)							
Environmental Impacts													
B1	- Earthworks including excavation and grading - Provision of lateritic sub-base and base course (150mm) - Side Drains - Culvert works - Utilization of borrow pits for gully reclamation - Rain harvesting, - Afforestation,	Noise and vibration from the use of motorized vehicles and equipment	See A1	See A1		See A1	See A1	See A1	See A1	See A1	890	750	
B2		Drainage Channel Failure	- Heavy duty machinery and filling material should be about 30m away from the channel; - Vibration induced machines should be avoided; - Lower the overhand before using excavator with a boom of at least 25 meters.	Contractor		- Distance of heavy-duty machines from the channel during civil works; - Overhead position of excavator with boom of at least 25 meters; - Vibration level of machinery during civil works.	Visual observation	Construction Site	Every day, during the construction phase	ESO-Kogi ACRReSAL SPMU Engineer – Kogi ACRReSAL SPMU State Ministry of Works	890	750	
B3		Ambient air pollution from release of dusts and gaseous emissions during construction	See A2	See A2		- Suspended Particulates Matter (SPM), SO₂, NO_x, CO, THC; - Vehicle Exhaust	See A2	See A2	See A2	See A2	950	800	

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						Measurements; • Records of maintenance for all machineries and equipment.						
B4		Increased Siltation and runoff/flooding	• De-silting of drainage channel; • Enlighten the populace on proper disposal of domestic waste; • Enhance proper handling and disposal of wastes (especially contaminated soil or water, concrete, demolition materials, oils, grease, lubricants, metals, etc.); • Construct temporary drainage channels with sedimentation traps and/or screens; • Install sediment silt	Contractor		Surface Water Quality (pH, TDS, TSS, BOD, COD, Turbidity)	In-Situ Measurements	Discharge point, midstream and downstream	During construction	ESO-Kogi ACREsAL SPMU, Engineer, KSME	890	750

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			fences or other similar devices at strategic locations to prevent run-offs of sediment/silt into River.									
B5		Topographic alterations and slope instability arising from excavation to construct drainages	• Construction works should be done according to local relief and hydrology; • Old drainage systems should be maintained and new ones prioritized; • Ensure that engineering designs are designed with respect to local topography ; • Excavation / scooping should be top down and no down or base cutting	Contractor		• Height of bank stabilisation to the local relief; • Depth and area extent of excavation; • Number and area extent of cut and fill; • Terraced areas (extent).	Routine Inspection	Construction Site	During construction	ESO-Kogi ACRReSAL SPMU Engineer – Kogi ACRReSAL SPMU State Ministry of Works	890	750

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			with huge rock hanging.									
B6		Loss of soil quality from de-vegetation and erosion	See A4	See A4		See A4	See A4	See A4	See A4	See A4	750	600
B7		Generation of spoils and other construction wastes	See A6	See A6		See A6	See A6	See A6	See A6	See A6	850	700
	Total										6110	5100
Biological Impacts												
B8	- Earthworks including excavation and grading - Afforestation,	Impact on flora and fauna	See A7	See A7		See A7	See A7	See A7	See A7	See A7	1,150	900
B9		Impact on Wildlife	See A8	See A8		See A8	See A8	See A8	See A8	See A8	980	800
											2,130	1,700
Socio-Economic Impacts												
B10	- Earthworks including excavation and grading - Side Drains - Culvert works - Utilization of borrow pits - Rain harvesting, - Afforestation,	Risk of diseases arising from indiscriminate waste disposal	See A15	See A15		See A15	See A15	See A15	See A15	See A15	1900	1200
B11		- GBV/SEA risks; - Intimate Partner Violence (IPV); - Public harassment; - Harmful widowhood practices and women and child trafficking.	- Commitment / policy to cooperate with law enforcement agencies investigating perpetrators of gender-based violence; - Ensure a copy of the code of conduct is	Contractor, ESO-Kogi ACRReSAL SPMU, SSO, GRC, Procurement Kogi ACRReSAL SPMU	Part of construction cost	- No workers sensitized; - Code of conduct developed for workers - Code of conduct signed by Contractor and workers - Level of awareness	Routine Inspection	Priority Site	During Construction	Supervision Consultant Kogi ACRReSAL SPMU ESO-Kogi ACRReSAL SPMU Police	2,000	1,400

			presented to all workers and signed by each worker;			of workers to local cultures						
			• Ensure workers are trained on the content of the code of conduct in English and local language; • Provide cultural sensitisation training to improve awareness of and sensitivity of workers to local cultures, traditions and lifestyles; • Prohibit child and forced labour; • Establish and implement the GBV-GRM; • Engage competent security personnel; • Developing a clear ACRoSAL specific internal "Reporting and Response Protocol" to			• Awareness of grievance • Procedures. • No of local workers • Presence of security personnel						

			guide relevant stakeholders in case of GBV/SEA incidents; • Strengthening operational processes of ACReSAL states project area on GBV/SEA; • Identifying development partners and cultivating pragmatic partnership on GBV/SEA prevention measures and referral services; • Providing financial support implementation of the GBV/SEA actions described herein, including training and awareness building for various stakeholders; • Establishment of inter-ministerial committee to advance										
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			GBV/SEA actions described above.									
B1 2		Conflict arising from the poor employment/ engagement of local labour for construction activities	See A15	See A15		See A15	See A15	See A15	See A15	Supervision Consultant See A15	2,000	1,000
B1 3		Traffic congestion and increased risk of road traffic accidents and injury	Implement site specific Transport Management Plan (TMP) and OHS Plan	Contractor in conjunction with FRSC		- Contractors Compliance; - Workers Using Personal Protective Equipment-Health Safety and Environment (PPE-HSE) Statistics/ Incident/accident report	Routine Inspection	Priority Site	During Construction	ESO-Kogi ACRReSAL SPMU Federal Road Safety Commission	950	800
B1 4		Damage to shrines and cultural sites	See B12	See B12		See B12	See B12	Project site and its surrounding	During Construction	Supervision Consultant, ESO-Kogi ACRReSAL SPMU, SSO, Kogi State Ministry of Culture and Tourism	1700	1,000
B1 5		Damage to and disruption of services of existing public utility cables and pipes	Employ utility survey maps to identify existing underground facilities	Contractor		Notify Utility Service Providers	- Notification Register - Visual Observation	Construction area	During excavation	ESO-Kogi ACRReSAL SPMU Engineer, Kogi ACRReSAL SPMU	780	600

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			before excavation works to prevent / minimize damages and disruption of services; • Shut down service if necessary, should be as temporal as possible; • Any disruption will be discussed with utility operators and the community beforehand.							PC, Kogi ACRéSAL SPMU		
B1 6		Interference from local community causing disruptions to work	• Engage members of communities in stakeholder consultation throughout the Lifecycle of the project; • Involve local community and opinion leaders in planning process; • To minimize the number of foreign workers being	SSO and ESO-Kogi ACRéSAL SPMU Contractor		• Regular meetings with community heads	• Log book	Community/project site	Monthly	Kogi ACRéSAL SPMU	800	600

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			brought to the site, the contractor will be required to hire skilled/unskilled labour from local people if they wish to be hired.									
B17		Impacts on water supply /water quality	• A12	A12		• A12	• A12	A12	A12	A12	870	700
B18		Risk of flooding	• Desilting of drainage channels; • Enlighten the populace on proper disposal of domestic waste; • Enhance proper handling and disposal of wastes (especially contaminated soil or water, concrete, demolition materials, oils, grease, lubricants, metals, etc.).	Contractor		• Record keeping	• Log book	Construction Site	During Construction	Supervision Consultant, ESO-Kogi ACRReSAL SPMU, SSO, Kogi State Ministry of Culture and Tourism	1500	900
B19		Impact on accessibility to public establishment (Primary and secondary	• Provide alternative route/access to public and private establishments			• Record keeping	• Log book	Construction Site	During Construction	Supervision Consultant, ESO-Kogi ACRReSAL SPMU, SSO, Kogi	1500	700

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		schools, health centres)	ts; • The Contractor should liaise with the Kogi State Ministry of transport and where possible the federal government agencies such as the Federal Road Safety Commission (FRSC) throughout the construction phase to ensure traffic during the construction period. The design of traffic management system should involve all the modes of road transport particularly motorcycles.							State Ministry of Health		
B20		Impact on water production and supply activities	• Suppress dust emissions by appropriate methods such as spraying			• Record keeping	• Log book	Construction Site	During Construction	Supervision Consultant, ESO-Kogi ACRReSAL SPMU, SSO, Kogi State	970	850

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			water on soil; • Ensure vehicles are in good working condition; • Fit machineries and heavy-duty equipment with exhaust mufflers/silencers to minimize noise generation; • Avoid unnecessary idling of internal combustion engines.							Ministry of Culture and Tourism		
	Total										14970	9750
Public Health Impacts / COVID 19												
B2 1	• Earthworks including excavation and grading • Side Drains • Culvert works • Utilization of borrow pits • Rain harvesting, • Afforestation,	Risks of diseases such as HIV/AIDS, STDs	• Develop a site specific HSE plan; • HIV/AIDS and STD awareness programme should be prioritized; • Other activities should include treating any sexually	Contractor		• Contractors Compliance; • Workers Using PPE • HSE Statistics (First Aid Case (FAC), Loss Time Injury (LTI), etc).	• Routine Inspection; • HSE Reports; • Record of awareness and theme carried out.	Construction Site	During Construction	Site Engineer/ Kogi State ACReSAL; KSMEPP; Kogi State Ministry of Health	950	800

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			transmitted diseases, distributing condoms, and providing counselling, screening, and support services for employees; • Medical examinations on general health issues should be performed on new employees and repeated regularly throughout the term of employment ; • Workers should be prohibited from patronising prostitutes and the use of alcohol and drugs.									
B2 2		Community health & safety risks	Implement a site specific HSE plan	Contractor		• Contractors Compliance; • Workers Using PPE • HSE Statistics (FAC, LTI, etc).	• Routine Inspection ; • HSE Reports.	Construction Site	During Construction	Supervision Consultant Kogi ACRReSAL SPMU; KSME	870	750
B2 3		Safety risks associated	• Develop and	Contractor		• Contractors Compliance	• Routine Inspection	Borrow pit Site	During Construction	ESO-Kogi ACRReSAL	820	700

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		with falls in poorly managed borrow pits	Implement a borrow pit management and reclamation plan; • Adequate PPEs must be provided and used by workers; • All borrow pits must be reclaimed; • Any uncovered work pits should have appropriate signage and protection around them.			to borrow pit management plan; • Workers Using PPE; • Report of unreclaim borrow pits from completion audit re.	• HSE Reports		n	SPMU KSME		
B2 4		The potential risk of drowning	• Adequate PPEs (life jackets, buoyancy aid and surf helmets) must be provided and used by worker;s • All river should have appropriate signage and protection	Contractor		• Workers Using PPE	• Routine Inspection • HSE Reports	Rehabilitated gully site	During Construction	Supervision Consultant ESO-Kogi ACRéSAL SPMU KSME	850	700

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			around them; • Design and erect fences or barrier gate around the walking paths; • Install warning signs and install lighting system around the project sites; • Develop a site specific HSE drowning plan.									
B2 5		Uncontrolled sale of food and other items to workers on the site	• The HSE officer will ensure that only approved vendors are allowed to sell food; • Access to the site should be restricted to avoid sale of contraband on site; • Implement a site specific HSE plan (section 12-Welfare) .	Contractor		• HSE Statistics (FAC, LTI, etc)	• Routine Inspection • HSE Reports	Construction Site	During Construction	Kogi ACREsAL SPMU; KSME; Ministry of Health	900	750
B2 6		Water-borne diseases	• Good sanitation including	Contractor		• HSE Statistics (FAC,	• Routine Inspection • HSE	Construction Site	During Construction	Kogi ACREsAL SPMU;	1000	850

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			hygienic water supply and proper waste disposal at its operation and residential accommodations during the phase of the project.			LTI, etc)	Reports			KSME; Ministry of Health		
B2 7		Increased mosquito vector breeding sites	Government programmes to improve existing medical and health services in the local communities should be supported as much as possible. This should include Mosquito control programmes such as the distribution of insecticide treated nets to affected community members.	Contractor		HSE Statistics (FAC, LTI, etc)	- Routine Inspection - HSE Reports	Construction Site	During Construction	Kogi ACREsAL SPMU; KSME; Ministry of Health	970	750
B2 8	Security Risk	Theft/burglary, Kidnapping & Banditry, flood, and Herdsmen	Refer to the ACREsAL Security Risk Management	Contractor and Kogi ACREsAL PIU		Refer to the ACREsAL Security Risk Management	Number of reported incidents of insecurity issues.		- At all time during construction - At all times.	ESO Kogi ACREsAL SPMU; The Nigeria Police and other security	250`	100

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		issues amongst others	nt Framework and Kogi State ACREsAL SMP. • Continuous intensive monitoring of security risk and immediate response to risk. • Work with all necessary security agents especially the police and local vigilantes for adequate security and early information.			Framework and Kogi State ACREsAL SMP. • Continuous intensive monitoring of security risk and immediate response to risk. • Work with all necessary security agents especially the police and local vigilantes for adequate security and early information.			•	agents in Kogi State		
B 29	Social Sensitive Receptors	Injury and incidents, Lateness	Fencing of Schools, clinics and other socially sensitive establishments along the RoW. Stop Work during Critical	Contractor		Fencing of Schools, clinics and other socially sensitive establishments along the RoW. Stop Work during Critical hours	• Number of reported incidents and accidents •		• At all times during construction •	ESO Kogi ACREsAL SPMU;	100	100

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			hours of opening and closing periods. • Ensure the passage to access such sensitive receptors is well cordoned during construction.			of opening and closing periods. • Ensure the passage to access such sensitive receptors is well cordoned during construction.						
	Total										6300	5500
Total											29510	22050

6.2.2 Environmental, Socio-Economic, Public Health and Covid-19 Impacts Mitigation and Monitoring Plan during the Post-Construction/Operation Phase

Table 6.3 shows the ESMP for Environmental, Socio-Economic, Public Health and Covid-19 Impacts Mitigation and Monitoring Plan during the Post-Construction Phase. The Mitigation / Enhancement Measures and Mitigation responsibility (Implementation) are identified. The Monitoring indicators, Method of measurement, Frequency of measuring, Monitoring responsibility and the Cost of monitoring are properly documented.

Table 6.3: Environmental and Social Mitigation and Monitoring Plan during the Post–Construction/Operation Phase

S/N	Activity	Potential Impacts	Mitigation/ Enhancement Measures	Responsibility (Implementation)	Cost of Mitigation	Indicators/ Parameters	Method of Measurement	Sampling Location	Frequency of Monitoring	Responsibility (Supervision)	Cost	
											Implementation	Monitoring
											(USD\$)	(USD\$)
Environmental Impacts												
C1	• Maintenance and Repairs; • Planned and unplanned integrity checks for rehabilitated gully area and maintenance and replacement of wearing/faulty/damaged components; • Repairs of cracks and potholes; • Cleaning of drains where and when necessary; • Cleaning and vegetation control along the shoulders; • Borrow pit reclamation.	Increased air pollution level / dust due to increased vehicular traffic after the rehabilitated gully area	See A2	See A2		See A2	See A2	See A2	See A2	See A2	850	700
C2		Soil contamination from accidental leakage/spillage of fuel, oil and lubricants during rehabilitated gully area maintenance	See A3	See A3		See A3	See A3	See A3	See A3	See A3	890	750
C3		Contamination of surface water as a result of waste dumping in and around the river during maintenance	• Implement the Waste Management Plan (WMP); • Promote waste avoidance; reduction; reuse and recycling as applicable.	Contractor		Surface Water Quality (pH, TDS, TSS, BOD, COD, Turbidity, THC, Heavy Metals)	• In-Situ / Laboratory Measurements	Discharge point, midstream & downstream	Monthly	Kogi ACRESAL SPMU;	850	700
	Total										2590	2150
Socio-Economic Impacts												
C4	• Maintenance and Repairs; • scheduled and unscheduled integrity checks for bridges and culverts; • maintenance and replacement of	Exacerbation of the risk of transmission of HIV/AIDS and other STIs due to potential labour influx	• Conduct sensitization and awareness campaigns; • Supply health check equipment; • Ensure compliance to workers' Code of conduct as stated.	Contractor HSE officer		• Number of health campaigns and toolbox meetings • Number of health checks	Routine inspection	Project area	Daily	Supervision Consultant, Ministry of Health, Kogi ACRESAL SPMU;	870	700

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C5	wearing/faulty/damaged components; • repairs of cracks and potholes; • Cleaning of drains where and when necessary;	Risks of occupational and social accidents and injuries in using the rehabilitated gully area	- Implement the site specific HSE plan; - Build concrete or steel barriers to protect pedestrians.	Contractor		HSE Statistics (FAC, LTI, etc.)	Routine Inspection	Road and drainage	Monthly	Supervision Consultant Ministry of Work, Kogi ACRReSAL SPMU	950	800
C6	• Cleaning and vegetation control along the shoulders;	Safety risks from abandoned borrow pits after construction	See B17	See B17		See B17	See B17	See B17	See B17	See B17	1000	850
C7	• Borrow pit reclamation. • Maintenance of the rain-harvesting channels and storage tanks	Traffic congestion and increased risk of road traffic accidents and injuries due to increase in traffic after gully area rehabilitation	Ensure free flow of traffic and traffic officials are strategically positioned at specific junctions to provide safety guidelines and ensure free flow of traffic within the project area.	Contractor		See B13	See B13	See B13	See B13	See B13	950	800
C8	• Maintenance of the reforested area	Rehabilitated gully area damage from use	Develop plan for regular maintenance of rehabilitated gully area	Contractor		Log book	Visual inspection	Project area	Daily	Kogi ACRReSAL SPMU;	1100	900
C9		Sand Mining in rehabilitated channel	Ensure sand mining is not done in the rehabilitated channel	Contractor		Visual sighting during the implementation	1. Number of truck load of sand evacuated from the channel.	Project area	Weekly	Kogi State NEWMA; KSME	1000	850
C10		- Contamination of surface water as a result of waste dumping in and around the stream/river; - Waste dumping impact on the life span of the rehabilitated area by blocking access to waterflow.	- Implement the Waste Management Plan (WMP) - Promote waste avoidance, reduction; reuse and recycling as applicable; - Ensure proper handling, and disposal of the various types of solid municipal and household wastes; - Fence off river/stream banks around bridge.	Contractor		Contractors Compliance to WMP Waste Handling and Disposal	Visual Observation Waste Tracking Report	Project area	Weekly	Kogi ACRReSAL SPMU	1100	900
	Total										6970	5800
Public Health Impacts												

Kogi State Agro-Climatic Resilience in Semi-Arid Landscapes Project (Kogi-ACReSAL)

C11		Community Health and Safety	• Ensure water pollution free environment; • Use of PPEs; • Health and Safety talk.	Contractor		• No. of complaints about pollution due to operations; • Number of workers with PPEs; • Number of FRSC and police present in the area; • Number of safety talk and awareness conducted.	In situ	Project site and its surrounding	Quarterly, throughout the operation phase of the project	Kogi State Relevant Ministries: Environment, Transport, Works and Infrastructure	890	750
C12		Risk of COVID-19	• Social Distancing; • Compulsory use of Facemask; • Continuous/Regular handwash.	Contractor		• Social Distancing observed; • Number of facemasks that are worn; • Facemask available and in use; • Soap and water available for handwash.	• One (1) meter apart; • Number of facemasks worn; • Amount of water and soap used to wash hands.		• At all time during construction. • At all time. • At least 30 minutes interval	ESO Kogi ACREsAL SPMU; KSME; Ministry of Health	850	700
											1740	1450
Total											11300	9400

6.3 Occupational Health and Safety/Community Health and Safety Management Plan

6.3.1 Occupational Health and Safety

During construction and operation health and safety concerns are very vital. For this project, the key reference document is the World Bank Group's Environmental, Health, and Safety (EHS) Guidelines (April 2007) and the essential industry safety guidelines that are extended to project community's safety. This is available online at www.ifc.org/ehsguidelines. It will also comply with the National and State's safety regulations and requirements. A comprehensive worker intensive and site specific OHS plan is expected to be provided as part of the Contractor's ESMP (CESMP). As expected of the ESMP, health and safety measures incorporate all aspects of the project construction and operation including ancillary activities. The plan will address issues such as:

- The proper provision and use of personnel protective equipment (PPE) such as safety boots, respirators, eye protection, hearing protection, gloves, and hardhats;
- Analysis of risks associated with job activities in order to develop standard requirements for PPE on a job-specific and station-specific basis;
- Provision of training on the proper use of PPE and penalties for the improper use of PPE;
- Training on the proper and safe use of all equipment in workshops, garages, the plantation, nurseries, and mills;
- Physical barriers so that unauthorized personnel are not admitted to areas where dangerous equipment is in use;
- Training related to job-specific risks and activities, including:
- Electrical installations (e.g. electric shock on direct contact with conductors and indirect contact with masses powered up, burns, fire and explosion);
- Mechanical equipment (e.g. tool blasting or matter risk, crushing of fingers, wounds, equipment shock);
- Lifting devices (e.g., crushing risk, injury caused by appurtenances, falling, collision); machinery and vehicles (e.g. risk of accident on contact with other materials, collision with or knocking down of persons, obstacle shock, fall by the operator, collision with a vehicle or machine);
- Hand tools, electric or other welding equipment (e.g. risk of injury, electrocution, poisoning, dazzle);
- Workshops and garages (e.g., risk of mechanical injury, shock and collision with machines);
- Sterilizers and boilers (e.g., risk of burns due to heat and steam from furnace, explosion risk); and
- Power plant, processing lines and workshops (e.g., noise-related risks, electrocution risk) provision of properly trained and equipped first aid personnel including a well-

stocked pharmacy, a treatment room with beds, and an ambulance for any worksite injuries.

6.3.2 Community Health and Safety Management Plan

Issues and potential impacts regarding community health are addressed by the Community Health and Safety Plan. This is because human populations within the residential Ankpa community as well as those traversing the community to other parts of Kogi State are related to the health and safety issues requiring mitigation. Thus, the respective mitigation measures include:

- Construction activities can draw significant numbers of unmarried (single) men and others attracted by the opportunity to provide goods and services to construction workers and project beneficiaries with disposable income. Some of these activities such as alcohol, drugs, and sex trade can lead to increased crime and diseases, including HIV/AIDS, thus the project contractor is expected to recruit most of the construction workers from the immediate area to minimize the number of single men migrating for work;
- Project contractor shall ensure that adequate training and enforcement of code of conduct to curtail workers' participation in sensitive activities such as sex trade, drugs and alcoholism;
- The project contractor is expected to conduct sensitization across the frontiers of Ankpa community with the clans and villages therein regarding the potential impact of the project and the workers' code of conduct;
- The project contractor shall conduct community training and awareness programmes to ensure that the local population understands the risks of participating in risky economic activities for short-term economic gain; and
- The project contractor will work closely with Kogi State Ministry of Health promote sensitization campaigns to help the local population avoid risky activities; and to monitor the incidence of diseases and other health measures that has indicated a need for further intervention to protect community health and safety as connected to the proposed intervention project in Ankpacommunity.

6.4 Worker's Training and Orientation Plans on Prevalent Health Issues

The details of the workers training plans for the consideration of any pandemic or prevalent health issues in the project environment is expected to take a spectrum steps including awareness training, precautionary steps, curtailing exposure to air/water borne viruses, managing access and spread, daily routine activities, and personal care. Comprehensive details of the steps, actions and possible case management should be well stated. In case of the new variants of the Covid-19, information are supplied in the following web portals,

- World Health Organisation - WHO <https://www.who.int/emergencies/diseases>

[/novel-coronavirus-2019/advice-for-public](#)

- United States Centre for Disease Control <https://www.cdc.gov/coronavirus/2019-nCoV/index.html>
- Nigeria Centre for Disease Control (NCDC) <https://covid19.ncdc.gov.ng/report/>

6.4.1 Workers Training and Precautions

- Train all staff and workers in the signs and symptoms of common diseases or new variant of COVID-19, how it is spread, how to protect themselves and the need to be tested if they have symptoms. Allow questions and answers to dispel any myths.
- Use existing grievance procedures to encourage reporting of co-workers if they show outward symptoms, such as ongoing and severe coughing with fever, and do not voluntarily submit to testing
- Supply face masks and other relevant PPE to all project workers at the entrance to the project site. Any persons with signs of respiratory illness that is not accompanied by fever should be mandated to wear a face mask
- Provide hand-wash facilities, hand soap, alcohol-based hand sanitizer and mandate their use on entry and exit of the project site and during breaks, via the use of simple signs with images in local languages
- Train all workers in respiratory hygiene, cough etiquette and hand hygiene using demonstrations and participatory methods especially keeping good distance from exposed persons
- Train cleaning staff in effective cleaning procedures and disposal of rubbish

6.4.2 Minimize Chance of Exposure

- Any worker showing symptoms of respiratory illness (fever + cold or cough) and has potentially been exposed to COVID-19 or other infectious disease(s) should be immediately removed from the site and tested for the virus at the nearest local hospital.
- Close co-workers and those sharing accommodations with such a worker should also be removed from the site, isolated and tested for to ascertain their COVID-19 status.
- Project management must liaise with Kogi State COVID-19 Task Force on testing facilities for modalities on testing and proper case and contagion management.
- Persons under investigation for COVID-19 should not return to work at the project site until cleared by test results.
- If a worker is found to have COVID-19, wages should continue to be paid during the worker's convalescence (whether at home or in a hospital).
- If project workers live at home, any worker with a family member who has a confirmed or suspected case of COVID-19 should be quarantined from the project site for 14 days.

6.4.3 Managing Access and Spread

- Should a case of COVID-19 be confirmed in a worker on the project site, visitors should

be restricted from the site and worker groups should be isolated from each other as much as possible;

6.4.4 Daily Routine Management for Workers

- Consider ways to minimize/control movement in and out of construction areas/site.
- If workers are accommodated on site require them to minimize contact with people outside the construction area/site or prohibit them from leaving the area/site for the duration of their contract
- Implement procedures to confirm workers are fit for work before they start work, paying special to workers with underlying health issues or who may be otherwise at risk.
- Check and record temperatures of workers and other people entering the construction area/site or require self-reporting prior to or on entering.
- Provide daily briefings to workers prior to commencing work, focusing on COVID-19 specific considerations including cough etiquette, hand hygiene and distancing measures.
- Require workers to self-monitor for possible symptoms (fever, cough) and to report to their supervisor if they have symptoms or are feeling unwell.
- Prevent a worker from an affected area or who has been in contact with an infected person from entering the construction area/site for 14 days.
- Preventing a sick worker from entering the construction area/site, referring them to local health facilities if necessary or requiring them to isolate at home for 14 days.

6.4.5 Personal Care

1. *Hand hygiene and hand-washing practices:*
 - If hands are not visibly dirty, the preferred method is to perform hand hygiene with an alcohol-based hand rub (hand sanitizer) for 20–30 seconds using the appropriate technique. When hands are visibly dirty, they should be washed with soap and water for 40–60 seconds using the appropriate technique.
 - Functional hand hygiene facilities should be present for all workers at vantage points around the construction areas. A corresponding mobile hand-washing facility with secured wastewater collector. In addition, functional hand hygiene facilities should be available for all visitors, site assessors and others.
2. *Social distancing:*
 - Workers should stay at least 6 feet (about 2 arms' length) from other workers, visitors and others on and off work site.
 - Social distancing should be practiced in combination with other daily preventive actions to reduce the spread of COVID-19, including wearing masks, avoiding touching your face with unwashed hands, and frequently washing your hands with soap and water for at least 20 seconds.

6.5 Institutional Arrangements, Responsibilities and Accountabilities

The roles and responsibilities of the executor of the project and adequate institutional arrangements are vital to the efficient execution of the environmental and social safeguard measures outlined in this ESMP. Thus, details of the institutional arrangements and the roles and responsibilities of the diverse institutions in the implementation of the ESMP are discussed below.

6.5.1 Pre-Construction Phase

6.5.1.1 Key Agencies

The main agencies saddled with major roles in the implementation of the ESMP during the pre-construction phase are:

- The Consultants;
- The Federal ACReSAL-PMU;
- The Kogi State ACReSAL-PMU;
- Kogi State Ministries, Departments and Agencies (Health, Environment, Information, Land, Finance, Physical Planning and Urban Development, and Agriculture);
- Community Based Organisations; and
- The Ankpa Gully/flood site Committee

6.5.1.2 Role of the Involved Agencies

The key responsibility for monitoring the ESMP lies with the Supervising Engineer and the Ministries of Health and Environment while the implementation of and reporting on the ESMP lies with the Contractor. At the initial stage, ground works and preparatory meetings and consultations are being conducted with the Ankpa Gully/flood Monitoring Committee, Community Based Organizations (CBOs) as well as members of the concerned communities in the area. The contractor must liaise with the Kogi State ACReSAL-PMU on issues raised in order to reach a balance before responding to the issues. This will enable the project to meet the World Bank environmental and social safeguard standards. . These concerns should be communicated by Kogi State ACReSAL to the relevant Kogi State Ministries and their respective departments and agencies (MDAs) for prompt action on issues raised.

6.5.1.3 Reporting and Follow-Up

The Ankpa Gully/flood Committee through its Secretary will forward the details of the meetings held to the Kogi State ACReSAL-PMU. This is to enhance a feedback, reporting and follow-up mechanisms for the issues raised and the respective means for their implementations. All issues raised should be forwarded together with the

contributions of the Kogi State ACReSAL, which is expected to have reviewed the comments within the scope of the project and their suitability to World Bank needs. The Contractor must ensure that the observations comments and notes are implemented strictly as agreed and the feedback relayed to the Kogi State ACReSAL-PMU. This process should continue through a chain of reporting-feedback, follow-up and response mechanism until the pre-construction phase is completed.

6.5.2 Construction Phase

6.5.2.1 Major Actors / Key Agencies during Construction Phase

The major actors / Agencies saddled with roles in the implementation of the ESMP during construction works are:

- The Engineering supervising firm;
- The Contractor;
- Kogi State ACReSAL-PMU;
- The Federal ACReSAL-PMU;
- Kogi State Ministries, Departments and Agencies (Works and Infrastructure, Health, Environment, Agriculture and Forestry);
- Federal Ministry of Environment (FMEnv), EA Department, NESREA; and
- World Bank (will provide guidance during support and supervision missions).

In addition to the key agencies, the Kogi State Government through the MDAs also have a role in general oversight of ESMP implementation.

6.5.2.2 Role of Concerned Agencies

The key responsibility for monitoring and reporting on the implementation of this ESMP lies with the site Engineer and the Contractors. Through its Environmental and Social Specialist (ESS) and the Contractor will be responsible for regular supervision and reporting on the ESMP implementation. The Engineer and ESS will have access to a team of experts in different fields (water, soil, social consultant etc.) in order to ensure sufficient capacity to oversee implementation of ESMP.

The implementation of the ESMP will be managed by the Kogi State ACReSAL-PMU through the Environment Officers and (EO) who will be primarily responsible for the daily inspection and monitoring of the ESMP implementation. The Kogi State Ministries of Works and Infrastructure, Health, Environment, Agriculture and Forestry have a responsibility to monitor the ESMP implementation using the fundamentals of the internal mechanisms and policies as established by laws guiding their operations. However, these institutions may conduct site visits with representatives of the Federal

ACReSAL-PMU. Also, the reports of the findings should be forwarded to the World Bank through the FPMU.

The Federal Ministry of Environment (FMEnv) and NESREA will also send Environment Officers and officials monitoring the ESMP project under the Federal ACReSAL approved projects to observe the level of implementation of the provisions of the ESMP compliance. At the local level, the Kogi State Ministry of Environment should also visit to the project site regularly to observe and monitor the level of compliance to the provisions of the ESMP.

6.5.2.3 Reporting and Follow-Up

Follow-up process is duty-based. The Environmental and Social Specialists (ESS) of the Engineer/ Monitoring Firm must prepare, document and report incidents monthly, reports that would be submitted to the Kogi State ACReSAL project coordinator for comments, observations, and recommendations. Afterward, the Kogi State ACReSAL-PMU should send feedback to the Engineer through the consultant(s)/PMU Environmental Officer or directly when urgent act is required. In fact, checking and reporting on the implementation of follow-up action will also be part of the duties of the ESS.

The Contractor and Site Engineer should submit monthly reports on the implementation of the ESMP to the Kogi State ACReSAL-PMU. The Environmental Safeguard's Officer who will advise the project management unit should vet this report. In case of any discrepancy on environmental issues, the Project Coordinator should convene a Project Environmental Management (PEM) meeting to discuss the way forward.

6.5.3 Operational and Maintenance Phase

It has to be stated that mitigation and monitoring activities are not the sole responsibility of the Kogi State ACReSAL or the Federal ACReSAL during the operational phase. Rather, the Kogi State ACReSAL and the Federal ACReSAL as the managing entity of the rehabilitated Ankpa Gully/flood also has the responsibility to consider these measures, and to bring them to the attention of other government agencies, especially the state Ministry of Health and Environment for proper action.

6.5.3.1 Key Agencies

At the operational phase, the main institutions which Kogi State ACReSAL will collaborate with include:

- The Ministries of Environment;
- The Ministry of Health;

- The Ministry Forestry;
- The Ministry Transport;
- The Ministry Works and Infrastructure; and
- The Police.

Also, at the operational phase the Local government administrative council should have a role in the general oversight functions of the ESMP implementation and in ESMP updating during the operational phase.

6.5.3.2 Major Actors / Key Agencies During Operational and Maintenance Phase

The duties of the institutions that have roles to perform in the process of the operation of the Ankpa Gully monitoring are stated as follows:

- The Monitoring and Supervision Unit of the Kogi State Ministry of Health as well as the Ministry of Environment will conduct constant visits to the site to check and confirm that the gully/flood is being well managed and well maintained. Monitoring activities will be conducted within the legal and administrative capacities of the Ministry of Health and the Ministry of Environment through their respective departments and agencies;
- The Kogi State Department of Forestry should conduct constant inspections on compliance with afforestation plans, which should be in concordance with international standards;
- The Ministry of Works and Infrastructure should conduct normal checks on the nature of infrastructure provided within the duration of the project and the period of assessment; and
- The Police should ensure that crime and criminal activities are reduced to the barest minimum in order to avoid wrong attachment of such events to the proposed project activities.

6.5.3.3 Institutional and Implementation Actions for the ESMP at the Local Level

At this level, the ACReSAL ESMF vests the overall implementation of the ESMP on the Site Monitoring Committee. The Ankpa Gully/flood Monitoring Committee has already been constituted by the Kogi State ACReSAL and so the committee forms a critical mass source of information and community liaison during the field activities for the preparation of this ESMP. The committee comprises several sub-committees including the women wing and environmental sub-committee.

Crucially, considering the disperse background of the committee members and the need for adequate knowledge on the environmental procedure of the project, the committee and sub-committee members would need further capacity building on environmental and social issues on the implementation of the ESMP at all the stages of the implementation.

Consequently, capacity strengthening and sensitization of the Ankpa Gully/flood Monitoring Committee and the Environmental sub-committee members are recommended because they are critical to the successful implementation of this ESMP. The content of the training should include but not limit to (i) Role of community during construction and post construction (ii) Sustainable practice to ensure gully stabilization and, (iii) Implementation of the ESMP at the local level.

The Local Government ensures that the remediated and reclaimed environment are not encroached into.

6.6 Grievance Redress Mechanism (GRM)

The World Bank's approach to GRM will apply; alternative conflict resolution and problem-solving mechanism abound at local levels. According to ACReSAL PIM, 4 levels of grievance resolution mechanism have been propounded; summary of which have been highlighted below:

Step 1: Assessment of Risks and Potential Grievances and Disputes;

Step 2: Capacity Assessment

Step 3: Action Plan

Step 4: Follow-up and review

To operationalize the GRM effectively, grievances have to be classified according to their potential severity or complications. One of the most common grounds for grievances is land compensation entitlement and disbursement. This is likely going to generate grievances more constantly than any other issues about the project.

More complicated matters like RAP and implementation issues that may involve private sector entities and third-party agencies are likely to require the attention of the PMU. For the GRM to be effective as an all-inclusive engagement instrument that effectively handle the grievances of women, there has to be a deliberate structuring to include Women in Grievance Redress Committee, who will easily be approached by women for the purpose of presenting their grievances.

Grievance Procedures

Registration

This may be less depending on the severity of the matter under consideration. The first step is the presentation of a grievance at the uptake point at any level. The social contact person will receive grievance from the complainant, clarify primary information, register and acknowledge receipt of it to the grievant within two days. The registration will capture the following data: Name of the complainant, Date of the grievance, Category of the grievance, Persons involved, Impact on complainant's life, Proofs and witnesses. A registration form will have all these bits of information.

Verification

The verification will determine, among other things whether the matter has any relationship with the Project and whether the level at which it is presented can handle it. This will mean a quick referral of the case either to the next level or the traditional rulers or to law enforcement. Part of investigation will also be assessing the cost of loss or risk involved in the grievance.

Processing

The processing step is when options for the approach to resolving the case are weighed and determined. Parties involved in the case are brought together for a first attempt at resolution with suggestion from the parties by the social contact personnel. The social personnel at a certain level then decide where the case should go to for hearing and resolution if complainant decides to pursue the matter further. This should happen within five days from investigation.

Implementation and case closing

The social contact personnel then refer the case to the responding authority within the level for GRM implementation. This authority may be the chairman of the GRC or the officers with direct responsibility over the nature of the case within the PMU. Putting this in writing makes the appeal process faster in case of dissatisfaction on the part of the complainant. And in the case of satisfaction, it is an instrument to compel execution of decision. The outcome of the Grievance Redress process is therefore communicated to the complainant and other concerned party. The result of the process can vary. The request of the complainant may be turned down, compensation may be recommended, or Management may simply apologise to the grievant.

Feedback

All responses to the complainant in a grievance redress process that moves beyond the 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 social contact person at all levels.

Guiding Principles

Having a grievance redress measure connotes a readiness for plain fairness. This GRM has to be based on the following universal principles that guide fairness in these matters:

- i. *Accessibility and social inclusion:* The process has to be accessible to everybody that feels aggrieved and affected by the project components in anyway regardless of their age, gender or economic status within the communities. Vulnerable

- groups including women, children and the physically challenged should have opportunities to present their complaints without complications;
- ii. *Simplicity*: the filing of complaints and grievances will be kept simple and the process of redress will be easy to understand by stakeholders. Suggestions complaints and queries may be presented through different accessible channels;
 - iii. *Transparency*: The system will encourage feedback of any kind (negative or positive) as long as it has bearing on the project. These feedbacks will be made available to all stakeholders to put them abreast of issues that may stall or enhance the sustenance of the project. It is important that representatives of the community be involved in the redress of grievances and everybody kept informed on any progress made on them;
 - iv. *Due process and impartiality*: Every grievant will have the right to be present and be heard before a duly constituted body saddled with the responsibility of hearing and managing their complaints or grievances. The system will view and analyse all issues with transparent objectivity. This will enhance responsiveness of all parties concerned and build trust. The mechanism will be independent so that it will be perceived as fair by all;
 - v. *Quick action*: Response to grievance and feedbacks will be prompt and direct to the grievant or the feedback provider. Grievances will be acknowledged at the point of uptake and the ensuing decisions will be communicated within 48 hours of reaching them;
 - vi. *People*: It is important that all stakeholders, including project personnel be involved in the process of grievance redress. Grievant lodgers or feedback providers will assume full responsibility for their filings. Personnel that would be involved in grievance redress on the supply side have to have basic communications skills. Key persons on the redress team will need to acquire skills for mediation, conciliation and negotiation. Grievance redress policy will be sustained by the commitment of persons involved both on the demand and supply side. There is need for personnel who will be providing grievance redress services to have knowledge of the already disclosed policies guiding resettlement for ACReSAL;
 - vii. *Process*: This GRM will have a predictable process that will operate in all the intervention sites and in all the components of the project. There will be specified grievance uptake points where grievances/complaints will be lodged. The time frame for a response will be known to the grievant. Investigation and deliberations on the complaint will be open and communicated promptly;
 - viii. *Analysis*: In grievance redress it is important for handlers to be clear on all the issues. A first step is an honest appraisal of whether the feedback is proactive or reactive. Facts have to be established against the interest and goal of grievant. Fact-finding is essential for meaningful and sustainable grievance/conflict redress.

Grievances spring from differences in expectations, interests, knowledge or lack of it, needs and fears. Questions arise in the process that must be taken into account. The question that will be answered is: Are the complainants digging in or unforgiving or are they unwilling to accept the outcomes?

The handlers of grievance redress also need to appraise the complaints against relevance to the project and the project policies. This will need to be done with reference to the already prepared RPF, ESMF and the RAP. This requires a thorough knowledge of various policies and guidelines of ACReSAL. Grievance handlers also need to know the category of grievance involved and treat accordingly. Grievances need to be characterized both for the sake of proper redress and for evaluation purpose.

Kogi State ACReSAL has put in place a Grievance Redress Framework (Annex 7) following the World Bank's approach to GRM. The framework has five levels of addressing grievances:

- Level 1; Community Level of Grievance Redress,
- Level 2; Local Government/ Community Grievance Redress Committee (LGRC),
- Level 3; State Grievance Redress Committee (SGRC),
- Level 4; National Grievance Redress Committee (NGRC) and
- Level 5; is the Courts.

However, all grievances will first of all be addressed at the First Level. It will only move on to Second Level if the first level agreement was not accepted by the party involved and then to third then to the fourth under similar situation. If a party is not satisfied with the outcomes of Levels 1, 2, 3, & 4 then He/She can take the case to the Law Courts (the 5th Level).

6.7 Labour Influx, Child Labour and Gender Based Violence (GBV)

6.7.1 Labour Influx

The project may face the problem of an influx of non-local labour and working conditions issue. This may be because skilled labourers are not available in some of the project area. The project will take concrete measures to mitigate the potential labour 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, COVID-19, sexual harassment of female employees, child labour and abuse, increased dropout rates from school, inadequate resettlement practices, and fear of retaliation, failure to ensure community participation, poor labour practice, and lack of road safety.

These risks if and when they occur at all require careful consideration to improve social and environmental sustainability, resilience and social cohesion. Therefore, the project will include mitigation measures such as: (a) assessing living conditions of workers' camps and ensuring appropriate living conditions; (b) establishing and enforcing a mandatory Code of Conduct for the company, managers and workers, and an Action Plan for implementation; (c) ensuring appropriate location for these camps; (d) taking countermeasures - indicated in the Social Management Plan - to reduce the impact of the labour influx on the public services; and, (e) devising and implementing a strategy for maximizing employment opportunities for local population, including women.

The following guidelines lay out the principles that are key to proper assessment and management of the risks of adverse impacts on project area communities that may result from temporary ACRReSAL induced labour influx:

- The Contractor and Consultants will have to hire, to the maximum extent, skilled and unskilled workers from affected communities in the project area.
- Execute a baseline skills survey of the community.
- Undertake a review of skills gaps between those found in local communities, and those needed on the project.
- Actively attempt to fulfil local employment demand without fuelling unrealistic expectations of high employment and economic growth
- Labour recruitment should occur in an objective and transparent manner.
- The contractor will adopt or implement all possible measures to avoid if not minimize labour influx into the project area. This may be through looking into sourcing of off-site job to discourage influx of people

The Supervising Consultant shall be responsible for monitoring the contractor's performance and adherence to the labour influx guidelines and that of its Sexual Exploitation and Abuse (SEA) obligations. This will be done by putting a protocol in place for immediate, timely, mandatory and confidential reporting in case of incidents to project community.

This will allow the SPMU to enforce the implementation of mitigation measures, which are required to ensure the consultant's own compliance with Bank policy and standard requirements. While the Bank reviews and clears project-level safeguard instruments such as the ESIA/ESMP, it is the SPMU's responsibility to: (i) ensure the safeguard instruments are reflected in the contractor's ESMP (CESMP), and (ii) ensure the project is implemented in accordance with the CESMP, safeguard instruments and other relevant contractual provisions.

6.7.2 Child Labour

The project may also face child labour and abuse problem especially from contractors. This may increase dropout rates from school. The child labour incident specifically relates to underage workers who should be in schools acquiring knowledge and skills or in the form of forced labour. The project will establish and enforce a mandatory Code of Conduct for the company, managers and workers, and an Action Plan which will prevent child and forced labour at all the phases of the project. The Supervision Consultant shall be responsible for monitoring the contractor performance and adherence to child labour obligations. The Kogi State SPMU through the Social Livelihood Officer shall ensure total compliance to the ACReSAL child labour policy of none involvement of underage workers by individual and organizations (contractors and consultants) in the implementation of the proposed intervention.

6.7.3 Gender Based Violence

Based on field survey and literature review, the GBV risks in the project target areas include:

- Intimate Partner Violence (IPV);
- Non-partner sexual assault;
- Female genital mutilation;
- Sexual exploitation and abuse; and
- Child abuse.

Development and implementation of specific GBV risk prevention and mitigation strategies will be tailored to local contexts. Guidelines for situation analysis of GBV and safe reporting guidelines in line with international best practices will be implemented. Furthermore, all risks related to labour influx will have to be mitigated by the participation of project beneficiaries/communities, and involvement of project contractors and contractors' workers and consultant employees, in identifying mitigation and implementing measures.

ACReSAL has adopted Specific measures to reduce and mitigate the risk of GBV/SEA in the project. Such measures include:

- GBV/SEA assessment of project;
- mandatory contractor's code of conduct on sexual harassment;
- appointment of NGO to monitor GBV/SEA in ACReSAL;
- community and worker's sensitization on GBV/SEA;
- provision of referral units for survivors of GBV/SEA;
- provisions in contracts for dedicated payments to contractors for GBV/SEA prevention activities against evidence of completion;

- Contractor and SPMU requirement to ensure a minimum target of female employment with incremental rewards of the obtainment of this target.
- Hiring of dedicated GBV/SEA specialist

Annex VIII shows GBV referral directory for Kogi State.

6.7.4 Stakeholder/Citizen Engagement

Stakeholders' engagement is essential in achieving the major objectives of any project implementation and sustainable development. Participatory approaches in project planning and implementation enhance project policy, ownership and sustainability and also empower targeted beneficiaries. Stakeholders' engagement should be continuous during the lifecycle of the project.

The objectives set out for stakeholders' engagement and sensitization include but not limited to the following;

- i. To create general public awareness and understanding of the project, and ensure its acceptance;
- ii. To develop and maintain avenues of communication between the project proponent, stakeholders and PAPs in order to ensure that their views and concerns are incorporated into the project design and implementation with the objectives of reducing, mitigating or offsetting negative impacts and enhancing benefits from the project;
- iii. To inform and discuss about the nature and scale of possible adverse impacts of the rehabilitation work and to identify and prioritize the mitigation measures for the impacts in a more transparent and direct manner;
- iv. To document the concerns raised by stakeholders and PAPs so that their views and proposals are mainstreamed to formulate mitigation and benefit enhancement measures;
- v. To sensitize other MDAs, local authorities, Non-governmental Organizations (NGOs) and Community Based Organizations (CBOs) about the project and solicit their views and discuss their share of responsibility for the smooth functioning of the overall project operations; and
- vi. Reducing conflict between stakeholders, project proponents PAPs.
- vii. To develop stakeholder's capacity in the areas sustainable project management.

In summary, spells out the role of stakeholders in the project planning, implementation and monitoring. Involving stakeholders in monitoring service delivery, revenues, budget execution, procurement, contract awards, and reform policies can increase transparency, improve efficiency of service delivery or budget execution, and reduce opportunities for corruption. Some mechanisms for stakeholders-led monitoring include public expenditure tracking surveys, social audits, or stakeholder report cards.

Additional entry points for stakeholder engagement in monitoring include collaboration with local CBOs/NGOs, communities, local academia, or think-tanks in gathering results data and conducting joint evaluations of project results after project completion (including in the preparation of project Implementation Completion Reports). Capacity building will be an integral part of the stakeholder's engagements.

Envisaged Benefits

The envisaged benefits of the Stakeholders engagement and sensitization exercises include;

- Provision of opportunities to foresee and/or resolve potential obstacles, constraints and conflicts;
- Means to identify and address potential negative social and environmental impacts as envisaged by stakeholders;
- Opportunities to generate social learning and innovations based on local field experiences;
- Means of ensuring that project benefits are distributed equitably, and;
- Strengthened working relations between stakeholders; Federal and State Governments, etc., and the World Bank.

6.8 Fundamentals of Stakeholder Engagement Approach

Consultations

Meaningful consultations can contribute to improved design, implementation, and sustainability of development interventions. The objectives of consultations include receiving input for improved decision-making about the design and implementation arrangements of a development program or project, to contribute to improved results and sustainability. In this context, consultations can potentially give voice to the needs of different population groups, including vulnerable and marginalized groups; improve risk management by identifying opportunities and risks from and to a project; and increase transparency, public understanding, and stakeholder involvement in development decision-making.

Consultations with key stakeholders, including project-affected people and civil society, are mandatory in development projects so as to satisfy “*best practices*”. Consultation methods include public hearings or meetings, focus group discussions, household surveys and interviews, electronic consultations, and advisory/expert groups. In addition, consultations can include informal structures at the local level, such as village councils and women's groups. Good practice approaches to consultation, including closing the feedback loop, need to be applied more systematically.

Collaboration

Collaboration with stakeholders in decision-making processes and events can make decisions more responsive to stakeholders needs and improve the sustainability of program and project outcomes through increased ownership by stakeholders. Mechanisms for collaboration include stakeholder/user membership in decision-making bodies, integrity pacts, participatory planning and budgeting, and stakeholders' juries.

Collecting, Recording, and Reporting on Inputs from Stakeholders

Stakeholder feedback can be collected periodically on the various dimensions of public services provided, such as effectiveness, inclusiveness, quality, delivery time, transaction costs, and targeting, as well as on resource utilization or engagement processes. Tools include satisfaction surveys, focus group discussions, hotlines, community scorecards, stakeholder report cards, or SMS/online feedback.

However, Kogi State ACReSAL has been implementing its Citizen/Stakeholders Engagement Plan (SEP) since the inception of the Project. Major milestones in the Ankpa Gully intervention include:

- identification of Project stakeholders;
- summary of past consultation efforts from baseline study and GIS mapping;
- establishment of site committee.

Other planned consultation efforts to prepare for construction activities include;

- stakeholder engagement during consultancy services;
- stakeholder engagement during construction;
- stakeholder engagement during operations;
- resources for stakeholder engagement;
- monitoring and reporting on stakeholder engagement; and
- formation of the site monitoring committees for Ankpa Gully Erosion and Flood Site.

6.9 Training Programmes

The Kogi State ACReSAL should develop, implement, and track training programmes at PMU and community levels. Table 6.4 describes the institutional capacity strengthening plan, which should be followed at the PMU and community levels.

Table 6.4: Institutional Capacity Strengthening Plan

S/N	Capacity Needs	Participants	Subject	Resource Person	Duration	Cost (US \$)
1	Personnel requires appreciation of WB's, Federal/State environmental policies and standards, as well as, an application of these policies and standards in implementing the World Bank support for Ankpa gully erosion intervention.	SPMU Training PC, Environmental safeguards specialist, Project engineer, social safeguards specialist, Livelihood officer and other environmental and engineering support staff from the ministry. The estimated number of participants is Ten (10) persons	In-depth consideration of the mitigation measures proffered by the ESMP. Satellite Image interpretation of the Ankpa watershed imagery for critical assessment of changes overtime	Environmental science specialist	2 days seminar	2,500
2	Training on GBV/SEA, Labour Influx Issues and other Social Safeguards and Livelihood Issues as it affects Ankpa gully intervention.	Community Ankpa Gully site monitoring committee members and PAPs. The estimated number of participants is Twenty-Five (25) persons.	GBV/SEA, Labour Influx and Social Livelihoods	GBV/SEA specialist, Social Livelihood Specialist. Environmental specialist	1-day workshop	2,500
3	Training on Catchment Management Structures, establishment of plant nurseries, planting operation and forest management in a dryland	Community Ankpa Gully site monitoring committee members and PAPs. The estimated number of participants is Twenty-Five (25) persons.	Water-harvesting, Afforestation and restoration of special ecosystems	Environmental Science Specialist (botanist and hydrologist)	2 days seminar	2,000
4	ACReSAL institutional arrangement as it affects Ankpa gully intervention site	Community Ankpa Gully site monitoring committee members and PAPs, Contractors and their staff. The estimated number of participants is Fifty (50) persons.	General environmental awareness; seminars that will include ecological and social science principles, as it affects the Ankpa Gully site. Understanding Environmental Checklist for monitoring contractor's compliance to the mitigation measures proffered in the ESMP.	Environmental science specialist	1-day workshop	2,500
4	COVID 19 Training	SPMU staff involved in project monitoring and site monitoring committee	Awareness training on COVID 19, precautionary steps, curtailing exposure to the virus, managing access and spread, daily routine activities to prevent COVID 19, and personal care	Community Health Specialist	1 day	500
Total						10,000
5	Training of contractors on the implementation of the ESMP	Contractors Engineers, Project Manager, Safeguards officers, Health and Safety and other Staff	ESMP Implementation	Environmental Science Specialist	1 day	2,500
Sub Total (Implementation)						2,500
Total for Capacity Building						12,500

6.10 Implementation Schedule

An implementation schedule gives a clear-cut direction on the timeline for the implementation of the stipulated mitigation measures. It is anticipated that each of the stated measures should be time-based for suitable implementation and appropriate monitoring. Table 6.5 documents the schedule for the mitigation measures with respective time lapse.

Table 6.5: ESMP Implementation Schedule

S/N	Mitigation measures for:	Mitigation Timeline (Monthly)											
		1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th
1.	Pre-construction phase												
	i. Land Acquisition												
	ii. Community sensitivity of the project												
2.	Construction phase												
	1. Environmental impacts												
	2. Biological impacts												
	3. Socioeconomic impacts												
	4. Public health												
3.	Operation and maintenance phase												

6.11 ESMP Costing and Cost Analysis

The cost analysis illustrated here is structured to ensure that each of the identified mitigation measures is successfully and expertly implemented. It is designed exclusively for each of the activities identified for each of the phases of the Ankpa Gully Rehabilitation project as shown in Tables 6.1 to 6.3. Hence, it covers the preconstruction, the construction and the operation phases monitoring of mitigation measures. In addition, the cost is designed for a global spread across the stated measures. Table 6.6 illustrates the synoptic details of the ESMP costing for the Ankpa Gully Rehabilitation project with estimation in U.S. Dollar.

Table 6.5: Cost Analysis of the Proposed Project ESMP (Implementation and Monitoring)

S/N	ESMP Activities (Monitoring)	Cost Estimate (\$) Implementation	Cost Estimate (₦) Monitoring
1	<i>Pre-construction Phase</i>	20150	15,400
2	<i>Construction Phase</i>		
	Environmental Impacts	6110	5100
	Biological Impacts	2130	1700
	Socioeconomic Impacts	14970	9750
	Public Health Impacts	6300	5500
	Sub-Total	29510	22050
3	<i>Operation Phase</i>	11300	9400
	Total for Construction Impact Mitigation Implementation and Monitoring	60960	46850
4	<i>Institutional Capacity Reinforcement Programme</i>		
	Kogi State ACReSAL including the Officers of the relevant MDAs, (Monitoring). Contractor Staff (Implementation)	2,500	3,000
	Community representative capacity building		7,000
5	Total for Institutional Capacity	2,500	10,000
	Total for Mitigation Implementation and Monitoring	63460	56850
	10% Contingency	6346	5685
	Grand Total	69,806	62,535

6.12 ESMP Disclosures

After a review and clearance by the World Bank, the ESMP will be disclosed at the FMEEnv, SME and the host LGA offices as well as at the World Bank website. The purpose will be to inform stakeholders about the project activities, impacts, anticipated and proposed environmental management actions as well as to obtain the certificate of conformity from the Federal Ministry of Environment after necessary impact mitigation monitoring had been conducted.

6.13 Contractor's Environment and Social Management Plan (C-ESMP)

The contractor shall within six (6) weeks of signing the Contract, prepare a work plan to ensure the adequate management of the E&S aspects of the works, including implementation of the specific requirements of the E&S safeguards. The Contractor's E&S document shall describe:

- the procedures and methods for complying with the environmental and social conditions specified in the ESMP,
- the mitigation measures to be implemented against adverse impacts,
- the likely impacts, monitoring activities and reporting; and

iv) the internal organizational, management and reporting mechanisms put in place for the E&S management.

Thus, before commencement of construction, the Contractor is required to submit a site-specific Contractor's Environmental and Social Management Plan (C-ESMP) for the work, which will be reviewed and approved by the Environment and Safeguard Officer (ESO) of Kogi-ACReSAL. The EMSP as a minimum shall have a campsite plan that includes the following:

- a) Workers' accommodation where applicable.
- b) Fuel containment area and refueling locations.
- c) Equipment maintenance area.
- d) Material storage area.
- e) Demolition and Removal of Structure Management Plan
- f) Waste Management Plan.
- g) Noise and Dust Control Plan.
- h) Chemical/Fuel Spill Response Plan.
- i) Gender based Violence (GBV), Sexual Exploitation and Abuse (SEA) Plan etc.
- j) Stakeholder Engagement Plan
- k) Occupational/Community Health Safety Management Plan
- l) Traffic Control and Transport Management Plan
- m) Emergency Preparedness and Response Plan
- n) Flood Risk Management Pan
- o) Flash Flood Emergency Response Preparedness
- p) Rock Blasting Management Plan
- q) Labour and Working Conditions (includes Workers Code of Conduct included on Labour and working conditions and Occupational Health, Safety and Security Management Plans)
- r) Channel /gully Crossing Plan
- s) Biodiversity Management Plan
- t) Hazardous Materials Management Plan
- u) Reinstatement Management Plan
- v) Security Management Plan
- w) Project Corridor (set back) Management Plan

CHAPTER SEVEN

SUMMARY, RECOMMENDATION AND CONCLUSION

The Ankpa erosion sites which is located in Ankpa Local Government Area, is one of the sub-project intervention sites under the ACReSAL project. The aim of the project is to solve the perennial problem of erosion in Ankpa. The project activity will involve some civil works such as channelization and remediation work of the gully site.

The structural measures involve the stabilization of gully beds and banks, partial reclamation of eroded surfaces around gully sites, construction of hydraulic structures which consists of culverts, catch pits, rip-rap and reinforced concrete rectangular channels along key roads to intercept and divert runoff, as well as the rehabilitation of existing central drain which discharges runoff into the Maboro River.

The non-structural measure involves green infrastructure (the planting of vegetation) along two major outfalls -downstream of Ofejiji/Ogaji road, as well as downstream of the central drainage along St. Charles Road, both emptying into the Maboro River.

The proposed floral cover around these two points is: *Manilla* grass planted at 150mm spacing including Masquerade tree and *Terminalia Mantaly* at 3m x 3m spacing for the Ogaji/Ofejiji outfall, and Bahia grass at 12 to 15 pounds of seed per acre with 12mm drill depth, including Masquerade tree and *Terminalia Mantaly* at 3m x 3m spacing for the central drain outfall behind St Charles College to prevent further erosion. As a result of the environmental impacts associated with the construction of adequately sized reinforced concrete channel, the project triggered the World Bank Environmental and Social Standards (ESS), in particular ESS1, ESS2, ESS3, ESS4, ESS5 ESS6, ESS8 and ESS10. Therefore, in line with the ESMF, this ESMP is prepared as an instrument to address ESS1 (Assessment and Management of Environmental and Social Risks an Impacts).

The ESMP identified the potential positive and negative impacts and how the negative impacts will be ameliorated including the monitoring plan for the mitigation action. The key potential positive environmental impacts as a result of the project are identified as follows:

1. Improved Erosion flow and amelioration of flooding episodes,
2. Reduction in losses of agricultural land due to flooding and enhancement of agricultural productivity,
3. Improved microclimatic conditions,
4. Restoration of floral habitat, ecological balance and conservation as a result of planting of vegetative cover to combat flooding,
5. Soil stabilization and regeneration and;
6. Reduced vulnerability to soil erosion.

In addition, the key potential negative environmental impacts are as follows:

- a. The destruction flora and fauna species as a result of clearing prior to construction and during construction activities,
- b. Air, noise and water pollution as a result of movement of construction equipment, construction activities, Emission of pollutants (NO_x, SO_x, CO, THC) from the construction machineries, and release of chemicals (lubricant, fuel, paint) from the machineries, run-off of hazardous construction waste (lubricants, cements, other toxic materials and fuels), among others and;
- c. Landscape degradation due to land take, destruction of immovable structures (buildings), and movable structures and removal of vegetation, among others,

Some of the significant social impacts identified includes employment opportunities due to construction activities, enhanced incomes from increased demand for food and drinks by construction workers, diversification of livelihoods, land disputes and communal clash over resettlement issues, occupational accidents and injuries, HIV/AIDS and other STDs and even resultant cases of teenage pregnancy arising from interactions between construction workers and the host communities, destruction of some sources of livelihoods due to construction work. It is important to note that the negative impacts will be largely localised, short in duration, and be effectively managed through implementation of appropriate mitigation measures, good engineering construction and supervision practises. The mitigation action and monitoring plan including responsibility for implementation and supervision has been identified and it is part of chapter six of the document.

In conclusion, the analysis carried out in this ESMP indicates that the Ankpa erosion control project will positively and substantially impact on the environment and livelihoods of the surrounding communities while the negative impacts will be localised, short in duration and can be avoided if the mitigation action plan is adhered to. Thus, it is important that all the stakeholders are mobilized and cooperate to ensure that the Ankpa erosion control project is executed successfully. This will substantially ameliorate the problem of erosion in Ankpa and environs and improve the livelihoods of the people.

CHAPTER EIGHT

DECOMMISSIONING/ABANDONEMENT

This section provides additional specific guidance on prevention and control of community health and safety impacts that may occur during project development and at the end of the project life-cycle. Many of the provisions here are adopted from the General EHS Guidelines of the World Bank.

Noise and Vibration

During decommissioning activities, noise and vibration may be caused by the earth moving and excavation equipment, the transportation of equipment, materials and people. It is recommended that noise reduction and control strategies be considered in areas close to community areas. These strategies include:

- Planning activities in consultation with local communities so that activities with the greatest potential to generate noise are planned during periods of the day that will result in least disturbance;
- Using noise control devices, such as temporary noise barriers and deflectors for impact and blasting activities, and exhaust muffling devices for combustion engines; and,
- Avoiding or minimizing project transportation through community areas.

Soil Erosion

Soil erosion may be caused by exposure of soil surfaces to rain and wind during site clearing, earth moving, and excavation activities. The mobilization and transport of soil particles may, in turn, result in sedimentation of surface drainage networks, which may result in impacts to the quality of natural water systems and ultimately the biological systems that use these waters. Recommended soil erosion and water system management approaches include reducing or preventing erosion by:

- Scheduling to avoid heavy rainfall periods (i.e., during the dry season) to the extent practical
- Contouring and minimizing length and steepness of slopes
- Mulching to stabilize exposed areas
- Re-vegetating areas promptly
- Designing channels and ditches for post-construction flows;
- Lining steep channel and slopes (e.g. use jute matting).

Air Quality

Decommissioning activities may generate emission of fugitive dust caused by a combination of on-site excavation and movement of earth materials, contact of construction machinery with bare

soil, and exposure of bare soil and soil piles to wind. A secondary source of emissions may include exhaust from diesel engines of earth moving equipment, as well as from open burning of solid waste on-site. Techniques to consider for the reduction and control of air emissions from construction and decommissioning sites include:

- Minimizing dust from material handling sources, such as conveyors and bins, by using covers and/or control equipment (water suppression, bag house, or cyclone);
- Minimizing dust from open area sources, including storage piles, by using control measures such as installing enclosures and covers, and increasing the moisture content;
- Dust suppression techniques should be implemented, such as applying water or non-toxic chemicals to minimize dust from vehicle movements;
- Selectively removing potential hazardous air pollutants, such as asbestos, from existing infrastructure prior to demolition;
- Managing emissions from mobile sources;
- Avoiding open burning of solids.

Solid Waste

Non-hazardous solid waste generated at construction and decommissioning sites includes excess fill materials from grading and excavation activities, scrap wood and metals, and small concrete spills. Other non-hazardous solid wastes include office, kitchen, and dormitory wastes when these types of operations are part of construction project activities. Hazardous solid waste includes contaminated soils, which could potentially be encountered on-site due to previous land use activities, or small amounts of machinery maintenance materials, such as oily rags, used oil filters, and used oil, as well as spill cleanup materials from oil and fuel spills. Techniques for preventing and controlling nonhazardous and hazardous construction site solid waste include those already discussed in Section 1.6 of the EHS guidelines.

Hazardous Materials

Decommissioning activities may pose the potential for release of petroleum based products, such as lubricants, hydraulic fluids, or fuels during their storage, transfer, or use in equipment. These materials may also be encountered during decommissioning activities in building components or industrial process equipment. Techniques for prevention, minimization, and control of these impacts include:

- Providing adequate secondary containment for fuel storage tanks and for the temporary storage of other fluids such as lubricating oils and hydraulic fluids;
- Using impervious surfaces for refueling areas and other fluid transfer areas;

- Training workers on the correct transfer and handling of fuels and chemicals and the response to spills;
- Providing portable spill containment and cleanup equipment on site and training in the equipment deployment;
- Assessing the contents of hazardous materials and petroleum-based products in building systems (e.g. PCB containing electrical equipment, asbestos-containing building materials) and process equipment and removing them prior to initiation of decommissioning activities.

Wastewater Discharges

Decommissioning activities may include the generation of sanitary wastewater discharges in varying quantities depending on the number of workers involved. Adequate portable or permanent sanitation facilities serving all workers should be provided at all construction sites. Sanitary wastewater in construction and other sites should be managed as prescribed in Section 1.3 of the EHS guidelines.

Contaminated Land

Land contamination may be encountered in sites under construction or decommissioning due to known or unknown historical releases of harmful materials or oil, or due to the presence of abandoned infrastructure formerly used to store or handle these materials, including underground storage tanks. Actions necessary to manage the risk from contaminated land will depend on factors such as the level and location of contamination, the type and risks of the contaminated media, and the intended land use. However, a basic management strategy should include:

- Managing contaminated media with the objective of protecting the safety and health of occupants of the site, the surrounding community, and the environment post construction or post decommissioning;
- Understanding the historical use of the land with regard to the potential presence of hazardous materials or oil prior to initiation of construction or decommissioning activities;
- Preparing plans and procedures to respond to the discovery of contaminated media to minimize or reduce the risk to health, safety, and the environment consistent with the approach for Contaminated Land in Section 1.6
- Preparation of a management plan to manage obsolete, abandoned, hazardous materials or oil consistent with the approach to hazardous waste management described in Section 1.6 of the EHS guidelines.

Slips and Falls

Slips and falls on the same elevation associated with poor housekeeping, such as excessive waste debris, loose construction materials, liquid spills, and uncontrolled use of electrical cords and ropes on the ground, are also among the most frequent cause of lost time accidents at construction and decommissioning sites. Recommended methods for the prevention of slips and falls from, or on, the same elevation include:

- Implementing good house-keeping practices, such as the sorting and placing loose construction materials or demolition debris in established areas away from foot paths;
- Cleaning up excessive waste debris and liquid spills regularly;
- Locating electrical cords and ropes in common areas and marked corridors;
- Use of slip retardant footwear.

Struck By Objects

Construction and demolition activities may pose significant hazards related to the potential fall of materials or tools, as well as ejection of solid particles from abrasive or other types of power tools which can result in injury to the head, eyes, and extremities. Techniques for the prevention and control of these hazards include:

- Using a designated and restricted waste drop or discharge zones, and/or a chute for safe movement of wastes from upper to lower levels;
- Conducting sawing, cutting, grinding, sanding, chipping or chiseling with proper guards and anchoring as applicable;
- Maintaining clear traffic ways to avoid driving of heavy equipment over loose scrap;
- Use of temporary fall protection measures in scaffolds and out edges of elevated work surfaces, such as hand rails and toe boards to prevent materials from being dislodged;
- Evacuating work areas during blasting operations, and using blast mats or other means of deflection to minimize fly rock or ejection of demolition debris if work is conducted in proximity to people or structures;
- Wearing appropriate PPE, such as safety glasses with side shields, face shields, hard hats, and safety shoes

Moving Machinery

Vehicle traffic and use of lifting equipment in the movement of machinery and materials on a construction site may pose temporary hazards, such as physical contact, spills, dust, emissions, and noise. Heavy equipment operators have limited fields of view close to their equipment and may not see pedestrians close to the vehicle. Center-articulated vehicles create a significant impact or crush hazard zone on the outboard side of a turn while moving. Techniques for the prevention and control of these impacts include:

- Planning and segregating the location of vehicle traffic, machine operation, and walking areas, and controlling vehicle traffic through the use of one-way traffic routes, establishment of speed limits, and on-site trained flag-people wearing high-visibility vests or outer clothing covering to direct traffic;
- Ensuring the visibility of personnel through their use of high visibility vests when working in or walking through heavy equipment operating areas, and training of workers to verify eye contact with equipment operators before approaching the operating vehicle;
- Ensuring moving equipment is outfitted with audible back-up alarms;
- Using inspected and well-maintained lifting devices that are appropriate for the load, such as cranes, and securing loads when lifting them to higher job-site elevations.

Dust

- Dust suppression techniques should be implemented, such as applying water or non-toxic chemicals to minimize dust from vehicle movements;
- PPE, such as dusk masks, should be used where dust levels are excessive

Other Site Hazards

Construction and decommissioning sites may pose a risk of exposure to dust, chemicals, hazardous or flammable materials, and wastes in a combination of liquid, solid, or gaseous forms, which should be prevented through the implementation of projectspecific plans and other applicable management practices, including:

- Use of specially trained personnel to identify and remove waste materials from tanks, vessels, processing equipment or contaminated land as a first step in decommissioning activities to allow for safe excavation, construction, dismantling or demolition;
- Use of specially trained personnel to identify and selectively remove potentially hazardous materials in building elements prior to dismantling or demolition including, for example, insulation or structural elements containing asbestos and Polychlorinated Biphenyls (PCBs), electrical components containing mercury;
- Use of waste-specific PPE based on the results of an occupational health and safety assessment, including respirators, clothing/protective suits, gloves and eye protection.

General Site Hazards

Projects should implement risk management strategies to protect the community from physical, chemical, or other hazards associated with sites under construction and decommissioning. Risks may arise from inadvertent or intentional trespassing, including potential contact with hazardous materials, contaminated soils and other environmental media, buildings that are vacant or under

construction, or excavations and structures which may pose falling and entrapment hazards. Risk management strategies may include:

- Restricting access to the site, through a combination of institutional and administrative controls, with a focus on high risk structures or areas depending on site-specific situations, including fencing, signage, and communication of risks to the local community;
- Removing hazardous conditions on construction sites that cannot be controlled affectively with site access restrictions, such as covering openings to small confined spaces, ensuring means of escape for larger openings such as trenches or excavations, or locked storage of hazardous materials

Traffic Safety

Construction activities may result in a significant increase in movement of heavy vehicles for the transport of construction materials and equipment increasing the risk of traffic-related accidents and injuries to workers and local communities. The incidence of road accidents involving project vehicles during construction should be minimized through a combination of education and awareness-raising, and the adoption of procedures prescribed for Traffic Safety.

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ANNEXES

ANNEXURE I: GENERAL ENVIRONMENTAL MANAGEMENT CONDITIONS GUIDELINES FOR CONSTRUCTION CONTRACTS

1. 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.
2. 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:
 - 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.
 - 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.
 - 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. 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.
 - 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.
 - 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.
 - Discourage construction workers from engaging in the exploitation of natural resources such as hunting, fishing, and collection of forest products or any other activity that might have a negative impact on the social and economic welfare of the local communities.
 - Implement soil erosion control measures in order to avoid surface run off and prevents siltation, etc.
 - Ensure that garbage, sanitation and drinking water facilities are provided in construction workers
 - 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 socioeconomic disruption resulting from implementation of any works.

Worksite/Campsite Waste Management

1. All vessels (drums, containers, bags, etc.) containing oil/fuel/surfacing materials and other hazardous chemicals shall be bonded in order to contain spillage. All waste containers, litter and any other waste generated during the construction shall be collected and disposed of at designated disposal sites in line with applicable government waste management regulations.
2. 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.
3. Used oil from maintenance shall be collected and disposed of appropriately at designated sites or be reused or sold for re-use locally.
4. 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.
5. Construction waste shall not be left in stockpiles along the road, but removed and reused or disposed of on a daily basis.
6. 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.
7. 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.
8. 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.
9. The Contractor shall deposit any excess material in accordance with the principles of these general conditions, and any applicable EMP, in areas approved by local authorities and/or the SE.
10. 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.

Source Separation/Segregation of Waste

Waste segregation at source of generation is critical to proper waste management. For this purpose, colour - coding of bins should be adopted especially for offices and industries in the canal locations. The following protocol should be adopted:

- a. General waste e.g. packaging materials must be put in BLACK bin
- b. Food/Garden waste in GREEN bin
- c. Electric bulbs, fluorescent tubes and glass waste in BLUE bin
- d. Paper waste: to be shredded in BLACK PLASTIC BAGS
- e. IT Consumables e.g. toners, cartridges in WHITE bin
- f. Metal junk must be put into the YELLOW coloured bins
- g. Waste plastic containers in BROWN bin
- h. Spent batteries, empty drums (oil/chemical) in GREY bin
- i. Contaminated soil, absorbent in PURPLE bin

It is important to note that sorted wastes should be stored in the appropriate labelled bins; bio-hazard wastes should not be sorted but put inside the safety box; and as much as possible re-use of papers, bottles and plastics should be encouraged

Waste Transportation and Disposal

- a. Waste collection from final storage point should be undertaken by KSGSWMA or accredited private operators.
- b. Waste disposal must be done in a government designated site.

Documentation of Waste Management

KSGSWMA is required to:

- a. Keep accurate records that track the amount of waste generated and the management strategies used
- b. Waste generating facilities must use the Waste Tracking Log. The log includes the date and Type(s) and Quantity of waste manifested and transferred for handling/disposal. The Supervisor of the waste generating facility ensures that all records of waste transferred are logged.
- c. Ensure that all waste shipments are accompanied by a Waste Manifest. The Supervisor of the waste generating facility ensures that waste transferred from his facility is properly manifested.

Cost of Waste Management

It is recommended that the State Ministry of Environment should provide funds for waste collection and disposal.

YOU MAY CONSIDER SETTING UP CIG ON WASTE MANAGEMENT SEEING THAT THIS PROJECT IS EXPECTED TO OPERATE IN CLUSTER

ALSO FLAG RECLAIMED AREAS OR OTHER SPOTS THAT CAN BE USED FOR TREE SEEDLING NURSERY OR ANY OTHER SMART AGRICULTURE ACTIVITY

Water Resources Management

1. The Contractor shall at all costs avoid conflicting with water demands of local communities.
2. 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.
3. Abstraction of water from wetlands shall be avoided. Where necessary, authority has to be obtained from relevant authorities.
4. Temporary damming of streams and rivers shall be done in such a way avoids disrupting water supplies to communities downstream, and maintains the ecological balance of the river system.
5. No construction water containing spoils or site effluent, especially cement and oil, shall be allowed to flow into natural water drainage courses.
6. Wash water from washing out of equipment shall not be discharged into water courses or road drains.
7. 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

1. 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.
2. Upon the completion of civil works, all access roads shall be ripped and rehabilitated.
3. 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

Training of Contractor's Personnel

- 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:

- a. HSE in general (working procedures);
- b. Emergency procedures; and
- a. Social and cultural aspects (awareness raising on social issues).

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

1. 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:
2. For the Contractor, for internal purposes, to ensure that all measures are in place for adequate HSE management, and as an operational manual for his staff.
3. For the Client, supported where necessary by a SE, to ensure that the Contractor is fully prepared for the adequate management of the HSE aspects of the project, and as a basis for monitoring of the Contractor's HSE performance.
4. The Contractor's EHS-MP shall provide at least:
5. A description of procedures and methods for complying with these general environmental management conditions, and any specific conditions specified in an EMP.

HSE Reporting

1. 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 HSE report is given below. It is expected that the Contractor's reports will include information on:
2. HSE management actions/measures taken, including approvals sought from local or national authorities;
3. Problems encountered in relation to HSE aspects (incidents, including delays, cost consequences, etc. as a result thereof);
4. Lack of compliance with contract requirements on the part of the Contractor;
5. Changes of assumptions, conditions, measures, designs and actual works in relation to HSE aspects; and
6. Observations, concerns raised and/or decisions taken with regard to HSE management during site meetings.

It is advisable that reporting of significant HSE incidents be done "as soon as practicable". Such incident reporting shall therefore be done individually. Also, it is advisable that the Contractor keeps 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. Details of HSE performance will be reported to the Client through the SE's reports to the Client.

Kogi State Agro-Climatic Resilience in Semi-Arid Landscapes Project (Kogi-ACReSAL)

ANNEXURE II: INFRASTRUCTURE IN THE COMMUNITIES AROUND ANKPA EROSION PROJECT SITES

Infrastructural Survey Ankpa									
S/N	Name Of Structure	Ownership	Category	Name Of Community	Location	Status	Longitude	Latitude	Elevation
1	Area 1 Village Market	Public	Market	Area 1, Eneokpoli	. Opp. Old Sdp Secretariat	The Structure Is In Fair Condition But Not In Use	7.63797E	7.42216 N	381
2	Borehole	Private	Sources Of Water	Area 1, Eneokpoli	Beside Area 1 Village Market	The Facility Is In Good Condition And In Use	7.63816E	7.42250 N	383
3	Labroma Clinic	Private	Health Facility	Area 1, Eneokpoli	Opp. Area 1 Village Market	The Facility Is Good Condition And In Use	7.63700E	7.42284 N	387
4	Main Road Leading To Eneokpoli	Public	Roads	Area 1, Eneokpoli	Eneokpoli Road	Wide Untarred Road, Highly Eroded With Scattered Gully Erosion Along The Road	7.63770E	7.42387 N	392
5	Road Leading Into Ogaji Village	Public	Roads	Area 1, Eneokpoli	Eneokpoli – Ogaji Road	Untarred Road With Gully Erosion Scattered Along The Road	7.63784E	7.42371 N	388
6	Mosque Central	Public	Religious Facilities	Area 1, Eneokpoli	Eneokpoli – Ogaji Road	The Structure Is In Good Condition And In Use	7.63799E	7.42462 N	393
7	Borehole	Private	Sources Of Water	Area 1, Eneokpoli	Eneokpoli – Ogaji Road	The Facility Is In Bad Condition And Not In Use	7.63857E	7.42545 N	403
8	Dominion International School	Private	Educational Facility	Area 1, Eneokpoli	New Site Eneokpoli	The Structures Are In Good Condition And In Use	7.64069E	7.42793 N	403
9	Road Leading To Ofejiji Village	Public	Roads	Area 1, Eneokpoli	Eneokpoli – Ofejiji Road	Wide Untarred Road, Highly Eroded With Scattered Gully Erosion Along The Road	7.63345E	7.41468 N	350
10	St Charles Borromeo Chapliancy	Public	Religious Facilities	Ofejiji	Beside St Charles College	The Structures Are In Good Condition And In Use	7.63855E	7.40963 N	221
11	St Charles College	Public	Educational Facility	Ofejiji	Beside St Charles Borromeo Chapliancy	The Structures Are In Good Condition And In Use	7.63975E	7.41093 N	322
12	Road Leading From St Charles College To Ofejiji	Government	Roads	Ofejiji	St Charles -Ofejiji Road	Tarred, Dilapidating Road	7.63975E	7.41268 N	342
13	Transformer	Public	Electricity	Ofejiji	Opp. St Charles College	The Facility Is In Good Condition And In Use	7.63878E	7.41047 N	335
14	Mosque	Public	Religious Facilities	Ofejiji	Along St Charles College - Ofejiji Road	The Facility Is In Good Condition And In Use	7.63993E	7.41283 N	347
15	Borehole	Private	Sources Of Water	Ofejiji	Beside Mallam Musa Block Industry	The Facility Is In Good Condition And In Use	7.63984E	7.41344 N	340

Kogi State Agro-Climatic Resilience in Semi-Arid Landscapes Project (Kogi-ACReSAL)

16	Road Leading From Roundabout To Eneokpoli	Public	Roads	Ofejiji	Ofejiji Eneokpoli Road	Untarred Road And Not Easily Motorable	7.63899E	7.41367 N	330
17	Road Leading From Roundabout To Ofejiji Meeting Centre	Public	Roads	Ofejiji	Along The River Road	Untarred Road With Gully Erosion Scattered Along The Road	7.64063E	7.41321 N	352
18	Road Leading From Roundabout To Ogaji	Public	Roads	Ofejiji	Ofejiji -Ogaji Road	Untarred Road With Gully Erosion Scattered Along The Road	7.64059E	7.41419 N	338
19	Borehole	Public	Sources Of Water	Ofejiji	Ekelenugbaje Street	The Facility Is In Good Condition And In Use	7.64024E	7.41341 N	354
20	Oil Palm Press	Public	Agro Processing Centre	Ofejiji	Behind Ofejiji Meeting Centre	The Facility Is Good Condition And In Use	7.64436E	7.41245 N	320
21	Transformer	Public	Electricity	Ofejiji	Along Ofejiji- Ogaji Road	The Facility Not In Use	7.64059E	7.41399 N	368
22	Transformer	Public	Electricity	Ogaji	Opp. Mosque	The Facility Is Good Condition And In Use	7.64293E	7.41816 N	367
23	Mosque	Public	Religious Facilities	Ogaji	Behind Ogaji Tranformer	The Facility Is In Good Condition And In Use	7.62285E	7.41839 N	381
24	Borehole	Private	Sources Of Water	Ogaji	Ogaji Central	The Facility Is Dilapidated And Not In Operation	7.64331E	7.41865 N	377
25	Mosque	Public	Religious Facilities	Ogaji	Ogaji Central	The Facility Is In Good Condition And In Use	7.64852E	7.42203 N	367
26	St Bartholomeo Catholic Church	Public	Religious Facilities	Ogaji	Ogaji Central	The Facility Is In Good Condition And In Use	7.64852E	7.42254 N	381
27	Lgea Primary School	Public	Educational Facility	Ogaji	Ogaji Central	The Facility Is Dilapidated But In Use	7.64900E	7.42282 N	364
28	Central Mosque Ogaji	Public	Religious Facilities	Ogaji	Ogaji Central	The Facility Is Good Condition And In Use	7.65135E	7.42527 N	353
29	Ankpa Lgcc Primary Health Clinic	Public	Health Facility	Ogaji	Opp Central Mosque	Dilapidated And Not In Use	7.65079E	7.42566 N	344
30	Major Road Through Ogaji	Public	Roads	Ogaji	Ogaji Central	Untarred Road	7.65085E	7.42570 N	340
31	Ankpa Local Government Secretariat	Public	Governement Establishment	Olubo-Ojo	Secretariat	Structures Are In Good Condition	7.63251E	7.40974 N	373
32	Borehole	Private	Sources Of Water	Olubo-Ojo	Beside Secretariat	The Facility Is In Good Condition And In Use	7.63498E	7.40983 N	363
33	Mother And Child Primary Health Care	Private	Health Facility	Olubo-Ojo	Along Secretariat Road	The Structures Are In Good Condition And In Use	7.63532E	7.40978 N	356
34	Redeemer Nur/Primary	Private	Educational	Olubo-Ojo	Beside Mother And Child	The Structures Are In Good Condition And In	7.63608E	7.40984 N	346

Kogi State Agro-Climatic Resilience in Semi-Arid Landscapes Project (Kogi-ACReSAL)

	School		Facility		Primary Health Care	Use			
35	Is Possible With God Church	Public	Religious Facilities	Olubo-Ojo	Behind Redeemer Nur/Primary School	The Structures Are In Good Condition And In Use	7.63675E	7.41253 N	344
36	Mosque	Public	Religious Facilities	Olubo-Ojo	Behind Redeemer Nur/Primary School	The Structures Are In Good Condition And In Use	7.63721E	7.41192 N	350
37	Transformer	Public	Electricity	Olubo-Ojo	Behind Aa Suite	The Facility Is In Good Condition And In Use	7.63664E	7.41416 N	339
38	Road Leading To Mother And Child Primary Health Care	Public	Roads	Olubo-Ojo	Beside Aa Suite	The Road Is A Big Gully, Not Motorable	7.63648E	7.41367 N	345
39	Road Leading To Eneokpoli Junction	Public	Roads	Olubo-Ojo	Beside Aa Suite	The Road Is A Big Gully, Not Motorable	7.63611E	7.41427 N	344
40	Road Leading To Ofejiji Junction	Public	Roads	Olubo-Ojo	Behind Aa Suite	The Road Is A Big Gully, Not Motorable	7.63714E	7.41396 N	347
41	Aa Suite	Private	Hotels	Olubo-Ojo	Behind Ufedo Ojo Nur/Primary School	The Facility Is Dilapidated And Not In Operation	7.63595E	7.41349 N	346
42	Ufed' Ojo Nur/Primary School	Private	Educational Facility	Olubo-Ojo	Behind Prince Abubakar Estate	The Structures Are In Good Condition And In Use	7.63510E	7.41367 N	348
43	Borehole	Private	Sources Of Water	Olubo-Ojo	Behind Aa Suite	The Facility Is In Good Condition And In Use	7.63704E	7.41356 N	350
44	Reigner's Chapel Church	Public	Religious Facilities	Olubo-Ojo	Behind Secretariat	In Fair Condition And In Use	7.63257E	7.41099 N	377
45	Ministry Of Agric And Natural Resources	Public	Agricultural Establishments	Olubo-Ojo	Beside Reigner's Chapel Church	Structures In Very Bad Condition And Not In Use	7.63282E	7.41132 N	369
46	Christ Apostolic Church	Public	Religious Facilities	Olubo-Ojo	Opp. Gra, Eneokpoli Road	The Structures Are In Good Condition And In Use	7.63312E	7.41316 N	373
47	Christian Evangelical Fellowship Of Nigeria	Public	Religious Facilities	Olubo-Ojo	Opp. Gra, Eneokpoli Road	The Structures Are In Fair Condition And In Use	7.63350E	7.41470 N	371
48	St. Andrew Nur/Primary School	Public	Educational Facility	Olubo-Ojo	Behind Christian Evangelical Fellowship Of Nigeria	The Structures Are In Fair Condition And In Use	7.63374E	7.41504 N	350
49	Borehole	Private	Sources Of Water	Olubo-Ojo	Opp. Domas Clinic	The Facility Is In Good Condition And In Use	7.63616E	7.41588 N	360
50	Domas Clinic	Private	Health Facility	Olubo-Ojo	Opp.Olubo-Ojo Meeting Ground	The Facility Is In Good Condition And In Use	7.63616E	7.41605 N	344
51	Apostolic Faith Church	Public	Religious Facilities	Olubo-Ojo	Along Eneokpoli Road	The Facility Is In Good Condition And In Use	7.63505E	7.41866 N	361

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52	Dynamic Nur/Primary School	Private	Educational Facility	Olubo-Ojo	Along Eneokpoli Road	The Structures Are In Good Condition And In Use	7.63852E	7.42079 N	380
53	Divine Suite Hotel	Private	Hotels	Olubo-Ojo	Behind Lgea Primary School	The Structures Are In Good Condition And In Use	7.63954E	7.41753 N	331
54	United Evangelical Church	Public	Religious Facilities	Olubo-Ojo	Off Ogaji Road ,	The Structures Are In Good Condition And In Use	7.64062E	7.41867 N	384
55	Road Connecting Olubo- Ojo To Ogaji Village	Public	Roads	Olubo-Ojo	Off Ogaji Road ,	The Road Is A Big Gully, Not Motorable	7.64086E	7.41746 N	365
56	Mosque	Public	Religious Facilities	Olubo-Ojo	Along Divine Suite Hotel Road	The Structure Is In Good Condition And In Use.	7.64022E	7.41615 N	357
57	Lgea Primary School	Public	Educational Facility	Olubo-Ojo	Behind Divine Suite Hotel	Dilapidated And In Use	7.63916E	7.41615 N	344
58	New Life Gospel Mission Church	Public	Religious Facilities	Olubo-Ojo	Behind Divine Suite Hotel	The Structure Is In Good Condition And In Use	7.63881E	7.41715 N	345
59	Borehole	Private	Sources Of Water	Olubo-Ojo	Beside Divine Suite Hotel	The Facility Is In Good Condition And In Use	7.63867E	7.41788 N	352
60	Road Leading To Ogaji	Public	Roads	Water Side	Water Side -Ogaji Road	Tarred, Dilapidating Road	7.63717E	7.40773 N	329
61	Road Leading To Water Board	Public	Roads	Water Side	Water Side -Water Board Road	Tarred, Dilapidating Road	7.63711E	7.40730 N	330
62	Road Leading To Market	Public	Roads	Water Side	Water Side – Market Road	Tarred, Dilapidating Road	7.63679E	7.40730 N	331
63	Mosque	Public	Religious Facilities	Water Side	Water Board Junction	The Structure Is In Good Condition And In Use	7.63718E	7.40755 N	329
64	Borehole	Private	Sources Of Water	Water Side	Beside Unity Maternity And Dispensary	The Facility Is In Good Condition And In Use	7.63834E	7.40676 N	319
65	Unity Maternity and Dispensary	Private	Health Facility	Water Side	Opp. Abogede Street	The Facility Is Not Fully Equipped But In Use	7.63814E	7.40657 N	315
66	Borehole	Private	Sources Of Water	Water Side	Abogede Street	The Facility Is Not Functional	7.63788E	7.40626 N	317
67	Transformer	Public	Electricity	Water Side	Water Board Site	Transformer Not In Use	7.63875E	7.40449 N	303
68	Water Board Facilities	Public	Sources Of Water	Water Side	Water Board Site	The Facility Is Dilapidated And Not In Operation	7.63922E	7.40542 N	306

**PHOTO GALLERY OF THE SOCIO-ECONOMIC STRUCTURES IN ANKPA
ACReSALPROJECT AREA**



Ankpa Local Government Secretariat



**Transformer behind AA Suite
Health Care**



**Road Leading to Mother and Child Primary
Health Care**



Road Leading to Area1 Eneokpoli Junction



Road Leading to Ofeji Junction



Dilapidated AA suite Fence



Private Un-functional Borehole



Reigner's Chapel, Eneokpoli Road



Ministry of Agric Natural Resources Area Office



Christ Apostolic Church



United Evangelical Church (UEC)



St. Andrew Nur/Primary School behind (UEC)



Private Borehole beside Domas Clinic



Domas Clinic



Apostolic Faith Church



Dynamic School with boarding facilities



Abandoned Area 1 Village market



Labroma Clinic



Road leading to Ogaji



Private Borehole



Dominion International School



Road Leading to Area 1 Eneokpoli from Town



Transformer along Ofejiji- Ogaji Road



Dilapidating Road Leading to St. Charles College



Road leading to Water Board at Waterside





ANNEXURE III: LISTS OF FLORA AND FAUNA FOUND IN THE PROJECT LOCATION

Plant Biodiversity in Ankpa Town Catchment Area

Trees species	Common Name	Family	No. of Shrubs (0.5- 4m)	No. of Trees (>4m)	Height of tallest trees (m)	Stem diameter (cm)
<i>Anacardium occidentale</i>	Cashew			5	8.5	30.2
<i>Anacardium occidentale</i>	Cashew			7	8	27
<i>E*laeis guinensis</i>	Oil palm			4	12	57.3
<i>Irvingia spp</i>	Bush mango			2	22.5	44.6
<i>Chlorophora excels</i>	Iroko			1	24	54
<i>Terminalia superb</i>	Umbrella tree			1	23	60.5
<i>Cassuarvina equistifolia</i>	Cassuarina			1	31	54
<i>Mangifera indica</i>	Mango	Anacardiaceae		1	22	52
<i>Mangifera indica</i>	Mango	Anacardiaceae		1	7.5	46.2
<i>Mangifera indica</i>	Mango	Anacardiaceae			22	49.7
<i>Cassia stamea</i>	Cassia				21.5	36.6
<i>Terminalia superb</i>	Black edo				34	102
<i>Irvngia Senegal</i>	Bush mango				23	46.1
<i>Anacardium occidentalic</i>	Cashew				11	23.9
<i>Anacardium occidentalic</i>	Cashew				11.5	20.7
Shrubs						
<i>Annona spp</i>		Annonaceae	Clump			
<i>Alchona cordifolia</i>			Clump			
<i>Jathropha indica</i>			Clusters			
<i>Rawoltia vormitoria</i>			several			
Herbs						
<i>Schrankia leptocarpa</i>	Sensitive plant	Fabaceae	Common			
<i>Sporobolus pyramidalis</i>	Cat's tail	Poaceae				
<i>Centrosema pubeseens</i>	Centro	Fabaceae	Common			
<i>Chromolaena odorata</i>	Siam weed	Asteraceae				
<i>Ageratum conyzoides</i>	Goat weed	Asteraceae				
Grass						
<i>Imperatacylindrica</i>	Blady grass	Poaceae				
<i>Panicum maximum</i>	Guinea grass	Poaceae	Common			

Source: Baseline Survey, 2019.

Wildlife Biodiversity of Ankpa Catchment Area

Mammals	Scientific Names	Order	Family	Abundance Status
Mona monkey	<i>Cercopithecus mona</i>	Primate	Cercopithecidae	Rare
Grasscutter/greater cane rat	<i>Thryonomys swinderianus</i>	Rodentia	Thryonomyidae	Rare
Rock hyrax	<i>Procavia capensis</i>	Hyracoidea	Procaviidae	Rare
Nigerian mole-rat	<i>Fukomys foxi</i>	Rodentia	Bathyergidae	common
Birds				
Stone partridge	<i>Ptilopachus petrosus</i>	Galliformes	Odontophoridae	Rare
Guinea fowl	<i>Agelastes niger</i>	Galliformes	Numididae	Common
Cattle egret	<i>Bubulcus ibis</i>	Pelecaniformes	Ardeidae	Common
Common Kestrel	<i>Falco tinnunculus</i>	Falconiformes	Falconidae	Rare
Reptiles & Amphibians				
Rough green snake	<i>Opheodrys aestivus</i>	Squamata	Colubridae	Common
Common water frog	<i>Eleutherodactylus marnockii</i>	Anura	Leptodactylidae	Common
Common agama	<i>Agama agama</i>	Squamata	Agamidae	Common
Chameleon	<i>Chamaeleo calyptratus</i>	Squamata	Chamaeleonidae	Common
Snails				common
Invertebrates				

Grasshoppers		Orthoptera	Euschmidtinae	Common
Beetles		Coleoptera	Curculionidae	Common
Sawflies		Hymenoptera		Common
Bees		Hymenoptera		Common
Wasps		Hymenoptera		Common
Butterflies		Orthoptera		Common
Moths		Orthoptera		Common

Source: Baseline Survey, 2019.

ANNEXURE IV: HOUSEHOLD QUESTIONNAIRE AND INTERVIEW SCHEDULE FOR ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) FOR ADUMU ROAD, OGUGU AND ANKPA EROSION SITES

The Government of Nigeria is implementing the multi-Sectoral Nigeria Erosion and Watershed Management Project (ACReSAL) with the assistance of the World Bank, Global Environment Facility, the Special Climate Change Fund, and the Government of Nigeria. The Kogi State Erosion and Watershed Management Project (KSG-ACReSAL) is constructing canals to help check erosion in these areas of the State. The aim is to avoid the problems of erosion usually recorded in the state during rainy seasons. The project will affect the population living in those locations where the operation will take place especially those living close to the watershed. This interview is part of an environmental social management of the project. The aim is to find out how the project civil work activities will affect the households in the areas especially those living and working close to the proposed canals. We need your cooperation in answering the questions asked below. Your answers will be treated as confidential.

Section A. IDENTIFICATION

1. Identification Number: _____
2. Town/Location of Interview: _____
3. Language of Interview: _____
4. Name and Signature of Interviewer: _____
5. Name and Signature of Supervisor: _____
6. Date: _____
7. Time Interview Started: _____
8. Time Ended: _____

Section B: Household Composition

Please report the household composition. Please note: A “**household**” includes all members of a common decision-making unit (usually within one residence) that are sharing the same household resources. These include dependents who are away from home.

PID*	Name of hh member above 16 years old	Age	Relationship to household head ¹	Gender 1=male 2=female	Level of education ²	Primary Activity ³	Number of years in school
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							

* PID = Personal identification number

¹ **Relationship to head:** 1=head, 2=spouse, 3=child, 4=siblings, 5=other family member, 6=non-family member, 99=others

² **Level of education:** 1=no formal education, 2= adult literacy training, 3=some primary education, 4=completed primary education, 5=some secondary education (incl. junior secondary school), 6=completed secondary education, 7=post-secondary education, 8=Koranic education, 99=others

³ **Primary activity:** 1=crop production, 2=livestock production, 3= fisheries, 4=forest production and/or harvesting 5=Agricultural Trading business 6=Non-Agricultural Trading business 7 = Transportation business 8 = Agricultural processing 9 = Formal private employment 10= Construction 11 = Mining/quarrying 12 = Public sector employment/ 13 = Domestic duties 14 = student In school (any type),

15=Retired, 16=unemployed, 17=handcraft, 18=artisans (incl. mechanics), 19=traditional medical practitioners 99=Others (specify)

A 2. Children below 16 years

	Total	Female	Male
1. Household members 10 – 15 years old			
2. Household members 5 -9 years old			
3. Household members below 5 years old			

12. How much do you spend on food on average every day in your household -----

13. How much does your household spend on food in the last seven days -----

14 Have you experienced flooding in your vicinity in the last one year? Yes No.....

15. If yes did you lose anything due to flooding? Yes No.....

16. Which of these coping strategies do you adopt to ameliorate these effects of erosion?

S/N	Coping strategies	Yes	No
a.	Construction of drainages	()	()
b.	Change in timing of farm operations	()	()
c.	Occupational diversification	()	()
d.	Construction of embankment	()	()
e.	Planting of vegetation to reduce water flow	()	()
f.	Flood disaster preparedness plan	()	()
g.	Terracing hillsides to slow down water flow	()	()
h.	Use of improved crop varieties	()	()
i.	Avoiding bush burning	()	()
j.	Frequent removal of sand in blocked drainages	()	()
k.	Relocation from floodable areas to avoid flood hazard	()	()
l.	River re-channelization to checkmate risk of flooding	()	()
m.	Raising house foundation high enough to keep above flood water	()	()
n.	Harvesting and processing of all tuber crops before flooding to minimize rot of tubers	()	()
n.	Disconnection from your means of livelihood	()	()
17.	What is the distance from the household (in km) to the nearest or proposed ACREsAL project site..... (Enumerator to determine)?		
18.	The erosion incidences in the area usually disrupt economic activities of the area, while in some cases result in the loss of lives and property. This thereby requires its control through a sustainable watershed management possibly with community participation. Given the above scenario, will you be willing to pay some money in other to solve this perennial problem in your locality. A) Yes----- b) No-----		
19.	If No why?		
20.	If yes, how much will you be willing to pay quarterly a.) Below N500.00 b) Between N500.00 to N1, 000.00		

c.) Between N1, 000.01 to N1, 500.00 d.) Between N 1,500.01 to N2, 000.00 e.) Above N2, 000.00

21. What is the maximum amount you are willing to pay to help solve this flooding problem -----

22. Have you been visited by an Agricultural Extension Agent in the last one year? A.) Yes b.) No

23. If yes, how many times were you visited by an Extension Agent in the last one year?-----

Section C: Sources of income

1. What is your regular source of income -----

2. How much did you earn in the last one month -----

3. If you are in a wage employment, how much do you receive monthly -----

4. Please indicate source and status of income

		Monthly Income (N'000)						
		Less	5	6-10	11-15	16-20	21-25	26-30
		☐	☐	☐	☐	☐	☐	☐
Wage employment								
a	Civil service	☐	☐	☐	☐	☐	☐	☐
c	Construction	☐	☐	☐	☐	☐	☐	☐
d	Mining/Quarrying	☐	☐	☐	☐	☐	☐	☐
e	Domestic duties	☐	☐	☐	☐	☐	☐	☐
f	Retired	☐	☐	☐	☐	☐	☐	☐
Informal Employment								
g	Artisan (mechanic, electrician, furniture maker etc.)	☐	☐	☐	☐	☐	☐	☐
h	Trading	☐	☐	☐	☐	☐	☐	☐
i	Transportation business	☐	☐	☐	☐	☐	☐	☐
j	Builder/contractor	☐	☐	☐	☐	☐	☐	☐
k	Consultancy.	☐	☐	☐	☐	☐	☐	☐
Agricultural Employment (Activities)								
l	Crop production (E.g. Rice, Cassava, yam etc.)	☐	☐	☐	☐	☐	☐	☐
m	Livestock production	☐	☐	☐	☐	☐	☐	☐
n	Fishing	☐	☐	☐	☐	☐	☐	☐
o	Forest production or harvesting	☐	☐	☐	☐	☐	☐	☐
P	Agricultural processing (cassava milling, rice processing etc.)	☐	☐	☐	☐	☐	☐	☐
q	Others	☐	☐	☐	☐	☐	☐	☐
Non formal and informal Employment								
r	Relatives family members away from home	☐	☐	☐	☐	☐	☐	☐
s	Friends	☐	☐	☐	☐	☐	☐	☐
t	Charitable organizations outside community	☐	☐	☐	☐	☐	☐	☐
u	Mutual support groups (local)	☐	☐	☐	☐	☐	☐	☐

5. Other sources of income (This excludes wage and salary employment, including agricultural employment on others farms)

Non-farm activities

6. Did you engage in non-farm income activities in the last 12 months? Yes = 1, No = 2 _____

7. If yes, how much did you realize? -----
8. Do you have access to credit facilities? Yes = 1, No = 2
9. What are your sources of credit facilities? 1 Relatives, friends & family members----- (2) Microfinance Banks ----- (3) Commercial Banks ----- (4) Cooperative association -----

Section D: Physical Infrastructure/ Social Facilities in the Community.

Indicate social amenities/ facilities

S/N	Amenity /facility	6	5	4	3	2	1
A	Source of water	Pipe borne water ☐	Bore hole ☐	Rain water ☐	River water ☐	Storm water runoff ☐	Water vendor ☐
B	Sources of energy	Public Electricity ☐	Generators ☐	Gas lamp ☐	Kerosene lantern ☐	Wike lamp ☐	Fire wood ☐
C	Disposal of solid waste	Public legal dump site ☐	Illegal dump sites ☐	Burying/ Burning ☐	Dump into River ☐	Compound dumpsite ☐	others ☐
D	Disposal of sewage	Septic /soakaway ☐	Ventilated improved latrines ☐	Pit latrines ☐	Open land/ bush ☐	Dump into River ☐	Others ☐
E	Roads	Tarred Asphalt ☐	Concrete paved ☐	Graded Road ☐	Wide earth road ☐	foot path ☐	Others ☐
f	Treatment of diseases	Hospital/Health centre ☐	Clinic Private ☐	Dispensary ☐	Maternity	Self-medication chemist ☐	Traditional healing home
g	Educational facilities	Post-secondary schools ☐	Secondary/Technical/ vocational	Primary school ☐	Nursery/ kindergarten	Adult education	Informal education
h	Market facilities	Built lockup stalls ☐	Built open market ☐	Unbuilt /open village market ☐	Night market ☐	Regional market ☐	Others ☐
i	Religions facilities	Church cathedral orthodox ☐	Church Buildings ☐	Church spaces in Residential Buildings	Makeshift structure for churches ☐	Mosque ☐	Shrines/ Groves ☐

12. Indicate condition and access to community facilities

0S/N	Facility	Condition		Time taken to reach facility (mins)				
		Good	Bad	Less than 10	11-20	21-40	41-60	Above 60mins
A	Primary Nursery schools	☐	☐					
B	Secondary/Technical/Vocational schools							
C	Public hospital/Health centre							
D	Private clinics							
E	Dispensary/ maternity							
F	Community/Regional Market							

G	Village market
H	Pipe borne water/borehole/mono pump
I	River/pond/lake/well
J	Public recreational facilities
k	Postal services/courier services

13. How would you describe the condition of the following amenities in the town you live/ community?
Please use the most applicable of the phrases provided:

Amenities	Non-existent	Existent but inadequate	Adequate but unreliable	Adequate and Reliable
Roads to your locality				
Roads within your locality				
Schools / educational facilities in the locality				
Public health institutions				
Portable water				
Public electricity				
Communication facilities (postal service, telephone)				
Public recreation facilities				
Public legal solid waste disposal site				
Disposal of sewage				
Market facilities				
Religion facilities				

14. What are the major sources of water available to your household?

- | | |
|----------------------------------|----------------------------------|
| i. River | vi. Borehole_ (commercial) _____ |
| ii. Pond | vii. Borehole (private) _____ |
| iii Rain water | viii. Commercial tanker _____ |
| iv Public pipe-borne water | ix. Water Vendor _____ |
| v Mono pump | x. Well water _____ |
| xi Package water | xii Others (specify) |

15. If a public pipe borne water, how regular does the tap flow in the week?

(i) Often ----- (ii) Occasionally (iii) Rarely

16. What is the primary source of electricity/light to your town/community?

- | | |
|---------------------------|--|
| i. Hurricane lamp | iv. State Government Utilities board |
| ii. Private generators | v. Company/Companies operating in your community |
| iii. Community generators | vi. NEPA (National grid) |

17. What is the main fuel used for cooking?

- | | |
|-------------------|----------------------------|
| i. Firewood | v. Electricity |
| ii. Charcoal | vi. Crop residue/ saw dust |
| iii. Kerosene/oil | vii. Animal wastes |

iv. Gas

viii. Others (specify)

Section E: Health Status

1. Please tick one or more of the under mentioned ailment / sickness you suffer from most?

S/N	Degree of Ailment	Always	Sparingly	Seldom	Never
1	Tuberculosis				
2	Dysentery				
3	Diarrhoea				
4	Hypertension				
5	Pile				
6.	Sexually transmitted disease				
7.	Rheumatism				
8.	Rashes				
9.	Malaria				
10	Typhoid				
11.	Eczema				
12.	Eye pains				
13.	Epilepsy				
14.	Ringworm				
15.	pneumonia				
16.	Asthma				
17.	Cholera				
18.	Congestive health problem				
19.	Cataract				
20.	Glaucoma				

Section F: Impact of Proposed ACRoSAL Project

1. Indicate type of loss you will suffer due to the proposed project implementation

S/N	Asset Type	Loss Type	Yes/No	Remarks
A.	Physical Assets			
1.	Land	Land (vacant)		
		Residential		
		Agricultural		
		Commercial		
		Industrial use		
		Others (specify)		
2,	Structures	Main building		

		Ancillary building		
		Fence walls		
		Shops, kiosks etc		
		Pavements		
		Concrete kerbs, concrete well		
		Reservoirs		
B.	Income and Livelihood			
1.	Farm (Economic Trees)food crops	Grazing land		
		Food (seasonal) crops		
		Economic or perennial trees		
		Others		
2.	Business	Rental income		
		Clientele /customers		
		Business income		
		Wage income (for employment)		
		Fees from trainees or apprentices		
3.	Opportunity to livelihood	Loss of training or apprenticeship		
		Loss of business		
		Loss of residence		
		Loss of accommodation or room		
C.	Disturbance / Disruptions			
	Temporary structures	Loss of location		
	Access to Utilities	Disconnection of utility services		
	Disturbance temporary structures	Movable assets – incurring removable expenses		
		Loss of peaceful enjoyment of property		
		Loss of customers and companions		

2. Indicate category and level of losses you will suffer from proposed ACREsAL project implementation

S/N	Extent of Loss	Yes	No	% of loss affected asset				Remark
				< 30%	30 -50%	51 – 70%	>70%	
1.	Permanent loss							
2.	Temporary loss							
3.	Full loss							
4.	Partial loss							

5.	Minimal loss							
6.	Significant loss							

3. Indicate type of Project Affected Persons (PAP)

S/N	Persons	Definitions	Yes / No	Remarks
1.	Individual	Individuals who risk losing assets, investments, land property and /or access to natural and/or economic resources as a result of a sub - project		
2.	Households	One or more persons –men, women, children, dependent relatives and tenants; vulnerable individuals who may be too old or ill to farm along with the others; in so far as displacement due to the sub – project activities create challenges for which these people are ill prepared		
3.	Vulnerable persons/group	a. internally displaced persons		
		b. Elderly persons		
		c. Persons living with HIV/AIDs		
		d. Orphans and street children		
		e. Unmarried women and /or widow		
		f. female headed households		
		g. Small scale female farmers		
		h. Dependent persons		
		i. The physically challenged		
		j. Others, specify		
2.	Squatters /other land occupiers	Lack of legal title or legal occupancy rights to the land they occupy as illegal occupants		
	Corporate Entity	Organization		

Name of respondent

Phone No.....

GPS Readings:

Longitude.....

Latitude.....

Elevation.....

27. Street Address of respondent -----

28. What is the occupancy status of the dwelling used?

(i) Owns the dwelling ----- (ii) Rents the dwelling-----

(iii) Pays nominal/subsidized rent ----- (iv) Uses without paying rent-----

(v) Nomadic or temporary dwelling -----

29. What type of document do you have to back your occupancy status? (i) Certificate of occupancy-

Leasehold----- (ii) Freehold-----

(iii) Tenancy agreement----- (iv) Receipt for payment----- (v) None-----

ANNEXURE V: QUESTIONS ADAPTED FROM ICID CHECK LIST FOR ESMP

1. Hydrological changes

1.1 Low flow regime

Is the flow regime of the river substantially changed by the Project and its dams (by more than +/- 20% in low flow periods)? If so, does this change benefit or impair aquatic ecosystems, existing or potential downstream abstractions, hydropower, navigation or recreational uses?

1.2 Flood regime

Is the flood regime of the river (peak discharge and stage, speed of flood waves, flood superposition with joining rivers, duration or extent of floodplain inundations downstream) substantially changed by the Project as a result of changes in abstractions, retention storage, reservoir releases, flood protection works, new road/rail routes, river training or surface drainage works? If so, does this change benefit or impair aquatic and flood-affected ecosystems, lead to an increase or decrease in flood damage or change land use restrictions outside the Project?

1.3 Fall of water table

Does the Project cause a fall of the water table (from groundwater abstractions, reduced infiltration due to river training, drainage or flood protection works)? If so, does this fall lead to increased potential for groundwater recharge (from seasonal rainfall) and improved conditions for land use; or lead to depletion of the groundwater system, affecting wells, springs, river flows and wetlands?

1.4 Rise of water table

Does the Project cause a rise of the water table (from increased infiltration or seepage from irrigation, seepage from reservoirs and canals, or increased floodplain inundation)? If so, does this rise lead to improved yield of wells and springs and improved capillary rise into the root zone; or lead to water logging of agricultural or other land in the Project area or vicinity?

2. Organic and inorganic pollution

2.1 Solute dispersion

Are the Project and its dams leading to changes in the concentrations of organic or inorganic solutes in the surface water due to changes to the pattern of water abstraction and reuse in the basin or flow regulation? If so, do the changes benefit or impair biological communities or domestic, agricultural or industrial water users in the basin?

2.2 Toxic substances

Are significant levels of toxic substance accumulating or being introduced, mobilized and transmitted due to the construction and operation of the Project and its dams, or are levels being reduced? Substances such as pesticides, herbicides, hydrogen sulphide, oil derivatives, boron, selenium and heavy metals in irrigation supplies or surface, draining and ground waters should be considered.

2.3 Organic Pollution

Are nutrients, organic compounds and pathogens being reduced or introduced and concentrated, due to the Project, its dams and its associated domestic settlements? If so, does the change result in a reduction or increase in environmental and water use problems in the Project area or downstream (in rivers, canals, reservoirs, and lakes, evaporation wet lands, depressions, deltas, estuary regions) or in the groundwater?

2.4 Anaerobic effects

Is the Project reducing or creating anaerobic conditions or eutrophication in any impoundments, natural lakes, pools or wetlands due to changed input or accumulation of fertilizers, other nutrients and organic matter or due to changed water quality resulting from dams, river abstractions and drainage flows?

2.5 Gas Emissions

Is the Project, either directly or through associated industrial processing, causing decreased or increased gas emissions which contribute to air pollution (O₃, SO₃, H₂S, NO_x, NH₄, etc.) or the greenhouse effect (CO₂, CH₄, NO_x, etc.)?

3. Soil Properties and salinity effects

3.1 Soil salinity

Is the Project leading to progressive accumulation of salts in the soils of the project area or the vicinity because of prevailing high salt content in the soil, the groundwater, or the surface water; or can a progressive leaching effect be expected?

3.2 Soil properties

Is the Project leading to changes in soil characteristics within the Project area or the vicinity due to such activities as irrigation, the application of fertilizers or other chemicals, cultivation practices or dewatering through drainage? Changes which can improve or impair soil structure, workability, permeability, fertility association with nutrient changes, humus content, pH, acid sulphate or hard pan formation or available water capacity should be considered.

3.3 Saline groundwater

Are changes to the rates of seepage, percolation or leaching from the Project and its dams increasing or decreasing the concentrations of chlorides, nitrates or other salts in the groundwater?

3.4 Saline drainage

Are changes to the concentrations of chlorides, nitrates or other salts in the runoff or drainage water from the Project area in danger of affecting biological communities or existing or potential downstream users (particularly during low flow conditions)?

3.5 Saline Intrusion

Are the Project and its dams leading to changes in saline water (sea water) intrusion into the estuary or into groundwater due to changes in low flow, groundwater use, dredging or river training? If so, are the changes likely to affect biological communities and water users in the Project vicinity and other areas?

4. Erosion and sedimentation

4.1 Local erosion

Is increased or decreased soil loss or gully erosion being caused within or close to the Project area by changes in land gradient and vegetative cover, by irrigation and cultivation practice, from banks of canals, roads and dams, from areas of cut and fill or due to storm drainage provision?

4.2 Hinterland effect

Are the Project and its dams leading to changes in natural vegetation, land productivity and erosion through changes in population density, animal husbandry, dry land farming practices, forest cover, soil conservation measures, in the region?

4.3 River morphology

Is the regime of the river(s) changed by the Project and its dams through changes in the quantity or seasonal distribution of flows and flood peaks in the river(s), the abstraction of clear water, and changes in sediment yield (caused by 4.1 and 4.2), the trapping of sediments in reservoirs or the flushing of sediment control structures? If so, do these changes benefit or impair aquatic ecosystems or existing or potential users downstream?

4.4 Channel structures

Is scouring, aggradation, or bank erosion in the river(s), endangering the Project's river headworks, offtake structures, weir or pump inlets, its canal network, drainage or flood protection works, the free flow of its drainage system or structures and developments downstream? Consider effects associated with changes noted in 4.3 as well as those caused by other existing and planned upstream developments.

4.5 Sedimentation

Are the changes noted in 4.1 – 4.4 causing increased or decreased sediment deposition in irrigation or drainage canals, hydraulic structures, storage reservoirs or on cultivated land, either via the irrigation systems or the river(s)? If so, do these changes benefit or impair soil fertility, Project operation, land cultivation or the capacity and operation of reservoirs?

4.6 Estuary erosion

Are the Project and its dams leading to changes in the hydrological or sediment regimes of the river which can affect delta formation or estuary and coastal erosion? If so, do these changes benefit or impair aquatic ecosystems (estuarine or marine), local habitation, navigation or other uses of the estuary?

5. **Biological and ecological changes**

Is the Project, its dams or its associated infrastructure causing substantial and permanent changes (positive or negative) within the habitats listed in 5.1 – 5.5?

5.1 natural ecology (habitat, vegetation, terrestrial animals, birds, fish and other aquatic animals and plants),

5.2 areas of special scientific interest

5.3 biological diversity

Include the likely ecological benefit of any new or modified habitats created and of any protective or mitigatory measures adopted (such as nature reserves and compensatory forests). – Project lands, water bodies, surrounding area

5.4 Valleys & shores

River and canal banks, lake, reservoir and sea shores and the offshore marine environment.

5.5 Wetlands & plains

Floodplains or permanent wetlands including deltas and coastal swamps.

5.6 Rare species

Is the existence of any rare, endangered or protected species in the region enhanced or threatened by the changes noted in 5.1-5.5?

5.7 Animal migration

Does the Project, its dams or new road/rail routes affect the migration patterns of wild animals, birds or fish? Make allowance for the compensatory effect of any additional provision within the Project (canal crossings, fish passes, spawning locations, resting or watering places, shade, considerate operation).

5.8 Natural industry

Are commercial or subsistence activities depending on the natural terrestrial and aquatic environment benefited or adversely affected by the Project through ecological changes or changes in human access? Changes affecting such activities as fisheries, harvesting from natural vegetation, timber, game hunting or viewing and honey production should be considered.

6 **Socio-Economic impacts**

6.1 Population change

Is the Project causing significant demographic changes in the Project area or vicinity which may affect social harmony? Changes in population size/density and demographic/ethnic composition should be considered.

6.2 Income and amenity

Is the Project introducing significant economic/political changes which can increase or decrease social harmony and individual well-being?

Changes in the general levels of employment and income, in the provisions of local infrastructure and amenities, in the relative distribution of income, property values and Project benefits (including access to irrigation water) and in the demand for labour and skills (particularly in relation to family/political hierarchy and different sexes and social groups) should be considered.

6.3 Human migration

Has adequate provision been made for any temporary or migratory population influx to avoid social deprivation, hardship or conflicts within these groups or between the permanent and temporary groups? Human migration arising both from the demand for skills/labour during construction and from the requirements for seasonal agricultural labour should be considered.

6.4 Resettlement

Has adequate provision been made for the resettlement, livelihood and integration of any people displaced by the Project and its dams or losing land, grazing or other means of income due to the Project? Also, has adequate provision been made for the subsistence farming needs of people settled on or associated with the Project?

6.5 Women's role

Does the Project change the status and role of women (positively or negatively) in relation to social standing, work load, access to income and heritage and marital rights?

6.6 Minority groups

Are the Project and its dams causing changes to the lifestyle, livelihoods or habitation of any social groups (particularly minority groups) leading to major conflicts with, or changes to their traditional behaviour, social organization or cultural and religious practices?

6.7 Sites of Value

Is access improved or hampered to places of aesthetic and scenic beauty, sites of historical and religious significance or mineral and paleontological resources? Also, are any such sites being destroyed by the Project?

6.8 Regional Effects

Are the economic, infrastructural, social and demographic changes associated with the Project likely to enhance, restrict or lead to unbalanced regional development? Also, has adequate provision been made for new transport, marketing and processing needs associated with the Project?

6.9 User Involvement

Has there been adequate user and public participation in project planning, implementation and operation to ensure Project success and reduce future conflicts? The potential for incorporating within the Project existing systems of land tenure, traditional irrigation, and existing organizational and sociological structures and for the provision of new or extended facilities for credit, marketing, agricultural extension and training should be considered.

6.10 Recreation

Are the Project and its dams creating new recreational possibilities (fishing, hunting, sailing, canoeing, swimming, scenic walks, etc.) and are existing facilities impaired, preserved or improved?

7. Health

Consider each of the items 7.1-7.9 in relation to the local population, the labour force during construction and their camp followers, the resettled and newly resettled populations and migratory labour groups.

8. Ecological Imbalances

8.1 Pests & weeds:

Are crop pests or weeds likely to increase or decrease (particularly those favoured by irrigation/drainage/flood control) affecting yields, cultivation and requirements for pesticides or herbicides?

8.2 Animal diseases:

Are domestic animals in the Project or vicinity more or less exposed to hazard diseases and parasites as a result of the Project and its dams?

8.3 Aquatic weeds

Are reservoirs, rivers or irrigation and drainage canals likely to support aquatic vegetation or algae? If so, can these plants be harvested or controlled, or will they reduce the storage/conveyance capacity, interfere with the operation of hydraulic structures or lead to oxygen-oversaturated or anaerobic water bodies?

8.4 Structural damage:

Is there a danger of significant damage being caused to dams, embankments, canal banks or other components of the irrigation/drainage/flood control works through the action of plants and animals (including rodents and termites) favoured by the Project?

8.5 Animal imbalances

Does the Project cause zoological imbalances (insects, rodents, birds and other wild animals) through habitat modification, additional food supply and shelter, extermination of predators, reduced competition or increased diseases?

ANNEXURE VI: SAMPLES OF LIST OF PARTICIPANTS AT THE PUBLIC CONSULTATIONS

KOGI STATE AGRO-CLIMATIC RESILIENCE IN SEMI-ARID LANDSCAPES PROJECT (KG-ACReSAL) UPDATE OF THE ESMP STUDY FOR ANKPA GULLY EROSION SITE UNDER KOGI STATE ACReSAL

STAKEHOLDERS'S ATTENDANCE SHEET

S/N	Name	E-mail	Phone No	Position	Sign.
1	Salome Onoja		0810042663		Sign.
2	Zeilewe Onoja		09068630782		MA
3	Angella Musu		08067788515		S. Zakeri
4	Saivetu Zakeri		08139187119		
5	Zainabu Abdulkai				
6	Celina Adu		0813779606		A. Bala
7	Ayibetu Bala		07074385769		
8	Mariam Isah		09063500293		
9	Sarah Abraham		08137504714		
10	Alice Olokwu		07068065440		
11	Abeyi Mahu		08068089244		
12	Fatima Idries		07126205494		
13	Hassana Hassan				
14	Esosa James				
15	Esosa James		0706877867		
16	Oruh Unkumpo		07037281412		
17	Buth Akub		08034849520		
18	Esther Akub		05070685752		
19	Bioniqua Onuh		07152518630		
20	Danica Adetolu		07161627411		
21	Ayestelu Adetolu		07161627411		
22	ABUH COBANELLUS		08106692259		
23	Audun Ojomei		08145746045		
24	Suleman Aishet		08176050114		
25	Deborah Odoms		09131848125		
26	Ememele Odoms		08022327211		
27	Mehyam Sani		09036197735		
28	Sani Retaja		08035015739		
29	Roseline B. Zakeri		08064445361		
30	Grace B. YAHAYA		09064769225		
31	VICTORIA NEGEDU		0702367347		
32	Mary Okpanachi		08168694112		

KOGI STATE AGRO-CLIMATIC RESILIENCE IN SEMI-ARID LANDSCAPES PROJECT (KG-ACReSAL) UPDATE OF THE ESMP STUDY FOR ANKPA GULLY EROSION SITE UNDER KOGI STATE ACReSAL

STAKEHOLDERS'S ATTENDANCE SHEET

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8	Idrisu Aduwa		08152621961		
9	Usman Akub		08060744665	Youth Leader	
10	ABDUL MUHAMMEDI	Muhammed.abdul	08030457482	Comm. Leader	
11	YUSUF YAHAYA		04022011256	MAJ. SEC.	
12	Aisha M. O. Ojomei		08065124997	Sik. Com. Sec.	
13	Patrick S. Etonu	etonuspatrick@gmail.com	0804265524	Regis. Lead	
14	Samuel Jahangir		08036918622		
15	Odoma Chona		07068122047		
16	Shaibu Adu		0803912458		
17	Odoma Achadu		09068591066		
18	Emmanuel Musa		08069449573		
19	Odoma Lois		08155164086		
20	NATHAN HELEN		08038345130		
21	NEGEDU O. DAVID		08039146478		
22	FAITH O. NEGEDU		0816336505		
23	SAMUEL ODOMA		07049241282		
24	GABREL ODOMA		07064584925		
25	JOSHUA ADAMI		0706680830		
26	SALOME A. Okpanachi	0816023700	0706680830		
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30	DEBORAH ELISHA		08064762325		
31	OGALA GRACE		08076289074		
32	ADUO ILE SAMUEL				
33	BLESSING JAMES OJOCHOGWU				

**KOGI STATE AGRO-CLIMATIC RESILIENCE IN SEMI-ARID LANDSCAPES
PROJECT (KG-ACReSAL)**
**UPDATE OF THE ESMP STUDY FOR ANKPA GULLY EROSION SITE UNDER KOGI
STATE ACReSAL**

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S/N	Name	E-mail	Phone No	Position	Sign.
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4	Damola Yahaya	damolayahaya@gmail.com	08067217208	Seeding	[Signature]
5	MUSA SUMMATH VICTORIA		07067066037	Finance Sec	[Signature]
6	Abdulmalik Abdul		08067449548	Member	[Signature]
7	Shaibu Hussaini		08063660571	Member	[Signature]
8	ABUBU AHMED		08067449548	Member	[Signature]
9	Sule Bab Alfa		08037488082	Member	[Signature]
10	Yussan Abdullahi Achai		08037659168	Member	[Signature]
11	TIBRIK, Benjamin Babu		08030498580		[Signature]
12	Ayofo Akash Musa		07063715734		[Signature]
13	PASTOR CALEB A. ARAGWA		0806829972	Hsu	[Signature]
14	MRS CAROLINE ARAGWA		08133522681	Hsu	[Signature]
15	Aromah Elizabeth		09032661948		[Signature]
16	Jibrin Tummai		08133311431		[Signature]
17	Alejah Berikisu		08161641232		[Signature]
18	Damale Limang		08061150512		[Signature]
19	Enoch Julius		08036682674		[Signature]
20	YUSUF PENINNAH	penyusuf2@gmail.com	08133587400		[Signature]
21	AMINA YAKUBU		09017760365		[Signature]
22	BINTU YAKUBU		09026956935		[Signature]
23	SULEIMAN YAKUBURAFIA		08142587957		[Signature]
24	LOVETH CALEB		08116641161		[Signature]
25	MAKOLU MUAZU		0806960197	member	[Signature]
26	CALEB ANDU		08030423125		[Signature]
27	ABAO NAOMI		07063544853		[Signature]
28	GUJEI, FELICITY		07137071872		[Signature]
29	LOVETH JONAH		08067447616		[Signature]
30	AUDDI DEBORAH		08010654230		[Signature]
31	Gleogu James		07039744970		[Signature]
32	Omede Dingsh D.		08039659653	W. leader	[Signature]

**KOGI STATE AGRO-CLIMATIC RESILIENCE IN SEMI-ARID LANDSCAPES
PROJECT (KG-ACReSAL)**

**UPDATE OF THE ESMP STUDY FOR ANKPA GULLY EROSION SITE UNDER KOGI
STATE ACReSAL**

STAKEHOLDERS'S ATTENDANCE SHEET

S/N	Name	E-mail	Phone No	Position	Sign.
1	ALHASI, ABDULLAH S. OMALO		08063024490	ANKPA	[Signature]
2	DESIKUN MIDA M	Mailto:desikunmida@gmail.com	08066078722	ANKPA	[Signature]
3	EBUE O. DANIEL	ebueo@enelabo.com	08066654176	ANKPA	[Signature]
4	Adjeke Kinodu		07038855494	ANKPA	[Signature]
5	Abubakar Hanna		09037580507	ANKPA	[Signature]
6	Jussus Nnamdi		08106387744	ANKPA	[Signature]
7	Abel Onwona		08064817944		[Signature]
8	Ibrahim Ofone		08131335412		[Signature]
9	Blessing James O		08163542252		[Signature]
10	Lisman Afsat		08103503252		[Signature]
11	MURTALA M. JIMOTT		08038555784	✓	[Signature]

Annexure: VII Tasks of the consultant include the following:

The consultant is expected to develop an ESMP consisting 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 the above actions, costing, and responsibility; addressing the adequacy of the monitoring and institutional arrangements in the intervention site.

1. A detailed description of the project will clearly identify the specific environmental and social issues related to it, including all risks and health and safety aspects.
2. Description of the project location and sensitive environmental and social features. It includes a sufficient detailed map showing the project site and the area that may be affected by the project's direct, indirect, and cumulative impacts. (i.e. area of influence)
3. Analysis of the alternatives considered, justification and environmental and social foundations of the project location. Consider all alternatives to the overall approach and project design, including the "no action" alternative.
4. Identifying the policy, legal and administrative framework relevant to the project. Review the local material/labour availability, operational and policy/legal requirements, etc.
5. Describe the existing status of the sub-watershed and gullies;
6. Identify the environmental and social issues/risks associated with the existing conditions;
7. Select and measure appropriate baseline indicators (for example, m³/sec of runoff collected in the sub-watershed during a heavy hour-long rainfall);
8. Develop a plan for mitigating environmental and social risks associated with construction and operation in the gully in consultation with the relevant public and government agencies; Identify feasible and cost-effective measures that may reduce potentially significant adverse environmental and social impacts to acceptable levels;
9. Develop a time-bound plan for mitigating environmental and social risks associated with sub-watershed management in consultation with the relevant public and government agencies; Identify feasible and cost-effective measures that may reduce potentially significant adverse environmental and social impacts to acceptable levels;
10. Identify monitoring objectives and specify the type of monitoring, with linkages to the impacts assessed and the mitigation measures described above (in a-e);
 - i. Provide a specific description of institutional arrangements: the agencies responsible for carrying out the mitigation and monitoring measures (e.g., for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training) and the contractual arrangements for assuring the performance of each implementing agency;
 - ii. Define technical assistance programs that could strengthen environmental management capability in the agencies responsible for implementation;

- iii. Provide an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans and
 - iv. Provide the expected capital and recurrent cost estimates and sources of funds for implementing the ESMP and inform the design consultants so that these costs are duly considered in the designs.
11. The consultant shall also document how to manage risks related to Gender Based Violence (GBV), particularly Sexual Exploitation and Abuse (SEA), taking cognisance of (i) labour influx implications, (ii) Security issues, (iii) project GBV accountability and response framework etc.;

The following socioeconomic 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 a workforce, service new development and absorb and adjust to growth (worker/family).
- A summary of the population's views, including vulnerable groups, determined through thoroughly documented discussions with local communities. These meetings and discussions must be documented and show how issues and problems are or will be resolved (note that a Resettlement Action Plan (RAP) could be developed for the site, which is covered under separate TORs).
- Cultural: Summarise the project's possible effects on historical/archaeological sites, heritage/artefacts, native religious or harvest sites of the affected communities and identify or develop 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).

ANNEX VIII: EXAMPLE FORMAT: HSE REPORT

Contract:

Period of reporting:

HSE management actions/measures:

Summarize HSE management actions/measures taken during period of reporting, including planning and management activities (e.g. risk and impact assessments), HSE training, specific design and work measures taken, etc.

HSE incidents:

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

HSE compliance:

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

Changes:

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

Concerns and observations:

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

Signature (Name, Title Date):

Contractor's Representative

Example Format: HSE 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):

Contractor's Representative

ANNEX IX

GRIEVANCE REDRESS FRAMEWORK FOR KOGI STATE ACRoSAL

**a. FIRST Level of Grievance Redress in Kogi ACRoSAL
Community Level of Grievance Redress in Kogi ACRoSAL**

Members

- i. One Representative of the Eze (Community head);
- ii. One Representative of the Women group;
- iii. One Representative of the Focal NGO;
- iv. One Representative of Community Association (CA);
- v. Four Representative from Site Committee (SC);
- vi. Secretary Site Committee as Secretary;
- vii. Chairman Site Committee as Coordinator.

**b. Second Level of Grievance Redress in Kogi ACRoSAL
Local Government/ Community Grievance Redress Committee (LGRC)**

Members

- viii. One Representative of the Cas;
- ix. One Representative of the Host Communities King;
- x. One Representative of the LGA (Technical Officer);
- xi. One Representative of the Ministry of Lands (ACReSAL Technical Committee Member from Lands);
- xii. Assist. Social Livelihood Officer (Kogi ACRoSAL) as Secretary;
- xiii. Environmental Safeguard Officer (Kogi ACRoSAL);
- xiv. Social Livelihood Officer (Kogi ACRoSAL);
- xv. Focal NGO as Coordinator.

**c. Third Level of Grievance Redress in Kogi ACRoSAL
State Grievance Redress Committee (SGRC)**

Members

- i. One Representative of the Ecology Department (Ministry of Environment and Sustainability);
- ii. One Representative of the Ministry of Lands;
- iii. One Representative of the Ministry of Justice;
- iv. The Project Accountant (Kogi ACRoSAL);
- v. Focal NGO;
- vi. Social Livelihood Officer (Kogi ACRoSAL) as Secretary;
- vii. Project Coordinator (Kogi ACRoSAL) as Coordinator.

**d. Fourth Level of Grievance Redress in Kogi ACRoSAL
National Grievance Redress Committee (NGRC)**

Members

- i. The Permanent Secretary Ministry of Environment;
- ii. Focal NGO;

- iii. Social Livelihood Officer (Kogi ACRoSAL);
- iv. Social Livelihood Specialist (Federal ACRoSAL);
- v. Two Representative of Project Affected Persons (PAPs);
- vi. Social Livelihood Officer as Secretary;
- vii. Project Coordinator (Kogi ACRoSAL);
- viii. Umbrella NGO as Coordinator.

**e. Fifth Level of Grievance Redress in Kogi ACRoSAL
The Courts**

NOTE: All grievances will first of all be addressed at the First Level. It will only move on to the Second Level if the first level agreement was not accepted by the party involved and then to third then to the fourth under similar situations.

If a party is not satisfied with the outcomes of Levels I, 2, 3 & 4, then He/she can take the case to the Law Courts (the Fifth Level).

ANNEX X: GBV REFERRAL CENTRES

GENDER-BASED VIOLENCE (GBV) SERVICES

REFERRAL DIRECTORY for KOGI STATE, NIGERIA

	Name & Address of Organization	Coverage Area	Contact Information
A	HEALTH – Closest referral hospital		
B	PSYCHOSOCIAL COUNSELING		
	Renaissance Lifeline Foundation (RELIEF) Off Estate Road, Nagazi, Adavi LGA	• Ajaokuta • Okene/Okehi	Innocent Ibrahim Anomli 080-3627-8188
	Foundation for Enhancement and Promotion of Family Life (FEPFL) No.106 NIWA Headquarters Road, Adankolo, Lokoja	• Lokoja • Okene • Adavi • Ofu • Olomaboro • Dekina	John Amabi 080-6363-9796
C	SHELTER/SAFE HOUSE		
	Dual Care and HIV Prevention Initiative (DCI) No. 7 Salihu Ibrahim Road, Along Kogi State Government House Lokoja	• Okene • Okehi/Adavi	Roseline Alabi: 080-3619-2064 Jimoh Okene: 070-3139-8833 Adamu Moses: 080-3603-0229 Aloko Titus: 080-6417-3987
	Diocesan Action Committee on AIDS (DACA) Opposite First Bank of Nigeria Plc, Anyigba	• Olomaboro • Dekina	Samuel Audu 081-0013-4898; 080-3124-1996
D	SOCIAL RE-INTEGRATION & ECONOMIC EMPOWERMENT		
	Teen Education Development and Information Initiative (TEDIIIN) Obason Plaza, Opposite Idrinana Hotel, Lokogoma, Lokoja	• Ijumu, Yagba West • Kabba • Bunu • Okene • Okehi • Adavi • Ajaokuta • Dekina	Titus A Alonge 081-3827-9795
	Lift Up Care Foundation (LUCAF) GP 703, Olobayo Estate Behind Division 'C' Police Station Ganaja Village, Lokoja	• Lokoja • Ankpa • Okene	Idris Ozohe Murraina: 070-6379-7350 Adegbe Ugbede (Lokoja): 070-3243-7009 Adamu Memunat (Ankpa): 070-3116-1493 Okeji Fatayat (Okene): 080-6617-7778
E	COMMUNITY MOBILIZATION & ADVOCACY, EDUCATION & IEC SENSITIZATION		
	Global Hope for Women and Children (GLOHWOC) Kabba Road, Kabba	• Okene • Kabba	Barr. Christie Abayomi 080-3215-3120
	El-Sophi Community and Child Care Initiative (ELSOPHI) Anyigba, Dekina LGA	• Dekina	Japhet Omaye 080-6218-1034
	Achievers Initiative Nigeria Plot 127 - 128 Lokogoma Layout, Off Ganaja Rd, Lokoja	• Basa • Lokoja	Mr Nathaniel Abaniwo: 080-3658-1956 achivers.ng@yahoo.com
	Kindling Hope Across Nations Initiative (KHANI) No 8 Okondo Shopping Plaza, Beside Conoil, Kabba Junction, Okene	• Okene • Kabba-Bunu	Mr Vincent 080-6010-0324
	Youth & Women's Health Empowerment Project (YAHWEP) No. 33, Okene-Kabba road, Opposite Airtel Office, Ganaja Junction, Lokoja	• Adavi • Yagba West • Isanlu • Omala Kogi	N/A
	Better Health Communication Development (BHECOD) No 7, Pastor Ayaba, Ganaja Road, Lokoja	• Basa • Lokoja	Segun Ojo 080-2292-7935
F	LEGAL ASSISTANCE		
	Justice Development & Peace Commission (JDPC) Catholic Cathedral Church, Opposite National Open University Lokoja	• Okene • Kabba • Bunu • Koton Karfe • Mopa • Yagba East & West • Adavi • Ajaokuta • Okehi	Simon Enefor 080-3627-0402
	Participation Initiative for Behavioral Change in Development (PIBCID) Opp Kafas Multipurpose Hall, Phase 2, Lokogoma, Lokoja	• Adavi • Igala-Mela	Gift Omonlwa: 080-3634-6070 psp8kogi13@yahoo.com
	FIDA Lokoja, Obason Plaza, Opp. Idrinana Hotel, Phase 2, Lokoja	• Lokoja	Barr. Christie Adejumo: 080-3679-2295
	Justice Centre for Women & Children	• Lokoja	Barr. Janet Makun: 080-3377-7446
G	LAW ENFORCEMENT		
	Kogi Area Command, Nigerian Police Force	• Lokoja	SPO Comfort Otuku: 070-3577-5208
	Nigerian Security & Civil Defense Corps (NSCDC)	• Lokoja	Mrs. Eucharika Okereke: 081-6336-4644
H	ALL CATEGORIES		
	Kogi NGO Network (KONGONET)	• Lokoja	Mr. Victor Adejoh: 080-6496-3303
	Initiative for Grassroots Advancement (INGRA) Along Dunamis Road, After Federal University Lokoja	• Lokoja	Hamza Aliyu: 080-3317-7259 ingralokoja@yahoo.com
	Development and Female Gender Initiative (DEGENDER) No 40, Ganaja Ajaokuta Road, Opp Saharr Plaza, Lokoja	• Lokoja	Comrade Rajan Suleiman: 080-3601-3322 globaltour2000@yahoo.com
	Community Life Advancement Project (CLAP) Opposite Federal University Lokoja	• Kabba • Okene • Lokoja • Ankpa	Rahat Isiyaka: 080-3313-9486 isiyakaliyat@gmail.com
	Power Relief Organization, Iyala Road, Anyigba	• Ankpa • Ofu • Olomaboro, • Ibaji	Bishop Igomu 080-6661-1397
	Diocesan Action Committee on Aids (DACA) Opposite First Bank of Nigeria Plc, Anyigba	• Olomaboro • Dekina	Samuel Audu 081-0013-4898; 080-3124-1996

• **DAYS OF OPERATION:** Monday – Saturday (Organizations can be reached directly on Sundays) • **HOURS OF OPERATION:** 8:00AM - 4:00PM • **SERVICE FEES:** Nil

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Annex XI

Traffic Management Plan (TMP) Risk on traffic and pedestrian safety due to construction traffic

COMPONENT (Impact Description)	CONSIDERATION	Mitigation Measures	Implementation Plan	Responsibility
Site Access and Parking Plan	Lot assignment	Investigate all construction areas and construction access routes for potential community interaction (with a particular attention to schools, children parks, etc.) with Project construction phase traffic. Based on results, develop and implement site specific measures (i.e. improve signage, visibility) and driver/operator trainings prior to initiation of any construction work	Traffic (Transportation) Management Plan Stakeholder Engagement Plan Emergency Preparedness and Response Plan Community Health and Safety Plan Community Relations Management Plan Occupational Health and Safety Management Plan	Contractors
	Vehicle access and circulation - Parking area ingress - Pick-ups and drop-offs - Parking area egress	Implement access restriction at construction areas and access routes, by specifying restricted zones, (i.e. dangerous routes), fencing, barriers, etc. Install signs, signals, markings and other appropriate traffic regulation devices, including reflective and flashing signage for nighttime traffic safety, at all required sites.	Traffic (Transportation) Management Plan	Contractors
	Parking area design and operation - Process component - Park component	Install signs, signals, markings and other appropriate traffic regulation devices, including reflective and flashing signage for nighttime traffic safety, at all required sites.	Traffic (Transportation) Management Plan	Contractors
	Parking occupancy monitoring	Provide appropriate information and labeling of occupancy of parking lots	Traffic (Transportation) Management Plan	Contractors
	Parking regulations	Ensure parking is well regulated around the project site and that drivers make use of appropriate parking spaces.	Traffic (Transportation) Management Plan	Contractors
	Traveler information	Get adequate information of routes of travelers especially the commercial drivers along the project site;	Traffic (Transportation) Management Plan Stakeholder Engagement Plan Emergency Preparedness and Response Plan	Contractors / PIU
	Traffic Flow Plan - Corridor traffic flow route - Local traffic flow route	Where passage through existing settlements is unavoidable, take all	Traffic (Transportation) Management Plan	Contractors

		necessary measures (i.e. speed limits, traffic signs, driver trainings) to prevent safety risks on local communities, engage with community representatives to plan the traffic by taking the daily life of the communities into account	Stakeholder Engagement Plan Emergency Preparedness and Response Plan Community Health and Safety Plan	
	Alternate routes	Avoid passage of construction traffic through the settlements, whenever alternative roads are present. Prioritize selection of material borrow sites and quarries in the areas that does not interact with public	Traffic (Transportation) Management Plan Stakeholder Engagement Plan Emergency Preparedness and Response Plan Community Health and Safety Plan	Contractors / PIU
	Emergency access routes	Use only licensed firms for explosives delivery to ensure safety along the existing roads to be used for transport of explosives	Traffic (Transportation) Management Plan	Contractors / PIU
	Background traffic accommodation	None for the Omigbo intervention		
	Transit accommodation	None for the Omigbo intervention		
En-route Traveler Information Plan	Static signing	Provide information and awareness raising activities with stakeholders, communities including women, children and also disabled	Traffic (Transportation) Management Plan Stakeholder Engagement Plan Emergency Preparedness and Response Plan	Contractors / PIU
	Changeable message signs	Provide information and awareness raising activities with stakeholders, communities including women, children and also disabled	Traffic (Transportation) Management Plan	Contractors / PIU
	Highway advisory radio	Provide information and awareness raising activities with stakeholders, communities including women, children and also disabled	Traffic (Transportation) Management Plan	Contractors / PIU
	Media	Provide information and awareness raising activities with stakeholders, communities including women, children and also disabled	Traffic (Transportation) Management Plan Stakeholder Engagement Plan Emergency Preparedness and Response Plan Community Health and Safety Plan Community Relations Management Plan Occupational Health and Safety Management Plan	Contractors / PIU

	Other technology applications	Provide driving skills improvement trainings in consideration of the requirements of specific vehicles, machinery,	Traffic (Transportation) Management Plan	Contractors
Traffic Incident Management and Safety Plan	Crash prevention • Signing • Public information safety campaign	Conduct periodic medical checks for drivers/operators; Conduct periodic vehicle maintenance; Initiate construction only after relevant permits are obtained and all required measures such as signage, barriers, fencing, lighting, safety campaign etc. are taken.	Traffic (Transportation) Management Plan Stakeholder Engagement Plan Emergency Preparedness and Response Plan Community Health and Safety Plan Community Relations Management Plan Occupational Health and Safety Management Plan	Contractors / PIU
	Service patrols	Allow only drivers/operators with valid licenses specific to each construction phase vehicle to drive/operate vehicles	Traffic (Transportation) Management Plan	Contractors
	Traffic incident quick clearance initiatives	Allow only drivers/operators with valid licenses specific to each construction phase vehicle to drive/operate vehicles.	Traffic (Transportation) Management Plan	Contractors
Pedestrian Access Plan	Pedestrian control • Pedestrian routing • Pedestrian crossing	Implement access restriction at construction areas and access routes, by specifying restricted zones, (i.e. dangerous routes), fencing, barriers, etc; Install signs, signals, markings and other appropriate traffic regulation devices, including reflective and flashing signage for nighttime traffic safety, at all required sites.	Traffic (Transportation) Management Plan Stakeholder Engagement Plan Emergency Preparedness and Response Plan Community Health and Safety Plan Community Relations Management Plan Occupational Health and Safety Management Plan	Contractors
	Disabled accessibility	Implement access restriction at construction areas and access routes, by specifying restricted zones, (i.e. dangerous routes), fencing, barriers, etc. Install signs, signals, markings and other appropriate traffic regulation devices, including reflective and flashing signage for nighttime traffic safety, at all required sites;	Traffic (Transportation) Management Plan Stakeholder Engagement Plan Emergency Preparedness and Response Plan Community Health and Safety Plan Community Relations Management Plan Occupational Health and Safety	Contractors / PIU

		Provide access route for the disabled through temporary and permanent structures following approved design.	Management Plan	
	Shuttle bus service • Service design • Station design • Management • Cost	Provide and or regulate shuttle bus services for workers.	Traffic (Transportation) Management Plan	Contractors / PIU
Traffic Control Plan	Freeway traffic control • Traveler information • Interchange operations	Install signs, signals, markings and other appropriate traffic regulation devices	Traffic (Transportation) Management Plan and Safety Management Plan	Contractors
	Street traffic control • Alternative lane operations • Route marker signing • Monitoring	Install signs, signals, markings and other appropriate traffic regulation devices; Provide alternative route and properly label and give directions.	Traffic (Transportation) Management Plan Stakeholder Engagement Plan and Safety Management Plan	Contractors / PIU
	Intersection traffic control • Turning movement lane balance • Traffic signal operations	Install signs, signals, markings and other appropriate traffic regulation devices; Provide alternative route and properly label and give directions. Ensure there is an operator (Manual or Digital) to operationalize traffic signal.	Traffic (Transportation) Management Plan Stakeholder Engagement Plan and Safety Management Plan	Contractors / PIU
Traffic Surveillance Plan	Closed-circuit television systems	Implement speed limits at all construction sites and monitor using technology	Traffic (Transportation) Management Plan	Contractors / PIU
	Feld observation	Implement speed limits at all construction sites and ensure compliance through monitoring	Traffic (Transportation) Management Plan	Contractors / PIU
	Aerial observation	Implement speed limits at all construction sites and ensure compliance	Traffic (Transportation) Management Plan	Contractors / PIU
	Media reports	Provide adequate media reports to sensitize the people.	Traffic (Transportation) Management Plan Stakeholder Engagement Plan	Contractors / PIU

Annex XII: Contractors's ESMP

Topic / Potential Impact	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
Occupational Health and Safety				
Occupational Health and Safety	Provide H&S Training to the construction workforce (including sub-contractors, temporary workers and drivers)	Training performed and recorded	Contractor / SCO	Check Training Records

Topic / Potential Impact	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
	Ensure site premises are provided with appropriate fencing (where applicable) and lighting. Use hazard notices/signs/barriers to prevent access to dangerous areas.	H & S planning of construction site done, items installed	Contractor	Random Site Inspection
	Ensure speed limits on site and on transporting routes	Speed signs installed	Contractor	Random Site Inspection
	Ensure the use of personal protective equipment (PPE) for workers	PPE used on-site by workers	Contractor	Random Site Inspection
	Maintain high standard in housekeeping on site	Good housekeeping on-site	Contractor	Random Site Inspection
	Ensure provision of Health and Safety (H&S) facilities at the project site, including shaded welfare areas, bathrooms and potable water	H & S Facilities provided at site	Contractor	Random Site Inspection
	Ensure that the workers camp and construction areas are open only to formal employees	Access controlled	Contractor	Random Site Inspection
Fire Prevention	Provide necessary fire prevention equipment on site in line with applicable regulations	Fire prevention equipment in place	Contractor	Regular Site Inspection
Labour Rights	Ensure that workers have access to and are aware about the grievance mechanism	Grievance mechanism in place and grievance recorded	SCO/Contractor	Review of grievance register
	Ensure minimum legal labour standards as per ILO regulations (child/forced labour, no discrimination, working hours, minimum wages) are met	Grievance mechanism records Training recorded	Contractor	Inspection reports (also from labour authorities), review of grievance register and training record
	Provide hygienic, adequate facilities for workers, ensuring toilets and changing rooms are separated to male and female employees	Appropriate facilities in place	Contractor	Random site inspection
	Ensure the workforce has access to primary healthcare on site, providing prescriptions	Healthcare available on site	Contractor	Random site inspection
	Provide housing conditions in accordance with all applicable health and safety regulations and norms by ensuring the provision of adequate space, supply of water, adequate sewage and garbage disposal system, appropriate protection against heat, cold, damp, noise, fire and disease-carrying animals, adequate sanitary and washing facilities, ventilation, cooking and storage facilities and natural	Appropriate housing conditions for workers	Contractor	Random site inspection Worker interviews

Topic / Potential Impact	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
	and artificial lighting, and in some cases basic medical services			
Ambient Air				
Dust emissions (especially in dry conditions)	Ensure watering of transportation roads during dry and windy conditions. Generally, keep roads in good condition	Watering conducted, roads in good conditions	Contractor	Random site inspection, inspection of roads
	Cover truck loads with canvas to avoid dust blow	Trucks covered	Contractor	Random site inspection
	Ensure optimal traffic routes. Enforce vehicle speed limits on unpaved roads	Speed limit signs Driver training records	Contractor	Random site inspection
	Ensure appropriate stockpile management (friable materials) to minimize dust blow. Minimize drop heights for material transfer activities such as unloading of friable materials	No extensive dust blow	Contractor	Random site inspection
Emissions from equipment and vehicles	Use equipment and vehicles in appropriate technical conditions. Provide emissions control equipment where applicable (e.g. filters)	Technical specification sheet	Contractor	Each time new equipment/vehicle is used at the site Random site inspection
	Use low sulphur content fuels, in line with legal provisions in force as well as local availability	Technical specification sheet	Contractor	Random site inspection
	Ensure optimal traffic routes to minimize lengths of travel while avoiding settlements if possible	Optimal routes chosen	Contractor	Random site inspection
	Ensure vehicles and equipment are switched off when not in use	Engines switched off	Contractor	Random site inspection
Noise and Vibrations				
Noise and vibration impact at the construction sites and from construction traffic	Limit the hours of operations for specific pieces of equipment or operations, especially mobile sources operating through community areas or close to residential houses (typically between 10pm and 7am). Avoid vehicle movements at night	No work conducted between 10pm and 7am / grievance mechanism	Contractor	Random site inspection, Review of filed grievances, review of timesheets of workers
	Use of state-of-the-art technology and limit the number of machines operated simultaneously	Grievance Mechanism	Contractor	Spot checks, review of filed grievances
	Ensure the use of modern and well-maintained equipment (e.g. use of silencers)	Technical specification sheet	Contractor	Random site inspection
	Set traffic speed limits. Verify drivers' behaviour with respect to driving speed and safety	Speed limit signs Driver training Records as part of induction training	Contractor	Random site inspection, review of training records
	Plan vehicle routes to avoid settlements where possible	Safest routes selected,	Contractor	Review of traffic routes, review of

Topic / Potential Impact	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
		Grievance Mechanism		filed grievances
	Use protective hearing equipment for workers conducting noisy activities	Protective hearing equipment used	Contractor	Random site inspection
<i>Traffic and Transport</i>				
Disruption, noise and increased air pollution	Schedule traffic activities to avoid peak hours on local roads if feasible	Peak hours on local roads avoided, Grievance Mechanism	Contractor	Review of filed grievances
	Ensure safe driving by project personnel (e.g. through training/induction)	Driver training Records as part of induction training	Contractor	Review of training records
	Organize carpools/buses for worker transportation where possible to avoid additional traffic pressure	Carpools/buses used	Contractor	None
	Prevent storage of construction materials, equipment and machineries on traffic lanes	Dedicated storage areas in place	Contractor	Random site inspection
<i>Soil and Groundwater</i>				
Environmental contamination / spills	Collect and segregate wastes and ensure safe storage and in line with legal requirements	Waste collection areas existent, waste inventories	Contractor	Random site inspection, review of waste inventories
	Ensure disposal through waste contractors licensed for treatment / removal/recycling of each of the waste types	Disposal through licensed contractors	Contractor	Random site inspection, Inspect offsite waste disposal facilities if feasible
	Ensure appropriate containment and disposal of construction wastewater, including sanitary water	Water disposal compliant with legal requirements	Contractor	Random site inspection
	Ensure appropriate and safe storage of contaminants such as fuels, construction materials and wastes. Provide absorbent and intervention materials in sufficient quantities and at relevant locations for intervention in case of leakages/spills	Safe storage of hazardous materials, spill remediation equipment in place	Contractor	Random site inspection
	Implement appropriate secondary containment and spill controls for maintenance or refuelling works	Containment and spill controls in place	Contractor	Random site inspection
	Ensure immediate cleaning of any spills and remediation of contaminated areas after construction	Workers trained	Contractor /SCO	Random site inspection One-time inspection after construction

Topic / Potential Impact	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
Best practice soil handling	Ensure appropriate storing of topsoil removed. After construction topsoil will be used as backfill for restoration of the area	Topsoil stored and re-used	Contractor	Random site inspection
	Limit stockpile height to 2m maximum to avoid soil compensation	Stockpile height	Contractor	Random site inspection
	Reinstatement of construction working area to the best possible after construction activities are completed.	Reinstatement completed	Contractor /SCO	One-time inspection after construction
	If construction takes place on inclined surfaces/slopes, ensure preventive erosion control measures are applied (e.g. plan to retain trees and other vegetation, use of natural contours for roads and drainage networks, excavated drainage channels)	Preventive erosion control measures in place	Contractor	Random site inspection
Water and Hydrology				
Surface Water Quality	Prioritise the use of rainwater/stormwater over surface water/groundwater abstraction by using harvesting equipment and systems on site	Water harvesting conducted	Contractor	Random site inspection
	Restrict excavation activities during periods of intense rainfall. Use temporary bunding to reduce the risk of sediment, oil or chemical spills to the receiving waters	No excavation during intense rainfall	Contractor	Random site inspection
	Carry out excavation works in cut off ditches to prevent water from entering excavations	No water entering excavations	Contractor	Random site inspection
	Reuse wastewater wherever feasible	Wastewater reused	Contractor	Random site inspection
Flora and Fauna				
Areas of high ecological value	Assess the occurrence of protected areas and/or natural/critical habitats at and around the construction site. Avoid these areas where possible through traffic management and site setup	Areas of ecological value avoided	Contractor /SCO	Random site inspection
Site clearance – vegetation removal and habitat disturbance	Limit vegetation clearing to areas within the site boundary where it is absolutely necessary	Vegetation clearing minimal	Contractor	Random site inspection
	Avoid clearing mature trees	No mature trees cleared	Contractor	Random site inspection
	Avoid off-road vehicle traffic. Use existing roads	No off-road traffic	Contractor	Random site inspection

Topic / Potential Impact	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
	Ensure revegetation of cleared areas where possible after construction using native species	Revegetation completed	Contractor /SCO	One-time inspection after construction
Light	Shield lighting downwards towards the site to avoid side-spill. Avoid tall masts where possible	Light nuisance minimised	Contractor	Random site inspection
Pesticide use and management	If pesticides are to be used for agriculture program, only those that are low in human toxicity, that are known to be effective against the target species, and that have minimal effects on non-target species and the environment shall be used.	Pesticide specification sheet	Contractor	Random site inspection
<i>Socio-Economic</i>				
Stakeholder Engagement and Grievance Mechanism	Engage / communicate with communities and plan sufficient time for participation. Ensure regular consultations with the local authorities and communities regarding the management of construction. See also planning stage (Chapter 6)	Minutes of Meetings Grievance Mechanisms	SCO / Contractor	Review of grievance register
	Initiate an efficient Grievance Mechanism to allow potentially affected individuals to voice their concerns on the project. See also planning stage (Chapter 6)	Grievance Mechanisms in place, grievances recorded	SCO / Contractor	Review of grievance register
Local Employment & Procurement	Ensure local communities are preferred for the supply of goods and services to the project and project personnel, where appropriate	Local Procurement and Employment Records	Contractor	Review procurement and employment rules and records
Land Acquisition and Compensation, Physical Displacement / Economic Displacement	Avoid land take and hereby avoid physical relocation of both, formal and informal land-owners / land users Engage with the local community and potential affected households to understand the land ownership and land use Should land acquisition and displacement be inevitable, prepare a Management Plan for Land Acquisition and Compensation including provisions for resettlement	Grievance Mechanisms recorded Management Plan for Land Acquisition and Compensation if needed		

Topic / Potential Impact	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
Impacts on Livelihoods / Economic Displacement	Engage with the local community and potential affected households to understand their needs and identify the risk of damage to their livelihood basis through the project (e.g. take of pasture land, lack of access to water) Should land acquisition and displacement be inevitable, prepare a Management Plan for Land Acquisition and Compensation including provisions for livelihood support for the affected parties	Minutes of Meetings Grievance Mechanisms recorded Management Plan for Land Acquisition and Compensation if needed	Contractor / SCO	Review of grievance register and meeting minutes
Community Health and Safety	Ensure all contractors implement codes of conduct concerning employment and workforce behaviour (including but not limited to safety rules, zero tolerance for substance abuse, environmental sensitivity of the area, dangers of sexually transmissible diseases and HIV/AIDS, gender equality and sexual harassment, respect for the beliefs and customs of the populations and community relations in general)	Workers Code of Conduct Grievance Mechanism recorded	Contractor / SCO	Workers interviews, review of grievance register
	Target signage and outreach activities to improve public awareness of traffic changes and potential hazards for high-risk sections of public roads, including near the site and laydown areas	Warning signs Minutes of Meetings	Contractor	Inspection if traffic routes, review of grievance register
	In case of security personnel at the site, ensure proper training and in the use of force and appropriate conduct toward workers and affected communities	Training Records	Contractor	Review of training records and grievance register
Communicable Diseases	Report any occurrence of any communicable diseases amongst the workforce (STD, HIV/AIDS, TB, Malaria and Hepatitis B and C) and set up diseases prevention programme if needed	Communicable Diseases Register	Contractor	Review of diseases register and disease prevention programme if available
Cultural Heritage				
Damage of Cultural Heritage	Ensure all chance finds of cultural heritage (e.g. graves, old ceramic, old building fragments) are reported immediately to the relevant authority. If possible, avoid excavation in the ultimate neighbourhood of a chance find, fence the chance find and await instructions from the competent	Training records, records about chance finds	Contractor / SCO	Random site inspection

Topic / Potential Impact	Mitigation, Management and Enhancement Measures	Means of Verification	Responsibility	Monitoring Procedure
	authority.			

Annex XIII: OCCUPATIONAL HEALTH AND SAFETY (OHS) PLAN

1.0 INTRODUCTION

Every project poses its HSE risks. This plan was necessitated to meet up with OHS standards and to achieve the objectives set for the proposed project. 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.

2.0 PROJECT DESCRIPTION

2.1 Purpose

The purpose of this document is to describe the Project Occupational Health and Safety (OHS) plan for the proposed infrastructure rehabilitation and construction and the specific management controls, risk control systems and workplace precautions required to ensure compliance with Occupational Health and Safety Laws and Standards.

2.2 HSE Objectives

The Objectives for this plan are to:

- Adopt a positive Health & Safety Culture.
- Adopt the principles of prevention to avoid risk.
- Complete the project without incident (Zero fatalities, Zero Lost Time Injury (LTI) or occupational illness).

2.3 Scope of Work

The Project Occupational Health and Safety (OHS) plan covers the scope of works defined in the contract. This includes Preconstruction, Construction, Operation & Maintenance and Decommissioning phases.

2.4 Policy Statement

In addition to the existing HSE policy, other policies shall be developed which includes:

- Substance Abuse Policy – Prohibiting the consumption or possession of narcotics, drugs, alcohol and other banned substances
- Emergency Response Policy – Stating commitment to ensure adequate resources and arrangement are in place in the case an emergency.
- Community Affairs Policy – Stating commitment to foster healthy relationships with communities through observance of the highest standard of conduct.

- Road Safety Policy–Stating commitment to complying with Road Traffic regulations and continuously improving its road safety performance by implementing a Road Safety Management Plan (RSMP)

3.0 KEY RESPONSIBILITIES

Involvement of all in implementing, maintaining and continually improving OHS processes is the key to successful completion and achievement of quality objectives set by the management. All project personnel shall therefore be required to be familiar with the content of this OHS plan and shall participate in implementing, maintaining and improving the management system. It is the responsibility of the project manager and all key personnel to ensure that the requirements for quality are fulfilled for works under their responsibility. All new staff and staff who are given new responsibilities are to be inducted into the requirements set out in this plan in general and into their function and responsibilities in particular.

3.1 Project Manager Responsibilities

- Set good example in HSE issues.
- Ensure the availability of resources essential to establish, implement, maintain and improve the OHS Management System.
- Define, document and communicate roles, allocate responsibilities and accountabilities, delegating authorities, to facilitate effective OHS management.
- Ensure that all of the activities undertaken in the Project conform to Nigerian legislation, client requirements or international standards when applicable.
- Review objectives achievements throughout the year.

3.2 Project Supervisors Responsibilities

- Enforcing all phases of the established HSE plan.
- Set good example in HSE issues.
- Preparing Job Hazard Analysis when required.
- Ensuring the safety of all workers associated with the site.
- Conducting HSE inspections.
- Ensuring workers are competent for their allocated tasks.
- Attending and participating in HSE meetings.
- Participating in accident investigations.

3.3 HSE Manager/Supervisor Responsibilities

- Prepare relevant OHS documentation and procedures.
- Monitor the efficient implementation of OHS requirements.
- Participate and organize the OHS risk assessments.
- Advise management of compliance and of conditions requiring attention.
- Conduct regular HSE inspections.
- Make thorough analysis of statistical data and inspections; delineates problem areas; and makes recommendation for solutions.
- Take part in the review of all OHS incidents and assist in investigating incident.
- Monitor the efficient implementation of the Project's OHS requirements.
- Organize the Project's OHS risk assessment exercises.
- 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 indicated.

3.4 HSE Advisor Responsibilities

- 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.
- 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)
- Establish contact with Subcontractors with the objective of maintaining good relations and coordination of accident prevention activities and compliance with the established OHS plan.
- Correct unsafe acts and unsafe conditions.
- Deliver HSE induction/orientation course to all employees, including subcontractors.
- Deliver HSE awareness course and toolbox talk.
- Advise employees on OHS matters.

3.5 All employees Responsibilities

- 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.
- Follow all instructions and use the equipment properly
- Not interfere with any safety arrangements.
- Report any circumstances which may not comply with the project's OHS management system.

4.0 Competency

All personnel required to operate or work with any equipment or machine must be competent, be tested for each equipment that he/she shall 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.

5.0 Fitness

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).

6.0 HSE Training

6.1 Induction/Orientation

Every new or rehired 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 operations. The content of the HSE orientation / induction shall cover the following subjects:

- Site safety rules.
- Personnel protective equipment requirements (PPE).
- Environmental sensitivity and protection.
- Preparation and planning of the job (Daily Pre-task talk).
- Emergency plan and muster points.

6.2 Project Specific HSE Training

In addition to the HSE orientation /induction, there shall be specific site HSE trainings which shall cover the following topics:

- Manual handling.
- Electrical Safety
- Emergency Prevention, Preparedness and Response
- Work at height training
- First Aid training (for site First Aiders)
- Lifting and Rigging
- Safe Driving techniques (for drivers)

7.0 Hazard identification & HSE risk assessment

7.1 Project HSE Risk Assessment

The project HSE risk assessment shall be developed and recorded. The Project's HSE risk assessment shall be conducted by a team consisting of HSE Manager/ Supervisor and technical managers/supervisors. It must be approved by the Project manager.

7.2 Fire Risk Assessment

A fire risk assessment shall be developed and recorded. A fire safety plan shall be in place in the site.

7.3 Job Hazard Analysis

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.

8.0 EMERGENCY PREPAREDNESS AND RESPONSE

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.

9.0 HSE IMPLEMENTATION AND PERFORMANCE MONITORING

9.1 HSE Meetings

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:

- Project/Site Management HSE Meeting for management and supervision (Monthly).
- Tool box talk meetings for all workforce (Weekly).
- Pre-task briefing for all workforces (Daily).
- Special situation meeting (As required).

9.2 HSE Reporting

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.

9.3 HSE Inspection and Audits

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.

9.4 Corrective and Preventive Actions and Non-Conformities

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.

10.0 Project HSE Rules

The project HSE rules shall be developed and supervision shall develop specific rules and procedures when necessary. 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:

1. Personal Protective Equipment must be worn at all times.
2. All instructions issued by the Site Manager regarding the storage, handling or cleaning of materials, plant and equipment must be followed.
3. All vehicles must be parked in the designated areas.
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.
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.
7. Vehicles must not reverse without a banksman in attendance.
8. All visitors to site must undergo a site-specific induction and operative Identity badges must be worn at all times.
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. All food and drink vendors on site shall be registered.
12. The variant of food and drink to be sold in the sites must be approved by the HSE officer
13. No hot works operations are permitted without a hot work permit in place.
14. There shall be no radios or other music playing devices on site.
15. Good housekeeping practices to be adopted.

16. Compliance with all Ethical Power Permit to Work systems
17. The site keyed access procedure must be strictly adhered to.
18. All Contractors must comply with Site Health & Safety Guidelines / Site Safety Method Statement
19. No untrained worker shall be permitted to operate heavy machineries.

11.0 SAFE WORK PRACTICES

Implementing safe work practices is one of the keys to achieving our HSE objectives and some of these safe work practices include:

11.1 Personal Protective Equipment (PPE)

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 all time. 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. Information, instruction & training shall be given to all employees on safe use, maintenance and storage of PPE. 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. 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.

12.0 WELFARE FACILITIES

The provision of welfare facilities on the site shall be communicated to all operatives at site induction. 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.

- If mains drinking water becomes unavailable during the construction phase bottled water shall be brought to site for all operatives for the necessary period.
- All food and drink vendors on site shall be registered.
- The HSE officer will ensure that only approved vendors are allowed to sell food.
- The variant of food and drink to be sold on the sites must be approved by the HSE officer
- Access to the site should be restricted to avoid sale of contraband on site
- Smoking and eating shall only be permitted in the designated area. This area shall be identified during induction.

13.0 SIGNAGE

Adequate provision for warning and directional signs shall be made.

14.0 PROJECT HSE PROCEDURES

OHS procedures shall be developed. Project activities shall generally be controlled in accordance with OHS Procedures. These procedures shall include:

- Lifting and Rigging Procedure
- HSE Reporting Procedure
- Working at Height Procedure.

- Emergency Procedure

ANNEX XIV

Protection of Cultural Property

1. Cultural property includes monuments, structures, works of art, or sites of significance points of view, and are defined as sites and structures having archaeological, historical, architectural, or religious significance, and natural sites with cultural values. This includes cemeteries, graveyards and graves.
2. The initial phase of the proposed emergency reconstruction operations pose limited risks of damaging cultural property since projects will largely consist of small investments in community infrastructure, reconstruction of existing structures, and minor public works. Nevertheless, the following procedures for identification, protection from theft, and treatment of discovered artifacts should be followed and included in standard bidding documents.

Chance Find Procedures

3. Chance find procedures will be used as follows:
 - (a) Stop the construction activities 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 night guard shall be present until the responsible local authorities and the Ministry in charge of Department of Archaeology and Museums take over;
 - (d) Notify the supervisory Engineer who in turn will notify the responsible local authorities and the Ministry of Culture immediately (within 24 hours or less);
 - (e) Responsible local authorities and the Ministry in charge of Department of Archaeology and Museums 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 archaeologists of the Department of Archaeology and Museums (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 and the Ministry in charge of Department of Archaeology and Museums. This could include changes in the layout (such as when finding an 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 by the Ministry in charge of Department of Archaeology and Museums; and

- (h) Construction work could resume only after permission is given from the responsible local authorities and the Ministry in charge of Department of Archaeology and Museums concerning safeguard of the heritage
- 4. These procedures must be referred to as standard provisions in construction contracts, when applicable, and as proposed. During project supervision, the Site Engineer shall monitor the above regulations relating to the treatment of any chance find encountered are observed.
- 5. Relevant findings will be recorded in World Bank Project Supervision Reports (PSRs), and Implementation Completion Reports (ICRs) will assess the overall effectiveness of the project's cultural property mitigation, management, and activities, as appropriate.

ANNEX XV

WASTE MANAGEMENT PLAN

Since the project will generate significant volume of wastes of various types, the contractor will therefore implement its waste management plan. The following objectives form the basis for the waste management plan of the Campsite:

- Progressive reduction of wastes with the target to minimize overall emissions/discharges, which have adverse impact on the environment,
- Establishment, Implementation and maintenance of waste segregation aimed at enhancing recycling,
- Ensure effective waste handling and disposal processes, which shall be monitored by relevant waste disposal authorities.

Waste Handling Guidelines

For proper handling and disposal, wastes shall be well defined at source and the definition transmitted along with the wastes to the final disposal points. ETL shall define and document all wastes generated in the course of work in a monthly waste stream report, which shall be used to track/monitor wastes generated from the project. The major categories of wastes envisaged from the water scheme Project are outlined as follows:

Solid wastes:

These include felled vegetation/trunks, woods from crates, metals, papers, printer cartridges and other office equipment scraped which are due to be removed during site clean-up, domestic waste (waste generated from camp kitchens, packing materials, boxes and plastics).

Liquid wastes:

These include non-hazardous operational waste generated from work construction sites e.g. sanitary water, paints etc. Gaseous wastes: These include combustion products from construction engines, welding gas, natural gas leaks etc.

Hazardous waste:

any gaseous, liquid or solid, which due to quantity, physical, chemical or infectious characteristics have the potential to harm human health, environment when improperly handled, stored, disposed, transported or treated e.g. acids, lead phenols, etc. Waste Minimization / Reduction

Waste minimization implies reduction to the greatest extent possible of the volume or toxicity of waste materials. The four principles of waste minimization (reduce, reuse, recycle and recover) shall be adopted as applicable.

Waste Segregation:

Waste segregation and characterization shall be carried out on wastes that are similar and shall be combined to simplify storage, treatment, recycling and effective implementation of appropriate waste disposal methods. Wastes shall be segregated at source into clearly designated bins at strategic locations. Particular attention shall be given to the work area where a variety of wastes shall be generated. The site HSE Representative shall be responsible for maintenance of the waste segregation scheme at the site.

Waste Disposal

All debris, spoilt materials, and other wastes shall be cleared regularly from the site and disposed at approved dump sites operated by designated waste disposal authorities (Kabba / Bunu Local Government Landfill). Instructions on material safety handling sheet shall be strictly adhered to and shall form the basis for the disposal of wastes related to such products. Wastes in transits shall be accompanied and tracked by waste disposal notes. The note shall contain such information as date of dispatch, description of wastes, waste quantity, container type, designated disposal site and method, consignee name, means of transport and confirmation of actual disposal time and date. Special attention will be accorded to hazardous wastes removed from the sites and also drums of waste oil that might contain dangerous substances; these are to be transported to a site designated by the District Environmental Officer for safe storage and subsequent testing prior to disposal. Waste management audit of facilities shall be carried out in consultation with the key stakeholders, and findings shall be properly documented and followed up. Accommodation, catering services areas and work site shall maintain acceptable standard of hygiene and good house-keeping

The contractor will be committed to effectively managing all their activities' environmental impacts through compliance with legislation and appropriate arrangements to protect the environment will be put in place at all workplaces, including:

- Approved storage and use of raw materials and substances.
- Waste Management Plan - Waste minimization (promoting reduce, reuse, recycling, recovery including energy recovery and safe disposal).
- Identifying waste disposal routes under the Duty of Care.
- Monitoring and review of environmental performance

ANNEX XVI

Storm-water Pollution Prevention and Control Plan

Storm-water that has accumulated in excavated areas, chlorinated rinse water, and chlorinated water used to sterilize/flush pipelines shall not be directly discharged or otherwise allowed to enter the storm waterways, or drainage ditches without following due diligence. The contractor will devise means of minimizing all potential for spills specifically, do not allow liquids, including (but not limited to) gasoline, diesel fuel and lubricating oil to enter the storm sewer systems, waterways, drainage ditches, or the ground and use due caution when operating oilbearing equipment near aquatic resources by using absorbent materials to prevent leaks or spills from entering waterways and maintain a 25-ft minimum buffer zone from streams, be aware of storm drain inlets, and cover or contain debris stored outside. Excess concrete will be safely transported to the batching plant and flushing empty concrete trucks or dumping excess concrete is prohibited. Solidified cement waste from truck chute cleaning is solid waste and shall be cleaned up and transported to the landfill.

ANNEX XVII

Erosion and Sediment Control Plan

All erosion and sediment control measures shall be maintained throughout the course of the project and removed at the completion of the project, and appropriate measures shall be taken to return the area to its previous state. Maintenance shall include but not be limited to removal of accumulated sediment, repairs, and/or replacement of storm-damaged or otherwise deteriorated structures. All excavated soil and spoil materials will be managed in a manner protective of the environment and use due caution during excavation or any other soil management in the vicinity of sanitary or storm systems, waterways, or drainage ditches.

Annex XVIII

Hazardous Material and Hazardous Waste Plan

All hazardous wastes produced by the Project shall be packaged, transported, and disposed of with care by a registered waste disposal company under direct supervision of HSE representative. Such loads shall be manifested and a copy of the manifest sent to the Project Manager. All hazardous materials will be properly labeled and stored until removed from the Project site and all accidental releases of a hazardous material or hazardous waste will be reported promptly to the Project Manager. All spills, regardless of the volume, will be reported and recorded, however, the Sub-contractors responsible for the spill will be obligated for all costs incurred as a result of the cleanup effort. Sub-Contractors shall inspect their hazardous material and waste storage areas at least weekly to ensure they are properly maintained. All inspections are to be documented, with records retained in the project files. The Contractor shall randomly audit the labelling and storage of hazardous material and waste and the disposal of hazardous waste to verify that all Sub-contractors, at any tier, are fulfilling their roles as responsible parties.