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ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

20 May 2019

Project Team	Task Managers	Philippe Junior OSSOUCAH	Principal Electrical Engineer	PESD	4904
		Egeruoh CHIGOZIRI	Chief Power Engineer	PESD	7791
	E & S Team Members	Bakia MBIANYOR	Chief E & S Safeguards Compliance Officer	SNSC	4212
		Osric Tening FORTON	Principal E & S Safeguards Officer	SNSC	5078
		Andrew ABOJE	E & S Safeguards Consultant	SNSC	7745
		Innocent Onah	Climate Change and Green Growth Consultant	PECG	
	Sector Director	Batchi BALDEH		PESD	4036
	Division Manager	Jacques MOULOT		PESD	2948
	Country Operations Manager	Lawson L. ZANKLI		RDGN	7751
	Senior Director	Ebrima FAAL		RDGN	7754

NIGERIA TRANSMISSION EXPANSION PROGRAM (NTEP-1)

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

FINAL REPORT

Prepared by

Suite DC5, Apo Sparklight Mall, Durumi Abuja
+234-8068974351
www.ecosphereconsult.com
ecosphereconsultingltd@gmail.com

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ACRONYMS AND ABBREVIATIONS

AfDB	African Development Bank
ARAP	Abbreviated Resettlement Action Plan
BCS	Broad Community Support
CRMU	Compliance and Review Mechanism Unit
CSP	Country Strategy Paper
DISCOS	Distribution Companies
DFI	Development Financial Institution
E&S	Environmental and Social
ECN	Energy Commission of Nigeria
EHS	Environment Health and Safety
EPSR	Electric Power Sector Reform
ERGP	Economic Recovery and Growth Plan
ESA	Environmental and Social Assessment
ESMAP	Environmental and Social Management Action Plans
ESAPs	AfDB Environmental and Social Assessment Procedures
ESCON	Environmental and Social Compliance Note
ESCR	Environmental and Social Completion Report
ESDD	Environmental and Social Due Diligence
ESFR	Environmental and Social Final Report
ESIA	Environmental and Social Impact Assessment
ESIS	Environmental and Social Impact Studies
ESMF	Environmental and Social Management Framework
ESMoFo	Environmental and Social Monitoring Form
ESMP	Environmental and Social Management Plan
ESMPs	Environmental and Social Management Action Plans
ESMS	Environmental and Social Management Systems
ESS	Environmental and Social Scoping
ESSF	Environmental and Social Screening Form
FEPA	Federal Environmental Protection Agency
FGN	Federal Government of Nigeria
FI	Financial Intermediary
FMEnv	Federal Ministry of Environment
FMPW&H	Federal Ministry of Power, Works and Housing
FRAP	Full Resettlement Action Plan
GECL	General Counsel and Legal Services Department
GENCOS	Generation Companies
GHGs	Green House Gases
GoN	Government of Nigeria
GRM	Grievance Redress Mechanism
HIV-AIDS	Human Immunodeficiency Virus-Acquired Immune Deficiency Syndrome
IDEV	Operations Evaluation Department
IEE	Initial Environmental Evaluation
IESIA	Integrated Environmental and Social Impact Assessment
IFC	International Finance Corporation
IFIs	International Finance Institutions
IPDP	Indigenous People Development Plan
IRM	Independent Review Mechanism

ISS	Integrated Safeguards System
ISTS	Integrated Safeguards Tracking System
IUCN	International Union for the Conservation of Nature
KW	Kilowatts
LFN	Laws of the Federation of Nigeria
MDB	Multilateral Development Bank
MW	Megawatts
NBET	Nigerian Bulk Electricity Trading Plc
NDC	Nationally Determined Contributions
NEEDS	National Economic Empowerment and Development Strategies
NESIS	Nigerian Electricity Supply and Installation Standards
NERC	Nigerian Electricity Regulatory Commission
NESREA	National Environmental Standards and Regulations Enforcement Agency
NGO	Non-Governmental Organisation
NNLTS	Northern Nigeria Land Tenure System
NTEP	Nigerian Transmission Expansion Project
OS	Operational Safeguard
PACs	Project Affected Communities
PAP	Project Affected Persons
PAR	Project Appraisal Report
PBO	Program-Based Operation
PCN	Project Concept Note
PCR	Physical and Cultural Resources
PCR	Project Completion Report
PEN	Preliminary Evaluation Note
PIC	Public Information Centre
PPA	Power Purchase Agreements
PS	Performance Standard
PSRP	Power Sector Recovery Plan
RAP	Resettlement Action Plan
RCM	Request for Categorization Memorandum
REA	Rural Electrification Agency
RISP	Regional Integration Strategy Paper
RMC	Regional Member Country
RPF	Resettlement Policy Framework
SNLTS	Southern Nigeria Land Tenure System
SNSC	Safeguards and Compliance Department
SPV	Special Purpose Vehicles
STIs	Sexually Transmitted Infections
TCN	Transmission Company of Nigeria
TREP	Transmission Rehabilitation and Expansion Programme
TOR	Terms of Reference
UN	United Nations
UNFCC	United Nations Framework Convention on Climate Change
WB	World Bank Group

EXECUTIVE SUMMARY

The Federal Government of Nigeria (FGN), through the Transmission Company of Nigeria (TCN) is taking steps to improve the quality and reliability of Electricity supply, while striving to ensure the sustainability of the power sector. TCN intends to increase the wheeling capacity of its network through the expansion of existing substations, construction of additional lines and new substations, and to upgrade existing transmission lines through the replacement of their conductors with higher amperage ones. To achieve this objective, TCN has developed the Transmission Rehabilitation and Expansion Programme (TREP) to be financed by the African Development Bank (AfDB), World Bank (WB), Agence Française de Développement (AFD) and Japan International Cooperation Agency (JICA).

Under the TREP, the FGN has requested the AfDB financing for the Nigerian Transmission Expansion Project (NTEP). For ease of implementation, TCN has divided the project into two phases, namely NTEP-1 and NTEP-2. The intervention under NTEP-1 includes (i) The reconstruction of two (2) 330kV single/double circuit to Double circuit (Quad) transmission lines (Alaoji-Onitsha and Delta-Benin); (ii) The construction of the Kaduna-Kano double circuit (Quad) transmission line; (iii) The construction of 330/132/33kV Substations at Zaria and Millennium City; and (iv) The construction of 132/33kV Substations at Rigasa and Jaji.

As part of the Environmental and Social (E&S) safeguards documentation required to support the projects under NTEP-1, an E&S Management Framework (ESMF) is required to manage the process for identifying and mitigating environmental and social risks and impacts in a consistent manner across the entire program. This document presents the ESMF that has been developed for the Program. To establish clear procedures and methodologies for the management of E&S risks and impacts of projects as well as provide the framework within which E&S Impact Assessments (ESIAs) will be developed. The ESMF also sets out the capacity building and strengthening programs that will be adopted as part of the implementation of the framework.

Based on the capacity assessment of the relevant Nigerian Federal and State level Ministries, Departments and Agencies, Civil Society Organizations, as well as other stakeholders carried out during consultations, effective delivery of the projects in relation to the implementation and monitoring of the E & S risk mitigation measures throughout the lifecycle of projects may be hampered by

limited technical skills and resource constraints. In view of this, appropriate training and capacity building programs have been designed as part of this ESMF. AfDB will be responsible for the overall oversight and due diligence of the NTEP-1 implementation. The TCN as the Program proponent is expected to manage the E&S issues associated with the projects to meet the safeguard requirements detailed in this ESMF throughout the entire project lifecycle. This will include developing appropriate and compliant ESIAs/ESMPs aligned to the details presented in this ESMF.

CHAPTER ONE: INTRODUCTION

1.1 Background Information

The Federal Government of Nigeria (FGN) approved the Power Sector Recovery Plan (PSRP) in March 2017 within the context of the Economic Recovery and Growth Plan (ERGP). The ERGP 2017 - 2020 builds upon the previous Strategic Implementation Plan of 2015 and has been developed for restoring economic growth. The objectives of the PSRP are to restore the power sector's financial viability on a contract-based electricity market; to improve power supply reliability to meet growing demand; and to strengthen the sector's institutional framework and increase transparency.

To achieve this objective, TCN has developed the Transmission Rehabilitation and Expansion Programme (TREP) to be financed by the African Development Bank (AfDB), World Bank (WB), Agence Française de Développement (AFD) and Japan International Cooperation Agency (JICA). Under the TREP, the FGN has requested AfDB financing for the Nigerian Transmission Expansion Project (NTEP).

NTEP as a subset of TREP is designed to improve the wheeling capacity from 10,000MW to up to about 25,000MW. The program will boost socio-economic activities through the availability of reliable power to drive commercial and industrial activities, create employment and alleviate poverty. The NTEP project cuts across the states of Kano, Kaduna, Borno, Yobe, Adamawa, Delta, Edo, Anambra, Imo and Abia. It includes both green field (i.e. construction of new lines and Substations) and brownfield (i.e. reconstruction of existing lines) developments.

The NTEP is divided into two sub projects as set out in Table 1.1 below.

Table 1.1: Components of the NTEP program

Program component	Overall Objective	Brief Description
NTEP 1	NTEP1 will strengthen and improve the grid wheeling capacity in the North-West, South-South and South East regions where the transmission lines are constrained	• The construction of a 205km 330kV double circuit line with quad conductors between Kaduna (Mando) and Kano (Rimi-Zakara) with two 330/132 kV substations (Zaria and Millennium City) and two 132/33 kV substations (Jaji and Rigassa). • The reconstruction of two 330kV transmissions lines in the south-south and South East of Nigeria, i.e. The 330 kV lines Delta-Benin and Alaoji-Ihiala-

Program component	Overall Objective	Brief Description
		Onitsha which will be replaced by double circuit lines with quad conductors.
NTEP 2	NTEP2 focuses on grid expansion in the North-East region, the poorest region of Nigeria.	• The construction of five (5) 132kV transmission lines i.e. o Maiduguri-Bama-Gwoza-Gulak o Maiduguri-Mongunu-Marte-Dikwa-Bama o Damboa-Chibok-Askira/Uba-Mubi o Damaturu-Buni Yadi-Biu o Mayo Belwa-Jada-Ganye • The construction of eleven (11) 132/33kV substations at Monguno, Marte, Dikwa, Bama, Gwoza, Jada, Ganye, Askira/Uba, Chibok, Buni Yadi and Kwaya Kusar; • The provision of line bay extension to six (6) existing 132/33kV substations at Old Maiduguri, New Maiduguri, Mubi, Mayo Belwa, Damaturu and Gulak.

The scope of this ESMF is limited to the NTEP 1 program components.

As part of the environmental and social (E&S) safeguards documentation required to support successful funding of the programme, an Environmental and Social Management Framework (ESMF) is required for the program to determine the environmental and social risks and impacts and mitigation measures applicable to the subprojects in the program. These frameworks provide a process to identify the adverse E&S impacts and specific guidance on the policies and procedures to be followed for subsequent E&S assessment along with roles and responsibilities of the implementing agencies.

The ESMF should be read in conjunction with the Resettlement Policy Framework (RPF) for the program. The RPF has been prepared as a separate document specifically for guiding the preparation of the Resettlement Action Plans (RAP), and associated studies for each of the sub projects under NTEP 1.

1.2 Rationale for the ESMF

The ESMF is a framework tool that will be used to guide the environmental and social due diligence (ESDD) process on all projects under the NTEP 1 program. Specifically, the ESMF will be used in guiding the design and due diligence

process by ensuring that appropriate environmental and social management measures are considered across the entire lifecycle of the individual projects in the program. The ESMF provides specific details on the following: ESMF covers:

a. safeguards standards and requirements that would be applied to projects under the NTEP 1 program
b. the process and procedures for the conduct of the ESDD process for projects;
c. capacity building plan including budget and
d. other E & S requirements which may be applicable to the projects.

1.3 Objectives of ESMF

The objectives of this ESMF are:

- To establish clear procedures and methodologies for the environmental and social planning, review, approval, and implementation of sub-projects-to be financed under NTEP;
- To provide information about scope of adverse E&S risks and impacts expected during sub-project planning, construction and operation; describe the approach to mitigation and monitoring actions to be taken; and cost implications;
- To specify appropriate roles and responsibilities and outline the necessary reporting procedures for managing and monitoring E&S concerns related to sub-projects;
- To provide practical resources for implementing the ESMF, including general guidance on the development of sub-project specific Environmental and Social Impact Assessment (ESIA) and/or Environmental and Social Management Plan (ESMP) and their implementation.

The ESMF was prepared after extensive field visits (northern and southern components of NTEP 1) and engagement with a wide range of stakeholders between the 15 and 26 of April 2019.

CHAPTER TWO: REGULATORY AND INSTITUTIONAL FRAMEWORK

2.1 Introduction

This chapter presents an overview of applicable national policies and regulations including the institutional provisions and arrangement that guide the development and implementation of the ESMF as well as the implementation of the sub-projects. The chapter also describes the E&S policies and procedures of AfDB which is the relevant international development agencies supporting NTEP-1.

2.2 National Environmental & Social Policies and Legal Provisions

2.2.1 National Policy on the Environment (1988)

The National Policy on the Environment describes the conceptual framework and strategies for achieving the overall goal of sustainable development in Nigeria. Specifically, the goals of the Policy include to:

- Secure a quality of environment adequate for good health and human well-being;
- Conserve and use the environment and natural resources sustainably for the benefit of present and future generations;
- Restore, maintain and enhance ecosystems and ecological processes essential for the functioning of the biosphere to preserve biological diversity and the principle of optimum sustainable yield in the use of living natural resources and ecosystems;
- Raise public awareness and promote understanding of the essential linkages between the environment, resources and development, and encourage individual and community participation in environmental improvement efforts; and
- Co-operate with other countries, international organizations and agencies to achieve optimal use of trans-boundary natural resources and effective prevention or abatement of trans-boundary environmental degradation.

2.2.2 EIA Act Cap E12 LFN 2004

The EIA Act No. 86 of 1992 as amended by EIA Act Cap E12 LFN, 2004 is the principal legislative instrument relating to activities that may likely or to a significant extent affect the environment. The Act sets the goals and objectives of EIA and procedures including the minimum requirements for the conduct of

EIA of public or private projects. The Act makes EIA mandatory for all major development projects likely to have adverse impacts on the environment and gives specific powers to FMEnv to facilitate environmental assessment of projects in Nigeria.

FMEnv categorizes mandatory study activities into three categories: Category 3 activities have beneficial impacts on the environment. For Category 2 activities (unless within the Environmentally Sensitive Area) full EIA is not mandatory, while Category 1 activities requires full and mandatory EIA. Projects are pre-listed into these categories based on type and whether it would involve physical intervention of the environment. Either the listing or the result of an Initial Environmental Evaluation (IEE) is used to determine projects requiring full EIA. All utility scale power projects, including construction of substations and transmission power lines, are listed under Category 1 and are therefore required to undertake ESIA.

2.2.3 National Environmental Standards and Regulations Enforcement Agency (NESREA) Act 2007

The Act established a body known as NESREA to be the enforcement Agency for environmental standards, regulations, rules, laws, policies and guidelines in Nigeria. The Act empowers the Agency to have responsibility for the protection and development of the environment, biodiversity conservation and sustainable development of Nigeria's natural resources in general and enviromental 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.

2.2.4 National Environmental Protection (Management of Solid and Hazardous Wastes) Regulations, 1991

These Regulations address handling and management of solid, radioactive and (infectious) hazardous waste. They define the objectives of management of solid and hazardous waste, the functions of appropriate Government agencies and obligations of industries. The Regulations mandate all industries to inform FMEnv of all toxic, hazardous and radioactive substances which they keep in their premises and/or which they discharge during their production processes. Schedule 12 and 13 of the Regulations provide a comprehensive list of all waste deemed to be hazardous and dangerous.

2.2.5 National Environmental (Sanitation and Wastes Control) Regulations, 2009

The Regulations provide the legal framework for the adoption of sustainable and environment friendly practices in sanitation and control of solid wastes, hazardous wastes and effluent discharges to minimize pollution. Part 3 of the Regulations states that all owners or occupiers of premises shall provide waste receptacles for storage before collection by licensed waste managers. In addition, the Regulations make it mandatory for facilities that generate waste, to reduce, re-use, recycle and ensure safe disposal to minimize pollution. The Regulations also spell out roles and responsibilities of State and Local Government Authorities.

2.2.6 National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations, 1991

The Regulations prohibit industry or facility from release of hazardous or toxic substances into the air, water of Nigeria's ecosystems beyond the permissible limits of FEPA (now FMEnv). The Regulations further charge any industry or facility to:

- Establish and maintain a pollution monitoring unit within their premises;
- Ensure on site pollution control; and
- Assign the responsibility for pollution control to a person or body accredited by the FMEnv. Section 5 of the Regulations mandate industry or facility to submit to the nearest office of FMEnv a list of chemicals used in the manufacture of its products, details of stored chemicals and storage conditions and where these chemicals were obtained, bought or sold.

2.2.7 National Environmental (Electrical/Electronic Sector) Regulations, 2011

The principal thrust of this Regulation is to prevent and minimize pollution from all operations and ancillary activities of the Electrical/Electronic Sector. This Regulation covers both new and used Electrical/Electronic Equipment (EEE/UEEE). The principles of the Regulations are anchored on the 5Rs which are; Reduce, Repair and Re-use, Recycle and Recover as the primary drivers of the sector.

2.2.8 National Environmental (Noise Standards and Control) Regulations, 2009

The purpose of these Regulations is to ensure maintenance of a healthy environment for all people in Nigeria, the tranquillity of their surroundings and their psychological wellbeing by regulating noise levels. The Regulations

prescribe the maximum permissible noise levels on a facility or activity to which a person may be exposed and provide for the control of noise and for mitigating measures for the reduction of noise.

2.2.9 National Environmental (Surface & Groundwater Quality Control) Regulations 2011

The purpose of these Regulations is to restore, enhance and preserve the physical, chemical and biological integrity of the nation's surface waters and to maintain existing water uses. The Regulations also seek to protect groundwater sources by regulating the discharge of hazardous wastes, fossil fuels energy and any other substances having the potential to contaminate groundwater. The Regulations also include amongst others, the application and general provisions of water quality standards for various uses such as agriculture, industrial, aquatic life and recreation.

2.2.10 Land Use Act CAP L5 LFN 2004

The Land Use Act is the legal framework for land acquisition and resettlement in Nigeria. The Act stipulates that all land in Nigeria is vested in the Governor of each State, to be held in trust for the use and common benefit of all people. The administration of urban land is directly under the control and management of the Governor, whereas non-urban land is under the control and management of the Local Government Authority.

By implication, the Governor has the right to grant statutory rights of occupancy to land while the Local government has the right to grant customary rights of occupancy. At any rate, all lands irrespective of the category belongs to the State while individuals only enjoy a right of occupancy as contained in the certificate of occupancy, or where the grants are "deemed". Thus, the Land Use Act is the key legislation that has direct relevance to resettlement and compensation in Nigeria. The Act makes it lawful for the Governor to grant statutory rights of occupancy for all purposes; grant easements appurtenant to statutory rights of occupancy and to demand rent. The local Government, under the Act can enter, use and occupy for public purposes any land within its jurisdiction that does not fall within an area compulsorily acquired by the Government of the Federation or of relevant State; or subject to any laws relating to minerals or mineral oils.

In summary, the Acts gives the government the right to acquire land by revoking both statutory and customary rights of occupancy for the overriding public interest. In doing so however, the Act equally specifies that the State or

Local Government should pay compensation to the current holder or occupier with equal value.

2.2.11 Other Applicable National E&S Legal Provisions

A summary of other relevant existing Nigerian laws and regulations is provided in Table 2.1Table 2.1 below.

Table 2.1. Other Relevant National E&S Laws and Regulations

Laws and Regulations	Summary of Provisions
Forestry Law CAP 51 LFN 1994	The Forestry Law prohibits any act that may lead to destruction of or cause injury to any forest produce, forest growth or forestry property in Nigeria. The law prescribes the administrative framework for the management, utilization and protection of forestry resources in Nigeria.
Endanger Species (Control of International Trade and Traffic) Act CAP E9 LFN 2004	The Act provides for the conservation and management of Nigeria's wild life and prohibits the hunting, capture and trade of endangered species.
Harmful Wastes (Special Criminal Provisions etc.) Act CAP HI LFN 2004	An Act to prohibit the carrying, depositing and dumping of harmful waste on any land, territorial waters and matters relating thereto including penalty for offences for individuals and corporate bodies. The Act prohibits all activities relating to the purchase, importation, transit, transportation, deposit, storage or, sale of harmful wastes.
National Environmental (Ozone Layer Protection) Regulations, 2009	These provisions seek to prohibit the import, manufacture, sale and the use of ozone-depleting substances as well as materials that contain these substances.
National Environmental (Soil Erosion and Flood Control) Regulations, 2011	The overall objective of these Regulations is to control erosion and flooding by checking all earth-disturbing activities, practices or developments for non-agricultural, commercial, industrial and residential purposes.
Factories Act (CAP F1), 2004	The Act establishes a legal framework for the registration of factories and to make adequate provisions regarding the safety of workers against occupational hazards and to impose penalties for any breach of its provisions. All workplaces are covered by this Act.
Employee Compensation Act, 2010	The Act provides compensation to employees who suffer from occupational diseases or sustain injuries arising from accidents at workplace or in the course of employment. Payment of compensation (to the worker or to his dependents in case of death) by the employer is rooted in the accepted principle that the employer has a duty of care to protect the health, welfare and safety of workers at work.
Nigerian Urban and Regional Planning Act CAP 138 LFN 2004	The Act is aimed at overseeing a realistic, purposeful planning of the country to avoid overcrowding and poor environmental conditions. The Act establishes that an application for land

Laws and Regulations	Summary of Provisions
	development would be rejected if such development would harm the environment or constitute a nuisance to the community.
EIA Procedural Guidelines, 1995	Provides Procedural context and guidance for the conduct of EIA in Nigeria
Natural Resources Conservation Act CAP 268 LFN 1990	The Natural Resources Conservation Act CAP 268 LFN 1990 is the most direct existing piece of legislation on natural resources conservation. The Act establishes the Natural Resources Conservation Council, which is empowered to address soil, water, forestry, fisheries and wildlife conservation by formulating and implementing policies, programmes and projects on conservation of the country's natural resources.

2.3 Energy Sector Policies and Legal Provisions

2.3.1 National Energy Policy, 2003

The National Energy Policy highlights strategies for systematic exploitation of the energy resources, the development and effective use of energy manpower, supply of rural energy needs, efficient energy technology development and use, energy security, energy financing and private sector participation. The strategies are harmonized and grouped into short, medium and long – term measures for easier implementation. This policy is related to this program being an energy transmission program.

2.3.2 Electric Power Sector Reform Act 2005

This Act provides for the licensing and regulation of the generation, transmission, distribution and supply of electricity in Nigeria. The Act establishes the NERC and empowers it to license and regulate persons engaged in the generation, transmission, system operation, distribution and trading of electricity. The Act provides requirements for licensing and stipulates that no person shall construct, own or operate an undertaking or in any way engage in the business of electricity generation (excluding captive generation), electricity transmission, system operation, electricity distribution or trading in electricity without a license except for generating electricity not exceeding 1MW in aggregate at a site or distribution of electricity with a capacity not exceeding 100 kilowatts (KW) aggregate at a site.

The Act also makes special provisions for acquisition of land and access rights as it relates to generation, transmission and distribution companies. The EPSR Act affords rights holders and/or land occupiers to challenge the declaration by the Commission. It states that any person or group of persons including the

right holders or occupiers affected by the decision of the Commission may apply to the Commission for a review of the Commission's decision (Sections 77(8), 50(1) and 78(4), EPRS Act). The EPSR Act also affords the concerned aggrieved party the opportunity of being heard publicly in accordance with Sections 36 and 44 (1) (b) of the 1999 Constitution, as amended. Moreover, an aggrieved party may further appeal against the decision of the Commission to the Federal High Court (Section 49, EPSR Act).

2.3.3 Energy Commission of Nigeria Act CAP 109 LFN 1990

The Act was promulgated to create the Energy Commission of Nigeria (ECN) with responsibility for coordinating and general surveillance over the systematic development of the various energy resources of Nigeria. Subject to this Act, the ECN is charged with the responsibility for the strategic planning and co-ordination of national policies in the field of energy in all its ramifications. The mandates of ECN includes statistical analysis of Electricity Generation, Transmission and Distribution.

2.3.4 Nigerian Electricity Supply and Installation Standards (NESIS) Regulations 2015

These Regulations provide guidance, license terms and conditions to any person engaged in the generation, transmission, distribution, system operation, and trading in electricity or in any aspect in the value chain of electricity supply, including but not limited to engineering designs, installations, commissioning, decommissioning and maintenance of electric power systems for the purpose of achieving safe and reliable supply, and utilization of electricity in Nigeria. The regulation also states among other things Health, Safety and Environment issues including approved Right of Way for Transmission and Distribution lines in Nigeria. According to the NESIS 2015, Right of Way (RoW) is the distance of any structure from the middle conductors of overhead power lines of any voltage level. The approved Right of Way for different voltage Levels are presented in Table 2.2

Table 2.2: Right of Way

Voltage Levels	Right of Way in Meters
330kV	50
132kV	30
33kV	15
11kV	11

2.3.5 Acquisition of Land Access Rights for Electricity Projects Regulations, 2012

This is a Nigerian Electricity Regulatory Commission Act which provide a regulatory framework for the acquisition of land and access rights for electricity projects in Nigeria. This Act also stipulates provisions for the payment of compensation and resettlement of persons affected by the acquisition of their land for the establishment of electricity projects as well as the monitoring and evaluation of project designs of licensees to ensure compliance with environmental standards. The Regulations apply to the acquisition of land access rights for electricity in Nigeria, including projects related to generation, transmission and distribution of electricity.

2.3.6 Roadmap for Power Sector Reform of 2010

The Roadmap reviews and fine-tunes plans and strategies to finalize the drive to complete power sector reform and sets the nation on a steady course to produce clean and efficient electricity for her citizenry at competitive rates. The Roadmap contained two core and fundamental objectives, which are;

- to transition the Nigerian Power Sector into a private-sector led market by implementing the EPSRA 2005 transition ("The Reform Objective") and
- to support and improve service delivery levels during this transition to the Nigerian public ("The Service Delivery Objective").

2.4 Nigerian Gender Related Policies

2.4.1 The Gender Policy Framework in Nigeria

The 1999 Constitution OF the Federal Republic of Nigeria prohibits discrimination based on places of origin, sex, religion, status, ethnic or linguistic association. Successive governments have always demonstrated commitment to upholding this and to promote gender equality and women's empowerment in varying degrees. To facilitate gender equality and women's empowerment, the FGN created favorable national legal and policy frameworks and put in place institutional mechanisms in this regard.

Moreover, Nigeria, as a member of the United Nations, signed and ratified the various relevant international instruments, treaties and conventions without reservation. These instruments have always emphasized that member nations put in place the necessary mechanisms needed to eliminate gender discriminations, ensure equality and human dignity to all men and women.

The government of Nigeria in 2000 adopted a National Policy on Women, in 2006, it was reviewed and upgraded to become the National Gender Policy. Other key government policies with gender equality and empowerment of women frameworks include the National Economic Empowerment and Development Strategies (NEEDS) in May 2004; and the Transformation Agenda of the immediate past administration who in developing the Vision 2020, had a 'Special Interest Group on Women' to oversee –the development of policy statements that engender 'sustainable human and national development built on equitable contribution of the Nigerian women, men and children'.

2.4.2 National Gender Policy, 2006

The overall goal of the National Gender Policy of Nigeria is to promote the welfare and rights of Nigerian women and children in all aspects of life: political, social and economic. The policy seeks to plan, coordinate, implement, monitor and evaluate the development of women in the county. In concrete terms, the National Gender Policy in Nigeria focus on:

- Contribution towards women's empowerment and the eradication of unequal gender power relations in the workplace and economy, in trade unions and in broader society;
- Encouragement of the participation, support and co-operation of men in taking shared responsibility for the elimination of sexism and redefining of oppressive gender roles;
- Increase the participation of women in leadership and decision-making;
- Ensure that through labour legislation and collective bargaining, the particular circumstances of women are considered and that measures are promoted to eliminate discrimination on the basis of gender;
- Ensure that there is a gender perspective in all sectors of development.

2.5 Nigerian Institutional Provisions and Arrangement

2.5.1 Federal Ministry of Environment

The Federal Ministry of Environment (FMEnv) which was formerly known as the Federal Environmental Protection Agency (FEPA) was established in 1999 through Decree No. 58 of 1988 as amended by Decree No. 59 of 1992. The Ministry is the statutory government institution mandated to coordinate environmental protection and natural resources conservation for sustainable development in Nigeria. Some of the other mandates of the Ministry include:

- Advising the Federal Government on national environmental policies and priorities, conservation of natural resources, sustainable

development as well as scientific and technological activities affecting the environment and natural resources; and

- Prescribing standards and formulating regulations on water quality, effluent limitations, air quality, atmospheric protection, ozone protection, noise control as well as the removal and control of hazardous substances.

2.5.2 National Environmental Standards and Regulations Enforcement Agency (NESREA)

The National Environmental Standards and Regulations Enforcement Agency (NESREA) was established by the NESREA Act of 30th July 2007 as an Agency of the FMEnv. NESREA is charged with the responsibility of enforcing all environmental laws, guidelines, policies, standards and regulations in Nigeria. It also has the responsibility to enforce compliance with provisions of international agreements, protocols, conventions and treaties on the environment to which Nigeria is a party.

2.5.3 Federal Ministry of Power Works and Housing

The Federal Ministry of Power, Works and Housing (FMPWH) has the overall responsibility for the provision of power in the country by supervising the implementation of generation, transmission and distribution projects in the sector and facilitating the emergence of a private sector led competitive and efficient electric power industry. The Ministry is guided by the provisions of the National Electric Power Policy (NEPP) of 2001, the Electric Power Sector Reform (EPSR) Act of 2005, and the Roadmap for Power Sector Reform of August 2010. The Ministry has six (6) parastatals relevant to the implementation of sub-projects:

i. Transmission Company of Nigeria (TCN)
ii. Nigerian Electricity Regulatory Commission (NERC),
iii. The Rural Electrification Agency (REA), and
iv. Nigerian Bulk Electricity Trading Plc (NBET)
v. Nigerian Electricity Liability Management Company (NELMCO)
vi. Nigerian Electricity Management Services Agency (NEMSA)

- ***Transmission Company of Nigeria (TCN)***

TCN was incorporated in November 2005, emerging from the defunct National Electric Power Authority (NEPA) as a product of the merger of the Transmission and Operations sectors on April 1, 2004. Being one of the 18 unbundled Business

Units under the Power Holding Company of Nigeria (PHCN), the company was issued a transmission license on 1st July, 2006. TCN licensed activities include: electricity transmission, system operation and electricity trading which is ring fenced.

- ***Nigerian Bulk Electricity Trading Plc (NBET)***

The Nigerian Bulk Electricity Trading Plc, (NBET) (otherwise known as the ***Bulk Trader***) was incorporated on July 29, 2010 as the Special Purpose Vehicle (SPV) to carry out the bulk purchase and resale of electric power and ancillary services from Independent Power Producers (IPP) and from the successor generation companies" to distribution companies. NBET purchases electricity from the generating companies through Power Purchase Agreements (PPAs) and sells to the distribution companies (DisCos) and eligible customers through Vesting Contracts. The role of NBET is more of transactional agreements between generation and distribution companies while TCN transmit the power from Generator to Distributors and eligible Customers.

- ***Nigerian Electricity Regulatory Commission (NERC)***

NERC is an independent regulatory body, established by the EPSR of 2005 to undertake technical and economic regulation of the Nigerian electricity supply industry. Essentially, NERC is set up to, license operators, determine operating codes and standards, establish customer rights and obligations and set cost reflective industry tariffs. NERC is responsible for the review of electricity tariffs, subsidy policies, promotion of efficient and environmentally friendly electricity generation and enforcing standards for electricity creation and use in Nigeria. NERC is largely responsible for regulating tariffs of power generating companies. NERC also issues eligible customers licence to whom TCN can supply directly.

- ***Nigerian Electricity Liability Management Company (NELMCO)***

NELMCO was incorporated under the Companies and Allied Matters Act 2004 as an SPV under the directive of the National Council on Privatization (NCP) as part of the transaction structure and strategy for the privatization of the power sector to provide investors' confidence that investment in PHCN Successor Companies (SCs) will be free of encumbrances from possible future litigations arising from the huge legacy debts, Staff Pensions, Suppliers and third party liabilities. The core objective of the organization is to assume and administer the stranded debts and non-core assets of PHCN pursuant to the provisions of EPSR Act 2005, assume and manage pension liabilities of employees of PHCN, hold the non-core assets of PHCN, sell or dispose of or deal in any manner for the purpose of financing the payment of debts or other related matters, take

over the settlement of PHCN's Power Purchase Agreement (PPA) debts obligations, legacy debts and any other liabilities as may be determined by the National Council on Privatization within NESI from time to time and sell, let, mortgage, dispose of, deal in any of the property or non-core assets of the company as may be expedient with a view to promoting its objects.

- ***Nigerian Electricity Management Services Agency (NEMSA)***

The Nigerian Electricity Management Services Agency (NEMSA) Formerly the Electricity Management Services Limited (EMSL), is one of the successor companies established by the Federal Government in line with the provision of part 1Section 8 of the Electric Power Sector Reform (EPSR) 2005, the Supplementary Regulation number 46/47 (B499 452) of the Federal Government Official Gazette No. 374 0f 2010 and the NEMSA Act No.6 of 2015. The main function of the agency according to the provisions of the NEMSA Act 2015 and Statutory Regulations is inspect, test and certify all Electrical Installations in Power Plants / Stations, Transmission Networks / Systems, Distribution Networks/Systems, and other Allied Industries and Workplaces where Electricity is used. All electrical Installations in NTEP1 program will have to go through the testing and certification of NEMSA before they can be declared fit for use.

2.6 International Conventions and Agreements applicable to the sector

Apart from the National Laws, Acts and Regulations, Nigeria is a signatory or party to many International Environmental Conventions and Treaties that are relevant to the energy sector. A list of some of the relevant International Environmental Conventions and Treaties ratified by the Government of the Federal Republic of Nigeria are presented in Table 2..

Table 2.3. Selected international agreements and conventions to which Nigeria is a signatory

Regulations		Year Adopted
1.	United Nations Framework Convention on Climate Change (UNFCCC)	1992
2.	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	1989
3.	Montreal Protocol on Substance that Deplete the Ozone Layer	1987
4.	Vienna Convention on the Ozone Layer	1985
5.	Convention on Conservation of Migratory Species of Wild Animals	1979
6.	Convention on the Protection of the World Cultural and Natural Heritage (world Heritage Convention), Paris	1975

Regulations		Year Adopted
7.	Convention to Regulate international trade in Endangered species of Fauna and Flora (CITES)	1973
8.	Convention on the Conservation of Migratory Species of Wild Animals (CMS or Bonn Convention) (Signatory only)	1988
9.	African Convention on the Conservation of Nature and Nature Resource	1968
10.	Paris Agreement	2015

2.7 The African Development Bank (AfDB)

2.7.1 The African Development Bank (AfDB) Integrated Safeguards System (ISS)

The E&S safeguards of the AfDB are a cornerstone of the Bank's support for inclusive economic growth and environmental sustainability in Africa. AfDB will apply the Integrated Safeguards System for all sub-projects considered under NTEP-1. The Bank ISS is designed to promote the sustainability of project outcomes by protecting the environment and people from the potentially adverse impacts of projects. This requires that all the projects will comply with the safeguard requirements of the ISS during sub-projects preparation and implementation. The safeguards aim to:

- Avoid adverse impacts of projects on the environment and affected people, while maximising potential development benefits to the extent possible;
- Minimise, mitigate, and/ or compensate for adverse impacts on the environment and affected people when avoidance is not possible; and
- Help borrowers/clients to strengthen their safeguard systems and develop the capacity to manage E&S risks.

The ISS consists of four interrelated components as summarized in Figure 2.1Figure below.

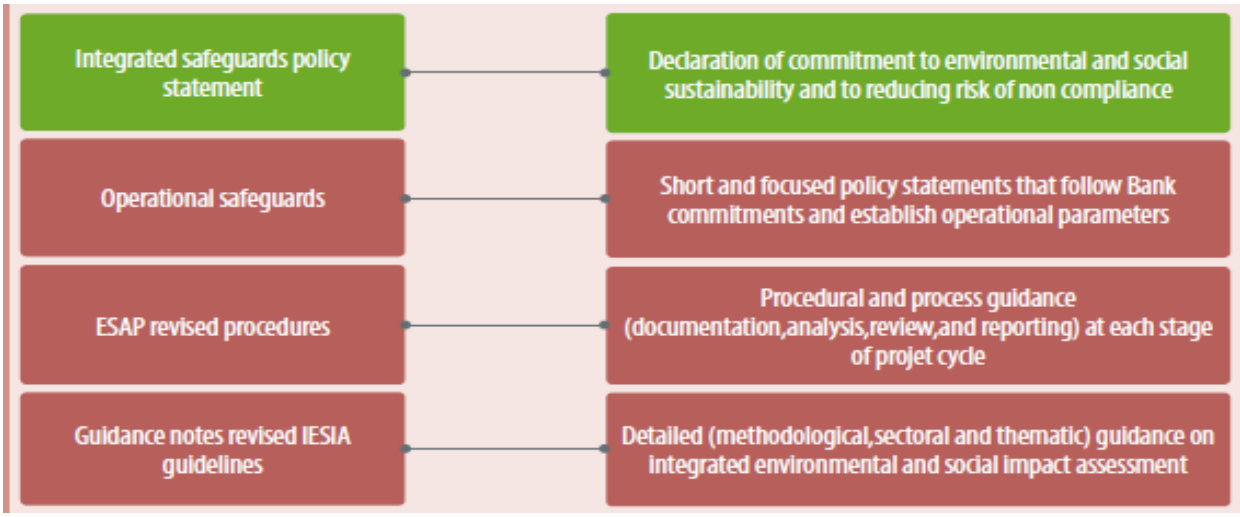

Figure 2.1: Structure of the AfDB ISS

2.7.2 The Integrated Safeguards Policy Statement

This describes common objectives of the Bank's safeguards and lays out policy principles. It is designed to be applied to current and future lending modalities, and it considers the various capacities and needs of regional member countries in both the public and private sectors. The Integrated Safeguards comprises of Policy Statement that sets out the basic tenets that guide and underpin the Bank's approach to environmental safeguards. The Bank's Integrated Safeguards Policy Statement sets out the Bank's own commitments to and responsibilities for delivering the ISS: to

i. ensure the systematic assessment of E&S impacts and risks;
ii. apply the OSs to the entire portfolio of Bank operations;
iii. support clients and countries with technical guidance and practical support in meeting the requirements;
iv. implement an adaptive and proportionate approach to E&S management measures to be agreed with clients as a condition of project financing;
v. ensure that clients engage in meaningful consultations with affected groups;
vi. respect and promote the protection of vulnerable groups, in a manner appropriate to the African context.

2.7.3 Operational Safeguards (OSs)

These are a set of five safeguard requirements that Bank clients are expected to meet when addressing social and environmental impacts and risks. Bank staff use due diligence, review, and supervision to ensure that, clients comply with these requirements during project preparation and implementation. Over

time the Bank may adopt additional safeguard requirements or update existing requirements to enhance effectiveness, respond to changing needs, and reflect evolving best practices. The five OSs are presented in Table 2.4.
The OSs are intended to:

- Better integrate considerations of E&S impacts into Bank operations to promote sustainability and long-term development in Africa;
- Prevent projects from adversely affecting the environment and local communities or, where prevention is not possible, minimise, mitigate and/or compensate for adverse effects and maximise development benefits;
- Systematically consider the impact of climate change on the sustainability of investment projects and the contribution of projects to global greenhouse gas emissions;
- Delineate the roles and responsibilities of the Bank and its borrowers or clients in implementing projects, achieving sustainable outcomes, and promoting local participation; and
- Assist regional member countries and borrowers/clients in strengthening their own safeguards systems and their capacity to manage E&S risks.

Table 2.4: AfDB Operational Safeguards OS1-5

Operational Safeguard	Description
OS 1: *Environmental and social assessment*	This overarching safeguard governs the process of determining a project's environmental and social category and the resulting environmental and social assessment requirements
OS 2: *Involuntary Resettlement: Land Acquisition, Population Displacement and Compensation*	This safeguard consolidates the policy commitments and requirements set out in the Bank's policy on involuntary resettlement and incorporates a few refinements designed to improve the operational effectiveness of those requirements
OS 3: *Biodiversity and Ecosystem Services*	This safeguard aims to conserve biological diversity and promote the sustainable use of natural resources. It also translates the commitments in the Bank's policy on integrated water resources management into operational requirements.
OS 4: *Pollution Prevention and Control, Greenhouse Gases, Hazardous Materials and Resource Efficiency*	This safeguard covers the range of key impacts of pollution, waste, and hazardous materials for which there are agreed international conventions, as well as comprehensive industry-specific and regional standards, including greenhouse gas accounting, that other multilateral development banks follow.
OS 5: *Labour Conditions, Health and Safety*	This safeguard establishes the Bank's requirements for its borrowers or clients concerning workers' conditions, rights and protection from abuse or exploitation. It also ensures greater harmonization with most other multilateral development banks.

2.7.4 Environmental and Social Assessment Procedures (ESAPs)

The Bank's ESAPs details the specific procedures that the Bank and its borrowers or clients should follow to ensure that Bank operations meet the requirements of the operational safeguards (OSs) at each stage of the Bank's project cycle.

Its adoption and implementation enhance the E&S performance of the Bank's operations and improve project outcomes. The ESAPs will help to improve decision-making and project results by ensuring that Bank-financed operations conform to the requirements laid out in the operational safeguards (OS) and are thus sustainable. The ESAP describes how the Bank and its borrowers should work together to ensure that environmental, climate change and social considerations are integrated into the project cycle from country programming to post completion. It represents a coordination mechanism between the Bank, relevant government agencies and private sector entities and plays an important role in building the environmental, social and climate change management capacity of the project's executing agency. The Environmental and Social Assessment procedures apply during the entire project cycle, with differentiated tasks to be performed, roles and responsibilities for the Bank and its borrowers and clients.

Also, the Bank has an integrated system which will be used to ensure its E & S requirements are incorporated effectively into the whole programme cycle, i.e., Integrated Safeguards Tracking System (ISTS). The ISTS constitutes an integral part of the ESAP. A summary of the key requirements of the ESAP during each project stage is presented in Table 2.5.

Table 2.5: Summary of the AfDB Project Cycle and E & S requirements

AfDB Project Cycle	Details
Country Programming Phase	• During **country programming**, the key task is to develop and update baseline data on RMCs' E&S components, policies, programs, and capacities to better integrate E&S dimensions into lending priorities. • These are the responsibilities of the Bank's Sector Departments and Regional Departments.
Project Identification Phase	• At the **project identification phase**, the **screening exercise** focuses on the E&S dimensions of a **project to categorize it in one out of four categories** based on the potential adverse E&S impacts of the project. • These tasks will be carried out by the Bank in collaboration with the clients.
Project Preparation Phase	• During **project preparation**, the **scoping exercise** helps to define the scope of the Environmental and Social Assessments (ESA) to be completed by the Borrower based on the project category, with the assistance of staff from the operational departments.

AfDB Project Cycle	Details
	• The preparation of these assessments including the development of management plans and systems requires consultations with primary and secondary stakeholders. • Once ESAs are finalized, the review process allows operational departments to ensure that Bank's vision, policies, and guidelines were adequately taken into account in project design and implementation. • The clients/borrower will be in charge of the preparation of the required studies and plans while the Bank will be responsible for reviewing and validating the studies and plans.
Project Appraisal Phase	• During the **appraisal phase**, **ESIA Summaries** shall be reviewed and cleared by the Safeguards and Compliance Department (SNSC). • The procedures require the public disclosure of summaries in accordance with specified deadlines. o All Category 1 operations for private sector shall be disclosed for 60 days before Board deliberations while other Category 1 projects for public sector require a 120 day disclosure period before board consideration The NTEP1 program is a public sector project that will require 120 days disclosure. o All category 2 operations shall be disclosed for 30 days before Board deliberations. • The Bank will be responsible for conducting site visits and verification activities with respect to the studies, plans, and systems developed by the borrowers.
Project Implementation Phase	• At the **project implementation phase**, the Borrowers shall ensure the implementation of E&S management plans developed to address adverse impacts, while monitoring the project impacts and results. • The Bank's operational staff shall supervise the Borrowers' work and verify compliance through **supervision missions and/or E&S audits**, whenever necessary. • Audits are undertaken during the completion phase, and post evaluations shall also aim to assess the E&S sustainability of the results.

2.7.5 Integrated Environmental and Social Impact Assessment (IESIA) Guidance Notes

The IESIA Guidance Notes provide technical guidance to the Bank's borrowers or clients on standards on sector issues or on methodological approaches clients or borrowers are expected to adopt to meet OS standards. The Integrated Environmental and Social Impact Assessment (IESIA) Guidance notes provide a systematic process for addressing projects' E&S impacts with a clear understanding of the specific sector characteristics.

The IESIA Guidelines' major objective is to provide reference material to the staff of the Bank and RMCs on how to adequately consider crosscutting themes while assessing the E&S impacts of a project. Moreover, the IESIA Guidelines can greatly assist in the project design, as many potential adverse impacts can be avoided or mitigated by modifying or adding certain project

components to the initial design. As well, improvements in the project design can enhance several beneficial impacts at a minimal cost. Therefore, the IESIA Guidelines provide guidance on how to adequately consider the Bank's priority crosscutting themes in both the preparation and assessment phases. Thus, the staff of the Bank and RMCs should refer to the IESIA Guidelines from the beginning of the project cycle to the end.

The IESIA Guidance notes complement the guidance and formats provided in ESAP and provide guidance to RMCs when undertaking E&S Assessments for Bank-financed projects/programs. It will also be used by the Bank's Operational staff in reviewing and clearing these studies and in project supervision. The provision of high-quality technical guidance is key to ensuring effective compliance, capacity and ownership of the ISS for Bank staff and borrowers alike.

The IESIA Guidance Notes are presented in three standalone volumes that provide guidance in the three essential components of:

i. the Environmental and Social Assessment process,
ii. specific topics and operational safeguard requirements, and
iii. technical guidance on key sectors and subsectors that have been proposed by operational departments as areas where guidance is needed.

2.7.6 AfDB Project Categorization Process

The ESAP also includes procedural requirements such as the categorization of projects, disclosure and monitoring of projects during implementation and operation. All projects under NTEP will be categorized and structured to meet AfDB ISS requirements. In accordance to AfDB ISS, each sub-project will undergo E&S appraisal in order to determine whether the project can be financed as well as ensuring that the E&S considerations are incorporated effectively in the planning, implementation, and operation of the sub-projects. Each sub-project will undergo **initial E&S screening** and be categorized accordingly at the initial stage of the project cycle, to determine the nature and level of E&S investigations, information disclosure and stakeholder engagement required. The categorization shall be done according to the guidance stipulated in the AfDB ESAPs.

Based on the categorization, the sub-projects will then be subjected to an appropriate E&S assessment and mitigation measures will be formulated to ensure E&S considerations are incorporated in the course of implementing the NTEP-1 projects. A summary of the AfDB's project categorization process (detailed in the ESAP) is set out in Table 2.6.

Table 2.6: AfDB Project Categorization Process

AfDB Project Category	Description
Category 1	• Projects likely to cause significant E&S impacts. • Category 1 projects are likely to induce significant and/or irreversible adverse environmental and/or social impacts, or to significantly affect environmental or social components that the Bank or the borrowing country considers sensitive.
Category 2	• Projects likely to cause less adverse E&S impacts than Category 1. • Category 2 projects are likely to have detrimental site-specific environmental and/or social impacts that are less adverse than those of Category 1 projects. • Likely impacts are few, site-specific, largely reversible, and readily minimized by applying appropriate management and mitigation measures or incorporating internationally recognized design criteria and standards.
Category 3	• Projects with negligible adverse E&S risks • Category 3 projects do not directly or indirectly affect the environment adversely and are unlikely to induce adverse social impacts. They do not require an E&S assessment. • Beyond categorization, no action is required. • Nonetheless, to design a Category 3 project properly, it may be necessary to carry out gender analyses, institutional analyses, or other studies on specific, critical social considerations to anticipate and manage unintended impacts on the affected communities.
Category FI	• Projects involving lending to financial intermediaries (FI). • Category FI projects involve lending to financial intermediaries that on-lend or invest in sub-projects that may produce adverse E&S impacts. • FIs include banks, insurance, reinsurance and leasing companies, microfinance providers, private equity funds and investment funds that use the Bank's funds to lend or provide equity finance to their clients.
Subcategory FI-A	• The financial intermediary's portfolio is considered high risk, and it may include sub-projects that have potentially significant adverse environmental, climate change, or social impacts and that are equivalent to Category 1 projects.
Subcategory FI-B	• The financial intermediary's portfolio is deemed to be medium risk, and may include sub-projects that have potential limited adverse environmental, climate change, or social impacts and that are equivalent to Category 2 projects
Subcategory FI-C	• The financial intermediary's portfolio is considered low risk and includes sub-projects that have minimal or no adverse environmental or social impacts and that are equivalent.

2.8 E&S Assessment of Nigerian Policies and Legislations and AfDB Safeguard Systems

The Nigerian E&S Safeguards system addresses most of the key elements of E&S Safeguards except for the preparation of ESMF for projects involving multiple subprojects, indigenous peoples, and the required differentiated treatment of

vulnerable groups which are adequately addressed by the AfDB safeguard systems.

Apart from the gaps highlighted above, the main challenge facing E&S safeguarding in Nigeria is the overlapping functions of different agencies in relation to enforcement of these policies, guidelines and legislative provisions. Thus, as part of this ESMF and in order to support the due diligence process, to avoid causing harm and to ensure consistent treatment of E&S issues across the sub-project intervention areas, institutional capacity strengthening, and funding will be recommended as part of the ESMF.
To ensure E&S safeguard during sub-project implementation, both the Nigerian and AfDB E&S safeguard systems will be implemented. However, in the event of divergence and gaps the AfDB safeguard system with the more stringent requirement will take precedence.

Table 2.7. Benchmarking of Nigerian Legal Provisions and AfDB ISS specifications

Key Element	**Nigerian Provisions**	**AfDB Integrated Safeguard System**	**Provision to be adopted by NTEP 1 Program**
ESMF for Projects involving multiple sub-projects.	Not a national requirement	OS 1: Environmental and social assessment	OS 1: Environmental and social assessment
Screening	EIA Act Cap E12 LFN 2004	OS 1: Environmental and social assessment	OS 1: Environmental and social assessment
Scoping	EIA Act Cap E12 LFN 2004	OS 1: Environmental and social assessment	EIA Act Cap E12 LFN 2004
Environmental and Social Impact Assessment Guideline	EIA Procedural Guidelines, 1995 EIA Sectoral Guidelines for Power Sector, 2013	IESIA Guidance Notes ESAP	EIA Sectoral Guidelines for Power Sector, 2013 and IESIA Guidance Notes ESAP
Environmental Categorization	EIA Procedural Guidelines, 1995 Categories I, II & III	OS 1 – Categories 1, 2, 3, and FI for operations involving lending to financial intermediaries.	OS 1 – Categories 1, 2, 3, and FI for operations involving lending to financial intermediaries.
Environmental and Social Assessment	EIA Act Cap E12 LFN 2004	OS 1: Environmental and social assessment	OS 1: Environmental and social assessment
Environmental and Social Management Plan	EIA Act Cap E12 LFN 2004	OS 1: Environmental and social assessment	OS 1: Environmental and social assessment
Consultation and Participation	EIA Act Cap E12 LFN 2004	OS 1 (include provision of IESIA Guidance Notes on consultation)	OS 1 (include provision of IESIA Guidance Notes on consultation)

Key Element	Nigerian Provisions	AfDB Integrated Safeguard System	Provision to be adopted by NTEP 1 Program
Involuntary Resettlement	- Land Use Act CAP L5 LFN 2004 - Acquisition of Land Access Rights for Electricity Projects Regulations, 2012	OS 2: Involuntary Resettlement: Land Acquisition, Population Displacement and Compensation	OS 2: Involuntary Resettlement: Land Acquisition, Population Displacement and Compensation
Compensation	Cash compensation is generally made based upon market value. Whilst in principle there is allowance for in-kind compensation or replacement of assets, cash compensation is common practice	OS 2: Affected Persons are compensated for all their losses at full replacement cost. They can be offered a range of different compensation packages, resettlement assistance & livelihood improvement options.	OS 2: Affected Persons are compensated for all their losses at full replacement cost. They can be offered a range of different compensation packages, resettlement assistance & livelihood improvement options.
Pollution Prevention and Control	National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations, 1991; and National Environmental (Surface & Groundwater Quality Control) Regulations 2011	Operational safeguard 4 – Pollution prevention and control, hazardous materials and resource efficiency	Operational safeguard 4 – Pollution prevention and control, hazardous materials and resource efficiency
Greenhouse Gases	National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations, 1991	Operational safeguard 4 – Pollution prevention and control, hazardous materials and resource efficiency (Special screening for GHGs is also considered under OS 1)	Operational safeguard 4 – Pollution prevention and control, hazardous materials and resource efficiency (Special screening for GHGs is also considered under OS 1)
Waste and Hazardous Materials	- National Environmental Protection (Management of Solid and Hazardous Wastes) Regulations, 1991	Operational safeguard 4 – Pollution prevention and control, hazardous materials	Operational safeguard 4 – Pollution prevention and control, hazardous materials and resource efficiency

Key Element	Nigerian Provisions	AfDB Integrated Safeguard System	Provision to be adopted by NTEP 1 Program
	-Harmful Wastes (Special Criminal Provisions etc.) Act CAP HI LFN 2004	and resource efficiency	
Resources and Conservation	Natural Resources Conservation Act CAP 349 LFN 1990	Operational safeguard 3: Biodiversity and Ecosystem Services	Operational safeguard 3: Biodiversity and Ecosystem Services
Labour Conditions	Employee Compensation Act, 2010 Labour Act, 1990	Operational safeguard 5 – Labour conditions, health and safety	Employee Compensation Act, 2010 Labour Act, 1990
Health and Safety	Factories Act (CAP F1), 2004	Operational safeguard 5 – Labour conditions, health and safety	Operational safeguard 5 – Labour conditions, health and safety
Natural Habitat and Biodiversity	Forestry Law CAP 51 LFN 1994 Endangered Species (Control of International Trade and Traffic) Act No. 11 of 1985. Natural Resources Conservation Act CAP 349 LFN 1990	Operational safeguard 3: Biodiversity and Ecosystem Services	Operational safeguard 3: Biodiversity and Ecosystem Services
Gender	National Gender Policy 2010	Special consideration is given to the needs and rights of women. In the context of gender vulnerability, the client must consider the social and political constraints and barriers that women may face.	There is the need for the project consider the implications of the AfDB Gender Marker System and how to design and implement an appropriate Gender Action Plan for the sub projects
Vulnerable Groups	Some Nigerian policies address the needs of vulnerable people, such as the Gender Policy, Child Act or NEEDS framework. However, there are no specific provisions related to E&S Assessment.	OS 1: Environmental and social assessment. Special attention is given to vulnerable groups.	OS 1: Environmental and social assessment. Special attention is given to vulnerable groups.

Key Element	Nigerian Provisions	AfDB Integrated Safeguard System	Provision to be adopted by NTEP 1 Program
Indigenous People	No provision for indigenous people	OS 1: Environmental and Social Assessment	OS 1: Environmental and Social Assessment
Differentiated Measures for Vulnerable Group	No provisions	Provision for differentiated measures for inclusion	(Provision for differentiated measures for inclusion)
Environmental Monitoring	EIA Act Cap E12 LFN 2004	ESAP	ESAP
Disclosure and Access to Information	EIA Act Cap E12 LFN 2004	OS 1: Environmental and social assessment	OS 1: Environmental and social assessment

2.9 Disclosure Requirements

Disclosure of information will enhance governance and accountability specifically with respect to strengthening of monitoring indicators to facilitate the monitoring of compliance with the agreements and assess impact on outcomes. The disclosure requirements of the Nigerian FMEnv and the AfDB are presented in Table 2.8. Disclosure requirements for AfDB's Category 1 projects are longer than FMEnv disclosure period of 21 days.

Table 2.8: Disclosure requirements of the FMEnv and AfDB

Entity	Project Type	Project Category	Disclosure documents	Disclosure Requirements*
FMEnv	Public and Private sector	Category 1 & 2	ESIA	21
AfDB	Public Sector	Category 1	ESIA/ESMP, ARAP or FRAP	120
		Category 2	ESMP	30
	Private Sector	Category 1	ESIA/ESMP, FRAP	60
		Category 2	ESMP	30

CHAPTER THREE: PROJECT DESCRIPTION

3.1 Introduction

This chapter describes the key anticipated components and planned activities of the NTEP-1 sub-projects including design and procurement requirements, project overview, associated facilities and project components as well as construction and operation activities.

Following a power system analysis by TCN, a transmission expansion plan was developed. It is crucial to strengthen existing transmission infrastructure and construct new ones because the total generation required to meet the load in Nigeria by 2020 is estimated to be about 10,700 MW. Consequently, an addition of about 4,500MW is expected to be generated from new power plants that are envisaged to be in operation by 2020. Further generation capacity addition of 15,768 is also expected between 2021 – 2025[1].

The immediate priority for TCN includes reinforcing about 23 overloaded lines (circuits). The NTEP 1 program described in this ESMF is part of the wider expansion program being developed by TCN.

3.2 Project Overview

TCN intends to increase the wheeling capacity of its network through expansion of existing substations, construction of additional lines and new substations, and to upgrade existing transmission lines through the replacement of their conductors with higher amperage conductors. To achieve this objective, TCN has developed the Transmission Rehabilitation and Expansion Programme (TREP) to be financed by the African Development Bank (AfDB), World Bank (WB), Agence Française de Développement (AFD) and Japan International Cooperation Agency (JICA).

Under the TREP, the FGN has requested the AfDB financing for the Nigerian Transmission Expansion Project (NTEP). Whilst the current framework (ESMF) is designed to guide the approach to be taken in preparing the ESIAs for the projects under NTEP 1, it is important that a high-level E&S management

[1] Final Report of TCN Transmission Expansion Plan: Development of Power System Masterplan for TCN by Fichtner. Published in December 2017. www.fitchner.de

framework through a Strategic Environmental and Social Assessment is prepared for the overall TREP program. The justification of this approach is that it will help TCN to performs its coordinating role (by bringing together all the lenders involved in the TREP program) in examining alternative scenarios in assessing the potential E&S and climate change implications of the program, likewise the institutional options for the management and monitoring the resulting environmental, social and climate change changes over time. Furthermore, such program-based approach will make it possible for TCN to address in advance, the cumulative impacts of the numerous individual projects and sub-projects of the program.

With financing to be provided by AfDB, TCN is planning to build in the North-West region of Nigeria a 330kV double circuit line with quad conductors between Kaduna (Mando) and Kano (Rimi-Zakara), two 330/132/33kV substations and two 132/33kV substations. In the South-South and South East region, TCN is planning the reconstruction of one 330kV transmission line in each geopolitical region. The 330kV lines Delta-Benin and Alaoji-Ihiala-Onitsha shall be replaced by double circuit quad conductor Transmission Lines. The sub-projects were conceived for improvement of the transmission system operation and reliability of the transmission network in both the Northern and Southern region. A brief description of the components of the program is presented below.

The NTEP 1 program, includes the following:

1. The construction of a double circuit Quad Conductor of 330kV type with a total length of about 205.05km, between the existing TCN substation at Mando in Kaduna State and the ongoing substation at Rimi Zakara, Kano State (currently undergoing expansion works). As part of the subproject, 4 new substations will be constructed at Zaria, Jaji, Rigasa and Millennium city, Kaduna
2. Reconstruction of existing transmission lines with a total length of about 107km between the existing substations at Benin, Benin Edo State and Ugheli, Delta State to a 330kV double circuit, quad conductor lines.
3. Reconstruction of existing transmission lines with a total length of about 138km between the existing substations at Alaoji, Abia State and Onitsha, Anambra State to a 330kV double circuit, quad conductor lines.

The detail specifications of the substations and transmission lines being considered under NTEP-1 are described in Table 3.1 while the locations of the three transmission lines are presented on figure 3.1

Table 3.1: NTEP-1 Sub-projects

S/N	Region	Location	Type of Project	Description/Components
Construction of approximately 205 km 330kv T Line between Mando and Rimi Zakara with associated substations				
1	Kaduna	Zaria	Construction of 330kV Substation	• Installation of 2nos 150MVA 330/132/33 kV Transformer • 2nos 60MVA 132/33kV Transformer • Installation of 6nos 132kV line bays • Installation of 4nos 330kV line bays • Installation of 6 No outgoing 33kV feeder bays
2	Kaduna	Jaji	Construction of 132kV Substation	• Installation of 2nos 60MVA 132/33 kV Transformer • Installation of 2nos 132kV line bays • Installation of 6nos outgoing 33 kV feeders bays
3	Kaduna	Rigasa	Construction of 132kV Substation	• Installation of 2nos 60MVA 132/33 kV Transformer • Installation of 6nos outgoing 33 kV feeders • Installation of 4nos 132 kV line bays
4	Kaduna	Millennium City	Construction of 330kV Substation	• Installation of 2nos 150MVA 330/132/33kV Transformer, • Installation of 2nos 330 kV line bays • Installation of 2nos 132 kV line bays • 2nos 60MVA 132/33 kV Transformer and • 6 number associated outgoing 33 kV feeder bays.

S/N	Region	Location	Type of Project	Description/Components
5	Kaduna	Kaduna (Mando)-Kano (Rimi Zakara	Construction of 330kV Transmission line Kaduna - Kano	• Construction of double circuit Quad conductor 330kV transmission line • Installation of appropriate towers to carry the quad lines • Length of line is 205km
Reconstruction of 2 South –South lines				
6	Benin	Benin – Delta (Ugheli)	Reconstruction of Delta to Benin 330 kV Transmission Line	• Reconstruction of existing 330kV single circuit transmission line to double circuit Quad conductor • Removal of existing towers • Installation of appropriate towers to carry the quad lines • Length of line is 107km • Installation of associated line bays at both ends of the Transmission line
7	Port-Harcourt	Alaoji (Abia State) – Onitsha (Anambra State)	Reconstruction of Alaoji to Onitsha 330 kV Transmission Line	• Reconstruction of existing 330kV single circuit transmission line to double circuit Quad conductor • Removal of existing towers • Installation of appropriate towers to carry the quad lines • Length of line is 138km • Installation of associated line bays at both ends of the Transmission line

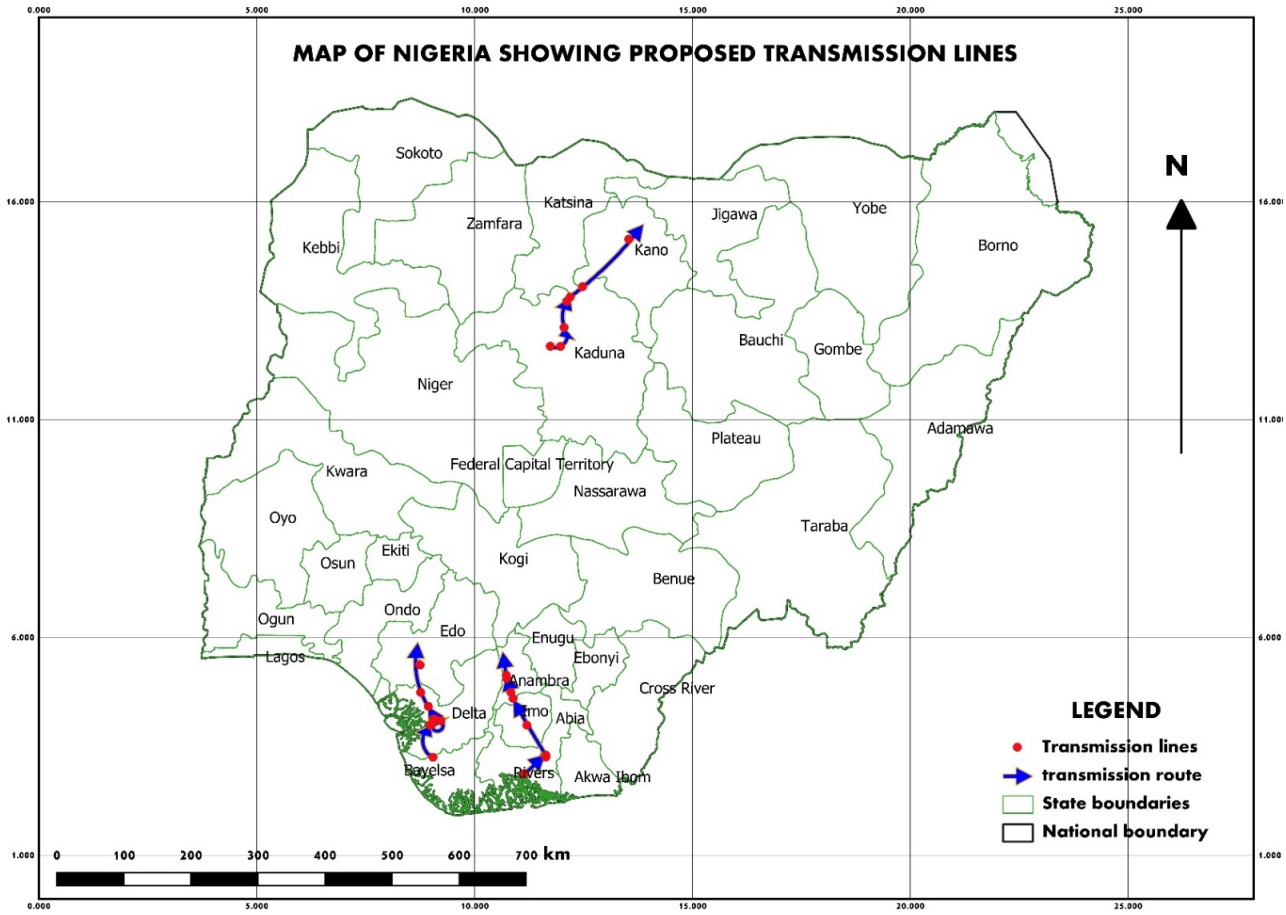

Figure 3.1: Map of Nigeria showing the locations of NTEP 1 project components

3.4 Project Phases and Activity Sequence

It is expected that each project within the NTEP 1 program will be delivered in a number of phases typical of linear projects of this scale and magnitude. The project activity order for the proposed sub-projects transmission line is given in Table 3.2. This does not however show the interdependencies of the activities.

Table 3.2: Project Implementation Phases and Activities

Project Component	Description
Project Components	**Transmission lines** • Above ground power transmission lines **Transmission Towers** • Steel, wood or aluminium towers or pylons. • Power Distribution Lines **Substations** • One or more transformers, as well as switching, control, and protection equipment.

Project Component	Description
	• Substations can be located in fenced enclosures, underground, or inside buildings. **Temporary construction components** • Temporary construction facilities (e.g. workshops, laydown areas, working corridors along the RoW, workers' accommodation, etc.). • Temporary access roads within and between construction areas / temporary facilities.
Pre-construction	• Surveys (including topographic survey) • Conceptual Design • ROW acquisition programme • EPC contract award • Mobilization • Check survey of EPC contractor • Transmission line detail design • Material production (conductor, insulator, line hardware) • Material testing • Material shipment • Tower production • Tower testing • Tower shipment Clear and grub site along transmission line corridor
Construction	Monitoring of ESMP performance. Monitoring of compliance with loan covenants. Monitoring of sub-contractor contract provisions
	Construction activities will include: • Establishing temporary access to work and ancillary areas, demarcating clearance zones, establishing access control. • Clearance and levelling of the transmission line route. • Construction of pylons / towers and installation of overhead power lines. • Construction of substations.
The equipment required will include heavy mobile plant (e.g. excavators) and temporary fixed plant such as power generators.	
Operation and Maintenance	Project implementation: Compliance Monitoring
During operation impacts will generally be small, related to visual, safety and electromagnetic impacts, and to disruption of aerial routes used by birds and bats.	
RoW maintenance is required to protect the system from windfall, and contact with trees and other vegetation. This involves mowing with heavy-duty equipment, use of herbicides, trimming and pruning. Maintenance of power lines and substations will entail many of the activities described above for the construction phase, although they are likely to be smaller in scale and spatial extent.	
Decommissioning (Closure)	Project Completion: Compliance Report
Where temporary access roads are developed during construction they should be decommissioned and rehabilitated in accordance with a site-specific closure plan developed in consideration of international good practice.	

Project Component	Description
Both for temporary facilities and ultimately the transmission line and associated facilities, the closure process will include site clearance, removal of all equipment including underground power lines, appropriate disposal of waste materials and reinstatement / revegetation as appropriate.	

CHAPTER FOUR: ENVIRONMENTAL AND SOCIAL BASELINE INFORMATION

4.1 Introduction

Nigeria is located at the extreme inner corner of the Gulf of Guinea on the west coast of Africa and lies between latitudes 3°15' to 13°30' N and longitudes 2°59' to 15°00' E. On the south, it is bordered by Gulf of Guinea, on the west and north, it is bordered by the Republics of Benin and Niger respectively, and on the east, it adjoins the Cameroon Republic. Nigeria has a land area of 923, 768 km^2 in which land comprises 910, 768 km^2 and water accounts for 13, 000 km^2. Its greatest length from North to South is 1, 046 km, and its maximum breadth from East to West is 1,127 km with a total boundary length of 4,900 km, of which 853 km is coastline.

Administratively, Nigeria is a federating republic comprising 36 states (and one federal capital territory) organized into 6 geo-political zones (Figure 4.1). The proposed sub-projects cut across seven states in 3 geo-political zones as indicated in Table 4.1 below.

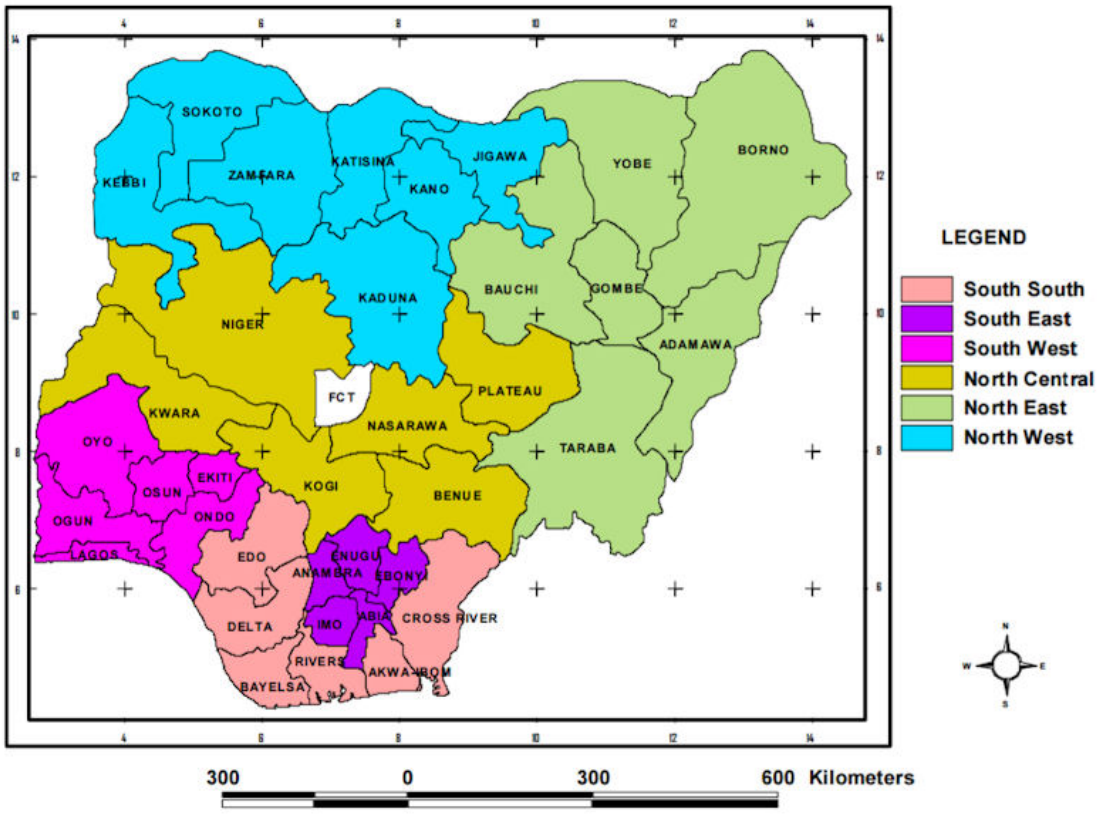

Figure 4.1: Map of Nigeria showing States and Geo-Political Zones

4.2 Physical Environment of Project Zones

4.2.1 Climate

- **North-West Zone**

The climate experienced in the sub-project area is semi-arid characterized by two predominant climatic conditions annually. These include a very hot and long dry season occurring between October and April and a warm, humid and short wet season with most of the rainfall occurring between May and September. Historically, rainfall in the region usually peaks in August with little or no rain at all between October and April during which the climate is dominated by the harmattan wind blowing Sahara dust over the land. The mean relative humidity for the region ranged from 52.8% to 78.6% during the rainy season (May to September), with its peak usually recorded in the month of August the same month of highest rainfall. Lower values were recorded during the dry season months basically because rainfall increases the amount of water vapor in the air.

The region is characterized by two extreme temperatures relative to its tropical position, the hot and cold seasons. The maximum daytime temperatures for most of the year are generally under 40°C. The highest monthly temperature of 36.6 - 39.2°C is experienced between March and May. There is usually the prevalence of harmattan, characterized by very cold temperatures and dust laden winds between November and February when average monthly temperature can be as low as 13.4°C. The average range of sunshine hours is between 6.88 in March to about 8.57 hours per day in November with approximately average of 7.71 sunlight hours for each day. The average daily sunshine in the region is about 2,821 corresponding to the average annual sunshine hours of approximately 3000 obtainable in the northern part of Nigeria as against an average of 1,500 in the South according to NIMET, 2005.

The average wind speed of the zone ranges between 6.63 to 10.09 Knots with the maximum figure usually recorded in June. There is some occasional calmness with insignificant wind speed mostly experienced between August and November. There are two major wind directions in the region, the south-west and north-east directions. The northeast wind predominates during the dry season bringing a large amount of dust while the southwest winds are predominant in wet season.

- **Southern Zones**

The project areas in the southern-region generally falls in the tropical rainforest climate although most parts of Delta state are in the swamp forest zones. The region exhibits two major seasons, longer rainy and shorter dry season, harmattan is a minor season. The rainy season usually begins in April and ends in October. The rainy season is caused by the South West Trade Wind. The dry season usually lasts for about four months from November to March and characteristically marked by Harmattan wind between December and February. The annual rainfall average usually varies from 1,500mm to 2,200mm (60 to 80 inches). The relative humidity is usually high throughout the year (about 75%), reaching a maximum during the rainy season when values above 90% are recorded.

The key factors that influence temperature in the area are the movement of the sun, wind speed and direction, and land configuration. The temperature in the region is generally high all year round and usually range between 27-30^{0}C between June and December but can rise to 32-36 ^{0}C between January and April, with the last few months of the dry season marked by intense heat. A general assessment of the sunshine hours for the southern region revealed that the lowest sunshine hours of approximately 3.5 hours per day are recorded at the peak of the rainy season (July and August) while the brightest months occur in November where average sunshine hours of up to 7.5 hours.

The south-westerly wind which prevails during the wet season (July- October) accounting for about 33% of annual wind and the southerly winds dominating from March to June as well as the beginning of the dry season in November accounting for about 50% of annual winds. The north-easterly wind predominates during the dry season (December– January) and amounts to about 16% of the annual winds. The monthly mean wind speed varies from 3.4 to 4.6 meters per second (m/s). Wind speed is strongest at the middle of the rainy season during August and September.

4.2.2 Geology and Soils

- **Northern Zone**

Kano and Kaduna states are underlain by rocks of the Nigerian basement complex comprising migmatites-gneiss complex, younger metasediments, older and younger granites. McDonald et al., (1986) established that, it is dominantly underlain by undifferentiated metamorphic suite, older granite,

coarse pink granite and porphyritic biotite granite. The predominant rock type is older granite. The older granite is composed of coarse-grained granite, granodiorite, diorite and aplite. The most abundant and typical member of the older granite suite is a coarse-porphyritic granite. It is typified by the abundant large feldspar set in a ground mass rich in biotite or hornblende.

The feldspar may be white, purple, pink, yellowish brown and dark grey. The schists are considered to be Upper Proterozoic supracrustal rocks which have been infolded into the migmatites-gneiss-quartzite complex (Obaje, 2009). They occupy an area within the ''walled city'' to the north central part of Kano. They are reddish to greenish grey in colour and highly weathered. They are found to be associated with diorite. This association indicates that schists have been intruded by small dioritic bodies and are considered older than diorites in the area.

In general, the soils are divided into four main groups. These are the ferruginous tropical soils on crystalline acid rocks which occupy about two-fifth of the area to the south, south-west and south-east; the brown soils and latosols of the northern half; the brown and reddish brown soils in the north eastern corner; and the juvenile and hydromorphic soils which occur along the alluvial channel complexes. The soils largely reflect the influence of parent materials. Intensive use of the soils and the addition of manure and chemical fertilizers have altered their character, profile, texture, structure and chemical characteristics.

- **Southern Zone**

The project zones in the southern states are predominantly underlayed by sedimentary rocks with the following stratigraphic units underlying most part of the region: the Benin Formation, the Ogwashi - Asaba Formation, the Bende-Ameki Formation, Imo Shale Formation, Nsukka Formation and Ajali Formation (Akaolisa and Selemo, 2009; Nwosu *et al*., 2010). The Benin Formation is overlain by lateritic overburden and underlain by the Ogwashi - Asaba Formation which is in turn underlain by the Ameki Formation of Eocene to Oligocene age (Mbonu *et al*., 1991). The Benin Formation consists of coarse-grained gravelly sandstones with minor intercalations of shales and clay. The sand units which are mostly coarse grained, pebbly and poorly sorted contain lenses of fine-grained sands (Onyeaguocha, 1980).

The Ogwashi-Asaba Formation is made up of variable succession of clays, sands and grits with seams of lignite. The Ameki Formation consists of greenish-grey clayey sandstones, shales and mudstones with interbedded limestones. This Formation in turn overlies the impervious Imo Shale group characterized by lateral and vertical variations in lithology. The Imo Shale of Paleocene age is laid down during the transgressive period that followed the Cretaceous. It is underlain in succession by Nsukka Formation, Ajali Sandstones and Nkporo Shales.

There are three types of soil in the zone. These consist of alluvial soil on the marine deposits along the coast; alluvial and hydromorphic soils on marine and lacustrine deposits found in the area closest to the Niger and Benin rivers; and the ferral soils on loose sandy sediments in the dry land areas of the north and northeast. The ferral soils are usually yellowish in color.

Soil profile reveals that the region is composed mainly of reddish-brown sandy laterite. Intermittent layers of porous sands of sandy clays may reach a large depth as found in the borehole drilled in the region. These are products of deep chemical decay of the original parent rock materials (Imhangulaya, 2016).

4.2.3 Hydrology and Drainage

Northern Zone

Kano state is drained by two rivers, namely Challawa and Kano Rivers which flow towards Jigawa State where they converge to form Hadejia River before eventually flowing into Lake Chad. Kaduna state is drained by Kaduna River which is a tributary of River Niger. The river starts in Plateau state and flows through Kaduna state and meets Niger River in Niger state.

- **Southern Zone**

The principal rivers in Abia and Imo States are the Imo River and its tributary, the Aba River. They cut through the two states but are more prominent in the southern part of Abia and eastern part of Imo state. The river Imo flows from Imo state through Abia and empties itself in the Atlantic Ocean through the estuary in the Niger Delta. Three river systems drain the Benin Region. They are the Ikpoba River, the Ogba River and Owigie-Ogbovben River systems. The three rivers constitute a dendrite drainage pattern. The drainage density can be described as lower sparse (Imhangulaya, 2016).

Delta state is drained by Ethiope River which forms a major tributary to Benin River. Ethiope River takes its source from a spring at Umuaja in Delta State and flows over 100km to empty into Benin River. This river serves as the terminal point for storm runoff in the area. Inhabitants of the area rely on the river for activities such as washing, fishing, sand mining and inter-village transportation. At the lower reaches of the river, it is subjected to tidal influence of the Atlantic Ocean

4.3 Biological Environment

There are nine distinct ecological zones in Nigeria which can be streamlined into five, namely (i) Sahel/Sudan Savanna, (ii) Guinea Savanna, (iii) Derived Savanna, (iv) Lowland rainforest/montane forest and (v) Freshwater swamp forest/mangrove forest and coastal vegetation (Figure 4.2).

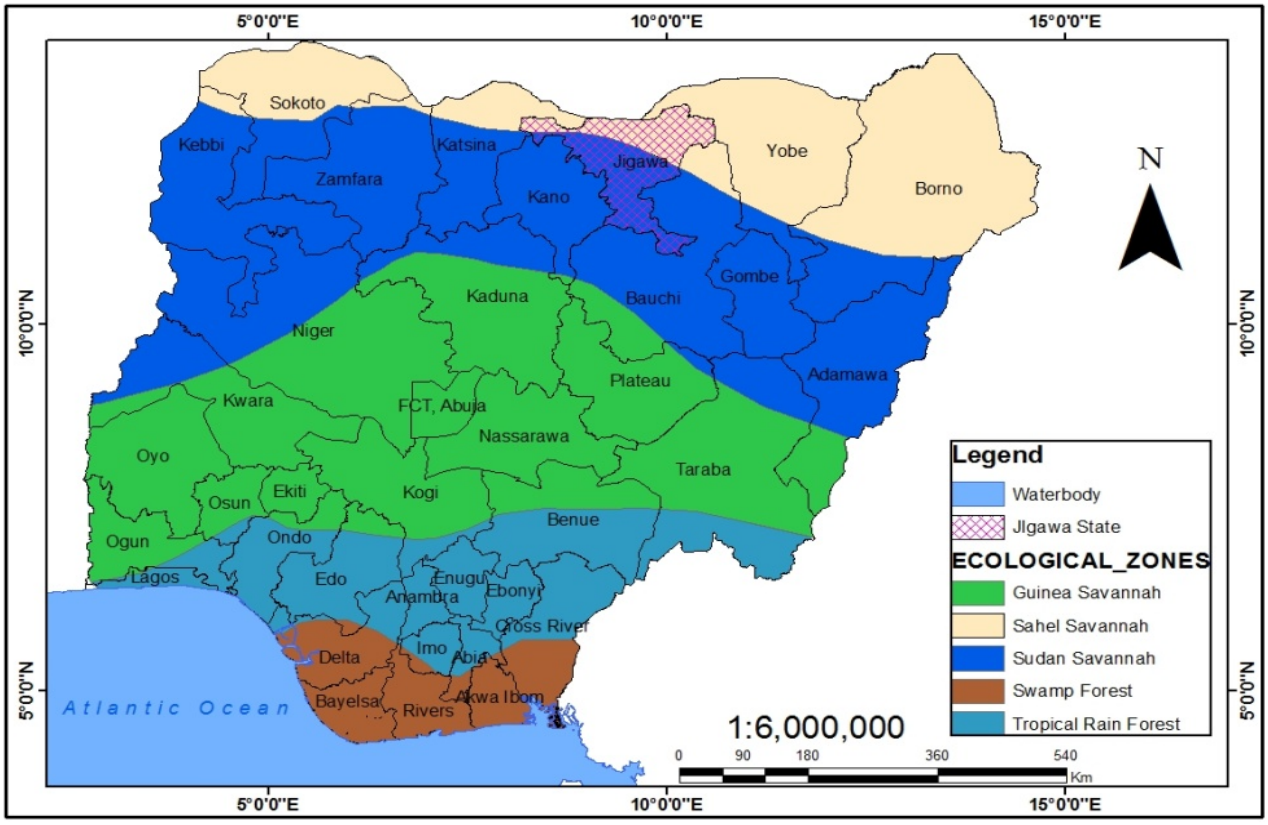

Figure 0.2. Map showing Different Vegetation Belt of Nigeria

4.3.1 Northern Region

Kano and Kaduna states in the Northern region are covered by Sudan and Guinea savanna. The region is characterized by relatively long dry season lasting 5-7months resulting in less woody species compared to the Forest belt

in the southern region. Thus, the regional vegetation is a mixture of grasses and low growing shrubs and trees. The region is currently experiencing desert encroachment which is greatly exacerbated by human activities such as over cultivation, overgrazing, etc.

The Sudan Savannah vegetation belt is found in the north-west, stretching from the Sokoto plains in the west, through the northern sections of the central highland. It spans almost the entire northern states bordering the Niger Republic and covers over one quarter of Nigeria's total area.

4.3.2 Endangered and Critically endangered Species in Nigeria

The most endangered or critically endangered floral and faunal species across Nigeria are presented in Table 0.1.

Table 0.1. Critically Endangered and Endangered Species across Nigeria

Flora or Fauna	Critically Endangered and typical location	Endangered and typical location
Flora	Abura (*Hallea ledermannii*) Niger delta Iroko (*militia excelsia*) some parts of southwest, and Niger delta Obeche (*Triplochiton scleroxylon*) some parts of east, south south and west Mahogany (*Swietenia spp*) skirmishes in parts of cross river and Ondo Baobab (*Adansonia digitata*) parts of north and middle belt	All timber species can be classified endangered owing to rate of deforestation, urbanisation and population explosion as against afforestation.
Fauna	African elephants (*Loxodonta africans*) parts of cross river, Osun-Ondo range Chimpanzee(*Pan troglodytes*) cross river Guenon (*Cercopithecus erythrogaster*) okomu Edo Gorilla (*Gorilla gorilla*) cross river Drills (*Mandrillus leucophaeus*) cross river Pangolin (*Manis* species) parts of south south and west	Most primates, rodents, reptilians and avians as listed on that list are endangered but enjoys different levels of listings in the CITES Appendices

It is expected that as part of the ESIA for the subprojects under the Program, a detailed assessment will be undertaken to identify specific flora and faunal species which are endangered or critically endangered in the project areas with detail management action plan to protect them in the ESMP.

4.3.4 Protected Areas

Across Nigeria, there are at least 23,608.34km^2 (or 2,360,800hectares) of land that are designated by national authorities as scientific reserves with limited public access, national parks, natural monuments, nature reserves or wildlife

sanctuaries, protected landscapes, and areas managed mainly for sustainable use.

Some of the protected areas which may likely be in the wider area of influence of some of the sub project locations are presented in Table 0. below.

Table 0.2. Protected Areas in States of Project Implementation

Name	State	Area (sq/km)
Falgore (Kogin Kano)	Kano	920
Baturiya Wetlands	Jigawa	43
Kamuku National Park	Kaduna	1,120
Okumu Forest Reserve	Edo	1081
Gilli-Gilli Games Reserve	Edo	363
Ologbo Game Reserve	Edo	
Ukpe-Sobo Forest Reserve	Delta	-
Anambra Game Reserve	Anambra	

Source: National Biodiversity Strategy and Action Plan for Nigeria

4.3.5 Key Ecological Problems

Commencement and operations of developmental projects often result in the direct removal or disturbance of plants, animal and habitat communities. Ecological problems in Nigeria most especially Northern Nigeria have led to scarcity, threat and extinction or migration of plant and animals varies from location to location. Generally, in Northern Nigeria, deforestation, overgrazing, drought and desertification as well as yearly flooding in some parts of Northwest (mainly Kebbi and Sokoto) are major ecological problems. Lack of succulent grasses for animals to feed in the North had and has been forcing pastoralists to migrate southwards for grazing. This also often results in farmer grazer conflicts in places like Zamfara, Kaduna and Plateau states.

Special attention will need to be given to these issues when designing and implementing the E&S studies of the sub projects.

4.4 Social Environment

Given that the subprojects in the NTEP 1 program are located both in the northern and southern parts of the country, the socio-economic description presented here is a general description of Nigeria. It is expected that as part of the ESIA/RAPs for the individual subprojects, detailed and site specific socio-economic data will be collected in the project area of direct and indirect influence as required to inform the design and implementation of the mitigation measures for identified impacts.

4.4.1 Demographics

Nigeria is one of the most densely populated country in Africa with approximately 196 million people in 923,763km^2, Nigeria is also the country with the largest population in Africa with the seventh largest population in the world. Approximately 50% of Nigerians are urban dwellers, with the rate of urbanization being estimated at 4.3%. Nigeria is home to over 250 ethnic groups, with over 500 languages, and the variety of customs, and traditions among them gives the country great cultural diversity. The three largest ethnic groups are the Hausa/Fulani, Yoruba and Igbo. The Efik, Ibibio, Annang, and Ijaw constitute other Southeastern populations. The Urhobo-Isoko, Edo and Itsekiri constitute Nigerian's Midwest.

4.4.1.1 Population

Nigeria's population has been increasing rapidly for at least the last 5 decades, due to very high birth rates, with the country quadrupling its population during this time (Table 4.3). This represents an exponential growth rate. Growth rates were most rapid in the 1980s, after child mortality had dropped rapidly, and has slowed slightly since then as the birth rate has declined slightly. According to the 2017 revision of the World Population Prospects the total population was 185,989,640 in 2016, compared to only 30,403,305 in 1952. The proportion of children under the age of 15 in 2010 was 44.0%, 53.2% was between 15 and 65 years of age, while 2.7% was 65 years or older. There is a large population momentum, with 3.2% growth rate leading to the projected population.

Table 4.3: Historical population growth rates in Nigeria

Year	Population	±% p.a.
1952	30,403,305	-
1963	54,959,426	+5.53%
1991	88,992,220	+1.74%
2006	140,431,790	+3.09%
2011	162,471,000	+2.96%
2013	174,507,539	+3.64%
2015	182,202,000	+2.18%
2017	191,836,000	+2.61%

4.4.1.2 Ethnic Groups and Religion

Nigeria has more than 250 ethnic groups, the larger of which are the Hausa and Fulani who are predominantly in the Northern part of Nigeria and

represent approximately 29% of the population, the Yoruba, predominantly in the South (South West) and represent approximately 21% of the population and the Igbo, predominately in the East represent about 18% of the population. The other large groups are the Ijaw with about 10% the Kanuri with about 4%, the Ibibio with about 3.5% and the TIV with about 2.5%. The Middle Belt region of Nigeria shows the greatest degree of ethnic diversity, particularly in Adamawa, Taraba and Plateau States. English is the official language while a clear majority of the population conducts commercial activities in their ethnic language and "pidgin" English. The literacy level of the population is 51.7% (male: 67.3%, female 47.3%). Predominantly the people are Muslims (50%) and Christians (40%) with few traditional religions (10%) (ESMF L-PRES, 2018)

There are no communities or ethnic minorities considered as "underserved" in Nigeria. However minority tribes in Nigeria are mostly from Southern part of the country with tribes like Itsekiri, ilaje, Ikale, Boki, Andoni, Ejagham taking the lead while the notable ones in the North includes Kanuri, Bura, Chibok, Shua-Arab, Karai, Bade, Kagoro, Bajju, Jaba, Berom, Angas and so on. Closer to what can be referred to as minority ethnic group in Nigeria is the Fulani tribe who are found in smaller groups across the country mainly because of their nomadic nature but without any close attachments to ancestral territories and natural resources in areas where they are found. They move round and settle for short period of times. Their cattle grazing activities covers vast area within Nigeria from North to South. With their widespread coverage, they are mostly regarded as settlers in many places within Northern Nigeria and this have created a lot of unrests. Such unrests have been witnessed in Benue State, Plateau State, Kaduna State and Nasarawa State. Their economic status revolves mainly around their cattle business and are usually prominent around cattle markets in the country.

4.4.2 Public Health

The inadequate programs designed to address the numerous health problems in Nigeria have led to the little improvement in our health status. Besides the continued neglect of the importance of addressing public health issues would make matters worse for poor Nigerians most of who are at the receiving end. The major public health challenges Nigeria faces are infectious diseases, control of vector some diseases, maternal mortality, infant mortality, poor sanitation and hygiene, disease surveillance, non-communicable diseases and road traffic injuries, etc.

The problems of inadequate health care delivery are further compounded by inadequate power supply which has generally reduces the capacities of many health care facilities most especially in the rural areas. Functional laboratories are mainly found in private health centers and government owned specialist hospital. **NTEP1 is a direct response to this problem as more capacity to transmit will eventually lead to more generation.**

The low availability, accessibility, and affordability, of health services are not the only factors responsible for the poor health status of women and children in Nigeria. Many normative practices persist in the North that do not benefit the general well-being of women. For instance, as well as being dependent for financial assistance, many women will require the permission of their husbands, before they may be allowed to visit health clinics and facilities. In the south on the other hand, lack of financial capabilities as well as low capacity of the health care facilities within accessible distances contributes to poor health of the people.

4.4.2.1 Epidemic Diseases and HIV/AIDS

Epidemic diseases within Nigeria includes Yellow Fever, Monkey Pox, Lassa Fever, Hepatitis, Polio, Cholera, measles, guinea worm and cerebro-spinal meningitis. These diseases have become endemic in parts of central and northern Nigeria, taking turns between the country's two main seasons to ravage large populations of people. During the rainy season, cholera is usually common across several states in the country. According to IRIN report of 1999, states like Kano, Borno and Katsina in Nigeria's northern fringe were badly affected while small outbreaks were also reported in the North-Central states of Kaduna and Bauchi. Vesico Viginal Fistula is another common epidemic that is common mainly in Northern Nigeria and this has been attributed to early and child marriage.

Apart from these diseases, HIV is another issue, according to the global information and Education on HIV/AIDS in Nigeria, Nigeria has the second largest HIV epidemic in the world. Although HIV prevalence among adults is much less (2.8%) than other sub-Saharan African countries such as South Africa (18.8%) and Zambia (11.5%), the size of Nigeria's population means 3.1 million people were living with HIV in 2017[2]. However, a recently published

[2] https://www.avert.org/professionals/hiv-around-world/sub-saharan-africa/nigeria

Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS), one of the largest population-based HIV/AIDS household surveys ever conducted, found the prevalence to be just 1.4%. The apparent decline has been attributed to better surveillance. UNAIDS estimated that around two-thirds of new HIV infections in West and Central Africa in 2017 occurred in Nigeria. Together with South Africa and Uganda, the country accounts for around half of all new HIV infections in sub-Saharan Africa every year. This is despite achieving a 5% reduction in new infections between 2010 and 2017. Unprotected heterosexual sex accounts for 80% of new HIV infections in Nigeria, with the majority of remaining HIV infections occurring in key affected populations such as sex workers. Six states in Nigeria account for 41% of people living with HIV, including Kaduna, Akwa Ibom, Benue, Lagos, Oyo, and Kano. HIV prevalence is highest in Nigeria's southern states (known as the South South Zone) and stands at 5.5%. It is lowest in the southeast (the South East Zone) where there is a prevalence of 1.8%. There are higher rates of HIV in rural areas (4%) than in urban ones (3%).

4.4.3 Land Use and Tenure

Land use varies in Nigeria based on location and the need of the community. Predominant land use in rural areas revolve around agriculture while urban areas have more of residential, industrial and social uses. In terms of tenure, the Land Use Decree of 1978 vests ownership of all land to the state through the office of the governor. Land is to be held in trust and administered for the use and common benefit of all Nigerians according to the provisions of the Act. By this legal instrument, the state replaced the traditional institutions of traditional rulership and chieftaincy in their roles as keepers of communal land. Control and management of land in urban areas is the responsibility of the state governor, while all other land (rural, public, etc.) is the responsibility of the Local Government of the area. The governor is empowered to designate certain areas as urban land and to grant statutory rights of occupancy of fixed periods and rights of access to any person, subject to rental arrangements fixed by and payable to the state. The local government can grant a customary right of occupancy to land in the local government area (LGA) to any person or organization for agriculture, grazing, residential or other purposes.

According to the existing national legislation in Nigeria (LUA 1978), the compulsory land acquisition needs to follow the following steps:

- The investor requests land from the State Governor, who in turn instructs the Commissioner of Land to obtain the land through compulsory land acquisition.

- The Commissioner of Land instructs the Surveyor General to demarcate the land and conduct a land survey i.e. identifies the owner and establishes the compensation entitled under the national legislation.
- After the Commissioner of Land has reviewed and approved the survey results, the Director of Land issues a public announcement to the concerned communities that invites all right holders to identify themselves to the authorities.
- After the end of the public disclosure period a final survey is conducted to confirm validate the findings of the land survey and/or register any changes.
- After the survey results have been either accepted by the right holders or confirmed by the Director of Lands, compensation is paid and the land becomes the possession of the State government, which then in turn can issue a certificate of occupancy to the investor.

4.4.4 Cultural Heritage

Nigerian is a country endowed with a lot of cultural heritages sourced from its multicultural communities. Globally the importance of heritages to countries and even in developing nations like Nigeria cannot be over-emphasized. This is due to its economic, historical, tourist, aesthetic, educational and research significance. Tangible cultural heritages include man's physical ingenious products which can be touched and seen such as architecture/buildings, defensive walls and ditches, crafts, tools, ivory, cowries, paintings, textiles, pestles, mortars, iron furnaces, knives, food, wooden objects, tombs & grave goods, temples, dresses, pottery & potsherd pavements, monuments, books, works of art among other artifacts. Some Cultural Heritages of Nigeria includes:

A. Northern Nigeria

1. Annual Argungu festivals in Kebbi state.
2. Annual Sallah Durbar in Katsina State
3. Gidan Hausa in Kano state
4. Farribachama Annual festival of Adamawa state

B. Southern Nigeria

1. Eyo masquerade of Lagos state
2. The Bakor Yam festival in Cross River state and others
3. Osun – Oshogbo festival in Osun state
4. Imo Awka masquerade ceremony in Awka, Anambra state.
5. Okija Shrine in Anambra State

Apart from the above, Nigerian societies are known for their unique new yam festivals celebrated in almost all communities in Nigeria. New yam festivals depict the agricultural prowess of Nigerians and their cultural value for hard work.

Nigerians practice unique traditional marriage ceremonies such as the *Igba-Nkwu* among the Igbo and fattening festivals that help to educate young maidens with virtues and chastity for womanhood. Other Nigerian indigenous festivals that need to be preserved are: Eyo festival in Lagos, Lagos state, Fattening festival in Calabar, Cross River State. Pategi Regatta in Niger State, Moremi Festival at offa, Awon mass wedding at Shao in Kwara State, Epa festival at Obo Aiyegunle Ilorin, Agemo festival Ijebu Ode, Igogo festival at Owo in Ondo state, Boat Regatta in Rivers state, Epe Boat Regatta (Aremu, 2008). Other Nigerian cultural heritages were the blacksmithing industry, brass-casting, bronze works and metal-working industries practiced across Nigeria, terracotta; wood carvers constructed beautiful stools and doors, engravings on walls and rocks etc.

CHAPTER FIVE: POTENTIAL ENVIRONMENTAL & SOCIAL IMPACTS AND MITIGATION

5.1 Overall Context

The development of projects under NTEP 1 program will expand access to electricity in Nigeria with attendant socioeconomic and industrial growth. In addition, the implementation of the projects is expected to provide short term, local employment opportunities and other positive E&S impacts for the affected communities, States and Nigeria at large. However, the sub-projects will inevitably have some adverse impacts on the biophysical and social environment particularly during pre-construction (particularly land acquisition and involuntary resettlement), construction (noise, dust, soil and water contamination etc.) and Operation phases.

These adverse negative impacts are likely to be readily identified, assessed and manageable through the application of appropriate mitigation measures, good E&S practice, sound design, good construction practices, effective maintenance and adequate supervision and enforcement during the project life cycle. As part of each project in the Program, E&S impact analysis of a sub-project (or project options) consists of comparing the expected changes in the biophysical and socioeconomic environment with and without the project. The impacts are identified using the ISS guidance materials on sector key sheets as well as observations and consultation during the ESMF field data collection.

5.2 Negative E&S Impacts and Mitigation Measures

The envisaged negative impacts of the sub-projects are presented in Table 5. with the recommended mitigation measures.

Table 5.1. Potential Negative E&S Impacts of Projects under NTEP 1 program (non-exhaustive) and Mitigation Measures

Potential E&S Impacts	**Mitigation Measures**
Pre-Construction Phase	
Loss of access and restriction on land available for farming and other land use activities like residential, schools, market, religious for the new line (Mando-Rimi Zakara).	• Limit land acquisition to the minimum required for operational effectiveness and safety. • Pay adequate compensation to affected PAPs • Create awareness for the project through consultations with host communities, relevant government agencies and public media, in order to avoid communal disturbances.
Displacement of encroachers along the Southern Line (Alaoji-Onitsha and Delta – Benin)	• Consult widely and develop a Resettlement Action Plan which will take care of Livelihood replacement. • Where the number of PAPs are too much with high resettlement cost, consider alternative route with lesser socio-economic issues.
Ecosystem fragmentation and loss in vegetation / wildlife abundance and diversity in the area during land clearing for Substations and TL ROW	• Limit clearing of acquired lands to the minimum required. • Give due consideration to forest conservation zones if they exist in the project areas • Use native species to re-vegetate the cleared ROWs within safety heights and distances.
Increased risk of accidents during mobilization and transportation of equipment to site which may lead to injury/asset damage	• Identify the safest access routes and time of movement into site to avoid multiple displacements and higher risks of accidents. • Use competent drivers (vehicle/vessel) throughout the project. • Develop and maintain an effective journey management plan. • Ensure vehicles are periodically maintained and records kept.
Destruction of bridges and culverts leading to project sites because of heavy weight of transformers	• Perform road integrity test on culverts and bridges on which heavy transformers will be delivered to project site to ensure they can carry the load or make provision for reinforcements.
Construction and Operational Phases	
Geology/Hydrogeology • Interruption of hydrogeology and groundwater flows from construction and ground clearance.	• Detailed alignment to take account of local groundwater conditions, e.g. by avoiding areas with springs or where the water table is shallow. • Limit sealed or compacted areas as much as possible, to maintain natural recharge of the water table.

Potential E&S Impacts	**Mitigation Measures**
Soils, Run-off and Flooding • Loss of soil / sediments and pollution of watercourses, and interruption of drainage patterns, as a result of land clearance access roads.	• Good construction site management practices to avoid runoff, erosion and sedimentation. • Careful design: e.g. alignment, minimal diversion of watercourses, timing of works (overall duration and seasonality).
Pollution of Soils and Water • Release of hazardous substances during construction and operation (e.g. insulating oils / gases, fuels and chemicals for wood preservation) leading to soil, surface water, marine or groundwater contamination. • Contamination of soil and ground water from transformer oil. *Water Storage in Transformer base during wet season*	• Materials handling and control procedures. • Control of construction vehicle movements and prohibition of vehicle washing in watercourses, and similar practices • Replace existing transformers and other electrical equipment containing PCB, and ensure appropriate storage, decontamination, and disposal of contaminated units. Remediation of soil if required. • Ensure that chemically preserved poles are pre-treated at an appropriate facility to ensure chemical fixation and prevent leaching of wood preservatives. • Measures to minimise the use of oil-based wood preservatives, and appropriate disposal of poles. • Ensure that transformers are installed on base with 110% containment for transformer oil in case of spill. • Develop a proactive plan to pump out water from transformer base during wet season.
• Discharge of construction site/camp sewage effluent polluting watercourses	• Installation of sewage treatment to meet required standards; hygiene training for workforce • Use oil/water separators on oily wastewater before disposal into the receiving environment
• Contamination of soils, surface water and groundwater from herbicides used in ROW management.	• Implement an ROW maintenance plan which considers alternative vegetation control strategies, with use of herbicides as a last resort. Alternatives may include mechanical weed control or use of grazing animals. • If herbicide use is required, implement measures to avoid uncontrolled and excessive use, with only those which are less harmful to the environment being deployed (e.g. avoiding systemic or persistent herbicides that are injurious to animals and humans). • Measures to prevent leaks and spills during storage and handling e.g. spill containment measures, training and correct labelling.

Potential E&S Impacts	**Mitigation Measures**
Air Quality • Dust from construction, and other emissions during construction and operation, could affect human health, vegetation (including crops) and wildlife.	• Sensitive siting of construction facilities, including access roads and laydown areas • Dust control and suppression measures as required. • Modern equipment and vehicles meeting appropriate emissions standards, and regular preventative maintenance.
Noise and Vibration • Noise and vibration from equipment including backup power generators and vehicles may disturb sensitive noise receptors (human and fauna).	• Sensitive siting of construction facilities. • Use of modern equipment fitted with abatement devices (e.g. mufflers, noise enclosures); good maintenance regime.
• For submarine power cables, noise and vibration from vessels may disturb marine fauna.	• Sensitive timing of laying, and location, of submarine power cables.
Electric and electromagnetic fields • Potential adverse human health impacts and impacts to fauna from power transmission lines and equipment.	• Evaluate potential exposure to the public, and any potential engineering techniques to reduce EMF produced. • Consider siting facilities to limit public exposure, especially near the most sensitive receptors, e.g. avoiding high voltage lines and equipment close to schools and hospitals, and also close to animal breeding sites
Water Use • Construction may require supply of water from surface or groundwater.	• Develop and implement measures to ensure sustainable water use, as required.
Waste Management • Inefficient waste management during construction and maintenance leading to excess materials consumption, generation of wastes/emissions, soils and water pollution.	• Preparation of appropriate Integrated Waste Management Plan following the waste hierarchy, supported by staff training. • Develop a waste compound to properly document waste generation and management • Use of authorized contractors for hazardous and any other wastes which the project cannot dispose of safely *See Pollution of Soils and Water above*

Potential E&S Impacts	**Mitigation Measures**
• Proliferation of different waste streams within substations	
Visual Impacts • Visual impacts from transmission lines towers and sub station	• Careful choice of alignment considering the landscape, important environmental and community features, siting high voltage lines away from highly populated areas, and burying lines in dense residential / commercial areas. • Public consultation along the alignment, to take community views into account. • Ensure good housekeeping by implementing the 5S. Sort, Set in order, Clean, Standardize and Sustain.
Loss, fragmentation and degradation of terrestrial and marine habitat, and severance of animal migration routes and pathways • Land clearance may cause loss or fragmentation of protected areas and other areas of conservation interest, and degradation following poorly managed rehabilitation. • Aerial power lines and pylons may disrupt bird migratory routes and bird and bat flight paths.	• Careful siting of all project components to avoid critical terrestrial and marine habitat, with advice from biodiversity authorities/wildlife specialists, and use of existing utility corridors where possible. • Burying submarine cables when traversing sensitive intertidal habitat. • Wherever feasible, establishment of buffer zones around conservation areas, watercourses, and other locations identified as ecologically sensitive and avoidance or minimisation of activity within these zones. • Where possible, installation of transmission lines above existing vegetation to avoid clearing. • Rehabilitation of cleared areas with native species, and ecosystem restoration in habitats of conservation value, using specialist advice and input, backed up by a long-term monitoring programme and corrective actions as necessary.
• Loss of vegetation due to right of way maintenance.	• Implement an integrated vegetation management approach to minimise impacts to non-target, endangered and threatened species. • Removal of invasive plant species and where necessary planting of native plant species. • Schedule vegetation management to avoid important periods for sensitive fauna species (e.g. breeding season). • Good maintenance practices such as avoiding clearance in riparian areas, avoiding use of machinery close to watercourses and measures to avoid noise / dust / spill impacts.
• Impacts from forest fires resulting from right of way maintenance activities.	• Reduce risk of forest fires, e.g. by monitoring fire risk, removal of high hazard fuel and appropriate disposal, timing maintenance to avoid high risk seasons, fire breaks and planting of fire resistant species.

Potential E&S Impacts	**Mitigation Measures**
• Disturbance to the seabed from anchoring of cable laying vessels, and presence of cable on seabed.	• Sensitive siting of power line to avoid critical marine habitat.
• Severance of animal migration pathways and flyways, and bird / bat collisions with pylons and power lines.	• Where power lines and access roads cross watercourses, design culverts/crossing structures to avoid impacts on fish movement. • Avoid critical habitats such as bird migration corridors, bat foraging corridors and nesting areas. • Design transmission line project to minimise the risk of collision and electrocution, such as burying power lines in critical areas, install visibility enhancement objects, maintaining space between energised parts and pylon structures/hardware.
• Construction impacts on habitats and species (e.g. from changes in drainage, soil erosion, pollution of water, soils or air, and general human disturbance).	Where development in sensitive areas cannot be avoided, mitigation may include: • Minimisation of area impacted, clear demarcation of remaining intact areas of habitat, and prohibition of activity into those areas for any purpose; maintenance of wildlife corridors between fragmented areas wherever possible. • Avoidance of construction activities during sensitive seasons or times of day. • Habitat rehabilitation and ecosystem restoration of areas no longer required after construction, as soon as possible. • Monitoring power cable alignment for presence of marine mammals prior to cable laying. See also Pollution of Soils and Water above and Induced Access below.
• Disturbance and emissions from vehicles and vessels during construction affecting the integrity and viability of areas of conservation interest.	See Air quality and Noise / Vibration above.
Impacts from Induced Access • Development of transmission lines in remote or undeveloped areas, especially construction of access roads for construction and	• Careful alignment selection, with advice from biodiversity authorities/wildlife specialists to avoid remote and previously inaccessible areas where possible. • Where possible, establish access controls on roads leading to transmission line and other project facilities (e.g. substations) in otherwise undeveloped or remote areas.

Potential E&S Impacts	Mitigation Measures
maintenance, may lead to further development, increased disturbance and displacement of fauna species who may eventually fall prey to hunters and logging etc.	
• Potential for bird collisions with Transmission Line towers and above ground cables.	• Siting towers and above ground cable routes to avoid critical habitats and migration routes. • Avoid cumulative impacts by limiting the number of towers (e.g. through co-location, removing disused towers). • Careful design to limit the impact of towers, e.g. limiting tower height, use of designs with lower collision risk, limiting tower lighting where practical.
Invasive Species • Movement of plant and workforce (including cable laying vessel movements) into areas could introduce invasive species which adversely impact fauna, flora, ecosystems, and crops.	• Invasive Species Management Plan, which should be developed and implemented in consultation with authorities, including appropriate eradication measures for different species/groups of species. • Staff training and awareness raising in communities. • No introduction of exotic species (e.g. for site rehabilitation) without specialist vetting and government approval. • Removal of invasive plant species during routine vegetation management.
Economic Development and Employment • Direct employment of local population in workforce, and stimulation of local economy through demand for goods and services will enhance livelihoods and economic activity in local communities, but potentially adverse effects if community relations are not well managed.	• Development of an Employment Plan, with clear employment requirements and procedures for the construction workforce. • Transparent and culturally appropriate communication with communities regarding employment opportunities. • Fair and transparent hiring and staff management procedures.
Cultural Heritage	• Careful route selection and siting of all project components, taking account of community consultation/specialist surveys.

Potential E&S Impacts	**Mitigation Measures**
• Displacement or damage to cultural heritage sites by construction activities, harm to the setting, amenity value, etc. of the site due to construction or operation.	• Development of a Cultural Heritage Management Plan covering tangible and intangible (e.g. local traditions and practices) cultural heritage. • Implementation of a "Chance Finds" procedure during construction. See also Guidance Note on Physical Cultural Heritage.
Community Health, Safety and Security • Poor construction management practices may lead to adverse effects on safety, human health and wellbeing. • Risk of accidents and fire hazards resulting from TL and substation operation	• Good construction site "housekeeping" and management procedures (including site access). • Disease control measures, e.g. no pools of standing water, rodent control, treatment of water. • Risk assessments and emergency response planning to consider impacts on local communities. • Adopt Health and Safety Measures highlighted in the Nigerian Electricity Supply and Installation Standards Regulations 2015 See also control of pollution under Physical Impacts heading.
Power loss during reconstruction of Southern Lines	• Reconstruction shall be done systematically in phases where areas being worked on shall be hooked to another line for continuous power supply.
Erosion affecting the base of TL towers causing collapse	• In Erosion prone areas, most importantly the Southern Lines (Alaoji-Onitsha and Delta-Benin Line), ensure proper drainages are put in place to protect the TL base from erosion.
Constant power trip off as a result of climbers and creepers touching the conductors.	• Develop proactive maintenance plan for weeding the Right of Way to prevent the growth of climbers and creepers.
• Interaction between workforce and local communities may increase occurrence of communicable diseases, including HIV/AIDS and sexually transmitted diseases (STDs).	• Implementation of a health management system for the construction workforce, to ensure it is fit for work and that it will not introduce disease into local communities. • Training and awareness training for workforce and their dependents on HIV/AIDS and other STDs, and communicable diseases including malaria; health awareness raising campaigns for communities on similar topics.
• Potential safety risks associated with the presence of transmission lines.	• Measures to avoid electrocution, such as signs, fencing and other barriers, and grounding objects. • Measures to avoid aircraft collision with transmission lines, e.g. lighting and consultation with air traffic authorities.

Potential E&S Impacts	**Mitigation Measures**
• Potential safety risks associated with the presence of transmission lines bases along median strips	• All TL bases along median strips should have concrete walls around them to prevent accidents from getting to the tower bases
• Vandalisation and theft of TL components	• Liaise with security agencies to protect TL towers from vandalism and theft • Employ the use of functional SCADA system to monitor all TL towers • Engage communities to protect TL towers as critical infrastructures within their areas.
• Corona effect on Humans encroaching the TL RoW	• Resettle or compensate all affected PAPs and ensure they don't return there to encroach
Social Structures and Community Life • Real or perceived disruption to normal community life, through the physical presence of a construction workforce.	• Adoption of a Stakeholder Engagement Plan, as a framework for early and ongoing community consultation. • Implementation of a Grievance Procedure (see Grievance Procedure and Redress Mechanisms guidance note). • Works procedures, defining a Code of Appropriate Conduct for all workers. • Training for all staff in acceptable behaviour with respect to community interactions.
Labour and Working Conditions • Poor management of occupational health and safety could lead to accidents, injuries and illnesses among workers; mental health issues may arise due to remote or enclosed living • Differences in nationality, ethnicity, religion, etc. may lead to discrimination and harassment, and differences (perceived or real) in working conditions between workers may lead to resentments.	• Employment practices and working conditions should conform to International Labour Organization (ILO) Standards and national regulations. • Rest and recreational facilities and time should be provided, and rules on alcohol and drugs defined and clearly communicated to workers. • The basis for differences in the standard of accommodation should be non-discriminatory; it should be documented and communicated transparently to the workforce. • Clear and comprehensive health and safety reporting and grievance procedure system should be established, and be freely available to all of the workforce. See also Employment and Economic Development.
Climate Change Impacts Impact of temperature increase on Conductors causing it to melt	Use Heat resistant conductors to cater for the future temperature increase

Potential E&S Impacts	**Mitigation Measures**
Clearing of trees and other vegetal components during land clearing and construction of Substation	Replace trees cut down by planting short trees with no potential to harm the TL along the RoW to maintain carbon sequestration
Future rise in water level leading to eroding of TL base	Drainages around TL bases close to water bodies most especially within Delta and Edo states should be considered to channel water away from the TL base during flooding

CHAPTER SIX: ENVIRONMENTAL AND SOCIAL MANAGEMENT PROCEDURES AND REQUIREMENTS

6.1 Environmental, Health and Safety Guidelines to be implemented by the NTEP-1

In order to ensure E & S considerations are carefully identified and mainstreamed in all the sub-projects of the NTEP-1, the AfDB Operational Safeguards will be adopted. In addition, the internationally accepted guidance on environmental, social, health and safety mitigation measures for energy projects as detailed in the World Bank Group (WBG) EHS Guidelines will also be mainstreamed. To ensure adequate implementation, the operational safeguards and other EHS guidelines will be mainstreamed into the design and implementation of the ESIAs/ESMPs, as well as other applicable E & S risk management tools for all sub-projects considered under the Program.

The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable at reasonable cost by commercially available technology. The discharged effluent, air emissions, and other numerical guidelines and performance indicators, as well as other prevention and control approaches included in the EHS Guidelines, are considered to be default values applicable to new projects, though the application of alternative performance levels and measures may also be considered.

The General EHS Guidelines include guidance on a comprehensive range of environmental, occupational health and safety, community health and safety and construction and decommissioning topics. They should be used in parallel with the accompanying Industry Sector EHS Guidelines. The General EHS Guidelines are summarized in Table 6.1 below.

Table 6.1. Summary of WBG General EHS Guidelines

1	Environmental	2	Occupational Health and Safety
1.1	Air Emissions and Ambient Air Quality	**2.1**	General Facility Design and Operation
1.2	Energy Conservation	**2.2**	Communication and Training
1.3	Wastewater and Ambient Water Quality	**2.3**	Physical Hazards
1.4	Water Conservation	**2.4**	Chemical Hazards
1.5	Hazardous Waste Management	**2.5**	Biological Hazards

1.6	Waste Management	**2.6**	Radiological Hazards
1.7	Noise	**2.7**	Personal Protective Equipment (PPE)
1.8	Contaminated Land	**2.8**	Special Hazard Environments
		2.9	Monitoring
3	**Community Health and Safety**	**4**	**Construction and Decommissioning**
3.1	Water Quality and Availability	**4.1**	Environment
3.2	Structural Safety of Project Infrastructure	**4.2**	Occupational Health & Safety
3.3	Life and Fire Safety (L&FS	**4.3**	Community Health & Safety
3.4	Traffic Safety		
3.5	Transport of Hazardous Materials		
3.6	Disease Prevention		
3.7	Emergency Preparedness and Response		

Source: IFC/WBG (2007)[3]

6.2 Environmental and Social Assessment Procedure

The AfDB ESAP describes how the Bank and its borrowers should work together to ensure that E & S and climate change considerations are integrated into the project cycle from country programming to post project completion. It represents a coordination mechanism between the Bank, relevant government agencies and private sector entities and plays an important role in building the E & S and climate change management capacity of the project's executing agency. The adoption and implementation of this ESAP for the NTEP-1 will enhance the E & S performance and improve project outcomes.

Reliance on the provisions of the ESAP will help to improve decision-making and project results by ensuring that sub-projects under the program conform to the requirements laid out in the operational safeguards (OS) and are thus sustainable. Effective implementation of the ESAP will help to avoid incurring costs and implementation delays as a result of unanticipated problems. It will also reduce the need for project conditionality as remedial measures can be taken in advance and incorporated into project design or project alternatives can be considered.

[3] Environmental, Health, and Safety General Guidelines. 30 April 2007. Available at https://www.ifc.org/wps/wcm/connect/554e8d80488658e4b76af76a6515bb18/Final+-+General+EHS+Guidelines.pdf?MOD=AJPERES [Accessed 26/04/18]

More specifically, adopting and implementing ESAP for NTEP-1 will ensure the observed gaps with regards to the Nigerian E&S requirements are adequately managed by AfDB ISS requirements in accordance with internationally recognized E&S risk management standards to ensure project sustainability.

The AfDB E&S Assessment Procedures for categories 1 & 2 projects are summarized in Figure 6.1. A detailed description of the approaches to be adopted in relation of E & S management at each stage of the overall project cycle (i.e. project identification, preparation, appraisal, implementation and completion and post completion) is presented in Table 6.2.

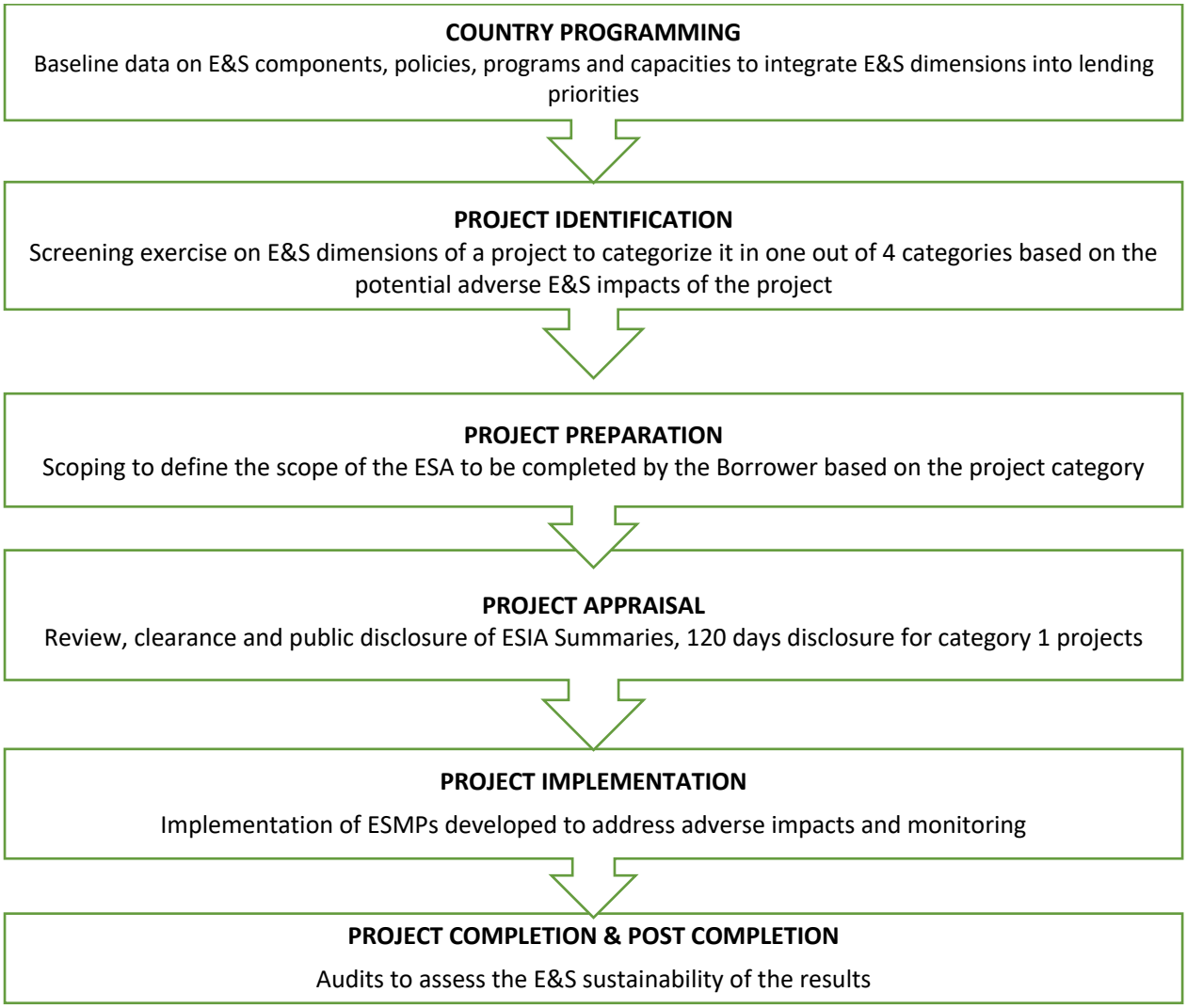

Figure 6.1. ESAP Process

Table 6.2: AfDB E & S Process for Category 1 Projects

Step	Responsibility	Output
Project Cycle Phase 1: Country Programming		
Country/Regional Departments, with Sector Department support, develop and update Country Strategy Paper (CSP) and Regional Integration Strategy Paper (RISP) to mainstream E&S and climate change considerations. Relevant E&S concerns are inserted into the Integrated Safeguards Tracking System (ISTS).	Country / Regional Departments	• E&S and climate change content in CSPs and RISPs • Initiate ISTS
Project Cycle Phase 2: Project Identification		
Regional Member Country (RMC), with Sector Department support, provides baseline data for screening/scoping. In addition, the RMC shall provide internal screening/ scoping.	RMC (supported by Sector Departments)	• E&S and climate change baseline data • Screening information based on national systems
Sector Departments conduct screening/scoping to determine the project category	Sector Departments	Draft Request for Categorization Memorandum (RCM)
The Compliance and Safeguards Division reviews Category, revises if necessary and validates Category	The Compliance and Safeguards Division	• Categorization of project • Updated ISTS
Project Cycle Phase 3: Project Preparation		
Sector Departments notify borrower of Category and specify ESA studies required.	Sector Departments and Borrower	Project category notification
TCN prepares TOR for ESIA studies.	TCN (supported by Sector Departments)	Draft TOR for ESIA studies
Sector Departments review TOR for ESIA studies and provide comments to borrower	TCN (supported by Sector Departments)	Finalized TOR for ESIA studies
TCN begins to prepare ESIA studies	TCN (supported by Sector Departments)	Initial work to prepare draft ESA Studies
Sector Departments integrate relevant information from TOR of ESIA studies into Project Concept Note (PCN).	Sector Departments	Integration of relevant information from TOR of ESIA studies into (PCN)
PCN is subject to Readiness Review (for public sector projects). The Compliance and Safeguards Division engages in compliance check	Compliance and Safeguards Division	• Satisfactory rating • Satisfactory compliance check and updated ISTS
Project Cycle Phase 4: Project Appraisal		
Once ESIA studies have been prepared, Sector Departments review them and provide comments to TCN.	Sector Departments	Comments on ESIA studies
TCN finalizes ESA studies.	TCN	Final ESIA studies
Sector Departments review final ESIA studies, prepare summaries and submit summaries and main ESIA to the	Sector Departments	• ESIA studies and summaries • Request for Review and Clearance

Step	Responsibility	Output
Compliance and Safeguards Division for clearance.		
ESIA studies are disclosed in Nigeria by TCN	TCN	Disclosure of ESIA in Nigeria
The Compliance and Safeguards Division reviews and clears ESIA studies summaries and issue Environmental and Social Compliance Note (ESCON) to Sector Department including conditions for loan agreements.	Compliance and Safeguards Division	• Clearance of ESA Studies Memorandum • ESCON
Sector Departments provide synopses of ESIA studies for Project Appraisal Report (PAR) compliance check and disclose summaries after clearance from the Compliance and Safeguards Division	Sector Departments	• Integration of summaries into PAR • Disclosure of summaries in AfDB's website
PAR is subject to Readiness Review (for public sector projects). For both public and private sector projects, the Compliance and Safeguards Division engages in compliance check, prior to PAR being submitted to Country Team Meeting and for Ops Com approval. The Compliance and Safeguards Division also checks issuance of ESCON and updates the ISTS as applicable.	The Compliance and Safeguards Division	• Satisfactory rating in appropriate section of Readiness Review • Satisfactory compliance check • Updated ISTS
Project Cycle Phase 5: Loan Negotiations, Board Presentation and Loan Signature		
Sector Departments prepare loan conditions and covenants.	Sector Departments	Draft E&S loan conditions and Covenants
General Counsel and Legal Services Department (GECL) integrates E&S loan conditions and covenants into the project loan agreements.	Sector Departments and GECL	Integration of loan conditions and covenants into Project Loan Agreement
The borrower enters loan negotiation with AfDB		Project loan agreements
Project Cycle Phase 6: Project Implementation and Supervision		
Sector Departments review Quarterly Implementation Reports, engage in supervision missions, and request borrower to revise ESMP/ESMS (if required) with clearance from the Compliance and Safeguards Division.	TCN	ESMP/ESMS implementation information in Quarterly Implementation Reports
If complaints are received from non-compliance, the Bank's mediation process is triggered through the Office of Compliance and Review Mechanism (CRMU). The Compliance and Safeguards Division prepares the Management Response and updates the ISTS.	Sector Departments, the Compliance and Safeguards Division, and CRMU	• Management responses • Updated ISTS
Project Cycle Phase 7: Project Completion		
Sector Departments prepare E&S content of PCR and integrate into ISTS for Compliance and Safeguards Division to review	Sector Departments, Compliance and	• Updated ISTS • E&S contents reviewed

Step	Responsibility	Output
	Safeguards Division	
Project Cycle Phase 8: Post Completion		
For selected projects or sector operations, Operations Evaluation Department (IDEV) evaluates E&S dimensions of medium-term outcomes and long-term impacts after project completion.	IDEV	Project Performance Evaluation Report

6.3 Environmental and Social Management for the Program

There are several institutions regulating E&S matters in the country in general and the sector in particular, this divergence undermines Nigeria's ability regulate and enforce environmental, social and climate matters effectively, therefore the AfDB ISS which is assessed to be more robust than the country systems shall take precedence in the NTEP E&S studies. The sub-projects under NTEP-1 program are all likely to be Category 1 projects with the requirements for the preparation of an ESIA/ESMP and a Full RAP. This ESMF provides the framework for which the E & S studies will be undertaken once the route options analysis and design considerations have been finalized to a sufficient detail, to enable the preparation of the ESIAs. The Program will use the ESMF as the tool for ensuring that E&S aspects are considered during decision making by influencing design to avoid /minimize, and where unavoidable mitigating the residual adverse impacts and/or enhancing positive impacts. The outline contents for each ESIA as well as ESMP and other plans under the sub-projects shall be in accordance with local legislation and also adhere to AfDB requirements.

6.3.1 Environmental and Social Impact Assessment (ESIA) Studies

The ESIA studies will take into accounts the AfDB's safeguard as well as the local requirements as outlined in the Nigerian Environmental legislations. The typical scope of work for the preparation of ESIA and related studies include the following:

i. Defining the scope and contents of ESIA study in line with the already completed screening, and the lender requirements
ii. Development of Scoping Report (including detailed constraints mapping) and Stakeholders Engagement Plan

iii. Obtaining information from primary or secondary sources regarding the current conditions of E&S features within the influence area of the sub-project (review of baseline).
iv. Carrying out effective stakeholder consultations, including along the proposed sub-project impact zone. This shall also include affected communities whose livelihood may be impacted due to the sub-projects in the NTEP 1 program.
v. Identifying feasible alternatives for proposed layout changes, use of alternative technologies, etc. in close collaboration with the Design team.
vi. Identifying and estimating quantitatively (to the extent possible), key impacts and classify these for ease of understanding and determination of significance (by severity, duration, project phase, etc.)
vii. Selecting measures that can help manage these impacts in cost effective manner – reduce the negative ones; and enhance positive ones and estimate the residual impacts, including those that may need further study.
viii. Clarifying the institutional arrangements, any capacity building needs, and resource requirements including grievance redress mechanism and budget as part of the preparation of E&S management plan.

Having identified the probable adverse impacts, the next step shall involve quantification of the impacts and develop E&S action plans to mitigate such adverse impacts.

The typical content an ESIA should be as per Annex 7 of the AfDB ESAP[4]. All ESIAs and ESMPs prepared for subprojects under the NTEP 1 program will need to adhere to the guidance in the AfDB ESAP.

6.3.1.1 Key E&S issues to be addressed during ESIA studies

This section outlines key issues with potential to lead to major E&S impacts during implementation and operation of the program sub-projects. It should be emphasized that these are potential issues only, the probability of leading to an impact, severity of the E&S outcomes, and the level of significance

[4] https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/SSS_%E2%80%93vol1_%E2%80%93_Issue4_-_EN_-_Environmental_and_Social_Assessment_Procedures__ESAP_.pdf

should be assessed further during the ESIA studies of individual sub-projects. In addition, feasible and cost-effective mitigation measures should also be included for all impacts identified to be significant. The emphasis placed on these issues is necessary in view of the preliminary assessment of sub-project locations and envisaged project activities especially during the pre-construction and construction phases of project implementation.

Major E&S Issues

Based on field visits for data collection in April 2019, the following Environmental and social issues were identified in the indicative project area of influence and will need to be assessed in the ESIAs for individual subprojects.

- ***Land Acquisition and Compensation***

Inevitably, land will be acquired for the construction of new substations in Kaduna State as well as the 205km with RoW for the new transmission line from Mando to Rimi Zakara. In addition, the upgrading of the 2 southern lines will also lead to displacement of people, most of whom have encroached the RoW for several residential, religious and economic purposes. Consequently, most of the potential impacts of the proposed development on socioeconomic aspect of the inhabitants of affected persons and communities will be centered on land take and associated economic impacts during the preconstruction phase when lands are being acquired for the project.

These impacts may include the following;

- Loss of fertile agricultural land and associated jeopardized livelihood
- Exacerbated poverty condition due to loss of access to means of livelihood (land)
- Grievance and conflict likely to arise from resettlement/compensation
- Change in land use from agro-related activities to industrial use

In view of the above, the RAPs for the 3 lines will need to be carefully thought out in relation to planning and delivery (including survey design, socio-economic surveys, PAP identification, asset valuation and compensation, livelihood restoration and improvement measures) so that they are fit for purpose and are they are aligned to the requirements of the AfDB Operational Safeguards 2 (OS2). All land users (owners, tenants, squatters, etc) need to be

properly identified during the process, assessed and compensated accordingly. The development of SEP will be important to achieve this.

- **Traffic Congestion**

Significant traffic issues are expected during preconstruction and construction phases of the sub-projects particularly for substations in Kaduna State due to the movement of transformers and other heavy equipment to site. Traffic issues is envisaged to be more because of the number of trucks that will move transformers to site from the sea port. Access constrains are also going to be significant in Rigassa, Millennium City and Jaji in the north because the sites are located in already developed areas with commercial and residential land uses. This is also expected within the corridors of the 2 transmission lines in the south. This is because of major access constraints pose by built up areas, farm land, poor state of roads, markets etc. If not properly identified and managed as part of the ESIA process, there is a risk that construction of the access routes could generate significant negative impacts (physical and economic displacement of PAPs. As part of **the preparation of the Project Description and Project Alternatives Chapter of the ESIA for the 3 projects, the following is recommended:**

- ESIA Consultant, TCN's project PIU (engineers and E & S specialists) should review all the options for access routes related to the construction of the various sub-projects. This will enable the development of the various alternatives, which will be assessed as part of the ESIA and/or RAP.
- The ESIA reports should include **constraints mapping** in the **Project Description and Alternatives Chapters**.
- Mitigation measures should include a detailed Traffic Management Plan specific to each project location. Considerations should be given to avoid traffic during peak periods.
- Considerations should be given to those that will be temporarily displaced along the traffic corridor to be duly compensated as part of RAP developed for each sub-project.

- **Stakeholder Engagement**

The project affected persons and communities (PAPs/PACs) should be adequately engaged with as part of the ESIA and RAP processes. The consultation needs to be detailed (**Free, Prior, Informed and Consented, FPIC**) broad based consultations with all Project Affected Persons and Communities and ensure that their concerns are addressed in a timely manner. All

consultation undertaken must be Free, Prior and Informed with PAPs/PACs having an understanding of the Grievance Redress Process for the project. Federal, State and Local Governments are also important to be included in the consultations.

For each of the subprojects in the NTEP 1 program, there is also the need to develop detailed **Stakeholder Engagement Plans (SEPs)** that will inform the planning and preparation for any field works related to engagement with PAPs. The SEP should be a live document, which will be implemented continuously throughout the life of the NTEP 1 program. In addition, as part of SEP implementation, the ESIA should include a fit and proper Grievance Redress Mechanism (GRM) for the project, which is known to all PAPs/PAC and can be used by all stakeholders to express their concerns. This should include addressing issues of land ownership and use in selected project sites, impacts on livelihoods, community engagements, encroachment, etc.

- **Protected Areas**

Some notable protected areas have been identified in the project areas in Chapter 4 of this ESMF. Efforts should be made to absolutely avoid these areas and other ecologically sensitive areas especially in Kano, Kaduna, Edo and Delta States. Notable amongst these protected areas are Baturiya Wetlands in Kano, Kamuku National Park in Kaduna, Okumu Forest Reserve and Gilli-Gilli Games Reserve in Edo State and Ukpe-Sobo Forest Reserve in Delta State.

The ESIA team should make recommendation that will ensure the outcome of ESIA is mainstreamed into project design and implementation to ensure sustainability. As part of the ESIA, a detailed **constraints maps** showing all valued socio-economic and environmental receptors and sensitive areas along the RoW should be included.

- **Climate Change Considerations**

It has been established that average temperature of the earth is expected to increase with about 2^0C in the next 20 years. It is therefore imperative for the TCN to ensure that only heat resistant cables are procured for the Transmission lines. TCN should also consider installation of cooling devices for the new transformers to be installed at the proposed substations.

Furthermore, the designs of the substations should include appropriate drainage system to mitigate against flash flooding during periods of heavy rainfall. This should also be considered around proposed transmission towards in the south, where gully erosion is prevalent

Construction and operation aspects of the sub-project implementation, particularly consumption of raw materials and waste generation, should be well assessed in the ESIA.

- **Gender Considerations**

Gender issues including GBV and SEA should be duly considered during ESIA study especially for the project in Northern region. Efforts should be made to hold consultations with women group and document their concerns and needs. Gender disaggregated data should be collected during the socio-economic survey. Issues affecting women should be documented including poverty, child labour, illiteracy/ignorance, child marriage, religious practices and social stratification/family background. Opportunities for women during project implementation and operation should be explored and recommended.

This is in view of the fact that Nigeria is now ranked 125 out of 145 on the 2015 Gender Gap Index countries with a score of 0.638. On the AfDB Gender Equality Index 2015, Nigeria is ranked 23rd out of 52 countries. The AfDB Index reflects women's status in three dimensions of equality: economic opportunity, social development and law and institutions. Generally, women, compared to men, lack access to employment opportunities because of low investment in their human capital, especially their low level of education and lack of skills appropriate for formal labour employment.

- **Hazardous Waste**

The ESIA should provide details of all envisaged waste to be generated during construction and operation particularly hazardous waste. It is envisaged that waste stream will include transformer oils which may have toxic Polychlorinated Biphenyl (PCB) which is a very potent environmental pollutant. Other hazardous waste streams may include batteries, oils, lubricants, hazardous containers amongst others. It is crucial to design appropriate waste management plans (WMP) as part of ESIA to guide EPC contractors in the

management of these class of waste to prevent environmental pollution and attendant public health catastrophe.

- **Public Health and Safety**

The technical and engineering sustainability of the project which will ensure installation of transmission equipment along the transmission lines and within substations to meet the requirements of the Nigerian Electrical Code. The ESIA should include adequate measures to enforce strict safety requirements for personnel assigned to work during construction and operation. In addition, certain measures to maintain safe conditions for the general public should be recommended. These measures may include that all substations are fenced and have gates that must be locked at all times. Appropriate signage must also be posted that shows the owner of the substation, the hazardous nature of the substation, and contact information.

6.3.2 Environmental and Social Management Plans (ESMP)

Environmental and Social Management Plans (ESMPs) are the key tools to structure projects to ensure that E & S impact mitigation measures are effectively implemented during the construction, operational and decommissioning phases of the project. They are also a key tool to support the process of monitoring the environmental performance of a project throughout its lifecycle. TCN is required to take into account the findings of the E&S assessment process and the outcomes of stakeholder engagement in order to develop and implement a program of actions to address the identified E&S impacts and issues of the project as well as to determine any performance improvement measures to meet the required E&S standards.

Based on the field visits undertaken during the preparation of this ESMF, it is likely that the ESIAs of the specific line routes will result in the preparation of ESMPs that will include the following specialized management plans (Stakeholder Engagement Plans

- Community Development Plans
- Emergency and Spill Response Plans, particularly at locations of stations
- Traffic Management Plans
- Chance Find Procedure
- Health & Safety Management plan.

NB: this is a non-exhaustive list and the specialised management plans must be developed as determined by the outcomes of the ESIA process.:

6.3.3 Other Instruments for E&S Management

A series of E&S instruments (templates) have been designed for use to manage the E&S activities that will be developed along the project cycle, organize the processes, and keep records of the process.

The management instruments identified for the different stages of the project cycle are the:

i. Environmental and Social Screening Form (ESSF);
ii. Environmental and Social Monitoring Report (ESMR) ;
iii. Environmental and Social Final Report (ESFR);
iv. Quarterly Environmental and Social Implementation reports.

The ESSF, ESMR, and ESFR are internal tools to be used in daily routine activities, while the Quarterly Implementation reports are external documents to be shared with AfDB. **Annex 1** contains templates of these internal management instruments.

The specific details of each of these reporting instruments are presented in Table 6.3 below.

Table 6.3. ESMP Reporting Instruments

Project Stage	Reporting Instrument	Description
Identification Stage	Environmental and Social Screening Form	The ESSF is the first management instrument to be created by the developers during the first stage of the project cycle (Identification Stage) to identify the potential E&S risks, their categorization, and the level of E&S studies required by the sub-project to be conducted during the assessment stage.
Implementation Stage	Environmental and Social Monitoring Report	The report can be during works execution to follow up and monitor the implementation of the E&S measures identified in the ESMPs. The ESMR

Project Stage	Reporting Instrument	Description
		contains basic information about the periodic field visits, the persons who visited the sub-project, the E&S aspects observed during the site visit, and recommendations for the developers/contractor.
	Quarterly Implementation Reports	The Client will be required to prepare Quarterly Implementation reports on the E&S performance of the project, including updates on the implementation of the E&S Management and/or Action Plans. **The reports will be submitted to the AfDB for review purposes.**
	Environmental and Social Final Report	The ESFR is the fourth and final management instrument and can also be used once the sub-project's works execution has ended to verify compliance with the E&S measures agreed upon in the plans.

Environmental and Social Monitoring

This section of the ESMF outlines the approach to be used by AfDB for monitoring E&S performance on sub-projects considered in the Program.
As the project developer, TCN will have overall responsibility for the application for the risk management tools detailed in this ESMF to the sub-projects under the NTEP-1. The E & S tools to be applied will be appropriate to the project category, once it has been assessed and assigned.

The TCN is responsible for the implementation of the ESMP / RAP and shall diligently monitor their implementation by:

i) ensuring that the indicators identified in the project implementation documents are respected;
ii) ensuring compliance with the Bank's ISS;
iii) ensuring adherence to the E&S covenants of the financing agreement.

The TCN shall then report the implementation of the ESMP/RAP to AfDB as part of the **Quarterly Implementation Reports** that it submits to the Bank. These reports shall clearly identify the results achieved in implementing the ESMP and key management and monitoring tasks.

The monitoring activities for each sub-project are determined on the basis of the E&S risks and impacts associated with the project identified during the E&S assessment. They may also reflect any significant stakeholder concerns and include an E&S project completion review or audit, where relevant. As a minimum, AfDB reviews the Quarterly Implementation reports prepared by clients on the E&S performance of the project, including updates on the implementation of the E&S Management and/or Action Plans. AfDB may also, as necessary, undertake site visits to review the compliance of the project with agreed E&S requirements. Under the program, external consultants may also be used to ensure compliance with the ESMF requirements as well as the safeguard requirements of the AfDB.

The AfDB shall review the Quarterly Implementation Reports and engage in implementation support missions, through which they shall assess and report on ESMP/ RAP implementation. Whenever non-compliance is observed or unexpected impacts arise, AfDB shall request the TCN to review the ESMP / RAP in collaboration with relevant stakeholders, as appropriate. Changes to the ESMP / RAP must be cleared by AfDB before being implemented.

If the client fails to comply with its E&S commitments, as set out in the legal agreements, the AfDB may agree with the client remedial measures to be taken by the client to achieve compliance. If the client fails to comply with the agreed remedial measures, AfDB may take such action and/or exercise such remedies contained in the financing agreements that it deems appropriate. AfDB will also review with the client any performance improvement opportunities related to projects. On the other hand, monitoring arrangements for sub-projects proponents will be categorized into two categories.

i. Firstly, routine E&S Monitoring reports which will be prepared during the works execution to gauge for implementation of agreed parameters/aspects in the mitigation plans.
ii. Secondly, Quarterly Monitoring reports, will be used.

CHAPTER SEVEN: STAKEHOLDER ENGAGEMENT AND GRIEVANCE MANAGEMENT

7.1 Stakeholders' Consultation and Engagement

The AfDB recognize the importance of open and transparent engagement between clients, workers, local communities directly affected by projects and, where appropriate, other stakeholders as an essential element of Good International Practice and corporate citizenship. Such engagement is also a way of improving the E&S sustainability of projects. In particular, effective community engagement, appropriate to the nature and scale of the project, promotes sound and sustainable E&S performance and can lead to improved financial, social and environmental outcomes, together with enhanced community benefits.

Stakeholder engagement is central to building strong, constructive and responsive relationships which are essential for the successful management of a project's E&S impacts and issues.

In the NTEP 1 program, consultation shall be tailored to the language preferences of the affected communities, their decision-making process, and the needs of disadvantaged or vulnerable individuals or groups. The emphasis will be whether the affected communities are "in support of the project" and not about whether there is a lack of opposition to a project. Consultation will be expected to provide opportunities for affected communities to express their views on project risks, impacts and mitigation and management measures, and shall allow the borrower or client to consider and respond to them in ways that facilitate the realization of community support.

As part of the realization of the sub-projects under the program, TCN will engage mechanisms to ensure *Free, Prior and Informed Consultation (FPIC) has been conducted*, and *Informed Consultation* has been enabled throughout the project cycle. FPIC and Informed Consultation shall be assessed through a number of factors and indicators including:

i. TCN's strategy and principles of community engagement
ii. stakeholders' identification and analysis
iii. mechanism of community engagement
iv. consultation FPIC

v. information disclosure
vi. informed participation
vii. vulnerable groups consultation and mitigation
viii. grievance mechanism-structure, procedure, and application
ix. feedback to the affected parties

Consultation will be considered an ongoing process, not just as a step in the procedures for obtaining project approval. It shall begin at the project identification stage, or at least at an early stage during project preparation, and shall continue throughout the life of the project through to construction, operation and decommissioning. As the Bank recognizes local requirements in addressing E & S considerations, stakeholders' consultation and engagement will also incorporate the requirements of consultations when undertaking the ESA studies as prescribed by Nigerian environmental legislation such as the EIA Act Cap E12 LFN of 2004.

The results of the consultation should be adequately reflected in the project design and in the project documentation. The affected communities are given the opportunity to participate in key stages of project design and implementation. Consultations will be conducted with the objective of ensuring that the project has broad community support and that affected people endorse the proposed mitigation and management measures. When the borrower or client has identified vulnerable communities that would potentially be affected by the project, the borrower/client engages in meaningful informed consultation and participation with the vulnerable communities, beginning as early as possible in the project cycle before the project is submitted for approving the project for financing.

The client, the AfDB will make available to the public the ESIA documents. The procedures require the public disclosure of summaries in accordance with specified deadlines. The disclosure requirements for AfDB, which must be met by the sub-projects are presented in Section 2.9.

7.2 Consultations Related to Involuntary Displacement

A Resettlement Action Plan (RAP) should be prepared under a development approach that addresses the livelihoods and living standards of displaced persons, as well as compensation for loss of assets, using a participatory approach at all stages of project design and implementation. As highlighted

before, the sub projects in the NTEP 1 program are expected to have significant displacement and thus RAP is anticipated to be used to address issues of involuntary displacement.

Displaced persons and host communities should be meaningfully consulted early in the planning process and encouraged to participate in the planning and implementation of resettlement programs. The displaced persons should be informed about their options and rights pertaining to resettlement. They should be given genuine choices among technically and economically feasible resettlement alternatives. In this regard, particular attention should be paid to the location and scheduling of activities. In order for consultation to be meaningful, information about the proposed project and the plans regarding resettlement and rehabilitation must be made available to local people and national civil society organizations in a timely manner and in a form and manner that is appropriate and understandable to local people. As well, careful attention should be given to the organization of meetings. The feasibility of holding separate women's meetings and fair representation of female heads of households, in addition to mixed meetings, should be explored. Also, the way in which information is disseminated should be cautiously planned as levels of literacy and networking may differ along gender lines.

Particular attention should be paid to the needs of disadvantaged groups among those displaced, especially those below the poverty line, the landless, the elderly, women and children, and ethnic, religious and linguistic minorities; including those without legal title to assets, female-headed households. Appropriate assistance must be provided to help these disadvantaged groups cope with the dislocation and to improve their status. Provision of health care services, particularly for pregnant women and infants, may be important during and after relocation to prevent increases in morbidity and mortality due to malnutrition, the psychological stress of being uprooted, and the increased risk of disease.

AfDB will support TCN's efforts on sub-projects involving involuntary resettlement through assistance to the executing agencies to adopt and operationalize objectives and principles of this policy;
AfDB will also support the capacity building, as required of executing agencies to plan and implement involuntary resettlement in all projects and provide

technical assistance to strengthen the organizational, managerial and implementation capacity of agencies responsible for resettlement including strengthening the environmental, social, economic and technical expertise of these agencies.

7.3 Program Grievance Redress Mechanism (GRM)

The Program will adopt the AfDB's approach to resolving grievances on project interventions. This is described in Table 7.1 below:

Table 7.1. AfDB Grievance Redress Mechanism Approach

The AfDB defines project GRM as a systematic process for receiving, evaluating and facilitating resolution of affected people's project-related concerns, complaints and grievances about the borrower's/client's social and environmental performance on a project. AfDB requires its clients to be aware of and respond to stakeholders' concerns related to the project in a timely manner. For this purpose, the client will establish an effective grievance mechanism, process, or procedure to receive and facilitate resolution of stakeholders' concerns and grievances, in particular, about the client's E&S performance.

In OS 1, the Bank requires the borrower/client to establish a "credible, independent and empowered local grievance and redress mechanism to receive, facilitate and follow up on the resolution of the affected people's grievances and concerns regarding the E&S performance of the project. The local grievance mechanism needs to be sufficiently independent, empowered and accessible to the stakeholders at all times during project cycle and all responses to grievances shall be recorded and included in project supervision formats and reports."

Some Bank operations may inevitably have the potential to impact the local population's well-being. The aim of a project GRM is, therefore, to enable people fearing or suffering adverse impacts to be able to be heard and assisted. People potentially or actually affected by a Bank-funded project need a trusted way to voice and resolve project related concerns and the project needs an effective way to address affected people's concerns. The GRM provides a structured and managed way of allowing the concerns of affected people to be heard and addressed, including by the borrower's/client's project management staff and in certain circumstances, by Bank staff.

The main advantages of establishing and maintaining an appropriate GRM linked to a Bank-funded project are:

- *Helping maintain good development conditions in the field, conducive to harmonious, sustainable development.*

- *Minimising the risk of violent or otherwise destructive behaviors, and the associated economic and social costs.*
- *Helping to protect the most vulnerable local groups and individuals.*
- *Alleviating the risk of dispute or conflict escalation, such as cases being brought to the Bank's Independent Review Mechanism.*

The process by which the GRM is designed should be integrated into the overall approach to project preparation as prescribed in the Bank's ISS. The Bank ISS through its (IESIA) Guidelines Notes provides guidance on development and Implementation of GRM. It should also be included in the concrete actions required in the ESMP for Category 1 projects and on a case by case basis, for Category 2 projects that exhibit specific potential social tensions, in particular risks of mismanagement of compensation/resettlement schemes or the presence of particularly vulnerable groups in the project's area of influence.

a. Independent Review Mechanism (IRM)

AfDB has also established its own accountability mechanism, the Independent Review Mechanism (IRM). The IRM seeks to assess whether a Bank approved project complies with relevant the AfDB's ISS. The IRM makes itself accessible to any group (a minimum of 2 persons living in the project's area of influence) actually or potentially negatively affected by a Bank-funded project. The IRM reports to the Bank's Board of Directors and is thus independent of Bank management. So far, the IRM has received approximately six requests for intervention. Based on the World Bank's Inspection Panel experience, dating back to 1993, which has processed 80 requests since then, the IRM is likely to intensify its activities during the coming years.

The IRM has been set up by the Bank to achieve more transparency. It is also a costly mechanism to trigger. The establishment of local GRMs can help to alleviate the need for plaintiffs to resort to the IRM, while problem-solving can be more rapidly and cost-effectively done locally. The cultural context in which GRMs operate also helps to defuse complaints and to find appropriate and commensurate solutions.

b. GRM at project level

The GRM in the Program will be established under the guidance provided in the Bank's ISS through its IESIA Guidelines Notes. The first step is to determine the primary goal of the GRM which would generally be to resolve specific grievances in a manner that meets both project management and community needs, but with important local variations. The scope of the grievances that may legitimately be brought forward by the communities and/or individuals affected shall be defined in advance. That scope will generally cover most, if not all, of the issues raised in a typical E&S Assessment: natural resources, pollution, cultural property, land acquisition, the income of resettled/displaced populations, the welfare of vulnerable groups, etc.
The second step is to design the GRM by:

1. *Preparing a preliminary design.*

2. *Selecting ways and means to receive, register, assess and respond to grievances.*
3. *Select grievance resolution approaches.*
4. *Design a means to track and monitor grievances.*
5. *Develop the grievance mechanism infrastructure.*
6. *Review and refine the design.*

At sub project level, with in the NTEP-1, the design of GRM may be done with the assistance of the specialized Independent consulting team as part of the ESIA or associated studies and assessments. The GRM shall be designed based on the following principles:

- *Involvement of individuals of mixed levels and functions from the entity (e.g., operations, environmental affairs, community relations, legal affairs, contractors). Staffing the design team from just one function such as community relations or human resources is unwise.*
- *The inclusion of a balanced group of representatives from the community, representing the range of constituencies and demographics that will be using the grievance mechanism, while keeping the team small enough to be responsive.*
- *GRM Relying upon clear terms of reference and a work plan that outlines team goals, roles, and responsibilities, level of decision-making authority, reporting lines, tasks, time frame, and products.*
- *Making the use of multiple channels (e.g., face to face, phone conversation, mail, text or e-mail, message on a dedicated website), sensitive to cultural customs and traditional methods that may influence or impede the expression of grievances.*
- *The existence of a central point of contact that will receive complaints and log them into a central register.*
- *Existence and operation of designated complaint resolution staff.*
- *Processes for acknowledging the receipt of a grievance and informing the complainant about the time frame in which a response can be expected.*

7.4 Appointing members of Grievance Redress Committees (GRC)

The Program will involve the formulation of a Grievance Redress Committee (GRC) at project level, i.e. GRM staff, for handling grievances. Generally, all project staff, the management staff of agencies involved in the project, and government administrators will take on grievance handling as a responsibility. The GRC members should be qualified, experienced, and competent personnel who can win respect and confidence of the affected communities. It is also important to maintain a gender balance within the GRMs. Criteria for selecting members of GRCs could include the following:

- Knowledge of the project, its objectives, and outcomes
- Technical knowledge and expertise to understand project design and requirements;
- Understanding of the social, economic, and cultural environments and the dynamics of the communities;
- Capacity to absorb the issues dealt with and to contribute actively to decision-making processes;
- Social recognition and standing; and
- equitable representation of males and females.

The GRC at project level shall constitute among other members, an officer from the Local Government Authority, Village or Community Heads, Project Coordinator, a member from a recognized Non-Government Organization and a community representative. The GRC shall have the right to request the project technical staff, and officers from relevant state or non-state institutions to attend the meetings and provide information. A complainant has the right to appear in person, to be accompanied by a community member, and/or to request to be represented by a community elder. GRCs shall be established at the project level to assure accessibility for Project Affected Persons.

7.5 Procedures, complaints channels and time frame for Grievance Redress Mechanisms

As there is no ideal model or one-size-fits-all approach to grievance resolution, the best solutions to conflicts are generally achieved through localized mechanisms that take account of the specific issues, cultural context, local customs, and project conditions and scale. The process by which a complaint will be accepted or rejected needs shall be carefully designed and shall maximise interactivity and cultural sensitivity. The acceptance/rejection of a complaint will go through a discussion stage where the plaintiff and the GRM staff interact on the grounds and motives of the complaint, after which the plaintiff should clearly and transparently be told whether or not the complaint is eligible and will be processed. The acceptance/rejection of the complaint shall be based on objective criteria that are posted by the GRC, including a written copy displayed in the public access area of the GRM in an appropriate language.

The processing of the complaint, if accepted should go through various phases:

- Filing of the complaint and labeling with an identification code communicated immediately to the plaintiff.
- Assessment of the complaint (including severity of the risk/impact).
- Formulation of the response.

Selection of the grievance resolution approach is a key. There are four general approaches to choose from:

- The project's management proposes a solution.
- The community and the project's management decide together.
- The project's management and the community defer to a third party to decide.
- The project's management and the community utilize traditional or customary practices to reach a solution.

AfDB's ISS recommends the application of a "**Decide together"** approach that is usually the most accessible, natural and unthreatening ways for communities and a project's management to resolve differences. With the potential to resolve perhaps the majority of all grievances, "decide together" should be the center-piece of any grievance mechanism's resolution options. In its simplest form, a grievance mechanism can be broken down into the following primary components:

1. Receive and register a complaint.
2. Screen and validate the complaint (based on the nature and type of a complaint).
3. Formulate a response.
4. Select a resolution approach, based on consultation with affected person/group.
5. Implement the approach.
6. Settle the issues.
7. Track and evaluate results.
8. Learn from the experience and communicate back to all parties involved.

The time for the Grievance Redress Committees to be held shall be agreed and documented, depending on the nature and severity of the complaint.

A number of mechanisms will be available to aggrieved parties to access redress. These shall include institutions specific (**internal**) to a project and set up

from its inception or others that might have emerged over time in response to needs identified while the project evolved. Other institutions which are already established within a country's judicial, administrative, and/or political systems and exist outside a project shall also be used. These include the government bureaucracy; judicial institutions; and political institutions such as Local Government Authorities, etc.

In addition, the Bank itself sometimes shall provide a forum for grievance redress. GRMs shall include avenues for resolving conflicts between Affected Persons or other stakeholders and can provide information sought by the public on the project.

The channels of presenting complaints could include the presentation of complaints via third parties (e.g., village elites/traditional leaders, community-based organizations, lawyers, non-government organizations [NGOs], etc.); face-to-face meetings; facsimile, telephone, and email communications; written complaints; etc.

The projects to be implemented under the Program are mainly in the Northern and Southern parts of Nigeria with diverse E&S contexts. It is therefore expected that as part of the implementation of these projects, the projects shall develop GRM which will bring simpler means of addressing complaints. If the complainant is not satisfied, the complainer will have to appeal to the Project Manager of the AfDB PIU. The projects shall also develop robust SEP which will bring together all stakeholders. These shall be prepared and included in the scoping report.

7.6 Stakeholder Engagement Activities during the preparation of the ESMF

7.6.1 Stakeholders Consulted

As part of the preparation of the ESMF, stakeholder engagement activities were undertaken with a number of stakeholders at Federal, Regional and local level. This is in addition to detailed site walkover to the potential project sites to engage with PAPs/PACs throughout the field visits.

A summary of the stakeholders consulted is provided in **Erreur ! Source du renvoi introuvable.**Table 7.2.

Table 7.2: Categories of stakeholders consulted during the preparation of the ESMF

	Stakeholder	Mandate	Objective of Consultation	Highlight of Consultation
	Government Agencies			
1	Federal Ministry of Environment, FMEnv	Drive E&S process in Nigeria and grants approvals	Identify the E&S issues of Transmission Lines and Substation projects.	Identification of Environmental and Social issues associated with Transmission Line project as well as looking at the guidelines of the Ministry on ESIA of TL
2	Transmission Company of Nigeria	Developer of Projects under NTEP 1	Understanding of project components to enable the identification of potential E&S impacts	Highlight of project description and brainstorming on potential E&S Impacts as well as from engineering perspective
	Project Affected Communities and Persons		Evaluate the potential E&S issues associated with the proposed project to enable the design of focus for the ESIA and RAP	
3	PAPs at (Rigasa, Kaduna)	Potential PAP		Project awareness and eliciting information on how the project will affect them.
4	PAPs at millennium City Kaduna	Potential PAP		
	PAPs at Uzuiyi Community, Abia State	Potential PAP		
	PAPs at Ekae Benin	Potential PAP		
5	Prof Boyi Jimoh (Field allocation officer in charge, ABU Zaria)	Land Allocation Officer for proposed site in Zaria		Issues relating to displacement of farmers on the proposed site for Zaria substation as well as identification of alternative land where affected PAPs can be relocated to

CHAPTER EIGHT: ESMF IMPLEMENTATION AND MANAGEMENT

8.1 Roles and Responsibilities for Managing E&S Requirements

8.1.1 TCN's Role and Responsibilities

The TCN as the project proponent is expected to manage the E&S issues associated with the sub-projects to meet the safeguard requirements detailed in this ESMF throughout the entire project lifecycle.

It is also the TCN's responsibility to ensure that adequate information is provided so that the AfDB can undertake an E&S assessment in accordance with the Bank's safeguard requirements. TCN will be required to commission appropriate E&S studies and conduct stakeholder engagement and cover the costs of these. The TCN is also expected to allow AfDB representatives and independent consultants to access project facilities and records.

8.1.2 AfDB's Role and Responsibilities

AfDB will be responsible for the overall oversight and due diligence of the NTEP-1 implementation. In relation to E & S risk management for the subprojects under the NTEP 1 program, the AfDB will assign E & S officers to support TCN through all project phases and ensure that there is general compliance with the requirements of this ESMF and the Bank's E & S safeguards requirements.

8.2 Institutional arrangements for the implementation of the ESMF

For the implementation of the ESMF, institutional arrangements will be required. The organizational framework for implementing the ESMF measures are set out below in terms of defined roles and responsibilities.

8.2.1 Roles and responsibilities of Main Implementing Entity

The key players are the FMEnv, state governments and local authorities, PIU of TCN, the affected communities, EPC Contractors as well as independent/external E&S Consultants. They each have different roles and responsibilities:

- Setting applicable E&S requirements (E&S requirement setting)
- Screening for E&S risk and impacts (E&S screening)
- E&S due diligence and risk management (E&S due diligence)
- E&S monitoring

- E&S reporting
- Independent E&S audit

The functions of the individual entities that are likely to be involved in the implementation of the ESMP are summarized in Table 8.1.

Table 8.1. Roles and Responsibilities of the Main Implementing entities

Entity	Description
The Project Coordination and Management Unit (PCMU)	The unit will be the main implementing entity within AfDB. They will provide overall coordination of the sub-project and lead in the implementation of the program components, which will include overall responsibility for safeguards due diligence, and compliance monitoring. Further, PCMU will be responsible for the overall coordination of the sub-project implementation and oversight.
TCN/PIU	The TCN through its PIU will plan and conduct the construction and is responsible for complying with all relevant E&S requirements. Its responsibilities include: i. E&S requirement setting: TCN will incorporate application E&S requirements in their institutional ESMS, that include national and regional laws/policies and any requirement lenders. ii. E&S screening: TCN will: a. Conduct the actual E&S screening based on all relevant requirements, employing or hiring qualified E&S specialists, and provide sufficient resources for such activities. b. Determine key E&S risks and impacts of individual sub-projects and assign E&S category. iii. E&S due diligence: TCN will prepare and integrate into project design the SEMP, the Stakeholder Engagement Plan (SEP) and grievance mechanism. iv. E&S monitoring: TCN will conduct self-monitoring activities in line with their ESMS and main all monitoring records properly. v. E&S reporting: TCN will a. Prepare quarterly E&S reports to meet AfDB reporting requirements; b. Report any incident or accidents within several days of occurrence, including any E&S fines, litigation, or other administrative/legal issues. vi. E&S audit: TCN will provide all relevant reports and documents to the independent E&S auditors in a timely manner upon request.
PIU, E&S Safeguard Specialists	The AfDB will ensure that as part of the ESMPs to be developed by the TCN for sub-projects considered under the program, E&S safeguard specialists (including E & S Managers and Community Liaison Officers) are included as part of the management team. The specific roles of the E & S resources in the TCN's PIU of the sub-projects will include the following: i. Overall oversight of the E&S risk assessment, management, and monitoring processes in line with this ESMF, for each component of the Project; ii. Putting in place and implementing a reporting system from TCN to PIU on implementation of E&S requirements; iii. Ensuring that EPC Contractors are implementing E&S requirements set out in the ESMF and subsequent ESIA/ESMP/RAP and CEMP consistently; iv. Assuming responsibility for stakeholders' engagement, maintaining adequate stakeholder engagement and grievance

Entity	Description
	redress mechanism and ensuring that the EPC Contractors maintain the same at their level. It will also facilitate liaisons with CBOs, CSO, NGOs and projected affected communities, particularly women; v. Designing, organizing and implementing capacity building programs for all relevant stakeholders associated with the specific sub-project. vi. Defining, jointly with the respective states and local governments, the project priorities based on technical and policy development priorities (this will include gender and vulnerability issues); vii. Resolving in consultation with the Provincial/local governments challenges requiring high level intervention facing the project; and viii. Monitoring the implementation of the project in consultation with the states and local governments.
Federal Ministry of Environment (FMEnv)	*FMEnv* reviews and approves the environmental classification of projects and approves the ESA studies and the ESMPs of the sub-projects and participates in the external monitoring of implementation.
National Environmental Standards and Regulations Enforcement Agency (NESREA)	NESREA is charged with the responsibility of enforcing all environmental laws, guidelines, policies, standards and regulations in Nigeria. It also has the responsibility to enforce compliance with provisions of international agreements, protocols, conventions and treaties on the environment to which Nigeria is a party.
EPC Contractors	They implement the (contractual) mitigation measures as well as the E&S clauses with the periodic production of reports on the implementation of these measures.
Local and regional authorities (Federal Authorities):	They participate in project implementation through the pre-selection of the sub-project sites, the identification of PAPs, the registration of complaints, and the proximity follow-up of actions on the ground.
De-concentrated technical services	Other sector Institutions/departments/Agencies related with community and Natural resources such Land, Forestry, Water, Gender/Social protection): they support the implementation of E&S measures on the ground in their respective fields and provide support in monitoring and reporting.
Associations, NGOs, CBOs and local populations	They support the implementation of the communication plan and the prevention of conflicts.

8.3 Training and Capacity Strengthening Plan

Based on the capacity assessment of the relevant Nigerian Federal and State level MDAs, Civil Society Organizations, as well as other stakeholders carried out during consultations, effective delivery of the sub-projects in relation to the implementation and monitoring of the E & S risk mitigation measures throughout the lifecycle of sub-projects may be hampered by limited technical skills and resource constraints. Institutional barriers to effective delivery that are anticipated include:

i. Limited knowledge on E&S Safeguards Systems;
ii. Limited knowledge on E&S issues relating to the Energy sector;

iii. Limited knowledge on ESMF implementation as well as project specific ESIAs and ESMPs especially during construction of sub-projects;
iv. Limited knowledge on Gender and vulnerability issues;
v. Limited knowledge of participatory governance and stakeholder's engagement.

For effective implementation of the ESMF, there will be need for technical capacity in the human resource base of implementing institutions as well as logistical facilitation. Implementers need to identify and understand the E&S issues as concerns the implementation of sub-projects. Thus, to strengthen the respective roles and enhance robust collaboration with the relevant stakeholders, the following areas for capacity building have been identified as deserving attention for effective implementation of the ESMF.

The specific areas for effective training and institutional capacity needs are given in Table 8.2 below. An indication of the anticipated **costs for the implementation** of the capacity building program is also included in the table.

Table 8.2. Proposed Training Programs for ESMF Implementation

Training Description	Participants	Form of Training	Duration	When	Training to be conducted by who	Training Organizing Agency	Training Costs USD
AfDB's Integrated Safeguard System. Training on Operational Safeguards Policies triggered	Federal and State Ministries of Environment, TCN, NESREA and other project affiliated MDAs in host States, SPVs, CSOs	Workshop	1 Working day	During project preparatory stage	E & S Safeguard Consultant	AfDB	3,000
Gender Considerations (Equity, Environmental, Social and other project specific issues of concern affecting Women, Children and other Vulnerable groups)	Federal and State Ministries of Environment, TCN, NESREA and other project affiliated MDAs in host States, SPVs, CSOs	Workshop	½ Working day	During project preparatory stage	E & S Safeguard Consultant	AfDB	2,000
Environment and Social Assessment: E & S Process, E & S Considerations in sub-project activities, Environmental components affected during construction and operation stages; Environmental management and Best practice; Stakeholder participation Project Screening & Scoping Physical Cultural Resources, SESA, HIA e.t.c	Federal and State Ministries of Environment, TCN, NESREA and other project affiliated MDAs in host States, SPVs, CSOs	Workshop	1 Working day	During project preparatory stage	E & S Safeguard Consultant	AfDB	3,000
Environmental due diligence: ESMF/ESIA/ESMP Implementation, Monitoring, Evaluation and Reporting during construction of sub-projects,	Federal and State Ministries of Environment, TCN, NESREA and other project affiliated MDAs in host States, SPVs, CSOs	Workshop	1 Working day	During project preparatory stage	E & S Consultant	AfDB	3,000

Training Description	Participants	Form of Training	Duration	When	Training to be conducted by who	Training Organizing Agency	Training Costs USD
Occupational Health and Safety(OHS) Leadership Management Safety performance assessment Hazard Analysis and Control Hazard Communication Program Effective Accident Investigation Conducting Health and Safety Audits Job Hazard Analysis Occupational Health Risk Assessment Work Stress Risk Assessment Electrical safety Fire Safety Fall protection Plan Fleet Safety Management	Federal and State Ministries of Environment, TCN, other project affiliated MDAs in host States, SPVs, CSOs	Workshop	2 Working day	During project initiation stage (Before commencement of civil works)	HSE Consultant	AfDB	**7,000**
Total							**18,000**

* Training cost is tentative, the actual training cost will be dependent on training locations, prevailing exchange rate

REFERENCES

Akaolisa, C.C.Z. and A.O.I. Selemo, 2009. A study of the sand and Gravel deposit around the permanent site of the Federal University of technology, Owerri using the vertical electrical sounding (VES) techniques. Niger. J. Phys., 21: 81-88.

Aremu, D. A. (Ed.) (2008). Preservation of Land, Culture & Wildlife for the Development of Ecotourism in Africa. Ibadan, Spectrum Books Limited.

Blessing Nonye Onyima (2016) Nigerian cultural heritage: preservation, Challenges and prospects. *African Journals online*

Comets Minerals Ltd. (2018). EIA of Nickel Exploration and Mining in Kaduna State.

Imhangulaya, Catherine. (2016). Geomorphology and Hydrology of the Benin Region, Edo State, Nigeria. International Journal of Geosciences. 07. 144-157. 10.4236/ijg.2016.72012.

International Union for the Conservation of Nature (IUCN, 2015) Red List of Threatened Species, Version 2

MacDonald and Partners (1986). Rural water Supplies Report, Vol. 1 (Published).Sir MacDonald Press Ltd, Deterner, England.Obaje, N.G. (2009).Geology and Mineral Resources of Nigeria. Springer-Verlay Berlin.pp 19-20.

Mbonu, P., J. Ebeniro, C. Ofoegbu and A. Ekine, (1991). Geoelectric sounding for the determination of aquifer characteristics in parts of the Umuahia area of Nigeria. Geophysics, 56: 284-291.

National Population Commission (2006). PHC Priority Tables – National Population Commission". Population.gov.ng. Retrieved 2019-03-07.

Nwosu, L.I., C.N. Nwankwo and A.S. Ekine, (2010). An SP survey of groundwater and correlation with resistivity survey results in parts of Mbano area of Imo State, Nigeria. Arch. Applied Sci. Res., 2: 45-55.

Obaje, N.G. (2009). Geology and Mineral Resources of Nigeria. Springer-Verlay Berlin.pp 19-20.

Onyeaguocha, A.C., (1980). Petrogrphy and depositional environment of the Benin formation. J. Mining Geol., 17: 147-151.

ANNEX 1A. E&S Screening Form

PART A: GENERAL INFORMATION

Project Name	
Estimated Cost ( )	
Project Site	
Project Objectives	
Proposed Main Project Activities	
Name of Evaluator/s	
Date of Field Appraisal	

PART B: BRIEF DESCRIPTION OF THE PROPOSED ACTIVITIES

Provide information on the type and scale of the construction/rehabilitation activity (e.g., area, land required and approximate size of structures)

Provide information on the construction activities including support/ancillary structures and activities required to build them, e.g., need to quarry or excavate borrow materials, water source, access roads, etc.

Describe how the construction/reconstruction activities will be carried out. Include a description of support/activities and resources required for the construction/rehabilitation.

PART C: E&S ELIGIBILITY CRITERIA

Criterion	**Yes or No**
1. Would the project displace or involve relocation of more than 50 homes or a population of 200 or more?	
2. Would the project encroach or be located inside a protected area of natural habitat?	
3. Would the project displace, modify or render inaccessible a Cultural Heritage site or structure?	
4. Would the project be located in the territory of any historically underserved traditional ethnic community or indigenous people (as defined by World Bank OP 4.10) territory, but that the project would not benefit them in terms of access to electricity or in terms of some other plans?	
5. Is the project assessed to be Category A based on Part E of this form?	

If the answer to at least one of these questions is yes, then the project would not qualify for funding under the program. (The project may be returned to the proponent for modification to meet with the criteria.)

PART D: SCREENING FORM FOR IDENTIFICATION OF AFDB OSS TRIGGERED AND IDENTIFICATION OF APPROPRIATE SAFEGUARD INSTRUMENT

AfDB OSS	Triggered		If YES (Reason/details)	Safeguard Instrument/Document Needed
	YES	NO		
OS1- Environmental Assessment and Mgt of ES Risks and Impacts				
OS5 – Labor and Working Conditions				
OS4 – Resource Efficiency and Pollution				
OS2 – Land Acquisition and Involuntary Resettlement				
OS3 -Biodiveristy Conservation and Sustainable Mgt of Living Natural Res.				

PART E. RISK CATEGORIZATION

Check the one that applies	If answer is yes,
Would the Project involve: activities with potential significant adverse environmental and/or social risks and impacts that, individually or cumulatively, are diverse, irreversible, or unprecedented?	Project is Category 1:
Would the project involve: activities with potential limited adverse environmental and/or social risks and impacts that individually or cumulatively, are few, generally site-specific, largely reversible, and readily addressed through mitigation measures?	The project is Category 2 -
Would the project involve: only activities with minimal or no adverse environmental and/or social risks and/or impacts?	Category 3

Guidance: *The guidance for sub-project categorization and triggering OSs is available in the AfDB ESAP document, Category 1, 2, 3.*

Conclusion and Safeguards Instruments Required

The sub-project is classified as a Category _____ project as per AfDB's ESAP, and the following safeguard instruments will be prepared:

1. _____
2. _____
3. _____
4. _____