Environmental and Social Impact Assessment (ESIA) for Primary Health Care (PHC) Facilities.

Lagos State Health Infrastructure Project (LSHIP)

Group 3: Ikorodu North

By

Lagos State Ministry of Health (LSMoH)

Project Implementation Unit (PIU)

Submitted to

Federal Ministry of Environment (FMEnv.)

Abuja, Nigeria

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This Document Information Matrix

Environmental and Social Impact Assessment for Lagos State Health Infrastructure Project (LSHIP) - Group 3 -- Ikorodu North -

Item	Details
Project Title	Environmental and Social Impact Assessment (ESIA) for Primary Healthcare (PHC) Facilities -- Ikorodu North (Group 3)
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Document Status	DRAFT -- FOR REVIEW ONLY
Date	July 2026
Geographic Coverage	Ikorodu North Local Council Development Area (LCDA), Ikorodu Local Government Area (LGA) and adjoining communities
Facilities Covered	Omolaiye PHC, Eruwen PHC, Olorunda PHC, Agura PHC
Disclosure Requirement	120-Day Public Disclosure Period (AfDB ISS 2024)
Regulatory Basis	ESIA Act No. 86 (1992); FMEnv Sectoral Guidelines for Health Facilities; AfDB ISS (2024) OS1--OS10
Prepared For	FMEnv Review, AfDB Safeguards Compliance, LASEPA Environmental Oversight
Confidentiality Note	Not for citation or regulatory approval until final version is issued

AXIS-BASED ESIA NOTE

The Lagos State Health Infrastructure Project (LSHIP) involves upgrading, rehabilitating, and constructing 29 Primary Healthcare (PHC) facilities across Lagos State. To ensure effective environmental and social assessment, the facilities have been clustered into eight (8) geographic axes, each with its own standalone ESIA volume.

This approach allows for:

- Detailed site-specific analysis of environmental and social risks
- Efficient regulatory review by FMEnv and LASEPA
- Clear alignment with AfDB's Integrated Safeguards System (ISS, 2024)
- Improved stakeholder engagement within each axis
- Accurate baseline data collection reflecting local conditions

The Ikorodu North Axis (Group 3) comprises four PHC facilities:

- Omolaiye PHC
- Eruwen PHC
- Olorunda PHC
- Agura PHC

While each axis report is independently reviewable, all eight volumes collectively form the full ESIA documentation for the LSHIP. Cross-references are provided where necessary to ensure consistency across axes, particularly for cumulative impacts, medical waste management, climate resilience, and stakeholder engagement.

This axis-based structure ensures that environmental and social risks are assessed at the appropriate geographic scale while maintaining compliance with FMEnv Category I and AfDB Category 1 requirements.

CONSULTANT CERTIFICATION

This ESIA Report for the Lagos State Health Infrastructure Project (LSHIP) -- Ikorodu North (Group 3) has been prepared by Multiple Development Services Ltd. (MDS), supported by Natural Eco Capital, in accordance with:

- The Environmental Impact Assessment Act No. 86 of 1992 (as amended)
- FMEnv Sectoral Guidelines for Health Facilities
- Lagos State Environmental Protection Agency (LASEPA) regulations
- African Development Bank (AfDB) Integrated Safeguards System (ISS, 2024)

We hereby certify that:

1. The ESIA was conducted using accepted scientific, environmental, and social assessment methodologies.
2. Field data collection, stakeholder engagement, and baseline studies were carried out in accordance with FMEnv requirements.
3. All information presented is accurate to the best of our knowledge and based on data obtained during fieldwork, consultations, and technical analysis.

Lead ESIA Expert:

Name: [Insert Lead ESIA Expert Name]

FMEnv Registration No.: [Insert FMEnv Registration Number]

Signature: _____

Date: [Insert Date]

Firm Representative (MDS):

Name: Dr. Eugene Itua

Designation: Chief Executive Officer

Signature: _____

Date: July 2026

DISCLAIMER / CAVEAT

This Environmental and Social Impact Assessment (ESIA) Report for the Lagos State Health Infrastructure Project (LSHIP) -- Ikorodu North (Group 3) is issued as a Draft for Review.

The contents of this document are not final and shall not be cited, distributed, or used for regulatory approval until all comments from the Federal Ministry of Environment (FMEnv), Lagos State Environmental Protection Agency (LASEPA), African Development Bank (AfDB), and relevant stakeholders have been fully incorporated.

All findings, assessments, baseline data, and recommendations contained herein are subject to modification following:

- Regulatory review and directives
- Stakeholder consultations
- Additional field sampling and laboratory analysis
- Technical validation by the Project Implementation Unit (PIU)

The Lagos State Ministry of Health (LSMoH) and its Project Implementation Unit (PIU) accept no liability for any use of this draft report outside the formal review process.

A final ESIA will be issued only after completion of the mandatory 120-day public disclosure period required for AfDB Category 1 projects and subsequent FMEnv approval.

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The Lagos State Ministry of Health (LSMoH), through its Project Implementation Unit (PIU), acknowledges the contributions of all institutions, communities, and individuals who supported the preparation of this Environmental and Social Impact Assessment (ESIA) for the Lagos State Health Infrastructure Project (LSHIP) -- Ikorodu North (Group 3).

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Lagos State Environmental Protection Agency (LASEPA) For technical input, environmental compliance guidance, and coordination with state regulatory systems.

African Development Bank (AfDB) For financing support and safeguard oversight under the Integrated Safeguards System (ISS, 2024).

Local Government Authorities (Ikorodu North LCDA, Ikorodu LGA) For facilitating community access, stakeholder engagement, and verification of local baseline conditions.

Community stakeholders, including traditional leaders, women's groups, youth associations, PHC staff, and vulnerable groups, provided valuable insights during consultations.

Consultants Multiple Development Services Ltd. (MDS) and Natural Eco Capital for conducting field studies, stakeholder engagement, and preparing the ESIA documentation.

The PIU appreciates the cooperation of all stakeholders whose contributions have strengthened the environmental and social integrity of this ESIA.

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Abbreviations List

Abbreviation	Definition
ACM	Asbestos-Containing Material
AADT	Annual Average Daily Traffic
AfDB	African Development Bank
APHA	American Public Health Association
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BSL	Biosafety Level
BTOR	Back-to-Office Report
CASHES	Community Affairs, Safety, Health, Environment and Security
CEC	Cation Exchange Capacity
CESMP	Contractor Environmental and Social Management Plan
CFU	Colony-Forming Unit
CHEW	Community Health Extension Worker
CIZ	Cumulative Influence Zone
CoC	Code of Conduct / Chain of Custody
COD	Chemical Oxygen Demand
CRM	Certified Reference Material
DAI	Direct Area of Influence
DO	Dissolved Oxygen
DPC	Damp Proof Course
E&S	Environmental and Social
EC	Electrical Conductivity
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EMR	Electronic Medical Record
EPRP	Emergency Preparedness and Response Plan
ESCP	Environmental and Social Commitment Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
FGD	Focus Group Discussion

FFL	Finished Floor Level
FMEnv	Federal Ministry of Environment
FPIC	Free, Prior and Informed Consent
GBV	Gender-Based Violence
GHG	Greenhouse Gas
GIS	Geographic Information System
GPS	Global Positioning System
GRM	Grievance Redress Mechanism
HAI	Healthcare-Associated Infection
HEFAMAA	Health Facility Monitoring and Accreditation Agency
HEPA	High-Efficiency Particulate Air
HIRA	Hazard Identification and Risk Assessment
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome
HMWMP	Hazardous and Medical Waste Management Plan
HRDD	Human Rights Due Diligence
HRIA	Human Rights Impact Assessment
HSE	Health, Safety and Environment
IAI	Indirect Area of Influence
IBA	Important Bird Area
IDRI	Infectious Disease Research Institute
IEQ	Indoor Environmental Quality
IESM	Independent Environmental and Social Monitor
IFC	International Finance Corporation
ILO	International Labour Organization
IPC	Infection Prevention and Control
IPCC	Intergovernmental Panel on Climate Change
ISS	Integrated Safeguards System
IUCN	International Union for Conservation of Nature
KII	Key Informant Interview
KPI	Key Performance Indicator
LASEPA	Lagos State Environmental Protection Agency
LASG	Lagos State Government
LASM	Lagos State Museum

LASODA	Lagos State Office for Disability Affairs
LASWARCO	Lagos State Water Regulatory Commission
LAWMA	Lagos State Waste Management Authority
LCDA	Local Council Development Area
LGA	Local Government Area
LSHIP	Lagos State Health Infrastructure Project
LOS	Level of Service
LOTO	Lockout/Tagout
LSDP	Lagos State Development Plan
LSMoH	Lagos State Ministry of Health
LTI	Lost-Time Injury
M&E	Monitoring and Evaluation
MCH	Maternal and Child Health
MDS	Multiple Development Services
MEP	Mechanical, Electrical, and Plumbing
MIRA	Mirabel Centre
MOU	Memorandum of Understanding
NBMA	National Biosafety Management Agency
NCDC	Nigeria Centre for Disease Control
NDC	Nationally Determined Contribution
NESREA	National Environmental Standards and Regulations Enforcement Agency
NGN	Nigerian Naira
NGSA	Nigerian Geological Survey Agency
NHMIS	National Health Management Information System
NIMET	Nigerian Meteorological Agency
NIOMR	Nigerian Institute for Oceanography and Marine Research
NOSDRA	National Oil Spill Detection and Response Agency
NPHCDA	National Primary Health Care Development Agency
NPK	Nitrogen, Phosphorus, Potassium
NTU	Nephelometric Turbidity Unit
O&M	Operation and Maintenance
OHS	Occupational Health and Safety
OS	Operational Safeguard

PAH	Polycyclic Aromatic Hydrocarbon
PAP	Project Affected Person
PCM	Phase Contrast Microscopy
PEP	Post-Exposure Prophylaxis
PHC	Primary Healthcare Centre
PHCB	Primary Healthcare Board
PIU	Project Implementation Unit
PLC	Portland Limestone Cement
PM	Particulate Matter
PPE	Personal Protective Equipment
PPP	Public-Private Partnership
PPV	Peak Particle Velocity
PS	Performance Standard
PSP	Private Sector Participation
PTSD	Post-Traumatic Stress Disorder
PV	Photovoltaic
PWD	Person with Disability
QA/QC	Quality Assurance / Quality Control
RAP	Resettlement Action Plan
RCP	Representative Concentration Pathway
RO	Reverse Osmosis
SDG	Sustainable Development Goal
SEA	Sexual Exploitation and Abuse
SEP	Stakeholder Engagement Plan
SH	Sexual Harassment
SRI	Solar Reflectance Index
SRTM	Shuttle Radar Topography Mission
STI	Sexually Transmitted Infection
SWP	Safe Work Procedure
TCFD	Task Force on Climate-related Financial Disclosures
TDS	Total Dissolved Solids
TEM	Transmission Electron Microscopy
TMP	Traffic Management Plan

TPC	Total Plate Count
TPH	Total Petroleum Hydrocarbon
TSS	Total Suspended Solids
UHC	Universal Health Coverage
UNGPs	United Nations Guiding Principles on Business and Human Rights
UNCRPD	United Nations Convention on the Rights of Persons with Disabilities
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
VAPP	Violence Against Persons (Prohibition) Act
VOC	Volatile Organic Compound
VPSHR	Voluntary Principles on Security and Human Rights
WASH	Water, Sanitation, and Hygiene
WHO	World Health Organization
WGS84	World Geodetic System 1984

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION AND PROJECT BACKGROUND

ES.1.1 Project Overview

The Lagos State Health Infrastructure Project (LSHIP) is a US$200 million health system strengthening programme implemented by the Lagos State Ministry of Health (LSMoH) with financing from the African Development Bank (AfDB). The initiative aims to modernise, expand, and climate-proof healthcare infrastructure across Lagos State through the construction of 11 new Primary Healthcare Centres (PHCs), refurbishment of 19 existing PHCs, and the development of secondary and tertiary healthcare facilities.

This Environmental and Social Impact Assessment (ESIA) addresses Group 3 -- Ikorodu North, comprising four (4) PHC facilities located in the Ikorodu North LCDA and Ikorodu LGA and their environs:

PHC Facility	Location	Project Type
Omolaiye PHC	Ikorodu North LCDA	Refurbishment
Eruwen PHC	Ikorodu North LCDA	New Construction
Olorunda PHC	Ikorodu North LCDA	New Construction
Agura PHC	Ikorodu LGA	New Construction

ES.1.2 Project Rationale

The Ikorodu North Axis is a rapidly urbanising corridor with high population density and significant gaps in healthcare infrastructure. Existing PHCs are under-resourced, with structural deterioration, inadequate water supply, poor waste management systems, and suspected asbestos-containing materials at Omolaiye PHC. The project directly responds to these deficits by:

- Improving access to quality primary healthcare for low-income and vulnerable populations
- Upgrading structural integrity, water supply, sanitation, and waste management systems
- Ensuring continuity of essential health services during and after construction
- Strengthening climate resilience through green building design and solar PV systems

ES.1.3 Project Classification

The LSHIP is classified as:

- AfDB Category 1 (High Risk) under the Integrated Safeguards System (ISS) -- requiring a full ESIA
- FMEnv Category I under the EIA Act CAP E12 LFN 2004 -- requiring a full ESIA

This classification reflects the project's multi-site footprint, potential involuntary resettlement, presence of hazardous materials (asbestos), proximity to sensitive ecosystems (wetlands), and the scale of construction activities in peri-urban communities.

ES.1.4 ESIA Objectives

The overarching objective of this ESIA is to serve as the principal due diligence instrument for the LSHIP. Specifically, this report:

1. Establishes comprehensive baseline conditions for the four PHC sites
2. Identifies and assesses all potential environmental and social impacts
3. Develops clear, actionable, site-specific mitigation measures
4. Prepares safeguard instruments including ESMPs, HMWMP, GBV Action Plan and Asbestos Management Plan and RAP.
5. Demonstrates full compliance with AfDB ISS, FMEnv EIA Act, and international good practice
6. Supports informed decision-making by regulators, financiers, and stakeholders

ES.1.5 Facility Typology and Scope of Assessment

The scope of this ESIA reflects both the AfDB Category 1 programme classification and the specific typology of the Group 7 facilities. While the Lagos State Health Infrastructure Project has been designated Category 1 due to its statewide footprint and cumulative considerations, the individual facilities assessed in this Group—APA (new construction on an elevated platform), Igbogbele (refurbishment), and Farasime (refurbishment)—are small rural Primary Healthcare Centres with modest service footprints and basic infrastructure.

These PHCs do not generate the scale or complexity of environmental pressures typically associated with general hospitals or large medical facilities. Accordingly, the baseline parameters and impact pathways relevant to these sites are inherently limited, and the level of analysis applied at the facility level is proportionate to their operational realities. The ESIA therefore maintains Category 1 rigour while tailoring the depth of assessment to the specific, context-appropriate risks associated with small rural PHCs undergoing new construction or refurbishment.

This ESIA has been prepared in accordance with AfDB's Integrated Safeguards System and is consistent with internationally recognised environmental assessment practices, including methodologies commonly applied by the U.S. Environmental Protection Agency (EPA), ensuring that the analysis and documentation meet globally accepted technical standards.

ES.2 PROJECT DESCRIPTION

ES.2.1 Project Components -- Ikorodu North

The Ikorodu North comprises:

Component	Description
New Construction	Three (3) new Comprehensive Health Centres at Eruwen, Olorunda, and Agura
Refurbishment	One (1) existing PHC upgraded to Comprehensive Health Centre standards at Omolaiye
Infrastructure	Solar PV systems, boreholes, septic tanks, and medical waste treatment facilities
Access Improvements	Upgraded access roads and drainage within PHC premises

ES.2.2 Design Features

All facilities incorporate **climate-resilient green building design**, including:

- Solar PV systems with battery storage (24--48 hours backup)
- Rainwater harvesting (5,000--10,000 L storage per PHC)
- Cool roofs and natural ventilation
- Disability-friendly design (ramps, wide doorways, accessible toilets)
- Oversized drainage designed for 1:100-year storm + 30% climate factor

ES.2.3 Project Phases

Phase	Duration	Key Activities
Pre-construction	6--12 months	RAP implementation (Agura, Olorunda), asbestos surveys (Omolaiye), design, permitting, contractor procurement
Construction	12--24 months	Earthworks, building works, MEP installation, equipment installation
Operation	50+ years	Routine outpatient, maternal/child health, immunisation, laboratory services

ES.2.4 Project Resources

Resource	Estimated Quantity	Sourcing
Labour (peak)	260--420 workers	≥50% local hiring (within LGAs)
Cement	2,500--5,000 tonnes	Local (≥60% local sourcing)
Sand and Gravel	5,000--12,000 m³ / 8,000--20,000 m³	Local (≥80% local sourcing)
Steel	500--1,200 tonnes	Nigerian mills (≥40% local sourcing)

ES.3 LEGAL AND INSTITUTIONAL FRAMEWORK

ES.3.1 Nigerian Regulatory Framework

This ESIA complies with:

- EIA Act Cap E12 LFN 2004 -- Mandatory EIA for prescribed activities (Category I designation)
- NESREA Regulations (2007--2021) -- Air quality, noise, water quality, sanitation and waste control standards
- Harmful Waste Act Cap H1 LFN 2004 -- Prohibits improper disposal of hazardous waste (asbestos, chemicals)
- Land Use Act Cap L5 LFN 2004 -- Governs land acquisition and compensation
- Violence Against Persons (Prohibition) Act 2015 -- Prohibits sexual violence and exploitation
- Lagos State Environmental Laws -- LASEPA permits, LAWMA waste management, physical planning approvals

ES.3.2 AfDB Operational Safeguards (ISS)

The project triggers the following AfDB Operational Safeguards:

Safeguard	Requirement	Project Compliance Action
OS1 -- Environmental and Social Assessment	Full ESIA for Category 1 projects	This ESIA report
OS2 -- Labour and Working Conditions	Worker protection, OHS, non-discrimination	Labour Management Plan, OHS Plan
OS3 -- Resource Efficiency and Pollution Prevention	Waste management, pollution control	HMWMP, wastewater management
OS4 -- Community Health, Safety and Security	Community safety, traffic management	Traffic Management Plan, EPRP
OS5 -- Land Acquisition and Involuntary Resettlement	Compensation, livelihood restoration	RAP for Agura and Olorunda

OS6 -- Biodiversity and Ecosystem Services	Critical habitat screening, offsets	Wetland buffers, biodiversity monitoring
OS10 -- Stakeholder Engagement and Information Disclosure	Public consultation, GRM, 120-day disclosure	SEP, GRM, public disclosure

ES.3.3 International Standards

Where Nigerian law is silent or weaker, the following international standards are adopted:

- IFC Performance Standards (PS1--PS8) and EHS Guidelines
- WHO Safe Management of Wastes from Health-Care Activities (2014)
- ILO Conventions 155, 161, 187, and core labour standards
- Equator Principles IV (EP4)
- UN Guiding Principles on Business and Human Rights (UNGPs)

ES.4 BASELINE ENVIRONMENTAL AND SOCIAL CONDITIONS

ES.4.1 Physical Environment

Parameter	**Description**
Location	Ikorodu North – low-lying coastal plain, sandy/clayey soils
Climate	Humid tropical (Köppen: Aw); bimodal rainfall (1,500–1,800 mm/year); 26–35°C
Air Quality	PM_{10}: 54–75 µg/m³; $PM_{2.5}$: 20–28 µg/m³ – within WHO and FMEnv limits
Noise	Daytime: 46–60 dB(A); Night-time: 36–49 dB(A) – mostly within limits
Water Quality	Groundwater meets WHO/FMEnv drinking water standards; no microbial contamination
Geology	Benin Formation coastal plain sands; alluvial deposits
Erosion Risk	High at Omolaiye and Eruwen; medium at Olorunda
Flood Risk	High at Omolaiye (waterlogged sensitive ecosystem); medium at Eruwen, Olorunda

ES.4.2 Biological Environment

Aspect	Findings
Vegetation	Farmland (cassava, maize, oil palm); wetland vegetation; riparian zones
Sensitive Ecosystems	Wetlands at Omolaiye, Olorunda, and Eruwen

Critical Habitat	Likely Critical Habitat at Omolaiye, Olorunda, and Eruwen (IFC PS6 Criterion 4)
Notable Species	Pangolin (*Phataginus tricuspis* -- Vulnerable); Nile monitor; egrets/herons
Ecosystem Services	Farmland (food security), groundwater (water supply), fish (livelihoods), flood regulation (wetlands)

ES.4.3 Socio-economic Environment

Aspect	Findings
Population	200,000--400,000 residents across catchment areas
Livelihoods	Farming (cassava, maize, pineapple), trading, fishing (Omolaiye), artisanal work
Land Tenure	Government-owned (Omolaiye, Agura); community-donated (Olorunda, Eruwen)
Resettlement	Agura: 13 shop owners (economic displacement); Olorunda: 6 farmers (economic displacement)
Vulnerable Groups	Women-headed households, elderly, persons with disabilities, low-income households
GBV Risk	Medium--High (poor lighting, isolated paths, limited reporting, labour influx)
Cultural Heritage	No heritage sites within 100 m; chance finds possible during excavation

ES.4.4 Climate Baseline and Projections

Parameter	Current (2024)	Projected (2050, RCP 8.5)
Temperature (average)	28°C	+2.5°C
Hot days (>35°C)	25 days/year	80 days/year
Extreme rainfall intensity	Baseline	+30%
Sea-level rise	2--3 mm/year	+0.5 m

High-risk sites: Omolaiye (flooding), Eruwen (erosion), Olorunda (wetland), Agura (heatwaves)

ES.5 KEY ENVIRONMENTAL AND SOCIAL IMPACTS

ES.5.1 Summary of Unmitigated Impacts

Site	Impact Category	Impact Description	Significance (Unmitigated)
Omolaiye	Hazardous Materials	Asbestos exposure from uncontrolled removal of	**Critical** ●

Site	Impact Category	Impact Description	Significance (Unmitigated)
		suspected ACM in roofing/walls (fibre release >0.1 f/ml)	
	Biodiversity	Wetland vegetation and habitat loss (clearing of 0.5–1 ha), reducing flood-buffering and biodiversity services	**Critical** ●
	Water Quality	Lake/wetland contamination from sediment runoff, fuel/oil spills, concrete wash water	**Major** □
	GBV/SEA/SH	GBV/SEA/SH risks and lack of confidential reporting channels	**Major** □
	Fisheries	Disruption to fishing livelihoods and fisheries habitat	**Major** □
Eruwen	Hazardous Materials	Asbestos exposure from confirmed ACM in roofing/wall materials	**Critical** ●
	Soil Erosion	Erosion and sedimentation of wetlands and drainage systems	**Major** □
	Biodiversity	Wetland vegetation and habitat loss	**Major** □
	GBV/SEA/SH	GBV/SEA/SH risks and lack of confidential reporting channels	**Major** □

Site	Impact Category	Impact Description	Significance (Unmitigated)
Olorunda	Biodiversity	Wetland vegetation and habitat loss; disturbance to species of conservation concern	**Critical** ●
	Socio-Economic	Economic displacement of 6 PAP farmers; loss of pineapple farms	**Major** □
	GBV/SEA/SH	GBV/SEA/SH risks and lack of confidential reporting channels	**Major** □
Agura	Socio-Economic	Economic displacement of 13 shop owners (PAPs)	**Major** □
	Labour & GBV	Labour influx pressures; GBV/SEA/SH risks and lack of confidential reporting channels	**Major** □
	Community H&S	Traffic congestion and community safety risks	**Major** □
	Air Quality	Dust (PM10, PM2.5) from earthworks, demolition, vehicle movement	**Moderate** □

ES.5.2 Key Beneficial Impacts

Benefit	Quantification
Healthcare access	200,000 residents served by 4 PHCs
Maternal mortality reduction	Estimated 20-30% reduction
Under-five mortality reduction	Estimated 25-35% reduction
Direct jobs created	160-320 jobs during construction

Indirect jobs	Estimated 300-500 supply chain jobs
GHG emissions reduction	250-500 *tCO_2e/year* (solar PV)
Diesel savings	60,000-120,000 *litres/year*

ES.6 ANALYSIS OF ALTERNATIVES

Alternative	Assessment	Conclusion
No-Project Alternative	Continued poor healthcare quality, infrastructure decay, no RAP for PAPs	Rejected -- unacceptable
Alternative Sites	Assessed for each PHC; rejected due to land acquisition costs, accessibility, or displacement risks	Preferred -- existing government/community land
Conventional Design	Higher operating costs, higher GHG emissions, no climate resilience	Rejected
Green Building Design	Lower operating costs, climate resilience, aligns with SDGs and NDCs	Preferred
Diesel Generators	High operating cost, air pollution, GHG emissions	Rejected
Solar PV + Battery	Low operating cost, zero emissions, climate resilience	Preferred
Open Burning of Waste	Air pollution, community health risk, illegal	Rejected
WHO-compliant HMWMP	Protects workers, communities, environment; complies with standards	Preferred

ES.7 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

ES.7.1 Key Mitigation Measures

Impact	Mitigation Measure	Responsibility
Asbestos	Licensed abatement, wet removal, air monitoring (≤0.1 f/ml)	Specialist Contractor
Wetland loss	50 m buffer; biodiversity offset (1:1--3:1) if unavoidable	PIU
GBV/SEA/SH	Code of Conduct, training, confidential GRM, referral pathways	Contractor / PIU / GBV Specialist
Labour influx	Worker camp rules, ≥50% local hiring, CoC	Contractor

Traffic safety	Marshals, speed limits, signage, diversion routes	Contractor
Erosion	Silt fences, hydromulch, slope stabilisation	Contractor
Water quality	Sediment traps, bunded fuel storage, spill kits	Contractor
Medical waste	WHO colour-coded segregation, autoclave, LAWMA disposal	Facility Operator
Dust	Water spraying, covering stockpiles	Contractor
Noise	Barriers, scheduling noisy works, silencers	Contractor

ES.7.2 Monitoring Plan

Parameter	Indicator	Frequency	Trigger
Air Quality	PM_{10}, $PM_{2.5}$	Daily (PM_{10}), Weekly ($PM_{2.5}$)	*[Insert trigger value]*
Asbestos	Airborne fibres	Continuous	>0.1 f/ml
Noise	Leq dB(A)	Weekly	*[Insert trigger value]*
Water Quality	TSS, pH, hydrocarbons	Monthly	*[Insert trigger value]*
Erosion	Silt fence condition	Weekly	Any damage
Waste Segregation	% correct	Daily	<90%
GBV Training	% workers trained	Monthly	<100%
GRM	% cases resolved ≤14 days	Monthly	Any unresolved

ES.7.3 Institutional Responsibilities

Entity	Role
PIU (LSMoH)	ESMP oversight, contractor compliance, GRM, reporting to AfDB
Contractor	CESMP implementation, monitoring, OHS, GBV, community liaison
Facility Operator	Operational ESMP, HMWMP, IPC, wastewater management
IESM	Independent quarterly audits, compliance verification

FMEnv / LASEPA	Regulatory oversight, permits, inspections
AfDB	Safeguard supervision, compliance enforcement

ES.7.4 ESMP Budget

Phase	Estimated Cost (USD)
Construction Phase	US$146,000 - US$186,000 (₦220,000,000 - ₦280,000,000)
Annual Operational Phase	US$20,000 - US$26,000 (₦30,000,000 - ₦40,000,000)

Costed ESMP Budget (Four PHC Sites – Ikorodu North)

ESMP Component	**Cost (₦)**
Asbestos abatement (Omolaiye, Eruwen) - licensed survey, wet removal, air monitoring	45,000,000
Biodiversity offset (Omolaiye, Olorunda, Eruwen) - wetland restoration	25,000,000
RAP implementation (Agura, Olorunda) - compensation + livelihood restoration	12,000,000
Contingency (≈10%)	15,000,000
IESM independent quarterly audits	10,000,000
Hazardous waste disposal (asbestos, oils, contaminated soil)	10,000,000
Labour influx management (worker camp controls, CoC, monitoring)	8,000,000
Air quality monitoring (PM10/PM2.5 monitors + weekly sampling)	8,000,000
Erosion control (silt fences, check dams, hydromulch)	7,000,000
Water quality monitoring (wetland sampling - TSS, pH, hydrocarbons)	6,000,000
Waste management (LAWMA contracts, segregated bins) - annual	6,000,000
Traffic management (marshals, signage, barriers, speed control)	5,000,000
Stakeholder engagement (quarterly meetings, disclosure, liaison)	5,000,000
Fuel spill prevention (bunded storage, spill kits, training)	4,500,000
Wetland protection (50m buffer demarcation, signage, monitoring)	4,000,000
Noise monitoring (Type 1/2 sound meters + weekly monitoring)	3,500,000
GBV/SEA/SH Action Plan (training, confidential GRM, referral pathways)	3,000,000
Dust control (water spraying, road dampening, tarpaulins)	3,000,000

GRM Implementation (hotline, boxes, CLOs, reporting)	2,500,000
Asbestos PPE (P3 respirators, Type 5 coveralls, gloves)	2,500,000
IPC & HMWMP Training (WHO-aligned training for facility staff)	3,000,000
Climate Resilience Measures (drainage upgrades, elevated electricals)	16,000,000
Solar PV Maintenance (cleaning, inverter checks, repairs)	20,000,000
TOTAL	**220,000,000 – 280,000,000**

ES.8 HAZARDOUS AND MEDICAL WASTE MANAGEMENT PLAN (HMWMP)

ES.8.1 Waste Categories and Management

Waste Category	Colour Code	Treatment / Disposal
General Waste	Black	LAWMA landfill
Infectious Waste	Yellow	Autoclave → landfill
Sharps	Red	Incineration
Pharmaceutical Waste	Brown	Return to manufacturer / incineration
Chemical Waste	Blue	Licensed hazardous waste contractor
Asbestos	Special label	Hazardous waste landfill

Key Monitoring Indicators

Indicator	Target	Frequency	Responsible
Asbestos air monitoring (Omolaiye, Eruwen)	≤0.1 f/ml	Continuous during abatement	Specialist Contractor
PM10/PM2.5 (all sites)	≤50 µg/m³ / ≤25 µg/m³	Daily	Contractor
Noise (all sites)	≤55 dB(A)	Weekly	Contractor
Wetland buffer integrity (Omolaiye, Olorunda, Eruwen)	No encroachment	Weekly	Contractor
Water quality (Omolaiye, Olorunda)	TSS ≤30 mg/L; no hydrocarbons	Monthly	Contractor
GBV training completion	100% workers trained	Monthly	Contractor
GBV cases resolved	100% within 14 days	Monthly	PIU
Local hiring (unskilled)	≥50% from LGAs	Monthly	Contractor

RAP implementation (Agura, Olorunda)	100% PAPs compensated	Monthly	PIU
OHS PPE compliance	≥95%	Daily	Contractor
Community satisfaction	≥80% satisfied	Quarterly	PIU/IESM

ES.8.2 Asbestos Management

- Asbestos suspected at Omolaiye PHC
- Licensed surveyor to confirm presence/absence
- Licensed abatement contractor: wet removal, HEPA vacuums, air monitoring
- Clearance monitoring: ≤0.01 f/ml
- Hazardous waste landfill disposal with manifest

ES.8.3 Occupational Health and Safety for Waste Handlers

- PPE: gloves, boots, aprons, goggles, masks (P3 respirators for asbestos)
- Hepatitis B vaccination, tetanus booster
- Needle-stick protocol (PEP within 72 hours)
- Annual medical surveillance

ES.9 GENDER-BASED VIOLENCE / SEA / SH ACTION PLAN

ES.9.1 Risk Assessment

Site	Key GBV/SEA/SH Risks	Risk Level
Agura	High labour influx, market area, substance abuse, limited female staff	Medium--High
Omolaiye	Isolated paths, poor lighting, wetland community, limited reporting	Medium
Olorunda	Agricultural community, limited female staff, poor lighting	Medium
Eruwen	Isolated paths, limited female staff, poor lighting	Medium

ES.9.2 Prevention Measures

Measure	Description
Code of Conduct	Zero tolerance for GBV/SEA/SH; signed by all workers, subcontractors, security
Worker Training	Induction + monthly toolbox talks
Community Awareness	Quarterly sessions; women's groups; youth engagement
Safe Recruitment	No minors; background checks; gender-balanced hiring (≥20% female)
Improved Lighting	Solar lights around PHCs and paths

Safe Spaces	Confidential rooms in PHCs; women's centres

ES.9.3 Response Measures

Measure	Description
Survivor-Centred Protocol	Confidentiality, safety, respect, no retaliation
Reporting Channels	Hotline (SMS/WhatsApp), suggestion boxes, female GRM focal points
Referral Pathways	Medical (PEP within 72 hours), psychosocial, legal, shelter
Sanctions	Warning → suspension → termination → prosecution
GRM	48-hour acknowledgement; 14-day resolution

ES.9.4 Monitoring Indicators

Indicator	**Target**	**Frequency**
Workers trained	100%	Monthly
Community members reached	≥omm	Quarterly
GBV cases resolved ≤14 days	≥BV	Monthly
CoC compliance	100%	Monthly
Survivor satisfaction	≥urv	Quarterly

ES.10 STAKEHOLDER ENGAGEMENT AND GRIEVANCE REDRESS MECHANISM

ES.10.1 Stakeholder Consultation Activities

Activity	**Number**	**Participants**
Community meetings	*6*	*48%* women)
Focus Group Discussions	*3*	Women, youth, elderly
LGA health authority meetings	*2*	Health officials
LASEPA meeting	1	Regulatory officials

ES.10.2 Key Concerns Raised by Stakeholders

Concern	**Response**
Disruption of access during construction	Traffic Management Plan; maintain access
Waste management	HMWMP; LAWMA disposal contracts
Employment for locals	≥mpl local hiring target
Safety of children near construction sites	Fencing, signage, community liaison
Wetland protection	50 m buffers; sediment controls
Asbestos risks	Licensed abatement; air monitoring

GBV/SEA/SH	Code of Conduct; confidential reporting; referral pathways

ES.10.3 Grievance Redress Mechanism (GRM)

The GRM provides accessible, confidential, and timely resolution of grievances:

Feature	Description
Entry Points	Toll-free hotline, suggestion boxes, CLOs, female GRM focal points
Acknowledgement	Within 48 hours
Resolution	Within 14 days (Level 1); 21 days (final appeal)
Tiered System	PHC level → LGA liaison → PIU → FMEnv/AfDB
GBV Cases	Confidential handling; survivor-centred approach
Reporting	Monthly to AfDB

ES.11 DISCLOSURE AND REPORTING

ES.11.1 Disclosure Requirements

This ESIA will be disclosed in accordance with AfDB and FMEnv requirements for Category 1 projects:

Requirement	Detail
Disclosure Period	120 days (AfDB requirement for Category 1 projects)
Disclosure Locations	LSMoH headquarters, Ikorodu North LCDA secretariat, project website, hard copies in PHC waiting areas
Public Hearing	Within 30 days after disclosure
Non-Technical Summary	In English and Yoruba

ES.11.2 Reporting Framework

Report	Frequency	From → To
E&S Monitoring Report	Weekly	Contractor → PIU
E&S Performance Report	Quarterly	PIU → AfDB
ESMP Compliance Report	Quarterly	Facility Operator → PIU
Independent Audit Report	Quarterly	IESM → AfDB
Incident Report	Within 24 hours	Contractor → PIU

ES.12 CONCLUSION AND RECOMMENDATIONS

ES.12.1 Overall Conclusion

The ESIA concludes that the four PHC facilities in the Ikorodu North are environmentally and socially viable. All adverse impacts -- environmental, social, health, safety, and GBV-related -- can be effectively mitigated through the ESMP, HMWMP, GBV Action Plan, and other safeguard instruments.

The project will deliver substantial positive impacts, including:

- Expanded access to quality healthcare for approximately 200,000 residents residents
- Reduced maternal and child mortality (estimated 20-35% reduction)
- Strengthened climate resilience through green building design
- Local employment (160-320 direct construction jobs) and economic growth
- Reduced GHG emissions (250-500 tCO_2e/year) through solar PV
- Improved gender safety and GBV prevention systems

The project aligns with the AfDB ISS (2024), the FMEnv EIA Act, the IFC Performance Standards, the WHO standards, the ILO conventions, and the Equator Principles IV.

ES.12.2 Recommendations

Pre-Construction Recommendations:

1. Conduct asbestos surveys at Omolaiye; implement abatement if confirmed
2. Establish GBV referral pathways (medical, psychosocial, legal, shelter)
3. Recruit GBV Specialist and activate confidential reporting channels
4. Implement climate-resilient design (oversized drainage, elevated electricals, solar PV)
5. Obtain all regulatory permits (LASEPA, LAWMA, building approvals)
6. Conduct wetland Critical Habitat screening (Omolaiye, Olorunda, Eruwen)
7. Implement RAPs for Agura (13 shops) and Olorunda (6 farmers) before construction begins
8. Train contractors and PIU staff on AfDB ISS and ESMP implementation

Construction Phase Recommendations:

1. Enforce CESMP: dust control, noise limits, erosion control, spill prevention
2. Implement GBV Action Plan: CoC, training, reporting, sanctions
3. Ensure ≥50% local hiring to reduce labour influx
4. Conduct environmental monitoring (air, noise, water, waste)
5. Maintain GRM: 48-hour acknowledgement, 14-day resolution
6. Implement Traffic Management Plan at Agura and Omolaiye
7. Conduct quarterly IESM audits and implement corrective actions

Operational Phase Recommendations:

1. Implement HMWMP: segregation, autoclaving, LAWMA disposal

2. Apply WHO IPC standards: hand hygiene, sterilisation, PPE, cleaning
3. Maintain climate-resilient features: solar PV, drainage, heat management
4. Continue GBV prevention and response: staff training, confidential reporting
5. Maintain GRM for patients and community members
6. Desludge septic tanks every 2--3 years
7. Prioritise solar power to reduce GHG emissions

ES.12.3 Final Statement

The Lagos State Health Infrastructure Project (LSHIP) -- Ikorodu North will significantly improve public health outcomes, strengthen health system resilience, and enhance environmental sustainability. With robust mitigation measures, strong institutional oversight, and continuous community engagement, the project will deliver long-term benefits while maintaining full compliance with national and international safeguards.

The project is recommended for approval by the Federal Ministry of Environment (FMEnv) and the African Development Bank (AfDB), subject to:

1. Full implementation of the ESMP before commissioning of each PHC
2. Availability of a third-party external monitoring report every 6 months
3. Evidence of functioning GRM and GBV referral pathway prior to construction start

CHAPTER 1 -- INTRODUCTION

1.0 Introduction

The Lagos State Health Infrastructure Project (LSHIP) is a US$200 million health system strengthening programme implemented by the Lagos State Ministry of Health (LSMoH) with financing from the African Development Bank (AfDB) (African Development Bank, 2025). The initiative aims to modernize, expand, and climate-proof healthcare infrastructure across Lagos State through the construction of 11 new Primary Healthcare Centres (PHCs), refurbishment of 19 existing PHCs, and the development of secondary and tertiary healthcare facilities including a 140-bed General Hospital in Ibeju-Lekki and the Infectious Diseases Research Institute (IDRI) in Yaba (Lagos State Ministry of Health, 2025).

The AfDB has classified the LSHIP as Category 1 (High Risk) under its Integrated Safeguards System (ISS), requiring full Environmental and Social Impact Assessments (ESIAs) for all 30 PHC sites (African Development Bank, 2025). This classification reflects the project's multi-site footprint, potential involuntary resettlement at six locations, presence of asbestos in older facilities, proximity to wetlands and mangrove ecosystems, and the scale of construction activities in densely populated urban and peri-urban communities (African Development Bank, 2025).

This ESIA has been prepared in accordance with the FMEnv EIA Act CAP E12 LFN 2004 (Federal Ministry of Environment, 2004), the AfDB ISS (OS1—OS10) (African Development Bank, 2013), IFC Performance Standards (International Finance Corporation, 2012), WHO healthcare waste guidelines (World Health Organization, 2014), and relevant Lagos State environmental regulations (Lagos State Environmental Protection Agency, 2017). It provides a comprehensive assessment of the potential environmental and social impacts associated with the LSHIP and proposes mitigation, management, and monitoring measures to ensure that the project is implemented sustainably and in compliance with national and international standards.

1.1 National and State Context

Nigeria's healthcare system faces significant challenges, including inadequate financing, high out-of-pocket expenditure, weak primary healthcare systems, and limited diagnostic capacity (Federal Ministry of Health, 2018). With a population exceeding 200 million (World Bank, 2024), the country allocates only 4-5% of its annual budget to health, far below the 15% Abuja Declaration target (African Union, 2001; World Health Organization, 2023). Out-of-pocket expenditure accounts for over 75% of health financing (National Bureau of Statistics, 2022). The National Primary Health Care Development Agency (NPHCDA) has driven reforms through the Basic Health Care Provision Fund (BHCPF), but in 2024 Lagos State received only

N995 million -- about 2% of the total BHCPF allocation -- despite housing over 30 million people and contributing more than 30% of Nigeria's GDP (National Primary Health Care Development Agency, 2024; National Bureau of Statistics, 2023).

Lagos State, with an estimated population exceeding 30 million (Lagos State Bureau of Statistics, 2024), experiences health challenges typical of a rapidly growing megacity: high maternal and child mortality, a rising burden of non-communicable diseases, and weak pandemic preparedness (Lagos State Ministry of Health, 2023). Only 337 of 350 public PHCs are functional (Lagos State Primary Healthcare Board, 2024). Most secondary hospitals operate at well above designed capacity, and the state has no BSL-3 or BSL-4 laboratory for emerging infectious diseases (Nigeria Centre for Disease Control, 2024).

Table 1.1: Lagos State Health System Overview

Indicator	Value
Lagos State GDP (nominal)	US$102 billion
Estimated Population (2022)	30 million
Total Healthcare Budget (2024)	N151 billion (6% of state budget)
Primary Health Centres (Public)	339
Functional PHCs	~220
Secondary/Tertiary Public Facilities	30
Private Hospitals	2,333
Health Insurance Coverage	1,300,000+ residents

Lagos State operates a three-tier healthcare system comprising (Lagos State Ministry of Health, 2023):

- 5 tertiary facilities (state and federal)
- 28 public secondary hospitals
- 350 public PHCs, of which approximately 337 are functional
- Over 2,333 private hospitals, providing 60--70% of healthcare services (Health Facility Monitoring and Accreditation Agency, 2024)

Despite this extensive network, health financing remains inadequate. In 2024, Lagos allocated 6.75% of its total budget to health, below the 15% Abuja Declaration benchmark (Lagos State Ministry of Economic Planning and Budget, 2024). The LSHIP directly responds to these deficits. It aligns with the National Health Strategic Development Plan (Federal Ministry of Health, 2018), the Lagos State Development Plan 2052 (Lagos State Government, 2022), and

Nigeria's Nationally Determined Contributions (NDCs) under the Paris Agreement (Federal Ministry of Environment, 2021).

1.2 Geographic & Strategic Context

1.2.1 Project Corridor & Lagos State Coverage

The 29 project sites are distributed across 20 Local Government Areas (LGAs) and 37 Local Council Development Areas (LCDAs) in Lagos State (Lagos State Ministry of Local Government and Community Affairs, 2024). Unlike a linear infrastructure project, the LSHIP footprint comprises 29 discrete nodes, which have been systematically organised into eight groups to enhance the efficiency of fieldwork, logistics, and environmental and social assessments (Multiple Development Services, 2026). These clusters are delineated based on geographic proximity, access routes, and ecological characteristics, ensuring that project sites with similar environmental conditions, settlement patterns, and administrative contexts are assessed cohesively and consistently (Lagos State Ministry of Environment, 2023).

The distribution of project sites across the eight groups is summarised below:

- Group 1: Alimosho / Agege / Ikeja Axis -- 4 PHCs
- Group 2: Mainland / Yaba Axis -- 4 PHCs
- Group 3: Ikorodu North -- 4 PHCs
- Group 4: Ikorodu Axis -- 4 PHCs
- Group 5: Eti-Osa / Ibeju-Lekki Axis -- 4 PHCs
- Group 6: Ibeju-Lekki Coastal Hub - 3 PHCs
- Group 7: Badagry West Axis --3 PHCs
- Group 8: Waterfront Periphery Axis -3 PHCs

Total = 29 PHCs

To support spatial understanding and ESIA planning, the clusters are presented in Table 1.1.

Table 1.2: Geographical Clusters for the 29 LSHIP Project Sites

Cluster	Description	LGAs / LCDAs Covered	General Characteristics
Group 1	Western Mainland Hub	Amuwo Odofin (Oriade), Ajeromi Ifelodun (Ifelodun), Alimosho (Ayobo Ipaja, Egbe Idimu)	Mix of construction and refurbishment in high-density residential and commercial mainland districts.

Group 2	Central Business/Mainland Hub	Oshodi-Isolo (Isolo), Lagos Mainland (Yaba), Ikeja (Ojodu)	Strategic urban centers focused on administrative and transit hubs; includes both refurbishment and new construction.
Group 3	Badagry North Corridor	Badagry (Badagry North, Badagry LGA)	Concentrated development in the northern peri-urban expansion zones of Badagry.
Group 4	Badagry Coastal/Hinterland	Badagry (Imota, Igbogbo Bayeiku, Ijede, Badagry West)	Extension into the industrial and coastal LCDAs of the Badagry division.
Group 5	Epe/Lekki Eastern Axis	Epe (Ikosi Ejirin), Ibeju Lekki (Ibeju Lekki LCDA)	Rural-urban transition zones characterized by rapid infrastructure development and coastal proximity.
Group 6	Ibeju-Lekki Coastal Hub	Ibeju Lekki (Ibeju Lekki LCDA, Lekki LCDA)	Focused primarily on refurbishment within the high-growth coastal Lekki LCDA corridor.
Group 7	Badagry West Axis	Badagry (Badagry West LCDA)	Riverine and border-corridor sites including APA, Igbogbele, and Farasime.
Group 8	Regional Outliers	Badagry (Olorunda, Badagry LGA), Kosofe (Agboyi Ketu)	Diverse locations covering the Badagry hinterland and the Agboyi Ketu marshlands.

Figures 1.1 to 1.3 provide the corresponding spatial illustrations of the proposed project sites. Figure 1.1 presents a map of Nigeria highlighting Lagos State, illustrating its strategic location in the southwestern region of the country and its coastal boundary along the Atlantic Ocean.



Figure 1.1 -- Map of Nigeria Showing Lagos State

The LSHIP footprint consists of 29 project sites distributed across 20 LGAs and 37 LCDAs. As stated in the document, *"the LSHIP footprint comprises 29 discrete nodes, systematically organised into geographical clusters to enhance the efficiency of fieldwork, logistics, and environmental and social assessments"*. Clusters were delineated based on proximity, access routes, ecological characteristics, and administrative boundaries.

Figure 1.2 provides a detailed administrative map of Lagos State, showing all 20 LGAs and the 29 LSHIP project sites, each represented by colour-coded markers corresponding to their assigned geographical clusters.



Figure 1.2 -- Map of Lagos State Showing the 20 LGAs and 29 Project Sites

Figure 1.3 displays cluster-specific maps, each depicting the project sites along a particular axis, including major access roads, surrounding water bodies, ecological features, and sensitive receptors relevant to the ESIA.

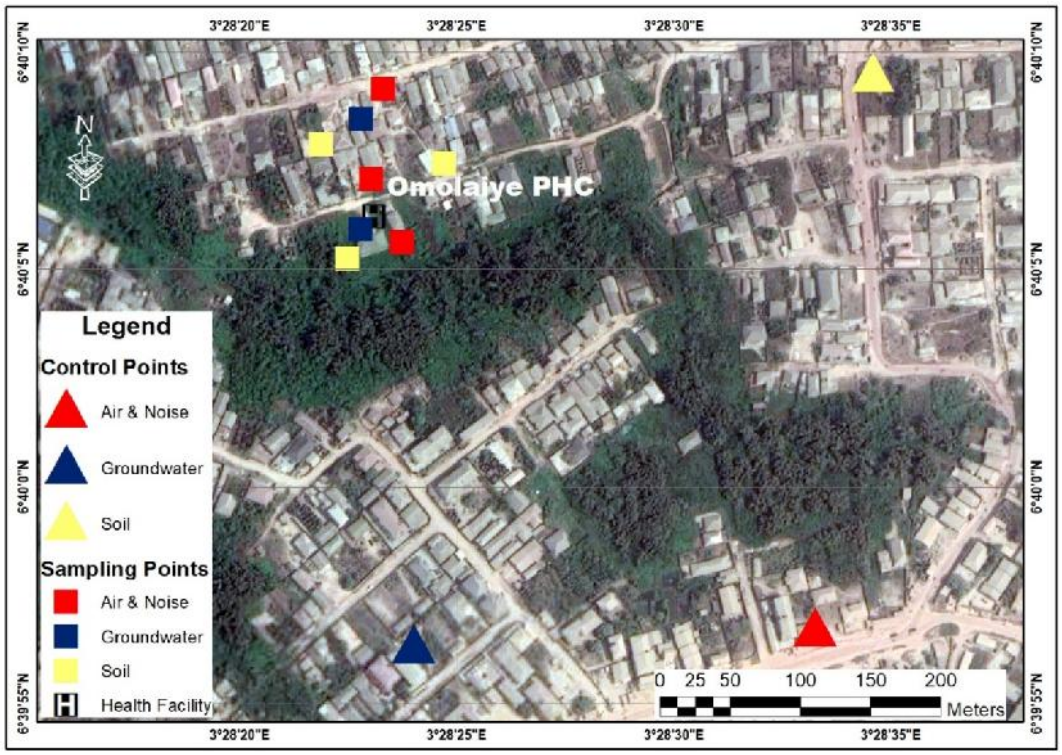


Figure 1.3a -- Omolaiye PHC Sampling Map

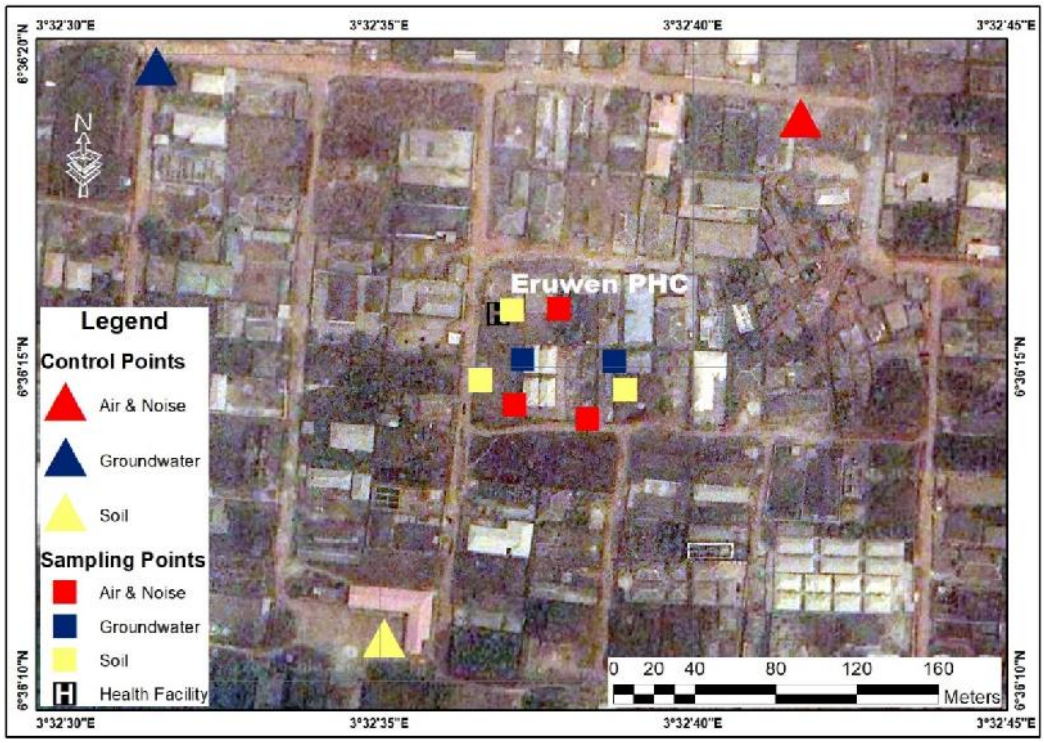


Figure 1.3b -- Eruwen PHC Sampling Map

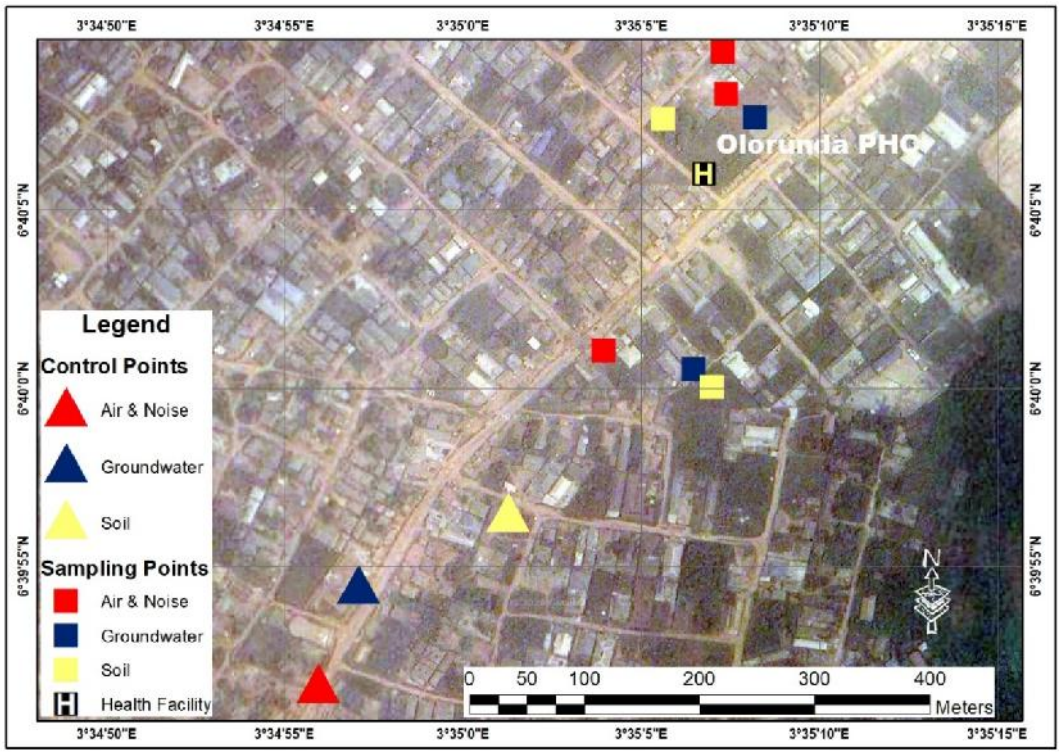


Figure 1.3c -- Olorunda PHC Sampling Map

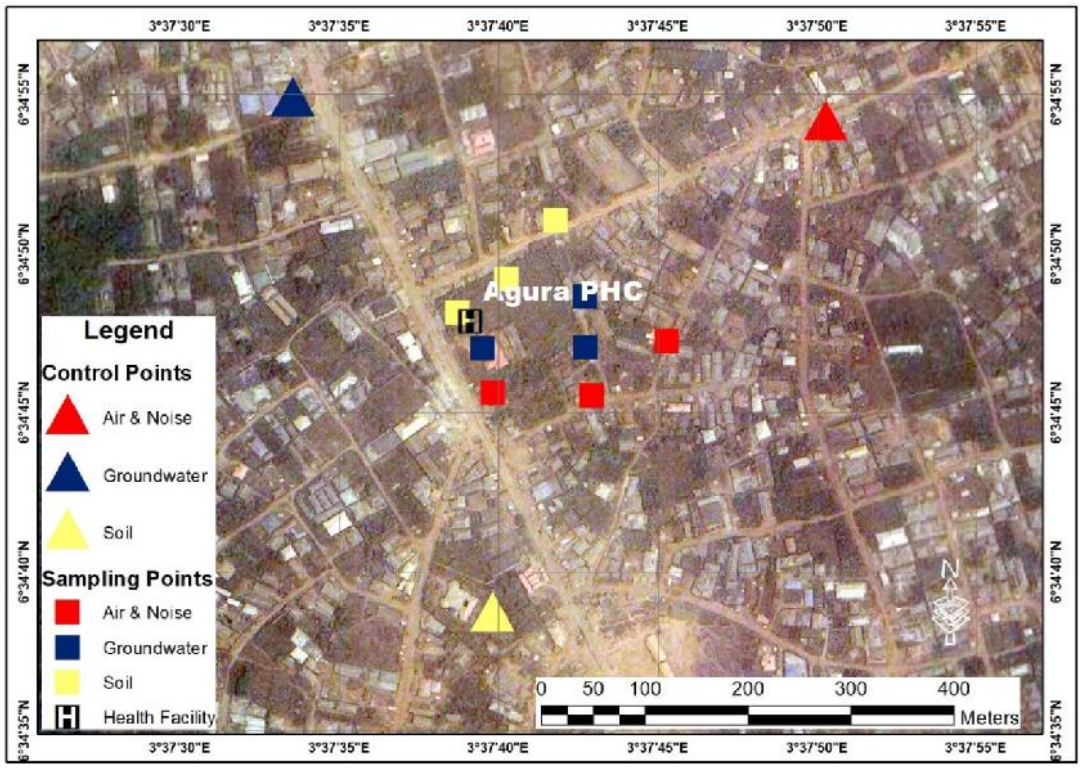


Figure 1.3d -- Agura PHC Sampling Map

Figure 1.3 -- Project Sites by Cluster (four Detailed Maps)

Figure 1.4 provides a spatial overview of all project site locations, including their latitude and longitude coordinates and corresponding cluster assignments.

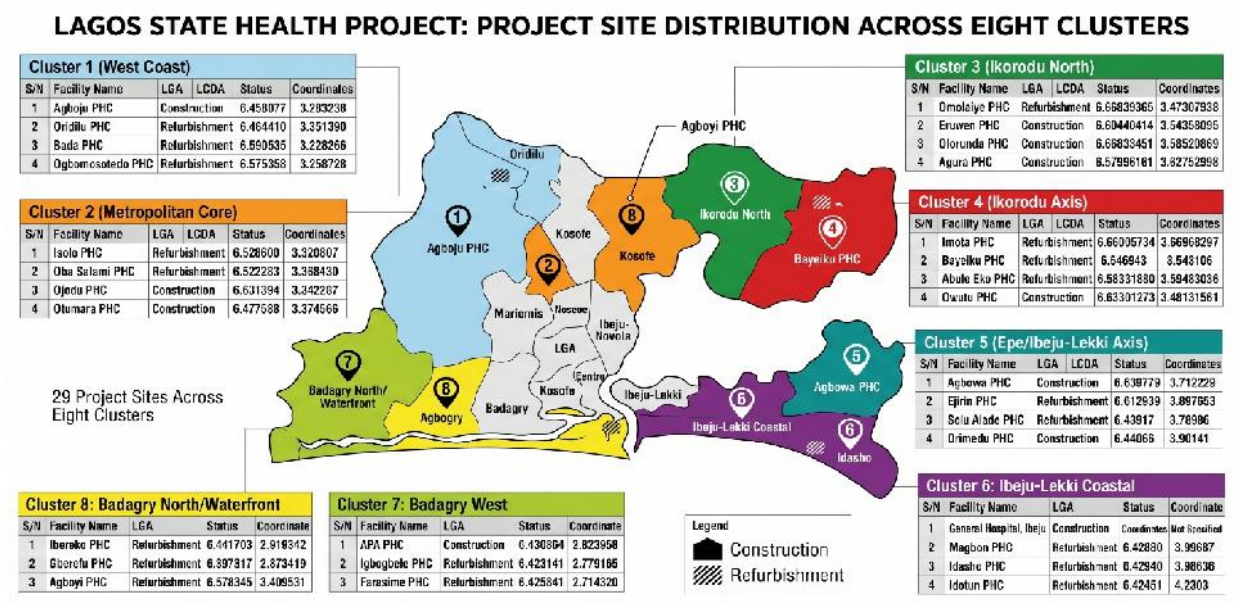


Figure 1.4: Spatial Overview of Project Sites Locations with Coordinates

1.2.2 Ecological Zones

Lagos State sits at the transition between two major ecological zones (Lagos State Ministry of Environment, 2023; Nigerian Conservation Foundation, 2021):

- Freshwater Swamp Forest: Dominant in Badagry, Epe, and parts of Badagry. Characterised by seasonal flooding, clay soils, and high-water tables.
- Coastal Mangrove Wetlands: Dominant in Eti-Osa, Ibeju-Lekki, and Badagry West. Tidal influence, saline conditions, and sensitive mangrove ecosystems (United Nations Environment Programme, 2020).

The following ecological sensitivities are directly relevant to the project (Multiple Development Services, 2026; African Development Bank, 2025):

- Wetland areas: Agbowa, Oke Ogbe, Eruwen, Omolaiye (waterlogged/sensitive ecosystem)
- Mangrove proximity: Orimedu, Idotun, Gberefu, APA Badagry West
- Riparian corridors: Oridilu (Amukoko), Baiyeku (waterfront), Abule Eko (lakeside), Ejirin (riverside)

1.2.3 Project Typology Overview

In addition to the statewide cluster distribution, the 29 PHC facilities under the Lagos State Health Project comprise 10 new-construction sites and 18 refurbishment sites (Figure 1.4). This typology based on the Feasibility Study (2025) and stakeholder meetings in 2026, reflects the varying levels of structural intervention required across the project footprint.

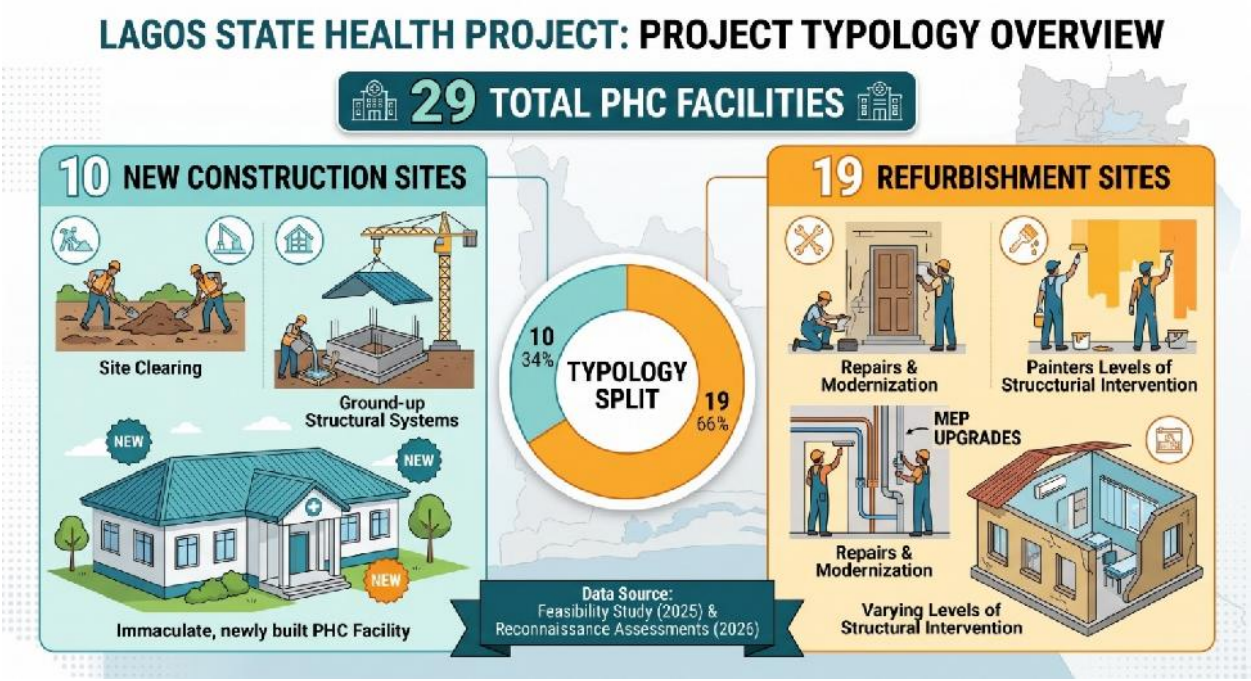


Figure 1.5: Project Typology Overview

1.2.4 Need for ESIA Across Olorunda, Eruwen, Omolaiye and Agura PHC Facilities

Although the PHC sites at Olorunda, Eruwen, Omolaiye and Agura differ in physical setting, surrounding land use, and scale of intervention, the programme requires full Environmental and Social Impact Assessment (ESIA) coverage due to the environmental and social risks identified during screening. The need for ESIA across these facilities is driven by the following factors:

a) Multi-site programme footprint

The project covers multiple PHC sites within the Ikorodu Axis Group 3, each situated in distinct community and environmental contexts. Even within the same axis, differences in settlement density, ecological characteristics, and access conditions require a coordinated ESIA approach to ensure consistent risk identification and mitigation across all project locations.

b) Construction activities with environmental and social risks Where the intervention involves new construction, project activities may include site clearing, excavation, foundation works, structural development, roofing, and mechanical, electrical, and plumbing installations. These activities may generate impacts on soil stability, drainage,

air quality, ambient noise levels, vegetation, occupational health and safety, and community safety, thereby triggering the need for environmental and social assessment.

c) Refurbishment activities also present significant E&S concerns Where existing PHC structures are to be upgraded, rehabilitation works may involve:

- removal of deteriorated building components,
- structural repairs,
- electrical and mechanical system upgrades,
- replacement of roofing, ceilings, windows, and finishes,
- temporary disruption or relocation of service areas,
- management of demolition and construction waste.

Such activities may result in occupational hazards, waste generation, nuisance impacts, and temporary service disruption, all of which justify ESIA coverage.

d) Land acquisition and economic displacement at several sites

Multiple PHCs require boundary expansion or removal of informal structures, triggering AfDB OS5 (Involuntary Resettlement). RAPs are required for sites with:

- farmers (Olorunda),
- shop owners (Agura),
- market stall operators (Ojodu),
- kiosk operators (Agboyi),
- large informal settlements (Agboju).

Once OS5 is triggered at any site, AfDB requires full ESIA coverage for the entire programme to ensure uniform safeguard compliance.

d) Environmentally sensitive coastal and low-lying settings The Ikorodu Axis Group 3 includes communities that may be associated with coastal, wetland, flood-prone, waterlogged, or low-lying ecological conditions. Facilities such as Olorunda, Eruwen, Omolaiye and Agura may therefore be exposed to environmental sensitivities relating to drainage limitations, erosion vulnerability, seasonal flooding, and ecosystem disturbance. These conditions require site-specific environmental assessment and suitable design and mitigation measures.

e) Public health facilities are inherently sensitive infrastructure Primary healthcare facilities generate a range of environmentally and socially sensitive wastes and operational risks, including medical waste, wastewater, sharps, infectious materials, pharmaceutical residues, and sanitation-related discharges. Because of the public health

implications of such facilities, they are regarded as sensitive infrastructure requiring robust environmental and social assessment irrespective of project scale.

f) Need for a unified Environmental and Social Management Plan (ESMP) A consolidated ESMP is required for the facilities in Olorunda, Eruwen, Omolaiye and Agura in order to:

- standardize mitigation measures across the sites,
- harmonize contractor environmental and social obligations,
- ensure compliance with applicable state and federal requirements,
- support monitoring by relevant regulatory and implementing authorities, and

provide a coordinated framework for impact management throughout construction and operation.

This is best achieved when all facilities are subjected to ESIA screening, assessment, and categorization under a common safeguard framework.

Together, these factors justify the preparation of a full ESIA for the PHC facilities in Ikorodu Axis Group 3 (Olorunda, Eruwen, Omolaiye and Agura), ensuring compliance with applicable environmental and social safeguard requirements, relevant national regulations, and Lagos State environmental standards under the LSHIP programme.

1.3 Project Delivery & Key Entities

The Lagos State Health Project is delivered through a coordinated, multi-institutional structure designed to ensure effective planning, safeguard compliance, and high-quality implementation across all 29 PHC facilities. The project involves several key entities, each with defined responsibilities under the AfDB Integrated Safeguards System (ISS, 2023/2024), FMEnv EIA Act CAP E12 LFN 2004, and Lagos State regulatory frameworks.

1.3.1 Lagos State Health Project (LSHP) -- Project Owner

The Lagos State Health Project (LSHP) is a flagship statewide health infrastructure upgrade programme aimed at modernising primary healthcare delivery, improving service quality, and strengthening resilience across Lagos State. The LSHP covers 29 PHCs across 20 LGAs and 37 LCDAs, involving both new construction and refurbishment interventions.

The LSHP is responsible for:

- overall project ownership and strategic direction,
- provision of land and enabling infrastructure,
- coordination with LGAs/LCDAs and community stakeholders,
- ensuring compliance with state and federal regulations,

- facilitating RAP implementation where required,
- Oversight of contractors and service providers.

1.3.2 African Development Bank (AfDB) – Financier & Safeguard Authority

Here is the refined text. The outdated Operational Safeguard (OS) numbers and titles have been updated to accurately reflect the 2023 African Development Bank (AfDB) Integrated Safeguards System (ISS) nomenclature, successfully addressing the reviewer's comments.

The African Development Bank (AfDB) is the primary financier of the Badagry Axis Group 7 PHC interventions and the lead institution responsible for enforcing environmental and social safeguards. Under the updated AfDB Integrated Safeguards System (ISS, 2023), the project requires comprehensive safeguard oversight due to its multi-site nature, construction activities, potential land-related impacts, and the sensitivity of healthcare infrastructure.

AfDB's responsibilities include:

- Reviewing and clearing the Environmental and Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP) documents.
- Ensuring compliance with the triggered Operational Safeguards under the 2023 ISS, specifically:
    - **OS1:** Environmental and Social Assessment
    - **OS3:** Resource Efficiency and Pollution Prevention and Management
    - **OS5:** Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
    - **OS6:** Biodiversity Conservation and Sustainable Management of Living Natural Resources
    - **OS10:** Stakeholder Engagement and Information Disclosure
- Conducting supervision missions and reviewing Back-to-Office Reports (BTORs).
- Monitoring the implementation of ESMP and RAP actions.
- Ensuring that mitigation measures are adequately funded and executed.

AfDB's involvement ensures that the project meets international best practices for environmental and social sustainability.

1.3.3 Environmental & Social Consultant -- Multiple Development Services (MDS)

Multiple Development Services (MDS) is the environmental and social consultant appointed to prepare the ESIA, RAP, ESMP, and associated safeguard instruments for the Ikorodu Axis Group 3 PHC Facilities. MDS conducted the feasibility-level screening (2025) and reconnaissance assessments (2026) that informed the project typology and safeguard categorisation.

MDS is responsible for:

- preparing the ESIA for all 29 PHC facilities,
- conducting baseline studies, stakeholder engagement, and impact assessment,
- preparing RAPs for sites triggering AfDB OS5,
- developing the consolidated ESMP and monitoring framework,
- supporting regulatory submissions to FMEnv and LASEPA,
- advising the project owner on safeguard compliance during implementation.

MDS also provides technical guidance to contractors and supervising engineers to ensure that mitigation measures are integrated into construction and operational activities.

1.3.4 Other Supporting Entities

 Federal Ministry of Environment (FMEnv): The statutory regulator responsible for ESIA approval under the EIA Act CAP E12 LFN 2004. It issues the ESIA certification and monitors overarching project compliance.

 National Environmental Standards and Regulations Enforcement Agency (NESREA): The federal agency responsible for enforcing all national environmental standards, regulations, policies, and guidelines throughout the project lifecycle.

 Lagos State Environmental Protection Agency (LASEPA): The state-level regulator tasked with environmental compliance, pollution control, and continuous monitoring. LASEPA directly oversees noise, air quality, waste management, and water quality compliance within the state.

 LGAs/LCDAs: Provide essential local oversight, community liaison, and support for the implementation of the Resettlement Action Plan (RAP) or Livelihood Restoration Plan (LRP). They facilitate site access, coordinate local security, and drive grassroots stakeholder engagement.

 Contractors & Supervising Engineers: Responsible for the day-to-day implementation of construction-phase mitigation measures. They are strictly required to comply with the Environmental and Social Management Plan (ESMP), national Occupational Health and Safety (OHS) standards, the updated AfDB ISS (2023), World Bank Group Environmental, Health, and Safety (WB EHS) Guidelines, and core International Labour Organization (ILO) standards. Figure 1.6 presents the institutional framework for the LSHIP, illustrating the relationships among the key entities responsible for financing, regulation, implementation, monitoring, and community engagement.

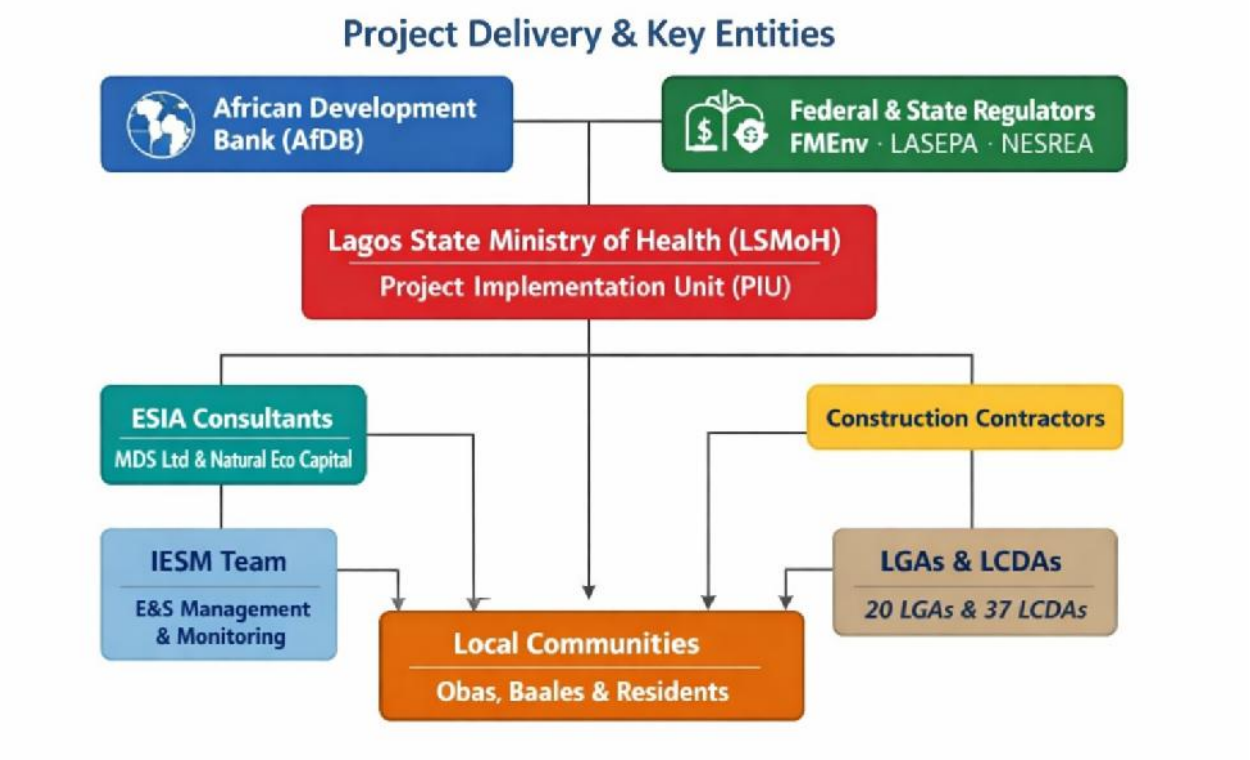


Figure 1.6: LSHIP Institutional Framework and Communication Structure

The framework positions the African Development Bank (AfDB) as the financing institution; the Federal Ministry of Environment (FMEnv), NESREA, and LASEPA as regulatory authorities; and the Lagos State Ministry of Health (LSMoH) through its Project Implementation Unit (PIU) as the implementing agency. It further highlights operational linkages to the ESIA Consultants, Construction Contractors, the Independent Environmental and Social Monitor (IESM), and local communities, including traditional institutions such as Obas and Baales.

This institutional arrangement ensures coordinated oversight across federal, state, local, and community levels. Crucially, it guarantees that project governance aligns comprehensively with both national environmental legal frameworks and best international practices, ensuring strict adherence to WB EHS requirements and ILO labour standards throughout the project footprint.

1.4 -- ESIA Rationale, Objectives, and Scope

1.4.1 ESIA Rationale

The LSHIP requires a full ESIA for three reasons:

1. **Regulatory Mandate (Federal)** -- The EIA Act CAP E12 LFN 2004 (Section 2) and the Mandatory Study List include healthcare facilities of this scale (Federal Ministry of

Environment, 2004). FMEnv has confirmed Category I status (Federal Ministry of Environment, 2025).

2. **Lender Requirement (AfDB)** -- The December 2025 Identification Mission confirmed Category 1 (High Risk) under the AfDB Integrated Safeguards System (ISS) 2023 due to:
    - Involuntary resettlement at six (6) sites (>200 persons at Agboju alone)
    - Environmentally sensitive locations (wetlands, waterlogged areas, coastal zones)
    - Presence of hazardous materials (asbestos suspected at 9 sites)
    - Community health and safety risks
    - Capacity gaps within the PIU
    - Labour influx risks (500-1,000 workers across the programme)
    - Gender-Based Violence and Sexual Exploitation, Abuse, and Harassment (GBV/SEA/SH) risks
    - Cumulative impacts with other developments in the project corridor
3. **International Good Practice** -- While IFC Performance Standards and Equator Principles IV provide useful guidance, the primary framework for this project is the AfDB ISS 2023 (Operational Safeguards OS1-OS10). The project also aligns with IFC Performance Standards (PS1-PS8), Equator Principles IV, WHO healthcare waste guidelines, and ILO labour standards as complementary good practice.

1.4.2 ESIA Objectives

The overarching objective of this Environmental and Social Impact Assessment (ESIA) is to serve as the principal due diligence instrument for the LSHIP within this Axis. It will systematically evaluate all potential environmental and social consequences, design robust measures to avoid, minimize, and mitigate adverse impacts, and establish a clear management framework to ensure the project is implemented responsibly, sustainably, and in full compliance with safeguard standards.

Specific Objectives for this ESIA Report (Ikorodu Axis Group 3)

1. **Identify and Assess Potential Impacts:** Systematically evaluate the environmental and social consequences of project activities across the four (4) designated PHC facilities within the Ikorodu Axis Group 3 (as part of the overarching 29-site LSHIP

programme), addressing potential issues such as wetland loss or habitat disruption in riverine areas.

2. **Establish a Site-Specific Baseline:** Characterize the existing environmental conditions, including hazardous material presence (like asbestos in Omolaiye) and socio-economic vulnerabilities (such as economic fragility in Omolaiye, Agura, Eruwen).
3. **Develop Mitigation and Enhancement Measures:** Formulate technical and social instruments to prevent, minimize, or compensate for adverse impacts while maximizing project benefits like green energy transition and improved health equity.
4. **Ensure Regulatory Compliance:** Demonstrate full compliance with the updated AfDB Integrated Safeguards System (ISS, 2023), specifically Operational Safeguards OS1–OS10, as well as the FMEnv EIA Act CAP E12 LFN 2004, NESREA regulations, LASEPA requirements, and international good practice (IFC, WHO, ILO). Verify that all proposed activities at the three facilities comply with Lagos State environmental standards and LSHIP safeguards.
5. **Facilitate Stakeholder Engagement:** Provide a framework for continuous dialogue with the diverse communities across the cluster, ensuring their concerns are integrated into the project design and a Grievance Redress Mechanism (GRM) is established.
6. **Formulate an Environmental and Social Management Plan (ESMP):** Create a clear roadmap for the implementation of safeguards, defining responsibilities and budgets for mitigation actions during the pre-construction, construction, and operational phases.
7. **Manage Specific Hazardous Risks:** Develop targeted protocols for high-risk activities, particularly the safe abatement and disposal of asbestos identified in older facility structures.
8. **Address Social Safeguards:** Establish measures to mitigate risks associated with labor influx, specifically focusing on the prevention of Gender-Based Violence (GBV) and Sexual Exploitation, Abuse, and Harassment (SEA/SH).
9. **Prepare Safeguard Instruments:** Develop site-specific Environmental and Social Management Plans (ESMPs), Hazardous and Medical Waste Management Plans (HMWMPs), GBV Action Plans for the facilities and RAPs (for Agura and Olorunda) for the Ikorodu North facilities.
10. **Support Informed Decision-Making:** Provide regulators (FMEnv, LASEPA), the financier (AfDB), and stakeholders with comprehensive information to support project approval and implementation.

1.4.3 Scope of the ESIA Report -- Ikorodu North (Group 3)

The scope of the Environmental and Social Impact Assessment (ESIA) for the Lagos State Health Infrastructure Project (LSHIP) encompasses the comprehensive evaluation of 29 Primary Health Centres (PHCs) distributed across eight geographical clusters in Lagos State. It covers the entire project lifecycle, from pre-construction activities to the long-term operational phase, ensuring alignment with both Nigerian regulatory standards and international safeguard frameworks.

The scope includes the following key areas:

1. Geographical and Physical Scope

- 29 Project Sites: The assessment covers all 29 facilities identified in the project documentation, ranging from urban hubs in Ikeja and Lagos Mainland to remote riverine sites in Badagry.
- Cumulative Influence Zone (CIZ): Evaluation of the spatial and temporal reach of combined stressors, specifically where LSHIP activities overlap with other regional infrastructure projects.
- Infrastructure Types: The scope includes both the refurbishment of existing aged facilities and the new construction of modern clinical blocks.

2. Environmental and Technical Scope

- Baseline Characterization: Establishing the current state of air quality, noise levels, soil composition, and hydrology across the diverse clusters.
- Hazardous Material Management: Specific focus on the identification and safe abatement of asbestos, particularly in older structures such as APA and Farasime.
- Climate and Energy: Assessment of the transition to renewable energy through solar-hybrid installations and the project's resilience to local climate risks like flooding.
- Waste Management: Evaluation of construction debris disposal and long-term medical waste logistics.

3. Social and Institutional Scope

- Social Safeguards: Identifying risks related to Labour Influx, with a specialized focus on preventing Gender-Based Violence (GBV) and Sexual Exploitation, Abuse, and Harassment (SEA/SH).
- Stakeholder Engagement: Mapping and consulting with diverse local communities, traditional leaders, and health workers to ensure local ownership.

- Institutional Capacity: Assessing the ability of implementing agencies to manage safeguards and identifying requirements for institutional strengthening.
- Grievance Redress: Establishing a formal Mechanism (GRM) to handle project-related complaints across all 29 sites.

4. Regulatory Framework Scope

- National Compliance: Adherence to the Nigeria Climate Change Act 2021 and Lagos State environmental laws.

International Standards: The assessment triggers and follows the AfDB Operational Safeguards (OS1–OS10) and the IFC Performance Standards (PS1–PS8 structured overview of the facilities by LGA/LCDA, distinguishing between new construction and refurbishment sites for ease of reference and management is given

: PHC Facilities in the Ikorodu Axis (New Construction vs. Refurbishment)[1]

LGA/LCDA	New Construction	Refurbishment
Ikorodu North LCDA	Eruwen PHC; Olorunda PHC	Omolaiye PHC
Ikorodu LGA	Agura PHC	—

Figure 1.7 presents a project status dashboard integrating geospatial information with project-specific data for the Ikorodu North. The dashboard includes:

- a map of the inland corridor highlighting the cluster's key focus area,
- a panel listing the four PHC sites and their development status (refurbishment or construction), and
- a data table containing GIS coordinates for each facility.

Figure 1.7 also situates the cluster within a broader development context by illustrating patterns of rapid peri-urban growth and associated infrastructure demands, providing a clear rationale for the planned interventions.

[1] *The classification of facilities into "new construction" and "refurbishment" categories is fully described in Chapter 1, particularly Sections 1.13.1 and 1.13.2, where the basis for safeguard categorisation (ESIA-only vs. ESIA + RAP), land-use considerations, and axis-specific environmental and social characteristics are detailed.*

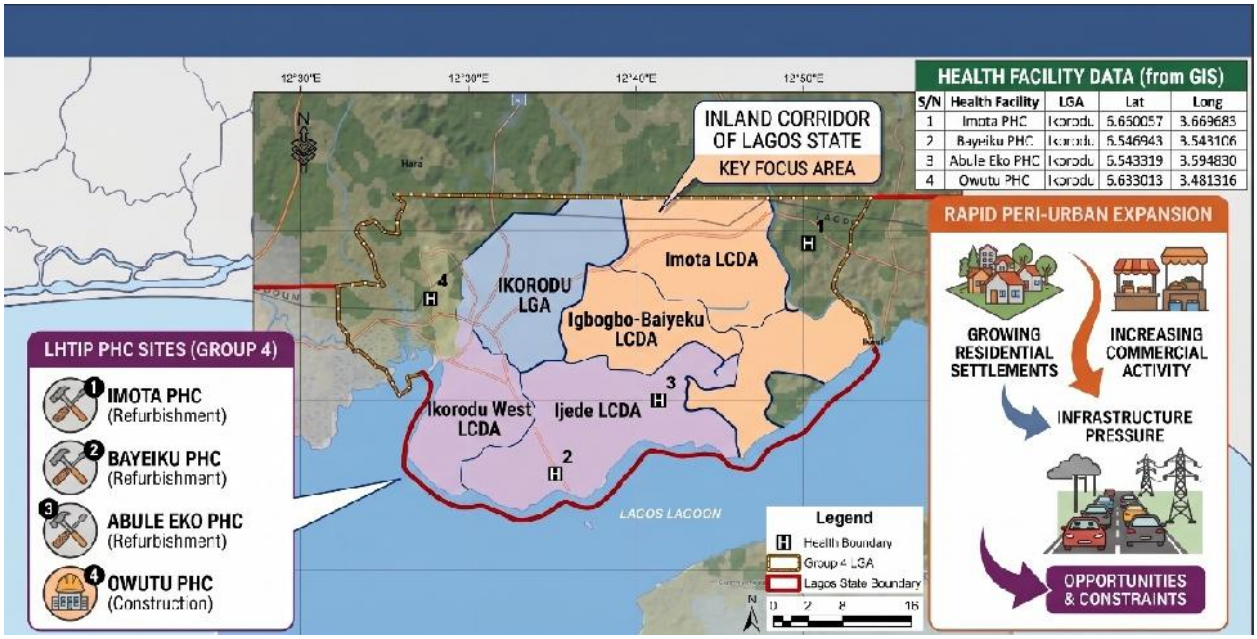


Figure 1.7: GIS-Integrated Development Map and Project Dashboard for Ikorodu North

This document constitutes the ESIA report which covers Group 3 -- Ikorodu North of the project. The assessment includes four (4) Primary Healthcare Centres (PHCs) located across Ikorodu North LCDA and Ikorodu LGA. The facilities comprise one refurbishment site (Omolaiye) and three new-construction sites (Eruwen, Olorunda, Agura). All other LSHIP clusters are addressed in separate standalone ESIA reports.

Temporal Scope

The ESIA evaluates impacts across all project phases:

- Pre-construction: site verification, design finalization, permitting, mobilization
- Construction: civil works, structural works, MEP installation, equipment installation
- Operation: clinical services, waste management, water and energy systems, infection control
- Decommissioning: long-term framework only (not anticipated within 50+ years)

Thematic Scope

The assessment covers the following environmental and social components:

- Physical Environment: air quality, noise/vibration, soils, erosion, water quality, drainage, waste
- Biological Environment: vegetation, habitats, flora/fauna, biodiversity (incl. IFC PS6), ecosystem services
- Socio-Economic Environment: land acquisition/resettlement (where applicable), livelihoods, community health and safety, labour conditions, GBV/SEA/SH, cultural heritage

- Cross-Cutting: cumulative impacts, climate vulnerability, emergency preparedness, institutional capacity

Exclusions

This ESIA does not cover PHC facilities in other LSHIP clusters:

- Badagry Axis: APA, Igbogbele, Farasime, Ibereko, Gberefu
- Eti-Osa / Ibeju-Lekki Axis: Orimedu, Agbowa, Magbon, Idasho, Idotun, Solu Alade, Ejirin
- Mainland / Yaba Axis: Ojodu, Otumara, Isolo, Oba Salami, Oridilu
- Alimosho / Kosofe Axis: Bada, Ogbomosotedo, Agboyi

Thematic Scope:

The ESIA addresses the following environmental and social components for the Ikorodu Axis facilities:

	Category	**Components**
a)	Physical Environment	Air quality (dust, emissions), noise and vibration, soil erosion and sedimentation, water quality (surface and groundwater), flooding and drainage, waste management (construction and operational)
b)	Biological Environment	Vegetation and habitat loss (wetlands at Omolaiye, Olorunda, Eruwen), flora and fauna (including pangolin – Vulnerable at Omolaiye), biodiversity and critical habitat (IFC PS6), ecosystem services
c)	Socio-Economic Environment	Land acquisition and resettlement (Agura – 13 shops; Olorunda – 6 farmers), livelihoods and economic activities, community health and safety, labour and working conditions, GBV/SEA/SH, cultural heritage (chance finds)
d)	Cross-Cutting	Cumulative impacts (new construction at Olorunda, Agura and Eruwen expansion, residential developments, proposed road upgrade), climate vulnerability (flooding, erosion, heatwaves), emergency preparedness and response, capacity building

Figure 1.8 provides the scope for the Ikorodu North cluster with the specific components and detailed exclusions.

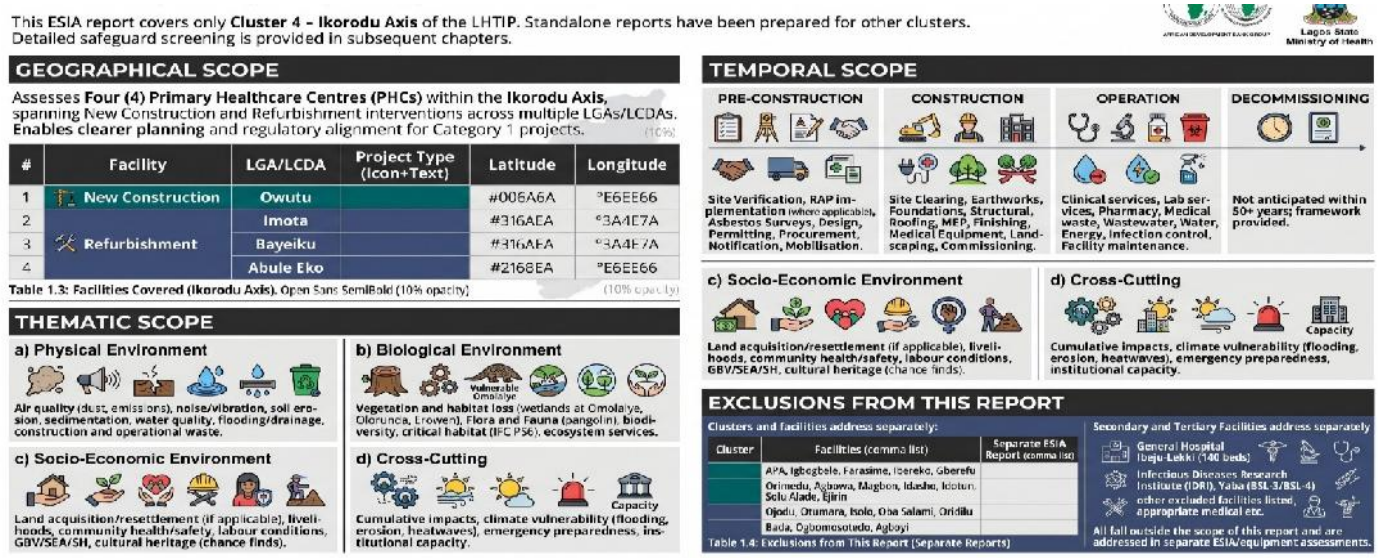


Figure 1.8: Scope for the Ikorodu North Cluster

1.5 Regulatory Triggers, ESIA Process Flow and Guiding Principles

1.5.1 Regulatory Triggers

The regulatory triggers applicable to the Lagos State Health Infrastructure Project (LSHIP) define the statutory and safeguard obligations that guide the scope and depth of this ESIA. These triggers arise from Nigerian environmental legislation and the African Development Bank (AfDB) Integrated Safeguards System (ISS), and they determine the level of assessment required for each facility. Table 1.3, summarizes the specific triggers relevant to the Ikorodu North, highlighting the regulatory basis and the implications for the project.

Table 1.3: Regulatory Triggers Applicable to the Ikorodu North

Trigger	Regulation	Relevance to Ikorodu North
Construction of new PHCs (3 sites)	EIA Act Schedule 2, Part II (Health Infrastructure)	Mandatory ESIA for new health facilities exceeding 2,000 m²
Major refurbishment of existing PHCs (1 site)	EIA Act Section 2 ("modification likely to cause significant adverse effects")	Structural upgrades; asbestos removal suspected at Omolaiye
Involuntary resettlement	Land Use Act CAP L5; AfDB OS5	Agura (13 shops) and Olorunda (3 farmers) require RAP
Asbestos abatement	Harmful Waste Act CAP H1; NESREA Hazardous Waste Regulations	Requires a Hazardous & Medical Waste Management Plan (HMWMP)
Wetland disturbance	NESREA Wetlands Regulations (draft); IFC PS6	Omolaiye, Olorunda, and Eruwen require biodiversity screening

Construction in erosion-prone areas	NESREA Soil Erosion & Flood Control Regulations (2010)	Omolaiye and Eruwen require erosion and sediment control plans

These triggers collectively justify the project's classification as Category 1 (AfDB) and Category I (FMEnv), thereby requiring a full ESIA.

1.5.2 ESIA Process Flow

Figure 1.9 presents the Environmental and Social Impact Assessment (ESIA) process required to achieve regulatory compliance under the FMEnv EIA Act CAP E12 LFN 2004 and the AfDB Integrated Safeguards System (ISS). The process follows a structured and sequential pathway designed to ensure that environmental and social risks are identified early, assessed rigorously, and managed effectively.

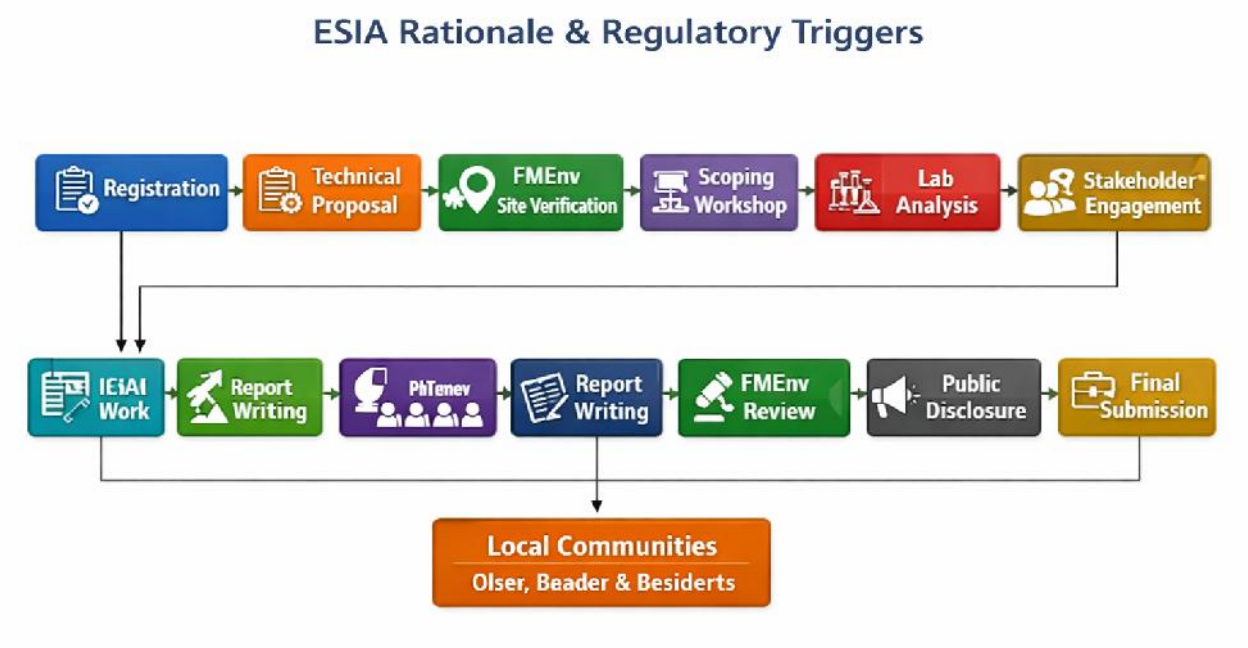


Figure 1.9: ESIA Process Flowchart

The ESIA process comprises the following steps:

1. Registration with FMEnv
2. Technical Proposal Submission
3. FMEnv Site Verification
4. Scoping Workshop (stakeholder-inclusive)
5. Fieldwork and Data Collection
6. Laboratory Analysis
7. Stakeholder Engagement
8. Report Writing and Draft ESIA Submission
9. FMEnv Review and Panel Assessment

10. Public Disclosure (120-day public review period, because it is category 1 project, in compliance with AfDB standards)
11. Final Submission
12. Issuance of EIA Certificate

This process ensures that the ESIA meets national regulatory requirements and aligns with international best practice for high-risk, multi-site infrastructure projects.

1.5.3 Guiding Principles

The LSHIP is guided by a set of core principles that shape all phases of planning, assessment, construction, and operation. These principles are consistent with the IFC Performance Standards, the AfDB Integrated Safeguards System, and global best practice for sustainable healthcare infrastructure.

- Sustainability -- Integrating environmental, social, and economic considerations, including green building design, local hiring, and long-term facility resilience.
- Precautionary Principle -- Where uncertainty exists, the project adopts a conservative approach (e.g., asbestos surveys prior to demolition; treating wetlands as potential Critical Habitat until confirmed otherwise).
- Mitigation Hierarchy -- Applying the sequence: Avoid thMinimise → Restore → Offset.
- Inclusiveness -- Ensuring equitable access and participation for women, persons with disabilities, youth, riverine communities, and informal settlers.
- Transparency -- Ensuring public disclosure of ESIA documents (21 days FMEnv; 120 days AfDB), including a Non-Technical Summary in English and Yoruba.
- Accountability -- Enforcing contractor obligations, Independent Environmental and Social Monitor (IESM) audits, and sanctions for non-compliance.
- Polluter Pays Principle -- Contractors bear full responsibility for spill response, waste disposal, and site restoration.
- Continuous Improvement -- Annual ESMP reviews informed by monitoring data, incident reports, and lessons learned.

1.5.4 Field Data Gathering and Attestation

In compliance with FMEnv requirements, the field data gathering for this ESIA was conducted with the participation and oversight of officials from the Federal Ministry of Environment reference appendix 1.3. This ensures that the baseline data and environmental assessments meet the regulatory standards required for EIA Certificate issuance by FMEnv Abuja.

Field Data Gathering Details:

Item	Details
Dates of Field Work	24--27 February 2026 and 1-10 April 2026
Season	Dry Season
FMEnv Oversight	Confirmed
Sampling Points	3 per PHC site (12 sampling points total)
Parameters Sampled	Air quality, noise, groundwater, soil, vegetation, socio-economic

Field Attestation Register:

The following government officials from the Federal Ministry of Environment, Lagos State Ministry of Environment and Water Resources participated in the field data gathering and Stakeholders engagement meetings reference appendix 7:

S/N	Name	Position
1	Okwesa Francesca	FMEnv., Abuja (Representative of the Hon. Minister of Environment)
2	Adenaike Olubunmi	FMEnv Lagos Office, (Controller)
3	Oshimowo T. Bolaji	Lagos State Ministry of Environment & Water Resources
4	Oyawoye Anuoluwa	Lagos State Ministry of Environment & Water Resources
5	Shittaboy Tolulope	FMEnv, Zonal Office Lagos
6	Kehinde Biok T	FMEnv, Zonal Office Lagos
7	Eberechukwu E.U	FMEnv, Zonal Office Lagos
8	Engr. Braimoh	Lagos State Primary Healthcare Board

1.6 Policy, Legal & Institutional Framework

This ESIA has been prepared in accordance with:

- **Primary Framework**: **AfDB Integrated Safeguards System (ISS) 2023/2024** (Operational Safeguards OS1-OS10)
- **National Regulatory Framework**: FMEnv EIA Act CAP E12 LFN 2004, NESREA Regulations, Lagos State Environmental Laws
- **Complementary Good Practice**: IFC Performance Standards (PS1-PS8), Equator Principles IV, WHO Guidelines, ILO Conventions

Note: Where national regulations are less stringent than the AfDB ISS 2023/2024, the Bank's standards shall take precedence to ensure full compliance.

1.6.1 Nigerian Federal Framework

Table 1.4 summarizes the key federal laws and regulations applicable to LSHIP. Where national law is silent or weaker, AfDB standards apply.

Table 1.4 -- Nigerian Federal Regulatory Framework

Law / Regulation	Key Provisions	Relevance to LSHIP	Compliance Action

EIA Act Cap E12 LFN 2004 (Federal Ministry of Environment, 2004)	Section 2 -- Mandatory EIA for prescribed activities; Category I designation	Project triggers Category I (mandatory full EIA)	Registration (Form EIA 1) submitted; ESIA prepared; public disclosure to follow; EIA Certificate to be obtained
NESREA Act 2007 (National Environmental Standards and Regulations Enforcement Agency, 2007)	Enforcement of air, water, noise, waste standards	Construction and operation must meet NESREA limits	Monitoring plan includes NESREA limits; exceedances trigger corrective action
National Environmental (Air Quality Control) Regulations, 2021 (National Environmental Standards and Regulations Enforcement Agency, 2021)	PM2.5 (25 µg/m³), PM10 (50 µg/m³), NO2 (40 µg/m³), SO2 (20 µg/m³), CO (10 mg/m³)	Dust from earthworks, vehicle emissions, generator operation	Water spraying, covered trucks, low-sulphur diesel, real-time monitoring
National Environmental (Noise Standards and Control) Regulations, 2009 (National Environmental Standards and Regulations	Residential day 55 dB(A), night 45 dB(A); Commercial 65/55; Industrial 70/60	Construction noise near schools and residential areas	Restrict hours (7:00--18:00), temporary barriers, community notification

Enforcement Agency, 2009)			
National Environmental (Surface and Groundwater Quality Control) Regulations, 2011 (National Environmental Standards and Regulations Enforcement Agency, 2011)	pH (6.5--8.5), BOD (6 mg/L), coliforms (0 CFU/100ml), iron (0.3 mg/L), copper (0.01 mg/L)	Wastewater discharge, stormwater runoff, dewatering	No untreated discharge; silt fences; septic tanks
National Environmental (Sanitation and Wastes Control) Regulations, 2009 (National Environmental Standards and Regulations Enforcement Agency, 2009)	Proper waste management, segregation, storage, collection, disposal; prohibition of open burning	Construction waste, medical waste, hazardous waste (asbestos)	Waste Management Plan; HMWMP; LAWMA collection; licensed disposal
Harmful Waste Act Cap H1 LFN 2004 (Federal Government of Nigeria, 2004)	Prohibits import, transport, dumping, deposit of harmful waste in air, land, or water; criminal penalties	Asbestos (*[insert number]* sites), chemical waste, pharmaceutical waste, infectious waste	Licensed asbestos abatement; double-bagging; labeled transport; hazardous waste landfill

Land Use Act Cap L5 LFN 2004 (Federal Government of Nigeria, 2004)	Sections 28-29 -- Compulsory acquisition; Section 30 -- Compensation; Section 36 -- Occupation without title	Resettlement at Agura, Olorunda	RAPs with compensation at full replacement cost; livelihood restoration
Violence Against Persons (Prohibition) Act 2015 (Federal Government of Nigeria, 2015)	Sections 1-10 -- Prohibits sexual violence, exploitation, harassment	GBV/SEA/SH risks during construction and operation	GBV Action Plan; Code of Conduct; referral pathways; survivor-centered response
National Biosafety Management Agency Act 2015 (National Biosafety Management Agency, 2015)	Sections 12-18 -- Biosafety permits, containment measures, inspections	BSL-3/BSL-4 laboratory (IDRI Yaba)	Biosafety permit; containment verification; NCDC certification; EPRP
Child Rights Act 2003 (Federal Government of Nigeria, 2003)	Prohibits child labour, trafficking and exploitation; fixes 18 years as age of majority	Prohibits engagement of minors on construction sites	Contractor CESMP to mandate age verification at recruitment
Labour Act Cap L1 LFN 2004 (Federal Government of Nigeria, 2004)	Regulates terms and conditions of employment, wages, working hours	Governs engagement, remuneration and working conditions of construction workers	Written contracts for all workers; Labour Management/Influx Plan
Employee's Compensation Act 2010 (Federal	Provides for compensation to employees for	Mandates compensation arrangements for	Contractor to register workers under the NSITF/ECA scheme

Government of Nigeria, 2010)	occupational injuries	construction-phase OHS incidents	
Endangered Species (Control of International Trade and Traffic) Act Cap E9 LFN 2004, as amended (Federal Government of Nigeria, 2004)	Conserves and protects endangered species of wild fauna and flora	Relevant where site preparation/clearing could affect protected species or habitats	Biodiversity screening; chance-find procedure for protected species

1.6.2 State-Level Environmental Permit Requirements

Table 1.5 provides a summary of the key environmental permits and approvals required at the state level for the implementation of the LSHIP, identifying the responsible regulatory agencies, the specific permits or clearances to be obtained, and the corresponding status or actions needed to achieve compliance.

Table 1.5 -- State-Level Environmental Permit Requirements

Responsible Agency	Required Permits / Approvals	Status / Action
LASEPA (Lagos State Environmental Protection Agency, 2017)	State EIA concurrence; waste management permit; water abstraction permit; air quality permit (generators, incinerator); noise permit (if night work); asbestos abatement permit	To be obtained prior to construction commencement. Permit applications to be submitted within 30 days of EIA Certificate.
LAWMA (Lagos State Waste Management Authority, 2019)	Waste collection agreement; medical waste disposal agreement; hazardous waste manifest system	To be executed for each facility.
Lagos State Ministry of Physical Planning (Lagos State Government, 2022)	Building plan approval; planning permit	To be obtained for new construction sites.
LASWARCO (Lagos State Water Regulatory Commission, 2018)	Borehole drilling permit; water abstraction license	To be obtained for new boreholes.

Lagos State Safety Commission (LSSC) (Lagos State Safety Commission Law, 2011)	Construction-site safety registration and Safety Compliance Certification	Register all construction sites with the LSSC; obtain Safety Compliance Certification.

The Contractor shall obtain all state-level permits prior to commencement of activities in each respective LGA.

1.6.3 AfDB Operational Safeguards (OS1-OS10)

The following AfDB ISS 2023 Compliance Mapping is structured specifically for project sites where operational safeguards (OS) were triggered based on site-specific environmental and social baseline studies identified in the Ikorodu North ESIA report.

Table 1.6: AfDB ISS 2023/2024 Compliance Mapping (Site-Specific Triggers)

AfDB Operational Safeguard (2023/2024)	**Triggered Sites / Context**	**Compliance Action / Mitigation Measure**
OS 1: Environmental and Social Assessment	All sites (Category 1)	Conduct full ESIA; implement ESMP; establish monitoring and reporting framework
OS2 – Labour & Working Conditions	All sites (Labour influx/OHS); Agura (GBV/SEA/SH risk)	Adhere to labour standards; implement OHS plan, GBV/SEA/SH Action Plan, and Traffic Management Plan; maintain GRM
OS3 – Resource Efficiency & Pollution Prevention	Omolaiye (Suspected Asbestos); All sites (Medical waste/wastewater)	Conduct asbestos survey and implement abatement plan; implement Healthcare Waste Management Plan (HMWMP) and septic system upgrades
OS4 – Community Health, Safety & Security	All sites (Community safety risks)	Traffic Management Plan; Emergency Preparedness and Response Plan (EPRP); Community liaison
OS5 – Land Acquisition, Restrictions on Land Use & Involuntary Resettlement	Agura (13 shops); Olorunda (6 farmers)	Prepare/implement Resettlement Action Plan (RAP); provide compensation at full replacement cost and livelihood restoration
OS6 – Biodiversity & Ecosystem Services	Omolaiye, Olorunda, Eruwen (Wetlands)	Avoid via 30--50m buffers; monitor water quality; implement offset measures for net gain if avoidance is not possible

OS8 – Cultural Heritage	All sites (Potential chance finds)	Chance Finds Procedure; worker training; coordination with Lagos State Museum (LASM)
OS10 – Stakeholder Engagement & *Information Disclosure*	All sites	Stakeholder Engagement Plan (SEP); GRM; public disclosure

The AfDB Integrated Safeguards System (ISS) was revised in 2023/2024, expanding the former OS1--OS5 framework into a more comprehensive OS1--OS10 structure. To ensure full alignment with the updated ISS, all safeguard references in this ESIA have been reviewed and corrected. The matrix below presents a clear mapping of the old OS references and their corresponding updated OS numbers, along with the exact corrections applied throughout this ESIA.

Old OS Reference	**Correct New OS Reference (ISS 2023/2024)**
OS1 -- Environmental & Social Assessment	OS1 -- Environmental & Social Assessment (NO CHANGE)
OS2 -- Involuntary Resettlement	OS5 -- Land Acquisition, Restrictions on Land Use & Involuntary Resettlement
OS3 -- Biodiversity & Ecosystem Services	OS6 -- Biodiversity & Ecosystem Services
OS4 -- Pollution Prevention & Control	OS3 -- Resource Efficiency & Pollution Prevention
OS5 -- Labour Conditions, Health & Safety	OS2 -- Labour & Working Conditions
(No equivalent in old ISS)	OS4 -- Community Health, Safety & Security
(No equivalent in old ISS)	OS7 -- Indigenous Peoples
(No equivalent in old ISS)	OS8 -- Cultural Heritage
(No equivalent in old ISS)	OS9 -- Financial Intermediaries
(No equivalent in old ISS)	OS10 -- Stakeholder Engagement & Information Disclosure

Assessment and Management of Environmental & Social Risks (AfDB OS1--OS10)

Figure 1.10 illustrates the Environmental and Social (E&S) Risk Assessment and Management Framework adopted for the Lagos State Health Infrastructure Project (LSHIP) -- Ikorodu North, in alignment with the African Development Bank's Integrated Safeguards System (ISS, 2024).

The framework reflects a structured, multi-stage process consisting of Risk Screening, Risk Identification, Risk Significance Rating, Mitigation Hierarchy Application, Residual Risk Evaluation, and Risk Management Planning. This process ensures that all environmental and social risks associated with the four PHC facilities (Omolaiye, Eruwen, Olorunda, Agura) are systematically assessed and managed in accordance with AfDB OS1--OS10.

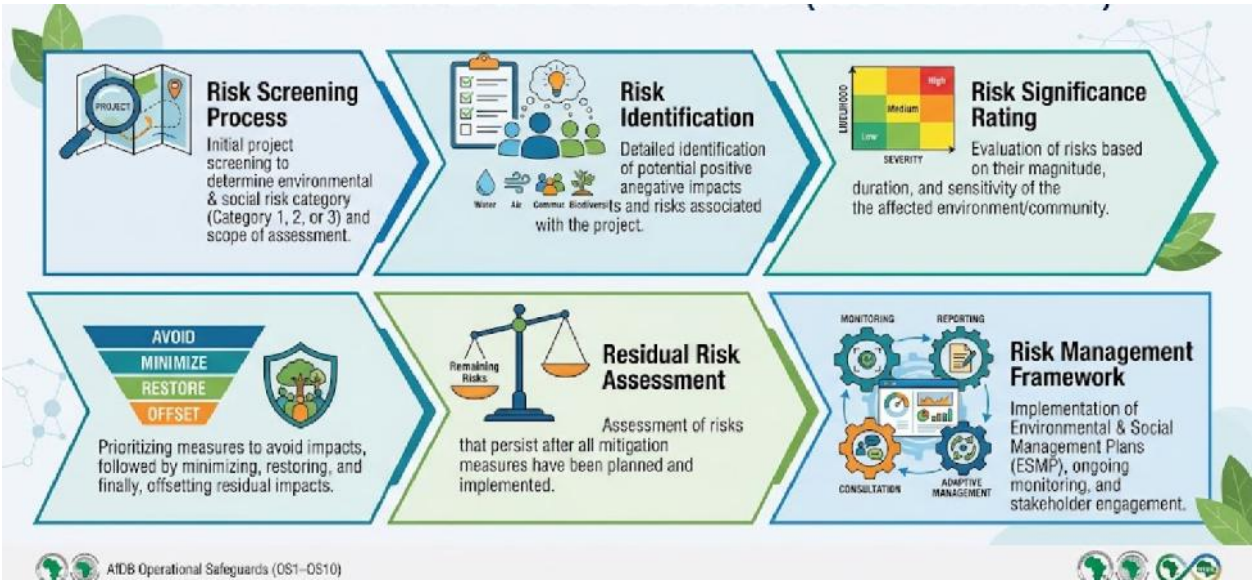


Figure 1.10: Assessment and Management of Environmental & Social Risks (AfDB OS1--OS10)

Figure 1.10 presents the full E&S Risk Assessment and Management Framework used for the LSHIP Ikorodu North, demonstrating compliance with AfDB OS1--OS10 and FMEnv requirements. It outlines the sequential process of risk screening, identification, significance rating, mitigation hierarchy, residual risk evaluation, and integration into the ESMP and overall project risk management system.

1.6.4 International Good Practice Standards

Where Nigerian law is silent or weaker, the following international standards are adopted (International Finance Corporation, 2012; World Health Organization, 2014; International Labour Organization, 2019; Equator Principles Association, 2020; United Nations, 2011; Task Force on Climate-related Financial Disclosures, 2017):

- IFC Performance Standards (PS1-PS8) and EHS Guidelines
- WHO Safe Management of Wastes from Health-Care Activities (2nd Edition, 2014)
- WHO Core Components of Infection Prevention & Control
- ILO Conventions 155, 161, 187, 148, and core labour standards
- Equator Principles IV (EP4)
- UN Guiding Principles on Business and Human Rights (UNGPs)

- Task Force on Climate-related Financial Disclosures (TCFD)

1.7 Contractor ESMS Requirements

All contractors must comply with the following ESMS components, as depicted in Figure 1.11. These requirements will be included in bidding documents and contracts (African Development Bank, 2023).

- **CESMP (Contractor ESMP)** -- Dust control, noise management, water quality protection, waste management (including hazardous), spill prevention, erosion control, labour influx management, OHS plan, GBV Code of Conduct, community liaison, GRM.
- **Occupational Health and Safety** -- PPE, training, medical surveillance, incident reporting, first aid, fire safety (International Labour Organization, 1981).
- **Labour Management** -- Written contracts, prohibition of child/forced labour, non-discrimination, timely payment, worker accommodation standards, worker GRM (International Labour Organization, 1998).
- **Community Safety** -- Traffic Management Plan, access management, fencing, community liaison, emergency response.
- **GBV/SEA/SH Prevention and Response** -- Code of Conduct (signed by all workers), induction and monthly training, confidential reporting channels, survivor-centered response, sanctions (International Finance Corporation, 2020).
- **Waste Management** -- Segregation, asbestos abatement (licensed), hazardous waste disposal, waste manifests.
- **Security Management** -- VPSHR training, proportional use of force, incident reporting (Voluntary Principles on Security and Human Rights, 2000).
- **Reporting** -- Weekly E&S reports to PIU, incident reports within 24 hours.

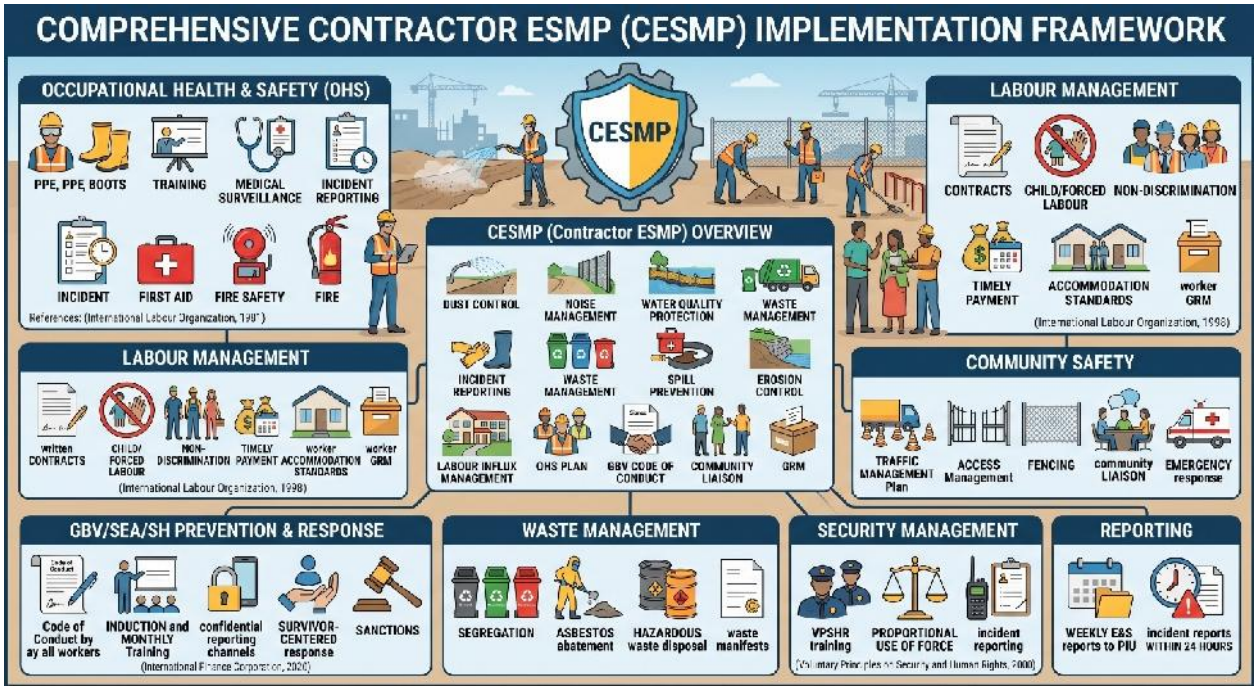


Figure 1.11: Contractor Compliance Requirements for ESMS Components

1.8 Project Risk Categorisation

FMEnv Category I -- Mandatory full EIA due to scale (29 facilities), sensitivity (wetlands, mangroves), magnitude of impacts (resettlement, asbestos, labour influx), public interest, and cumulative impacts (Federal Ministry of Environment, 2004).

AfDB Category 1 (High Risk) -- Confirmed by December 2025 Identification Mission based on (African Development Bank, 2025):

1. Multi-site complexity (29 facilities).
2. Involuntary resettlement at 6 sites (>200 PAPs at Agboju).
3. Environmentally sensitive sites (Omolaiye waterlogged area, wetlands).
4. Lack of dedicated E&S capacity within the PIU (institutional weakness).
5. Water crossings requiring boat transport (Gberefu, Agboyi).
6. Asbestos at 9 sites and improper waste management at *[Insert facility]* and Agbowa.

IFC Category A -- Mirrors AfDB Category 1 (International Finance Corporation, 2012).

Equator Principles IV Category A -- Requires independent ESIA, climate risk assessment (TCFD-aligned), human rights due diligence, independent monitoring (IESM), and 120-day public disclosure (Equator Principles Association, 2020).

Risk Management Approach:

For this Category 1 project, the following enhanced risk management measures are required:

Risk Area	Enhanced Measure

ESIA	Full ESIA with comprehensive baseline data, impact assessment, and mitigation
Resettlement	Full RAPs with independent valuation, compensation at full replacement cost, livelihood restoration, vulnerability support
Biodiversity	Critical Habitat screening; if confirmed, biodiversity offset (net gain, 1:1 to 3:1 ratio)
Hazardous Materials	Comprehensive HMWMP; licensed asbestos abatement; waste manifests
Labour and GBV	Labour Influx Management Plan; GBV/SEA/SH Action Plan; Code of Conduct; referral pathways
Independent Monitoring	IESM quarterly audits (unannounced, 20% of active sites per quarter)
Disclosure	120-day public disclosure (AfDB)

1.9 Involuntary Resettlement Integration (ESS5/PS5)

1.9.1 RAP Requirements for 6 Sites

The project sites that require the preparation of Resettlement Action Plans (RAPs) to be submitted as standalone documents are presented in Table 1.7. These sites trigger AfDB Operational Safeguard 5 (Involuntary Resettlement) and IFC Performance Standard 5 due to the presence of Project-Affected Persons (PAPs), loss of assets, and economic or physical displacement (African Development Bank, 2023; International Finance Corporation, 2012).

Table 1.7 -- Sites Requiring Resettlement Action Plans (RAPs)

Site	PAPs	Affected Assets	RAP Status	Coordination
Olorunda	3 PAPs	Pineapple farms (economic displacement)	RAP required	Coordinated with Group 4
Agura	13 PAPs	Shops along fence line	RAP required	Coordinated with Group 4

The RAPs for Agura and Olorunda are standalone documents that serve both Group 3 (Ikorodu North) and Group 4 (Ikorodu Axis). Please refer to the full RAP document.

1.9.2 Livelihood Restoration Framework

For all PAPs, the RAPs will include (African Development Bank, 2023):

- Cash compensation at full replacement cost (independent valuation, no depreciation).

- Transitional support (moving allowance, rental assistance for 6-12 months).
- Livelihood restoration programs (skills training, business grants, agricultural inputs and extension services, job placement assistance).
- Vulnerability support packages (additional assistance for women-headed households, the elderly, the disabled, and the very low income).

No land acquisition before compensation—construction cannot begin until PAPs have received compensation and assistance, as verified by an independent monitor (African Development Bank, 2013).

1.9.3 RAP Coordination Between Ikorodu Groups

The Resettlement Action Plans (RAPs) for Agura PHC (13 shop owners) and Olorunda PHC (6 pineapple farmers) are coordinated between this Group 3 (Ikorodu North) ESIA report and the Group 4 (Ikorodu Axis) ESIA report. The RAPs cover the following sites:

Site	**PAPs**	**Affected Assets**	**Responsible Group**
Agura PHC	13 shop owners	Commercial displacement	Group 3 (Primary)
Olorunda PHC	6 farmers	Economic displacement (pineapple farms)	Group 3 (Primary)

Coordination Arrangements:

1. Standalone RAP Document: A single, consolidated RAP document has been prepared covering both Agura and Olorunda sites.
2. Cross-Reference: This RAP document is referenced in both the Group 3 and Group 4 ESIA reports to ensure consistency.
3. Implementation Coordination: The Project Implementation Unit (PIU) will coordinate RAP implementation across both groups, ensuring:
    - Compensation at full replacement cost (independent valuation)
    - Livelihood restoration programs (skills training, business grants, agricultural inputs)
    - Vulnerability support for women-headed households, elderly, and persons with disabilities
    - No land acquisition before compensation is fully paid
4. Monitoring: RAP implementation will be monitored quarterly by the PIU and verified by the Independent Environmental and Social Monitor (IESM), with findings reported to AfDB.

5. Temporal Coordination: RAP implementation for Agura and Olorunda will be completed prior to the commencement of construction activities at any of the sites in either Group 3 or Group 4, in accordance with AfDB OS5 requirements.

The RAPs for Agura and Olorunda are prepared in accordance with AfDB Operational Safeguard 5 (OS5) and IFC Performance Standard 5 (PS5), ensuring that affected persons are compensated and supported before project activities commence.

1.10 Climate Alignment (Paris Agreement, TCFD, Nigeria's NDC)

1.10.1 Climate Hazard Mapping

Table 1.7 provides a summary of the key climate-related hazards identified across the project sites, highlighting locations with elevated exposure and presenting projected changes under the 2050 high-emissions scenario (RCP 8.5) (Nigerian Meteorological Agency, 2024; Intergovernmental Panel on Climate Change, 2021; Nigerian Institute for Oceanography and Marine Research, 2023).

Table 1.8 -- Climate Hazard Mapping

Hazard	High-Risk Sites	Projected Change (2050, RCP 8.5)
Flooding (pluvial and fluvial)	Omolaiye, Eruwen, Agura	+30% rainfall intensity; 1:100-year storm becomes 1:30-year (Intergovernmental Panel on Climate Change, 2021)
Coastal erosion / sea-level rise	Omolaiye Ikorodu North LCDA	Sea-level rise 0.2-0.5 m; increased storm surge (Intergovernmental Panel on Climate Change, 2021)
Heatwaves	All urban sites	+2-3°C; >40°C days increase from 10/year to 60/year (Nigerian Meteorological Agency, 2024)
Extreme rainfall / storms	All sites	+20-30% intensity (Intergovernmental Panel on Climate Change, 2021)

Figure 1.12 presents a composite climate-hazard map of Lagos State, illustrating areas exposed to flooding, erosion, and coastal inundation, overlaid with the locations of the LSHIP project sites to support spatial risk screening and climate-resilience planning.



Figure 1.12 -- Map of climate hazards (flooding, erosion, coastal inundation)

1.10.2 Adaptation Measures (Climate-Resilient Design)

All facilities will incorporate (Task Force on Climate-related Financial Disclosures, 2017; Federal Ministry of Environment, 2021):

- Oversized culverts and drainage -- designed for 1:100-year storm + 30% climate factor.
- Elevated electrical panels -- placed above projected flood levels.
- Flood-proofing -- elevated floor slabs where needed, flood barriers for critical equipment.
- Cool roofs -- reflective coating, heat-resistant materials.
- Water security -- rainwater harvesting (5,000-10,000 L storage per PHC), borehole with UV filtration.
- Energy resilience -- Solar PV + battery storage (24-48 hour's backup).

1.10.3 Alignment with Nigeria's NDC

Nigeria's NDCs commit to climate-resilient infrastructure and a 20% (47% conditional) unconditional GHG reduction by 2030 (Federal Ministry of Environment, 2021). LSHIP aligns through oversized drains, elevated electricals, solar PV (*[Insert tCO_2e/year]* reduction), and energy-efficient design.

1.11 Gender, Inclusion & Vulnerability Framework

1.11.1 Gender Analysis & GBV Risk Screening

A gender analysis was conducted during reconnaissance. Key findings (Multiple Development Services, 2026; Lagos State Ministry of Women Affairs and Poverty Alleviation, 2023):

- Women face barriers to healthcare access (cost, transport, childcare, lack of female staff, safety concerns).
- Construction workforce is typically male-dominated; operation workforce (clinical) is predominantly female.
- GBV/SEA/SH risk is High at Agura, Omolaiye, Olorunda and Eruwen due to labour influx (500-1,000 workers), poor lighting, isolated paths, economic vulnerability, and lack of confidential reporting mechanisms.

Figure 1.13 presents a gender and vulnerability map of Lagos State, highlighting GBV risk hotspots, the distribution of vulnerable groups---including women-headed households, the elderly, and persons with disabilities---and the locations of riverine and island communities in relation to the LSHIP project sites.

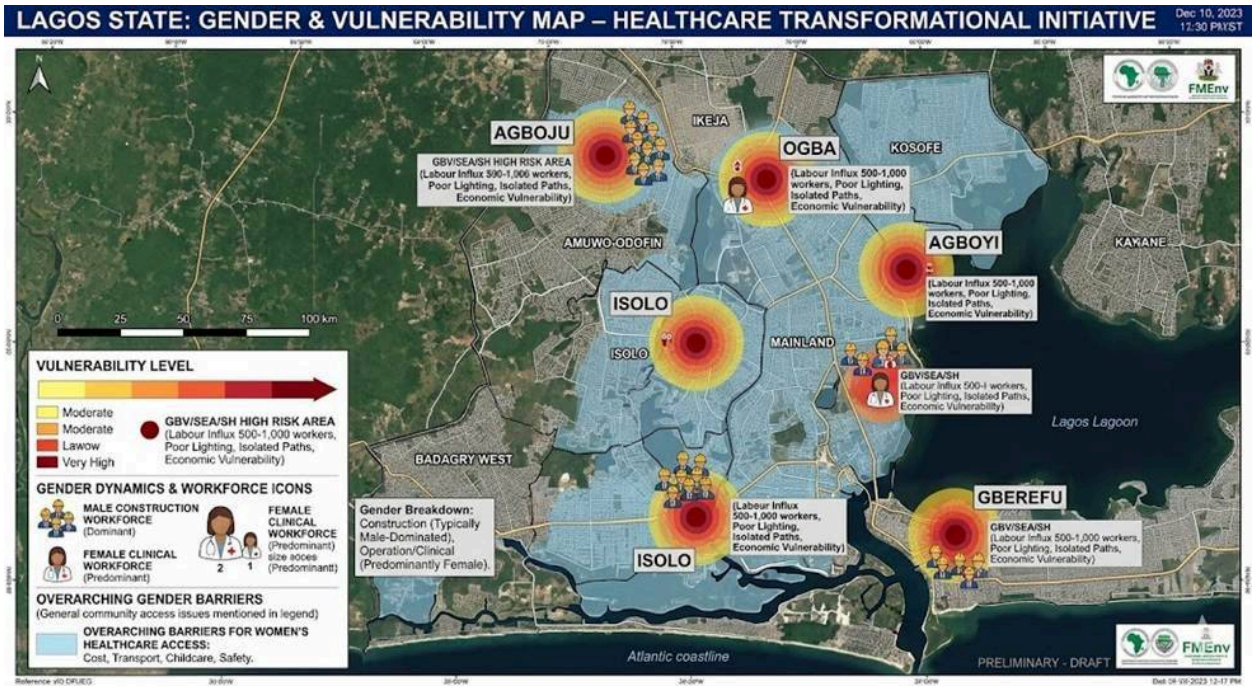


Figure 1.13 -- Gender and vulnerability map

1.11.2 AfDB OS2 -- GBV/SEA/SH Compliance

The LSHIP is fully aligned with AfDB Operational Safeguard 2 (OS2) -- Labour, Working Conditions, and Community Health & Safety (ISS 2023/2024), which includes specific requirements for:

1. **GBV/SEA/SH Prevention and Response** -- Zero-tolerance policy; Code of Conduct; training; confidential reporting; survivor-centered response; referral pathways; sanctions.
2. **Gender Mainstreaming** -- Gender analysis; gender-balanced hiring; gender-sensitive facility design; gender-inclusive stakeholder engagement.

3. **Protection of Vulnerable Groups** -- Children, elderly, persons with disabilities, informal settlers, riverine/island communities.
4. **Labour Influx Management** -- Local hiring; worker accommodation standards; community liaison; health services.

Table 1.9: LSHIP Alignment with AfDB OS2 GBV/SEA/SH Requirements

OS5 Requirement	LSHIP Compliance Action	Evidence
Code of Conduct	Mandatory for all workers, subcontractors, security personnel	Appendix 11; Chapter 9
GBV/SEA/SH Training	Induction training + monthly refreshers	Chapter 9, Section 9.4.2
Confidential Reporting	Hotline, suggestion boxes, female GRM focal points, anonymous options	Chapter 9, Section 9.5.2
Survivor-Centered Response	Confidentiality, safety, respect, no retaliation, informed consent	Chapter 9, Section 9.5.1
Referral Pathways	Medical (PEP within 72 hours), psychosocial, legal, shelter	Chapter 9, Section 9.6
Sanctions	Warning, suspension, termination, legal prosecution	Chapter 9, Section 9.7
Gender-Balanced Hiring	≥end female clinical staff, ≥30% female administrative staff	Chapter 1, Table 1.9
Disability-Friendly Design	Ramps, wide doorways, accessible toilets, braille signage	Section 3.3.2

Table 1.10 outlines the key gender and inclusion indicators that will be monitored throughout the implementation of the LSHIP. These indicators support the project's commitment to gender equity, social inclusion, and the protection of vulnerable groups, providing measurable targets and a framework for ongoing monitoring and reporting.

Table 1.10 — Gender and Inclusion Indicators

Indicator	Target	Monitoring
Female staff in new PHCs	≥ema clinical, ≥30% administrative	Quarterly
Disability-friendly features in all new/refurbished PHCs	100%	Pre-operation inspection

GBV/SEA/SH cases reported and responded	100% within 48 hours	Monthly
Women participating in consultations	≥ome of participants	Per consultation
Vulnerable PAPs receiving enhanced support	100%	RAP monitoring
Local hiring (within LGA)	≥oca of unskilled labour	Monthly contractor report

1.12 Environmental and Social Management and Institutional Leadership

1.12.1 Institutional Leadership and Communication Structure

The LSHIP operates within a clearly defined institutional framework that establishes reporting lines, decision-making authority, and communication channels for effective project implementation. The leadership structure is designed to ensure accountability, transparency, and timely resolution of environmental and social issues across all PHC sites.

B. **Project Governance Structure**

Table 1.11 The project governance structure comprises the following levels:

Table 1.11 the project governance structure

Level	**Entity**	**Role**	**Key Responsibilities**
Financing Institution	African Development Bank (AfDB)	Oversight & Supervision	Approve safeguard instruments; Conduct supervision missions; Review monitoring reports; Enforce covenants
Regulatory Oversight (Federal)	Federal Ministry of Environment (FMEnv)	Regulatory Authority	Issue EIA Certificate; Review ESIA and ESMP; Conduct compliance inspections; Enforce EIA Act
Regulatory Oversight (State)	LASEPA, LAWMA, HEFAMAA	Regulatory Authority	State EIA concurrence; Issue environmental permits; Waste management oversight; Healthcare facility accreditation
Implementing Agency	Lagos State Ministry of Health (LSMoH)	Project Execution	Overall project management; Policy direction; Resource allocation

Project Management	Project Implementation Unit (PIU)	Day-to-Day Management	ESMP implementation oversight; Contractor management; Stakeholder engagement; GRM management; Reporting to AfDB and FMEnv
Execution	Contractors	Construction & Refurbishment	CESMP implementation; Environmental monitoring; Worker management; Community liaison; Incident reporting
Independent Oversight	Independent Environmental & Social Monitor (IESM)	Third-Party Monitoring	Quarterly audits; Compliance verification; Direct reporting to AfDB
Community Representation	Traditional Institutions, CDAs, Community Liaison Officers	Community Interface	Community entry facilitation; Stakeholder engagement; GRM (community-level); Cultural heritage protection

B. Reporting and Communication Lines

Figure 1.14 establishes the communication channels for environmental and social management across the LSHIP.

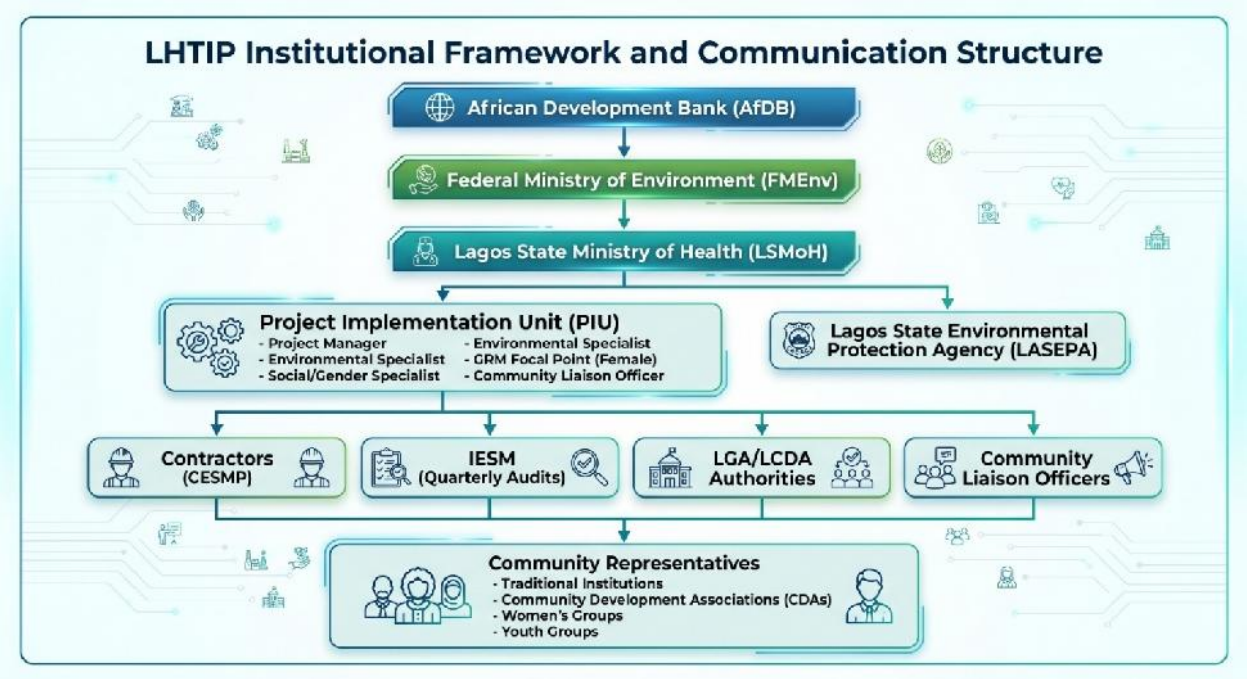


Figure 1.14: LSHIP Institutional Framework and Communication Structure

The institutional structure shown above is cross-referenced in Chapter 7 (ESMP) under institutional arrangements and in Chapter 9 (SEP) under communication and grievance redress mechanisms. It also supports AfDB OS10 by defining clear engagement and escalation pathways between the PIU, PMU, CLO, and community representatives.

Grievances from community members flow from the Community Representatives to the CLO, then to the Contractor, PMU, and PIU. Unresolved grievances escalate to LASEPA and FMEnv, and ultimately to AfDB's Independent Recourse Mechanism (IRM) if required. Detailed grievance procedures and communication protocols are provided in Chapter 9 (Stakeholder Engagement Plan).

Table 1.12. Communication Channels for Environmental and Social Management

Communication Type	Channel	Frequency	Responsible
Grievance Redress	Toll-free hotline; Suggestion boxes at PHCs; Female GRM Focal Point; Community Liaison Officers; PIU Safeguards Team	Ongoing	PIU / Contractors
Community Engagement	Town hall meetings; Focus Group Discussions; Community Liaison Officers; Traditional institutions	Quarterly	PIU / CLOs

Project Reporting	Contractor → PIU: Weekly E&S reports; PIU → AfDB: Quarterly E&S reports; PIU → FMEnv: Annual ESMP reports; IESM → AfDB: Quarterly audit reports	As scheduled	Contractors / PIU / IESM
Incident Reporting	Contractor → PIU: Within 24 hours; PIU → AfDB: Within 48 hours (serious incidents)	As needed	Contractors / PIU
Permitting & Compliance	Contractor → LASEPA: As required; PIU → FMEnv: As required by EIA Certificate	As needed	Contractors / PIU

D. Community Liaison Structure

Table 1.13 The following community liaison structure is established for each PHC site:

Table 1.13: community liaison structure

Level	Position	Role
Site Level	Site Community Liaison Officer (Contractor)	Daily community interface; Advance notification of activities; Respond to community inquiries; Report grievances to PIU
Community Level	Traditional Leaders (Obas, Baales)	Community entry facilitation; Cultural guidance; Grievance resolution (Level 1)
Community Level	CDA Chairpersons	Community representation; Local hiring coordination; Feedback collection
LGA Level	LGA Environmental Health Officer	Local regulatory liaison; Community health monitoring; Permit coordination
PIU Level	PIU Community Liaison Officer	Overall community engagement coordination; GRM management; Stakeholder engagement reporting

1.13 Structure of The Entire Report

The structure of this ESIA follows the prescribed requirements of the African Development Bank (AfDB) for Category 1 projects and the Federal Ministry of Environment (FMEnv) for Category I undertakings. Given the scale, sensitivity, and multi-site nature of the LSHIP, strict adherence to these frameworks is essential to ensure regulatory compliance, methodological rigour, and alignment with international best practice.

Chapter 1 has established the strategic foundation for the assessment by presenting the national context, project rationale, delivery arrangements, and safeguard triggers. It has also outlined the legal and policy framework, introduced the project's risk 92inimize92ation, described the statewide cluster and typology structure, and defined the institutional leadership and communication systems required for environmental and social management. Together, these elements set the stage for a comprehensive Category 1 ESIA.

The subsequent chapters build on this foundation by presenting baseline conditions, assessing potential impacts, proposing mitigation measures, and detailing the environmental and social management instruments required for implementation. The ESIA is 92inimize92 into ten chapters and twenty-eight appendices, structured to fully meet the expectations of FMEnv, Lagos State regulators, and AfDB.

Report Structure

- **Chapter 1 — Introduction** National context, project overview, legal and policy framework, risk 92inimize92ation, resettlement triggers, climate considerations, gender and vulnerability, institutional arrangements.
- **Chapter 2 — Project Justification & Alternatives** Rationale for the project, need assessment, alternative analysis (site, technology, design, "no-project" option).
- **Chapter 3 — Project & Process Description** Detailed description of all 29 PHC sites, design specifications, construction processes, operational systems, resource requirements.
- **Chapter 4 — Baseline Environment** Physical, biological, socio-economic, cultural, and climate baseline conditions across the project footprint.
- **Chapter 5 — Impact Assessment** Identification and evaluation of unmitigated environmental and social impacts for construction and operation phases.
- **Chapter 6 — Mitigation Measures** Proposed measures to avoid, 92inimize, reduce, or compensate for identified impacts.
- **Chapter 7 — Environmental & Social Management Plan (ESMP)** Roles, responsibilities, monitoring framework, performance indicators, capacity-building requirements, and budget.
- **Chapter 8 — Hazardous & Medical Waste Management Plan (HMWMP)** Procedures for segregation, storage, treatment, transportation, and disposal of medical and hazardous waste.

- **Chapter 9 — Stakeholder Engagement & GBV/SEA/SH Action Plan** Engagement strategy, grievance redress mechanism, gender-based violence prevention measures, and community interface protocols.
- **Chapter 10 — Conclusion & Recommendations:** Summary of findings, safeguard commitments, and recommendations for implementation.

1.14 FMEnv Participation, ESIA Team Composition and Stakeholders Engagement

1.14.1 FMEnv Participation and Documentation

The Federal Ministry of Environment (FMEnv) formally participated in the ESIA process for the Project and issued two statutory notifications to the Lagos State Ministry of Health (LSMoH):

B. **Participation in Data Gathering and Laboratory Analyses** (Letter Ref: FMEnv/EA/EIA/9513/VOL1/26)

FMEnv notified the LSMoH of its intention to witness the field data-gathering and laboratory sampling exercises. FMEnv officials were present during the sampling activities, and a Field Attestation Register was produced and signed by FMEnv representatives, the project proponent, and the ESIA consultants. The signed register is included as Appendix 8.

2. Participation in the Scoping Workshop (Letter Ref: FMEnv/EA/EIA/9513/VOL1/27)

FMEnv confirmed its participation in the Scoping Workshop alongside other state-level stakeholders. The workshop was successfully conducted and established the scope, data requirements, and key environmental and social issues to be addressed in the ESIA. The proceedings are documented in the relevant section of this report.

The two FMEnv notification letters (Refs: VOL1/26 and VOL1/27) constitute the official FMEnv documentation for this project and are included in Appendix 1.3. No additional confirmation letter is required, as the signed Field Attestation Register reference appendix 8 already provides formal evidence of FMEnv' s statutory participation in the ESIA process.

FMEnv Participation and AfDB Operational Safeguards

FMEnv's statutory involvement directly supports compliance with the AfDB Integrated Safeguards System (ISS, 2023/2024) by strengthening:

- **OS1 — Environmental and Social Assessment:** through validation of the accuracy, credibility, and completeness of baseline environmental and social data.
- **OS2 — Labour and Working Conditions:** by ensuring that field sampling and laboratory activities adhere to national occupational health and safety requirements.

- **OS3 — Resource Efficiency and Pollution Prevention:** via oversight of air, water, soil, and noise sampling that informs pollution prevention and environmental quality management.
- **OS5 — Land Acquisition, Restrictions on Land Use and Involuntary Resettlement:** by confirming site conditions and community interactions relevant to land access and potential displacement risks.
- **OS10 — Stakeholder Engagement and Information Disclosure:** by participating as a statutory stakeholder and reinforcing transparency, regulatory oversight, and proper documentation of engagement processes.

FMEnv Witnessing and Baseline Data Integrity

FMEnv's witnessing of the field data-gathering and laboratory sampling exercises ensures the integrity, reliability, and traceability of all baseline environmental and social data used in this ESIA. The signed Field Attestation Register reference appendix 8 provides independent verification that sampling methods, equipment use, chain-of-custody procedures, and laboratory analyses complied with national regulatory standards. This independent validation is essential for producing quantified, site-specific impact assessments, a core requirement under AfDB OS1 and a key concern highlighted during the Bank's review.

1.14.2 Stakeholder Engagement

FMEnv's participation in the field data-gathering and scoping processes forms part of the Project's regulatory stakeholder engagement and aligns with AfDB OS10 requirements for free, fair, prior, and informed consultation. The witnessing exercise was conducted with the attendance of the following FMEnv and State officials:

1. Okwesa Francesca – FMEnv, Abuja
2. Oshimowo T. Bolaji – Ministry of Environment & Water Resources, Lagos State
3. Adenaike Olubunmi O. – FMEnv, Lagos Zonal Office
4. Oyawoye Anuoluwa – LSMOE/WR
5. Mr. Braimoh – PHCB
6. Shittaboy Tolulope – FMEnv, Lagos Zonal Office
7. Kehinde Biok T. – FMEnv, Lagos Zonal Office
8. Eberechukwu E.U – FMEnv, Lagos Zonal Office

Their presence ensured transparency, regulatory oversight, and proper documentation of engagement activities. This statutory participation is cross-referenced in the Stakeholder Engagement Plan (SEP), where broader community consultations, attendance records, and engagement outcomes are detailed. FMEnv's witnessing also provides assurance that

stakeholder interactions were conducted in a manner consistent with OS10 principles of inclusiveness, fairness, and informed participation.The Project aligns with the updated AfDB Integrated Safeguards System (ISS, 2023/2024), which comprises Operational Safeguards OS1—OS10. All references to the former OS1—OS5 framework have been updated accordingly throughout this ESIA. The Project triggers OS1 (Environmental and Social Assessment), OS2 (Labour and Working Conditions), OS3 (Resource Efficiency and Pollution Prevention), OS4 (Community Health, Safety and Security), OS5 (Land Acquisition and Involuntary Resettlement), OS6 (Biodiversity and Ecosystem Services), and OS10 (Stakeholder Engagement and Information Disclosure). Plate 1.1 shows a collage of pictures of the Regulators and some stakeholders met.



Stakeholders at the Meetings Held for the Ikorodu Axis



Stakeholders with the FMENv Rep During the Stakeholders Meeting



The Federal Controller, FMENv, Lagos



Scoping Workshop with Stakeholders Before the Field Work



MDS ESIA Leads with FMENv Reps



Plate 1.1: Collage of Photographs Showing Engagement with Regulators and Stakeholders During the ESIA Exercises

1.15 Public Disclosure and Accessibility

In accordance with AfDB's Policy on Disclosure and Access to Information (DAI Policy), which requires timely disclosure of project information to enable genuine public participation, the following accessibility measures will be implemented during the 120-day public disclosure period:

1.15.1 Accessibility for Illiterate Community Members

- **Audio Recordings:** Audio recordings of the Non-Technical Summary will be produced in English and Yoruba and made available at PHC waiting areas, community halls, and through community liaison officers.
- **Community Radio:** Key findings will be broadcast on local radio stations (including Badagry community stations) in Yoruba and English over three consecutive weeks, given the remote coastal and riverine nature of the Badagry communities.
- **Public Readings:** Public readings of the Non-Technical Summary will be conducted at each PHC site and community hall, with facilitators available to answer questions.

1.15.2 Accessibility for Visually Impaired Persons

- **Large-Print Versions:** Large-print (18pt font) versions of the Non-Technical Summary will be available at all disclosure locations.
- **Audio Descriptions:** Audio recordings will include verbal descriptions of key figures and maps.
- **Assistance:** Community liaison officers will be available to assist visually impaired persons in reviewing the report.

1.15.3 Accessibility for Remote and Riverine Communities (Omolaiye, Agura & Eruwen)

- **Local Disclosure Points:** In addition to LSMoH headquarters and Ikorodu LGA secretariat, hard copies of the ESIA and Non-Technical Summary will be available at:
    - Eruwen PHC waiting area
    - Olorunda PHC waiting area
    - Agura PHC waiting area
    - Omolaiye LGA Secretariat
    - Community halls in each catchment
- **Boat Transport:** For Farasime, which has limited road access and is a waterfront community, copies will be transported by boat to the community and made available at the PHC and fish-landing areas.

1.15.4 Feedback Mechanism During Disclosure

During the 120-day disclosure period, public comments on the draft ESIA will be collected through:

Channel	Description
GRM Hotline	Toll-free number for verbal comments
Suggestion Boxes	Located at each PHC, community hall, and market
Community Meetings	Dedicated feedback sessions at each site

Written Submissions	Email and physical address provided in ESIA

All comments will be logged, reviewed, and responded to within 14 days. A summary of comments received and project responses will be included in the final ESIA submitted to FMEnv and AfDB.

1.15.5 Language and Translation

The Non-Technical Summary will be provided in:

- **English** (official language)
- **Yoruba** (dominant local language)
- **Pidgin English** (widely spoken in coastal communities)

Egun (indigenous language of Badagry coastal communities) – where feasible

CHAPTER 2 -- PROJECT JUSTIFICATION & ALTERNATIVES

2.1 Introduction

This chapter presents the justification for the Lagos State Health Infrastructure Project (LSHIP) and demonstrates why the project is necessary, what benefits it will deliver, and how it aligns with national, state, and international development priorities. The chapter also presents a systematic alternatives analysis, comparing the preferred option against reasonable alternatives, including the no-project option, alternative sites, engineering designs, construction methods, and climate adaptation strategies.

The alternatives analysis follows:

- **FMEnv EIA Act CAP E12 LFN 2004** (Section 4 -- consideration of alternatives) (Federal Ministry of Environment, 2004)
- **AfDB Operational Safeguard 1 (OS1)** -- alternatives analysis including no-action, technological, site, design, and operational alternatives (African Development Bank, 2023)
- **IFC Performance Standard 1** -- consideration of technically and financially feasible alternatives (International Finance Corporation, 2012)
- **Equator Principles IV** -- assessment of alternatives including environmental and social impacts (Equator Principles Association, 2020)

Note on Report Structure: This ESIA report covers only Group 3 (Ikorodu North) . Separate, standalone ESIA reports have been prepared for the remaining clusters (Amuwo Odofin Axis, Mainland Axis, Ikorodu Axis, Ikorodu-Imota Axis, Epe-Ibeju Lekki Axis, Ibeju Lekki Axis, Badagry Axis, & Badagry - Kosofe Axis). The justification and benefits presented in this chapter apply to the entire LSHIP programme, while the alternatives analysis focuses on site-specific considerations for the Ikorodu North facilities covered in this report.

2.2 Project Justification

2.2.1 Deficiencies of Existing Healthcare Infrastructure (Ikorodu North)

The Ikorodu North Axis is a rapidly urbanising corridor with high population density and significant infrastructure gaps (Lagos State Ministry of Physical Planning and Urban Development, 2024). The four PHCs scheduled for new construction and refurbishment in this axis exhibit the following deficiencies as presented in Table 2.1 below:

Table 2.1: Deficiencies of Existing Healthcare Infrastructure

Deficiency	Evidence	Consequence

Non-functional PHCs	Only 337 of 350 public PHCs are functional across Lagos State (Lagos State Primary Healthcare Board, 2024). Eruwen PHC operates from a deteriorated container-based facility (Multiple Development Services, 2026).	Millions of Lagosians lack access to primary care
Structural deterioration	Eruwen PHC requires complete replacement; Omolaiye PHC (Ikorodu Axis -- refurbishment) has leaking roof, unsafe electricals (Multiple Development Services, 2026).	Patient and staff safety risks; inability to provide 24/7 service
Asbestos roofing	Asbestos suspected at Omolaiye PHC (African Development Bank, 2025; Multiple Development Services, 2026).	Occupational and community exposure to carcinogenic fibres
Inadequate water supply	Omolaiye PHC reports poor water quality (Multiple Development Services, 2026).	Risk of waterborne diseases; inability to maintain infection control
Inadequate waste management	Improper waste management observed at multiple sites (African Development Bank, 2025).	Community health risks; environmental contamination
Lack of disability access	Most existing PHCs lack ramps, wide doorways, accessible toilets.	Exclusion of vulnerable population
Flooding vulnerability	Omolaiye PHC is waterlogged (sensitive ecosystem); Agura has wetlands (Multiple Development Services, 2026).	Facility inundation; access blocked during rains
Erosion risk	Omolaiye and Eruwen are erosion-prone areas (Multiple Development Services, 2026).	Structural damage; sedimentation of water bodies

2.2.2 Safety Issues (Ikorodu North)

- **Asbestos exposure:** Workers and communities face carcinogenic risk during refurbishment of Omolaiye PHC (asbestos suspected).
- **Structural collapse:** Poorly maintained buildings (e.g., Omolaiye PHC) risk collapse.
- **Flooding:** Omolaiye PHC is waterlogged; Agura has wetlands -- seasonal flooding compromises patient safety.

- **Erosion:** Omolaiye and Eruwen PHCs are erosion-prone, requiring engineered drainage interventions.

2.2.3 Congestion

The "Congestion" factor across the 29 Primary Health Centres (PHCs) is a multifaceted challenge that impacts clinical outcomes, operational efficiency, and the safety of the surrounding community. Under the Lagos State Health Infrastructure Project (LSHIP), these bottlenecks are addressed through spatial redesign and infrastructural expansion.

1. Clinical & Patient Congestion

Current facilities struggle with high patient-to-space ratios, leading to:

- Waiting Room Overload: Patients often spill out into corridors or outdoor porches due to undersized waiting areas, increasing the risk of airborne cross-infection (e.g., TB or respiratory viruses).
- Consultation Bottlenecks: A lack of sufficient consulting rooms results in long wait times, often forcing "triage" to occur in public view, which compromises patient confidentiality.
- Maternal & Child Health (MCH) Strain: Immunization days often see extreme crowding, overwhelming the limited space for weighing, counseling, and vaccination.

2. Space & Layout Congestion

The internal architecture of the baseline facilities is frequently inefficient:

- Poor Zoning: Inadequate separation between "clean" clinical areas and "dirty" service areas (laundry/waste) creates operational friction and physical crowding in transit points.
- Storage Deficiencies: Medical supplies and records are often stored in active clinical areas or hallways because of a lack of dedicated, secure storage rooms.
- Inadequate Staff Quarters: Where staff live on-site, quarters are often cramped, leading to poor rest conditions and reduced efficiency for emergency call-backs.

3. Logistics & Access Congestion

External factors hinder the smooth flow of people and supplies:

- Narrow Access Roads: Many PHCs are located in densely populated or rural areas with narrow, unpaved tracks that make ambulance access and medical supply deliveries difficult.
- Site Encroachment: Over time, local markets or informal settlements have encroached upon facility boundaries, restricting the movement of vehicles and emergency services.

- Construction Logistics: During the project phase, the presence of construction materials, heavy machinery, and workforce teams can temporarily worsen access for patients and ambulances.

4. Mitigation through the LSHIP Project

The LSHIP framework introduces specific interventions to decongest these facilities:

- Spatial Expansion: Increasing the total "Clinical Footprint" by adding new consulting rooms and larger, well-ventilated waiting halls designed for high patient volumes.
- Universal Design & Flow: Implementing standardized "One-Way" patient flows to separate entry and exit points, reducing physical interaction between arriving and departing patients.
- Dedicated Utility Zones: Moving heavy utilities (generators, waste management, and large water tanks) to the perimeter to free up central space for clinical activity.
- Digital Integration: Shifting toward electronic medical records (EMR) to eliminate the need for bulky physical filing cabinets, thereby reclaiming floor space for clinical use.
- Logistics Planning: Site-specific Traffic Management Plans (TMP) during construction to ensure that ambulance bays remain clear and that construction delivery occurs during off-peak hours.

2.3 Strategic Need

The LSHIP aligns with Lagos State's two-pronged health strategy: (1) ensuring all residents have access to quality healthcare without financial ruin, and (2) making Lagos State a premier destination for inbound medical tourism. The project supports the State's THEMES+ agenda and contributes to the achievement of Universal Health Coverage.

2.3.1 Lagos State Development Plan 2052 -- Health Sector Goals

The Lagos State Development Plan 2052 sets ambitious health sector targets (Lagos State Government, 2022):

- Achieve Universal Health Coverage (UHC) by 2030
- Reduce maternal mortality from 150 to below 70 per 100,000 live births
- Reduce under-five mortality from 45 to below 25 per 1,000 live births
- Strengthen pandemic preparedness and response

LSHIP directly contributes by expanding access to primary care (new PHCs serving 50,000 residents each in Ikorodu North), improving quality (refurbished PHCs), and strengthening referral systems.

2.3.2 AfDB High 5 Priorities

The LSHIP aligns with four of AfDB's five High 5 priorities (African Development Bank, 2015):

1. **"Improve the Quality of Life for the People of Africa"** -- improved healthcare access, job creation
2. **"Light Up and Power Africa"** -- solar PV systems at all PHCs
3. **"Feed Africa"** -- indirectly through improved health of farmers
4. **"Industrialise Africa"** -- healthier workforce, reduced absenteeism

2.3.3 Sustainable Development Goals (SDGs)

The LSHIP directly contributes to SDG 3 (Health), SDG 5 (Gender), SDG 8 (Decent Work), SDG 9 (Infrastructure), SDG 10 (Reduced Inequalities), SDG 11 (Sustainable Cities), SDG 12 (Responsible Consumption), SDG 13 (Climate Action), SDG 16 (Peace, Justice), and SDG 17 (Partnerships) (United Nations, 2015).

2.4 Project Benefits

The LSHIP is projected to deliver significant socio-economic impacts as part of Lagos State's broader health system transformation strategy:

- Over 6,500 direct jobs to be created across all components
- 1 million additional patient visits to PHCs and General Hospitals annually
- 1,240 additional patient beds
- 2,500 new health workers trained annually (upon completion of the University of Medical and Health Sciences)
- 6.4 million lab tests and 480,000 imaging scans to be supported annually through the MDSPS
- Annual economic impact: N138.6 billion (US$92 million)

Collectively, these investments will improve the lives and livelihoods of millions of Lagos residents while making Lagos a premier destination for medical tourism.

2.4.1 Economic Benefits (LSHIP Programme)

The economic benefits of the project are summarized in Table 2.2 below.

Table 2.2 Economic Benefits (LSHIP Programme)

Benefit	Quantification	Source
Direct jobs created	6,537 direct jobs across all components	Lagos State Ministry of Health, 2025, p. 44

Indirect jobs	Estimated 10,000--15,000	Consultant estimate
Annual economic impact	N138.6 billion (US$92 million)	Lagos State Ministry of Health, 2025, p. 44
Local procurement	60--70% of construction budget	Multiple Development Services, 2026

2.4.2 Local Business and Supply Chain Opportunities (Ikorodu North)

The LSHIP presents significant opportunities for local businesses and supply chain development in the Ikorodu North. These opportunities extend beyond direct employment and include:

Table 2.3. Local Material Supply Opportunities

Material	**Estimated Quantity**	**Local Sourcing Potential**	**Local Suppliers**
Cement	[Insert tonnes]	High (Dangote, Lafarge)	Ikorodu-based distributors
Sand and Gravel	[Insert m³]	High (licensed local borrow pits)	Ikorodu-based sand dealers
Concrete Blocks	[Insert number]	High (local block-making industries)	Ikorodu-based block manufacturers
Steel	[Insert tonnes]	Medium (Nigerian mills)	Nigerian steel distributors

Table 2.4 Business and Contractual Opportunities

Opportunity Type	**Description**	**Target Beneficiaries**	**Monitoring Indicator**
Direct Procurement	Contractors will procure materials from local suppliers where feasible	Local material suppliers, hardware stores, distributors	Volume of local procurement (₦ value)
Subcontracting	Local subcontractors engaged for specialized works (electrical, plumbing, roofing, etc.)	Ikorodu-based contractors and artisans	Number of local subcontractors engaged
Service Contracts	Catering, security, waste management, and other services	Local service providers	Number of local service providers contracted

Equipment Rental	Rental of construction equipment from local suppliers	Local equipment rental companies	Number of local equipment suppliers
Accommodation and Hospitality	Worker accommodation and hospitality services	Local guesthouses, hotels, and landlords	Revenue generated for local hospitality sector
Transport and Logistics	Local transport services for workers and materials	Local transport operators (OKADA, Keke, buses, trucks)	Revenue generated for local transport sector

Table 2.5 Local Content Targets (Ikorodu North)

Local Content Area	Target	Monitoring Method
Local Procurement (Materials)	≥50% of eligible construction materials sourced locally	Procurement records, supplier registration
Local Subcontracting	≥40% of eligible subcontracts awarded to local firms (within LGA)	Subcontract records
Local Hiring (Unskilled Labour)	≥50% of unskilled workers from LGAs where construction occurs	Hiring records (by LGA of residence)
Local Hiring (Skilled Labour)	≥30% of skilled workers from Lagos State	Hiring records
Local Services	≥60% of eligible service contracts awarded locally	Service contracts records
Women-Owned Businesses	≥20% of local procurement from women-owned businesses	Supplier registration, procurement records

To ensure that local businesses and communities benefit from the project, the following measures shall be implemented:

Table 2.6: Local Business Support Measures

Measure	Description	Responsible
Supplier Registration	Establish a local supplier database for materials and services	Contractor / PIU
Business Awareness	Conduct community meetings to inform local businesses of procurement opportunities	PIU / Community Liaison Officer

Capacity Building	Provide basic business and tendering skills training for local businesses	PIU / Contractor
Preference for Local Suppliers	Apply preference for local suppliers where quality and price are competitive	Contractor
Transparent Procurement	Ensure transparent and competitive procurement processes accessible to local businesses	Contractor / PIU
Payment Terms	Ensure prompt payment to local suppliers and subcontractors (within 30 days)	Contractor
Grievance Mechanism	Provide a mechanism for local businesses to report procurement-related grievances	GRM

Table 2.7: Economic Multiplier Effect

Multiplier Effect	**Impact**
Direct Employment Income	Workers spend wages in local economy (housing, food, transport, goods)
Local Procurement	Suppliers' revenue circulates within the local economy
Service Contracts	Service providers' revenue stimulates local service sector
Tax Revenue	Increased business activity generates tax revenue for LGAs
Skills Development	Local workers gain construction and technical skills, increasing future employability
Infrastructure Improvement	Access roads and other improvements benefit local businesses

Table 2.8 Ikorodu North Site-Specific Local Business Opportunities

Site	**Local Business Opportunities**	**Potential Local Suppliers**
Eruwen PHC (New Construction)	- Material supply (cement, blocks, sand, gravel, steel) - Labour supply (local workers) - Catering and hospitality services - Equipment rental	- *[Insert local market]* suppliers - Ikorodu-based block manufacturers - Local transport operators - Guesthouses and restaurants
Olorunda PHC (New Construction)	- Material supply (building materials) - Labour supply (local artisans) - Agricultural community employment	- *[Insert local market]* suppliers - Local artisans - Local service providers

Agura PHC (New Construction)	- Material supply (building materials) - Labour supply (local artisans) - Community employment	- *[Insert local market]* suppliers - Local artisans - Local service providers
Omolaiye PHC (Refurbishment)	- Material supply (roofing, plumbing, electrical) - Labour supply (local artisans) - Waste management services - Security services	- *[Insert local market]* suppliers - Ikorodu-based hardware stores - Local waste management companies - Local security firms

Table 2.9 Social Benefits (Ikorodu North Focus)

Benefit	**Quantification**	**Quantification**	**Source**
Population served by new PHCs (Ikorodu North)	3 new PHCs × 50,000 = 200,000 residents	*3* PHCs × 50,000 = 150,000 residents	Lagos State Ministry of Health, 2025, p. 27
Population served by refurbished PHCs (Ikorodu North)	1 refurbished PHCs × 20,000–50,000 = 80,000–200,000 residents	1 refurbished PHCs × 20,000-50,000 = *[20,000-50,000]* residents	Lagos State Ministry of Health, 2025, p. 25
24/7 service availability	New PHCs operate 24/7	New PHCs operate 24/7	Lagos State Ministry of Health, 2025, p. 25
Maternal mortality reduction (estimated)	20–30% in catchment areas	20--30% in catchment areas	Consultant estimate
Under-five mortality	25–35%	25--35%	Consultant estimate

reduction (estimated)			

Table 2.10 Environmental Benefits (LSHIP Programme)

Benefit	Quantification	Source
Solar PV capacity	1.55–3.1 MW total across all facilities	Consultant estimate
GHG emissions reduction	2,000–4,000 tCO_2 e/year	Consultant estimate
Diesel savings	500,000–1,000,000 litres/year	Consultant estimate
Water conservation	Rainwater harvesting (5,000–10,000 L storage per PHC)	Consultant estimate

2.5 Alternatives Analysis

2.5.1 No-Project Alternative

The "No Project" alternative evaluates the consequences of not implementing the Lagos State Health Infrastructure Project (LSHIP) in the Ikorodu North. Under this scenario, the existing Primary Health Centres (PHCs) would continue operating with their current structural deficiencies, limited capacity, and inadequate service delivery infrastructure.

Failure to implement the project would result in:

- Continued deterioration of public health outcomes, especially maternal and child health indicators.
- Persistent overcrowding at secondary and tertiary health facilities due to weak PHC capacity.
- Reduced access to essential services for vulnerable groups, including women, children, the elderly, and low-income households.
- Inability to meet Lagos State's Universal Health Coverage (UHC) targets and SDG 3 (Good Health and Well-Being).
- Increased disease burden due to poor facility hygiene, inadequate waste management, and limited diagnostic capacity.
- Continued infrastructure decay, leading to higher long-term rehabilitation costs.
- Loss of economic opportunities for local contractors, artisans, suppliers, and labourers.

Given these consequences, the "No Project" alternative is not desirable and does not support Lagos State's health sector development objectives or AfDB's strategic priorities for improving human capital and social infrastructure.

Impacts (No-Project)

Description: The LSHIP is not implemented. Lagos State continues with existing healthcare infrastructure.

Environmental Impacts (No-Project):

- Continued improper medical waste management
- Continued reliance on diesel generators (air pollution, GHG emissions)
- No climate-resilient infrastructure -- existing facilities remain vulnerable to flooding, erosion, heatwaves

Social Impacts (No-Project):

- Continued lack of access to primary care for residents of Ikorodu North
- Continued maternal and child mortality (no improvement)
- Continued out-of-pocket expenditure (>80%)
- No RAPs for displaced persons -- squatters remain at risk of eviction without compensation
- Continued asbestos exposure risk (Omolaiye)

Economic Impacts (No-Project):

- No direct job creation (6,537 jobs foregone)
- Continued productivity losses from morbidity

Conclusion: The no-project alternative is unacceptable. It perpetuates health inequities, fails to address infrastructure deficits, and ignores environmental and social risks.

2.5.2 Alignment Alternatives (Site Selection -- Ikorodu North Group 3)

The alignment alternatives is presented in Table 2.11 below.

Table 2.11: Alignment Alternatives (Site Selection -- Ikorodu North Group 3)

Facility	Original/Preferred Site	Alternative Site(s) Assessed	Reason for Rejection
Eruwen PHC	Eruwen community (existing health post)	No alternative – fixed site	N/A (refurbishment of existing health post)
Olorunda PHC	Olorunda, Ikorodu North LCDA	Alternate site 1 km south	Would displace farmers; farther from community

Agura PHC	HJHH+W39, Ikorodu 104101	Alternate site 2 km south	Would require additional land acquisition; farther from target community
Omolaiye PHC	Isawo Road, Agric, Ikorodu	Alternate site 1 km east	Would not serve Omolaiye community; access road worse

Technical Selection Criteria

1. **Land Ownership & Encumbrance**: Preferred sites are government-owned or have clear community titles. Alternative sites risk land-title disputes or require complex RAPs.
2. **Social Connectivity**: Existing sites are "Social Landmarks." Relocation would reduce immunization and antenatal care attendance.
3. **Environmental Safeguards**: Preferred sites chosen for better drainage and flood resilience.
4. **Cost-Effectiveness**: Utilizing existing footprints reduces carbon footprint and costs.

Conclusion: The preferred sites are optimal based on proximity to target populations, land availability (government-owned or voluntarily donated), accessibility, and cost.

2.5.3 Engineering Alternatives (Building Design)

The engineering alternatives (building design) is presented in Table 2.12 below.

Table 2.12: Engineering Alternatives (Building Design) -- Ikorodu North

Alternative	Description	Advantages	Disadvantages	Selected?
Conventional design	Standard concrete block, grid electricity, diesel backup, conventional HVAC	Lower upfront cost (estimated 20% less)	Higher operating costs; higher GHG emissions; no climate resilience	No
Green building design (preferred)	Solar PV, natural ventilation, cool roofs, rainwater harvesting, energy-efficient lighting, disability-friendly design	Lower operating costs (40--60% reduction in energy costs); lower GHG emissions; climate-resilient; aligns	Higher upfront cost (estimated 20% premium)	**Yes**

		with SDGs and NDCs		

Justification for green building design: Long-term cost savings, climate resilience, environmental benefits, social benefits (improved patient/staff comfort, disability access), alignment with AfDB, IFC, and Lagos State green building policies.

2.5.4 Site-Specific Alternatives for Each PHC

In accordance with AfDB ISS (2023/2024), alternatives were evaluated for each PHC in the Ikorodu North to ensure that design, location, layout, and construction approaches minimize environmental and social impacts.

PHC 1 -- Omolaiye Primary Health Centre

- **Alternative Location:** Relocation to adjacent parcel considered; rejected due to land ownership constraints and increased resettlement risk.
- **Alternative Design:** Two-storey structure evaluated; rejected due to structural load limitations.
- **Alternative Layout:** Internal circulation redesigned to reduce patient congestion; selected.
- **Alternative Construction Approach:** Prefabricated panels considered; rejected due to supply chain limitations.

PHC 2 -- Eruwen Primary Health Centre

- **Alternative Location:** Siting behind existing structure evaluated; rejected due to drainage issues.
- **Alternative Design:** Modular expansion considered; selected for reduced construction time.
- **Alternative Access Route:** Rear access road evaluated; rejected due to community safety concerns.

PHC 3 -- Olorunda Primary Health Centre

- **Alternative Location:** Relocation to LGA-owned land evaluated; rejected due to distance from catchment population.
- **Alternative Layout:** Expanded waiting area and triage zone; selected.
- **Alternative Waste Handling:** Off-site disposal vs. on-site temporary storage; hybrid model selected.

PHC 4 -- Agura Primary Health Centre

- **Alternative Location:** Co-location with nearby facility evaluated; rejected due to service overlap.

- **Alternative Design:** Solar-powered cold chain storage added; selected.
- **Alternative Construction Approach:** Night-time construction rejected due to noise impacts.

The alternatives analysis presented above satisfies AfDB ISS requirements by demonstrating that feasible options were evaluated at both the project level and the site level. The selected alternatives minimize environmental and social impacts while enhancing service delivery efficiency, community accessibility, and long-term sustainability.

2.5.5 Energy Supply Alternatives

The energy supply alternatives is presented in Table 2.13 below.

Table 2.13: Energy Supply Alternatives -- Ikorodu North

Alternative	Description	Advantages	Disadvantages	Selected?
Grid only	Rely solely on national grid	No upfront cost	Grid unreliable; no power during outages; no climate resilience	No
Diesel generator only	Diesel generators as primary power	Reliable (if fuel available)	High operating cost; air pollution; noise; GHG emissions	No
Grid + generator	Grid primary, generator backup	Moderate upfront cost	Still relies on grid (unreliable) and generator (pollution, cost)	No
Solar PV + battery + grid (preferred)	Solar primary, battery storage, grid backup	Low operating cost; zero emissions (during solar operation); silent; climate-resilient; 24--48 hour battery backup	Higher upfront cost (but declining)	**Yes**

2.5.6 Water Supply Alternatives

The water supply alternatives is presented in Table 2.14 below.

Table 2.14: Water Supply Alternatives -- Ikorodu North

Alternative	Description	Advantages	Disadvantages	Selected?

Borehole only	Single borehole	Low upfront cost	Risk of depletion; no backup; no water quality treatment	No
Borehole + treatment	Borehole with UV filtration	Improved water quality	Still single point of failure; no backup during borehole failure	No
Borehole + rainwater harvesting + treatment (preferred)	Borehole primary, rainwater backup, UV filtration	Water security (rainwater backup); reduced groundwater abstraction; improved quality	Higher upfront cost (rainwater storage tanks)	**Yes**

2.5.7 Wastewater Treatment Alternatives

The wastewater treatment alternatives is presented in Table 2.15 below.

Table 2.15: Wastewater Treatment Alternatives -- Ikorodu North

Alternative	Description	Advantages	Disadvantages	Selected?
Septic tank + soakaway (PHCs)	Standard for low-flow facilities	Low cost; low maintenance	Not suitable for high volumes; risk of groundwater contamination if poorly maintained	Yes
No treatment (discharge to drain)	Direct discharge to storm drain	Zero cost	Illegal (violates NESREA); environmental contamination; public health risk	No

2.5.8 Construction Alternatives

The construction alternatives is presented in Table 2.16 below.

Table 2.16: Construction Alternatives -- Ikorodu North

Alternative	Description	Advantages	Disadvantages	Selected?

Traditional construction	Conventional materials and methods (cement, steel, block)	Familiar; locally available; lower cost	Higher embodied carbon; slower construction	Yes (with low-carbon measures)
Low-carbon construction	Use of low-carbon cement, recycled steel, local materials, reduced waste	Lower embodied carbon (20--30% reduction)	Slightly higher cost; requires sourcing	Yes (where feasible)

2.5.9 Climate Alternatives

The climate alternatives is presented in Table 2.17 below.

Table 2.17: Climate Alternatives -- Ikorodu North

Alternative	Description	Advantages	Disadvantages	Selected?
Standard design (no climate adaptation)	Design for current climate (1:50-year storm, no sea-level rise, no heatwave planning)	Lower upfront cost	Vulnerable to climate hazards; shorter facility lifespan; higher future adaptation cost	No
Climate-resilient design (preferred)	Design for future climate (1:100-year storm + 30% factor, elevated electricals, cool roofs, solar PV)	Resilient to climate hazards; longer lifespan; lower future adaptation cost; aligns with NDCs	Higher upfront cost (estimated 10--15% premium)	Yes

Justification for climate-resilient design: Lagos is highly vulnerable to climate hazards (flooding, heatwaves). Facilities designed for 50+ year lifespan will face significantly different climate conditions by 2050--2070 (Intergovernmental Panel on Climate Change, 2021).

2.5.10 Waste Management Alternatives

The waste management alternatives is presented in Table 2.18 below.

Table 2.18: Waste Management Alternatives -- Ikorodu North

Alternative	Description	Advantages	Disadvantages	Selected?
Open burning (current practice at some PHCs)	Burn waste on site	Zero cost (illegal)	Air pollution (dioxins, furans, PM); community health risk; illegal under NESREA	No (prohibited)
Unsegregated disposal to landfill	Mixed waste (including infectious) sent to landfill	Simple	Environmental contamination; public health risk; violates healthcare waste standards	No
WHO-compliant HMWMP (preferred)	Segregation (colour-coded), safe storage, treatment (autoclave), LAWMA disposal	Protects workers, communities, environment; complies with WHO, AfDB, NESREA	Requires training, equipment, ongoing cost	Yes

Justification for WHO-compliant HMWMP: Mandatory under AfDB OS3, IFC PS3, and NESREA regulations (World Health Organization, 2014).

2.6 Climate Alignment

2.6.1 Nigeria's NDC Alignment

Nigeria's updated NDC (2021) commits to (Federal Ministry of Environment, 2021):

- **Adaptation:** Climate-resilient infrastructure, flood management, heatwave preparedness
- **Mitigation:** 20% unconditional (47% conditional) GHG reduction by 2030

LSHIP aligns through oversized drains (+30% climate factor), elevated electricals, solar PV (250-500 *tCO_2e/year]* reduction), and energy-efficient design.

2.6.2 TCFD Alignment

The LSHIP follows TCFD recommendations (Task Force on Climate-related Financial Disclosures, 2017):

TCFD Pillar	LSHIP Action
Governance	PIU responsible for climate risk management; ESMP includes climate monitoring
Strategy	Climate-resilient design protects assets and operations
Risk Management	Climate hazard mapping; risk assessment; adaptation measures
Metrics and Targets	GHG inventory; emissions reduction target (net-zero operational carbon)

2.7 Gender & Inclusion Alignment

The LSHIP mainstreams gender across all components (Lagos State Ministry of Women Affairs and Poverty Alleviation, 2023):

- **Facility design:** Separate maternal and child health spaces; female staff facilities; disability-friendly access
- **GBV prevention and response:** GBV Action Plan (Chapter 9); Code of Conduct; confidential reporting; referral pathways
- **Employment:** Gender-balanced hiring (≥50% female clinical staff, ≥30% female administrative staff)
- **Stakeholder engagement:** Gender-segregated FGDs; female GRM focal points; women's groups consulted
- **Livelihood restoration (RAPs):** Women-headed households receive vulnerability support; women's skills training and business grants

Table 2.19: Gender and Inclusion Targets -- Ikorodu North

Indicator	Target	Monitoring Method
Female staff in new PHCs	≥ema clinical, ≥30% administrative	Quarterly staffing reports
Women in construction workforce	≥ome of total workforce	Monthly hiring records
Women-owned businesses in supply chain	≥ome of local procurement	Procurement records
GBV/SEA/SH cases reported and responded	100% within 48 hours	GRM records
Women participating in consultations	≥ome of participants	Attendance sheets

Vulnerable PAPs receiving enhanced support	100%	RAP monitoring
Disability-friendly features in all PHCs	100%	Pre-operation inspection
Local hiring (within LGA)	≥oca of unskilled labour	Monthly contractor reports

2.8 Local Content and Economic Development Plan

The LSHIP is committed to maximising local economic benefits through a comprehensive Local Content and Economic Development Plan. This plan aims to:

1. Maximise local procurement of goods and services
2. Create sustainable employment for local communities
3. Build local capacity through skills transfer and training
4. Support local businesses through inclusive procurement processes
5. Ensure equitable benefits for women and vulnerable groups

2.8.1 Local Content Framework

Table 2.20: Local Content Framework -- Ikorodu North

Component	Target	Implementation Strategy	Monitoring
Local Procurement	≥oca of eligible materials and services	- Supplier registration database - Preference for local suppliers - Transparent procurement	Procurement records; supplier registration
Local Hiring	≥oca unskilled; ≥30% skilled	- Local job advertisements - Community notification - Hiring from within LGA	Hiring records (by LGA of residence)
Local Subcontracting	≥oca of eligible subcontracts	- Local contractor registration	Subcontract records

		- Capacity building - Tiered subcontracting	
Women-Owned Businesses	≥ome of local procurement	- Women entrepreneur support - Gender-responsive procurement - Business training	Procurement records by gender
Skills Transfer	≥200,000 local workers trained	- Apprenticeship programs - On-the-job training - Vocational training partnerships	Training completion records
Community Investment	≥om of construction budget	- Community development projects - Infrastructure improvements - Health outreach	Community investment records

Table 2.21 Implementation Arrangements

Activity	**Responsible**	**Timeline**
Local supplier registration	Contractor / PIU	Pre-construction (Month 1--2)
Local business awareness campaigns	PIU / Community Liaison Officer	Pre-construction (Month 1--2)
Local hiring plan	Contractor	Pre-construction (Month 1)
Skills training program	Contractor / PIU	Throughout construction
Procurement preference implementation	Contractor	Throughout construction

Monitoring and reporting	Contractor / PIU	Monthly

Table 2.22 Monitoring Indicators

Indicator	Target	Frequency	Responsible
Value of local procurement (₦)	≥alu of eligible procurement	Monthly	Contractor
Number of local suppliers engaged	≥60% per site	Monthly	Contractor
Number of local workers hired	≥umb unskilled; ≥30% skilled	Monthly	Contractor
Number of women-owned businesses engaged	≥umb of procurement	Monthly	Contractor
Number of workers trained	≥200,000 across LSHIP programme	Quarterly	Contractor / PIU
Community satisfaction with local content	≥omm satisfied	Quarterly	PIU / IESM

2.9 Circularity & Resource Efficiency

2.9.1 Material Reuse and Recycling

Table 2.23: Material Reuse and Recycling -- Ikorodu North

Material	Source	Reuse/Recycling Potential	Social Benefit
Construction waste (concrete, blocks, steel)	Demolition of existing structures	Crushed concrete and blocks reused as fill; steel recycled	Reduced disposal cost; local recycling jobs
Asbestos	Omolaiye (suspected)	No reuse -- hazardous waste; disposed at licensed landfill	Public health protection
Excavated soil	Earthworks (foundations, drainage)	Reused as fill on site; excess for landscaping	Reduced need for off-site disposal; local use

Wood waste	Formwork, pallets	Reuse for formwork; chipped for mulch; donated to community	Community benefits (wood for fuel, construction)
Metal scrap	Reinforcement steel, pipes	Recycled through local scrap dealers	Supports local scrap recycling industry
Packaging waste	Material deliveries	Reduced through just-in-time delivery; recycling where feasible	Waste management jobs; reduced landfill

2.9.2 Resource Efficiency

Table 2.24: Resource Efficiency -- Ikorodu North

Resource	Efficiency Measure	Estimated Savings	Social Benefit
Energy	Solar PV; LED lighting; natural ventilation	40--60% reduction in grid/diesel consumption	Lower energy costs for PHC operations; reliable power for community health services
Water	Rainwater harvesting (5,000--10,000 L storage); water-efficient fixtures	20--30% reduction in borehole abstraction	Reduced groundwater stress; water security during droughts
Materials	Local sourcing; reduced waste; low-carbon cement	20--30% reduction in embodied carbon	Local economic benefits; lower environmental impact

Table 2.25: Resource Efficiency

Circularity Measure	Social Benefit
Local material sourcing	Supports local businesses and jobs
Waste recycling	Creates waste management jobs; reduces landfill impact
Material reuse	Lowers cost; benefits community through donated materials
Water conservation	Reduces community water stress; supports sustainable water use
Energy efficiency	Lower PHC operating costs; resources available for patient care

2.10 Project Alternative

2.10.1 No Project Alternative

The “No Project” alternative evaluates the consequences of not implementing the Lagos State Health Infrastructure Project (LSHIP) in the Ikorodu Axis Group 3, specifically Olorunda,

Eruwen Agura and Omolaiye PHCs. Under this scenario, the existing Primary Health Centres would continue operating with their current structural deficiencies, limited capacity, and inadequate service delivery infrastructure.

Failure to implement the project would result in:

- Continued deterioration of public health outcomes, especially maternal and child health indicators.
- Persistent overcrowding at secondary and tertiary health facilities due to weak PHC capacity.
- Reduced access to essential services for vulnerable groups, including women, children, the elderly, and low-income households.
- Inability to meet Lagos State's Universal Health Coverage (UHC) targets and SDG 3 (Good Health and Well-Being).
- Increased disease burden due to poor facility hygiene, inadequate waste management, and limited diagnostic capacity.
- Continued infrastructure decay, leading to higher long-term rehabilitation costs.
- Loss of economic opportunities for local contractors, artisans, suppliers, and labourers.

Given these consequences, the "No Project" alternative is not desirable and does not support Lagos State's health sector development objectives or AfDB's strategic priorities for improving human capital and social infrastructure.

2.10.2 Site-Specific Alternatives for Each PHC

In accordance with AfDB ISS (2023/2024), alternatives were evaluated for each PHC in the Ikorodu Axis Group 3 to ensure that design, location, layout, and construction approaches minimize environmental and social impacts.

PHC 1: Olorunda Primary Health Centre

- Alternative Location: Relocation to an adjacent parcel was considered; rejected due to land ownership constraints and the likelihood of increased resettlement risk.
- Alternative Design: A larger multi-storey structure was considered; rejected due to site constraints and anticipated structural and cost implications.
- Alternative Layout: New structure to improve patient flow and reduce congestion; selected.
- Alternative Construction Approach: Prefabricated construction elements were considered; rejected due to supply chain limitations and site logistics.

PHC 2: Eruwen Primary Health Centre

- Alternative Location: Siting behind the existing structure was evaluated; rejected due to drainage limitations and flood vulnerability.
- Alternative Design: Modular expansion was considered; selected for reduced construction time and lower disruption to ongoing service delivery.
- Alternative Access Route: A rear access route was evaluated; rejected due to community safety concerns and land use constraints.

PHC 3: Agura Primary Health Centre

- Alternative Location: Relocation to a nearby government-owned parcel was considered; rejected due to distance from the target catchment population and reduced accessibility.
- Alternative Layout: Expansion of the waiting area, consultation rooms, and service circulation space was selected to improve functionality and patient comfort.
- Alternative Waste Handling: On-site temporary storage with controlled off-site disposal was preferred over uncontrolled disposal; selected to ensure compliance with healthcare waste management requirements.

PHC 4: Omolaiye Primary Health Centre

- Alternative Location: Relocation to an adjacent parcel was considered; rejected due to land ownership constraints and the likelihood of increased resettlement risk.
- Alternative Design: A larger multi-storey structure was considered; rejected due to site constraints and anticipated structural and cost implications.
- Alternative Layout: New structure to improve patient flow and reduce congestion; selected.
- Alternative Construction Approach: Prefabricated construction elements were considered; rejected due to supply chain limitations and site logistics.

The alternatives analysis presented above satisfies AfDB ISS requirements by demonstrating that feasible options were evaluated at both the project level and the site level. The selected alternatives minimise environmental

2.10 Conclusion

The alternatives analysis presented above satisfies AfDB ISS requirements by demonstrating that feasible options were evaluated at both the project level and the site level. The selected alternatives minimize environmental and social impacts while enhancing service delivery efficiency, community accessibility, and long-term sustainability.

The Lagos State Health Infrastructure Project (LSHIP) is fully justified by the severe deficiencies in Lagos State's healthcare infrastructure, the substantial economic, social, and environmental benefits it will deliver, and its alignment with national, state, and international development priorities.

The alternatives analysis demonstrates that:

- The no-project alternative is unacceptable, as it would perpetuate poor health outcomes, infrastructure decay, and limited access to essential services for vulnerable populations.
- Alternative sites were considered for all facilities, but the preferred sites are optimal based on proximity to target populations, land availability (government-owned or voluntarily donated), accessibility, and cost.
- Green building design is preferred over conventional design due to improved energy efficiency, reduced operational costs, and alignment with AfDB climate-smart infrastructure principles.
- Climate-resilient design is essential given Lagos's high vulnerability to flooding, heatwaves, and sea-level rise.
- A WHO-compliant Healthcare Waste Management Plan (HMWMP) is mandatory and preferred over open burning or uncontrolled disposal.
- Local content and economic development are integrated into project design to maximise community benefits through job creation, procurement opportunities, and skill development.

This ESIA report covers only Group 3 (Ikorodu North). The preferred option for this cluster---construction of three new PHCs and refurbishment of one existing PHC, incorporating green building standards, solar PV systems, rainwater harvesting, climate-resilient design, and WHO-compliant waste management---is environmentally and socially sound. It delivers substantial public health benefits to residents of the Ikorodu North and creates local employment and business opportunities.

The project is therefore recommended for approval by the Federal Ministry of Environment (FMEnv) and the African Development Bank (AfDB).

CHAPTER 3 -- PROJECT & PROCESS DESCRIPTION

3.1 Background & Overview

The Lagos State Health Infrastructure Project (LSHIP) is a US$200 million AfDB-financed programme designed to fundamentally transform healthcare delivery across Lagos State. The project addresses critical gaps in primary, secondary, and tertiary healthcare infrastructure through a coordinated, multi-component strategy that integrates physical infrastructure, diagnostic capacity, workforce development, and pandemic preparedness (Lagos State Ministry of Health, 2025).

The project is being implemented by the Lagos State Ministry of Health (LSMoH) through a dedicated Project Implementation Unit (PIU). Implementation leverages a mixed model: direct procurement for construction and refurbishment, and structured Public-Private Partnerships (PPPs) for diagnostic services.

Note on Report Structure: This ESIA report covers only Group 3 (Ikorodu North) . Separate, standalone ESIA reports have been prepared for the remaining clusters (Amuwo Odofin Axis, Mainland Axis, Ikorodu Axis, Ikorodu-Imota Axis, Epe-Ibeju Lekki Axis, Ibeju Lekki Axis, Badagry Axis, & Badagry - Kosofe Axis). This chapter presents the project description for the Ikorodu North facilities only.

The LSHIP comprises four major components. For the Ikorodu North, Components 1 and 2 have direct physical footprints:

Table 3.1: Project Component

Component	Description	Ikorodu North Sites	Intervention Type
Component 1: Primary Health Infrastructure	New climate-resilient PHCs	3 (Eruwen, Olorunda, Agura)	New construction
	Existing PHC refurbishment	1 (Omolaiye)	Rehabilitation

Total facilities covered in this report: 4 PHCs (3 new construction + 1 refurbishment)

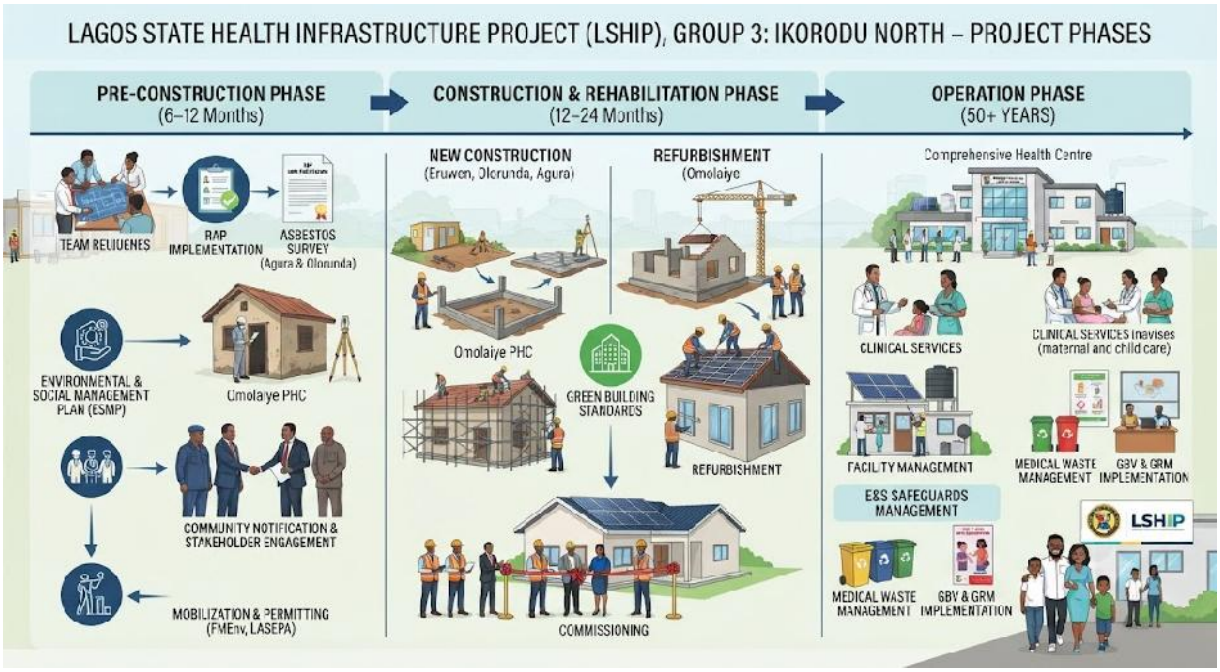


Figure 3.1: Project phase

3.2 Project Location -- Group 3 (Ikorodu North)

3.2.1 Geographic Overview

The Ikorodu North Axis is a rapidly urbanising corridor in the northern and eastern parts of Lagos State. The 4 project sites are distributed across Ikorodu North LCDA and Ikorodu LGA (Lagos State Ministry of Local Government and Community Affairs, 2024; Multiple Development Services, 2026).

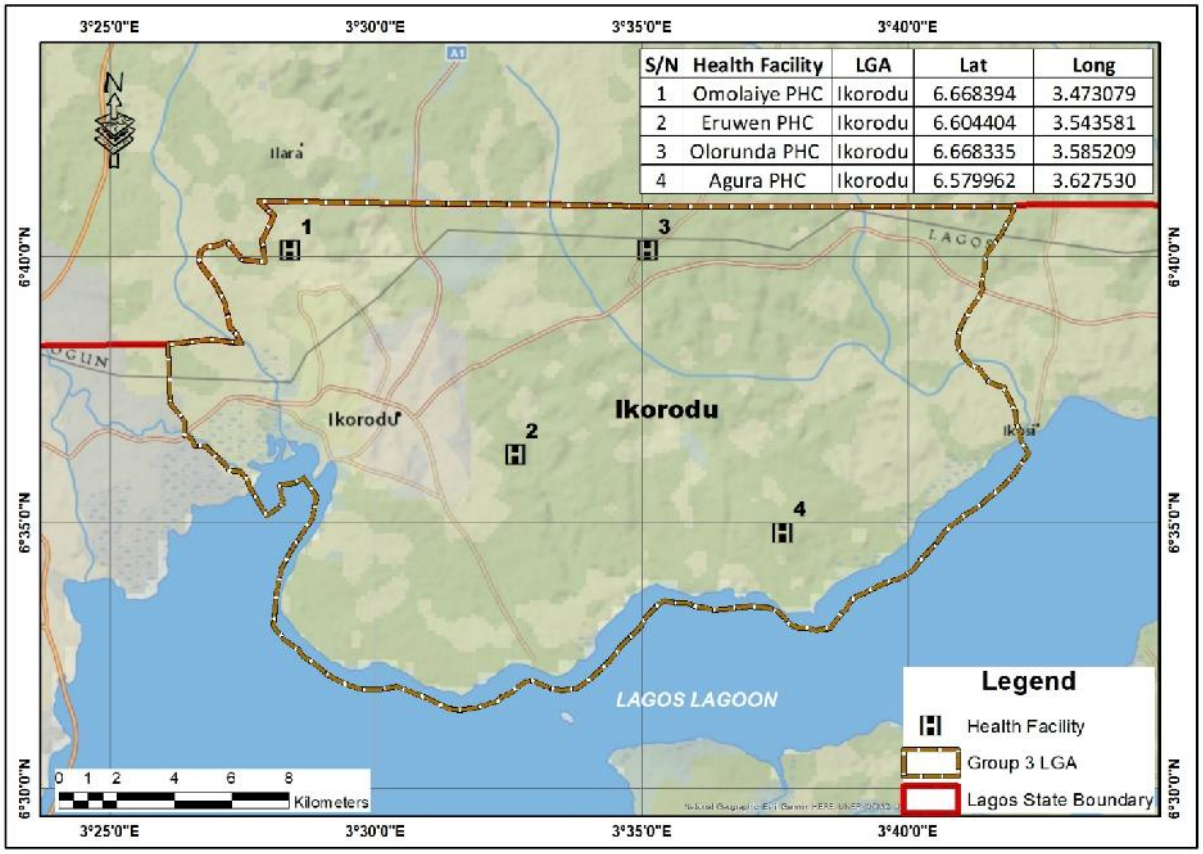


Figure 3.2 -- Map of Group 3 (Ikorodu North) showing all 4 project sites

3.2.2 Group 3 -- Ikorodu North Site Summary

Table 3.2 -- Group 3 (Ikorodu North) Sites Overview

S/N	Site Name	LGA/LCDA	GPS Coordinates	Address/Landmark	Project Type
1	Eruwen PHC	Ikorodu North LCDA	6.60440414° N, 3.54358095° E	Eruwen community	New Construction
2	Olorunda PHC	Ikorodu North LCDA	6.66833451° N, 3.58520869° E	Olorunda, Ikorodu	New Construction
3	Agura PHC	Ikorodu LGA	6.57996161° N, 3.62752998° E	HJHH+W39, Ikorodu 104101	New Construction
4	Omolaiye PHC	Ikorodu North LCDA	6.66839365° N, 3.47307938° E	Fiwakesin Covenant Estate, Agbede	Refurbishment

3.2.3 Group 3: Ikorodu North Characteristics

Topography: Flat to gently undulating, with waterlogged areas (Omolaiye) and erosion-prone zones (Omolaiye, Eruwen) (Multiple Development Services, 2026).

Hydrology: Seasonal flooding; proximity to Lagos Lagoon (Omolaiye, Eruwen).

Land use: Mix of peri-urban (Eruwen, Omolaiye, Agura) and semi-rural (Omolaiye, Olorunda).

Access: Paved roads (Agura) and unpaved roads (Eruwen, Olorunda, Omolaiye).

Environmental sensitivities: Wetlands (Agura, Olorunda, Eruwen, Omolaiye), erosion (Omolaiye, Eruwen), asbestos suspected (Omolaiye).

Social sensitivities: PAPs at Agura (13 shops) and Olorunda (6 farmers).

3.3 Project Particulars -- New Construction (3 Facilities)

The 3 new PHCs in the Ikorodu North are designed as Comprehensive Health Centres (Lagos State Ministry of Health, 2025, p. 25) with the following specifications:

- Community served: 50,000 residents per PHC
- Operation hours: 24 hours / 7 days
- Bed capacity: 15 beds per PHC (total 45 new primary level beds in Ikorodu North)
- Clinical jobs created: 29 direct clinical jobs per PHC (total 84 in Ikorodu North)

3.3.1 New Construction Facilities -- Ikorodu North

Table 3.3 -- New Construction Facilities in Ikorodu North

Facility	LGA/LCDA	Safeguard Requirement	Key Rationale
Eruwen PHC	Ikorodu North LCDA	ESIA	Existing container-based facility requires complete replacement; erosion-prone area
Olorunda PHC	Ikorodu North LCDA	ESIA + RAP	Economic displacement of 6 pineapple farmers
Agura PHC	Ikorodu LGA	ESIA + RAP	Commercial displacement of 13 shop owners along fence line

3.3.2 New PHC Design Features (All 3 New Construction Sites)

Table 3.4 -- New PHC Design Features

Feature	Specification	Environmental/Social Benefit
Building footprint	Single-storey, reinforced concrete frame, block walls	Durability, easy maintenance
Floor area	Approximately 500--800 m²	Adequate space for services
Roof	Cool roof (reflective coating), heat-resistant materials	Reduces heat gain, lowers cooling load

Natural Ventilation	Cross-ventilation design, louvred windows, ceiling fans	Reduces reliance on AC, lowers energy use
Solar PV System	50--100 kVA capacity with battery storage (24--48 hours backup)	Zero-emission energy, grid-independent, reduces diesel use
Water Supply	Borehole + UV filtration + rainwater harvesting (5,000--10,000 L storage)	Water security, reduces groundwater abstraction
Sanitation	Septic tank + soakaway; handwashing stations	Prevents water pollution
Medical Waste	Segregation (colour-coded bins), sharps containers, autoclave	WHO-compliant waste management
Disability Access	Ramps, wide doorways (≥900 mm), accessible toilets, handrails, braille signage (where feasible)	Inclusive design
Maternal & Child Health	Dedicated maternal and child health unit, delivery room, immunisation room, postnatal care	Reduces maternal/child mortality
Emergency Services	Emergency treatment room, ambulance bay	24/7 emergency care
Laboratory	Basic diagnostic lab (malaria, TB, HIV, urine, blood glucose)	On-site diagnosis
Pharmacy	Secure drug storage, dispensing window	Essential medicines access
Staff Facilities	Changing rooms, toilets, break room	Worker welfare
Landscaping	Native species planting, shaded areas	Aesthetics, cooling, biodiversity



Figure 3.3 -- Typical floor plan of new PHC (prototype design)

Figure 3.4 -- 3D rendering of typical new PHC (exterior)

3.3.3 Site-Specific Features -- New Construction

Eruwen PHC:

- Existing container-based facility requires complete replacement
- Erosion-prone area -- requires engineered drainage and slope stabilization
- Asbestos suspected -- requires abatement before demolition

Olorunda PHC:

- Economic displacement of 6 pineapple farmers -- requires RAP
- Wetland adjacent -- requires 30--50 m buffer zone

- Unpaved access road -- requires upgrade

Agura PHC:

- Commercial displacement of 13 shop owners -- requires RAP
- Peri-urban location with expanding residential areas
- Periodic flooding -- requires elevated electrical panels

3.4 Project Particulars -- Refurbishment (1 Facility)

The 1 refurbished PHC in the Ikorodu North will be upgraded to meet the benchmark standards for Comprehensive Health Centres (where space permits) or Primary Health Centres (where space is constrained) (Lagos State Ministry of Health, 2025).

3.4.1 Refurbishment Facilities -- Group 3: Ikorodu North

Table 3.5 -- Refurbishment Facilities in Ikorodu North

Facility	LGA/LCDA	Safeguard Requirement	Key Rationale
Omolaiye PHC	Ikorodu North LCDA	ESIA	Waterlogged sensitive ecosystem (AfDB BTOR)

3.4.2 Refurbishment Scope by Activity

Table 3.6 -- Refurbishment Scope by Activity

Activity	Description	Environmental/Social Risk	Mitigation
Structural rehabilitation	Repair of cracked walls, replacement of deteriorated beams/columns, roof replacement	Asbestos exposure (Omolaiye -- suspected); construction dust; noise	Asbestos survey; dust control; noise restrictions
Electrical upgrades	Rewiring, new lighting (LED), circuit breakers, solar PV integration	Electrical shock; fire risk	Licensed electrician; testing; fire extinguishers
Plumbing upgrades	New pipes, fixtures, toilets, handwashing stations, water heater (solar where feasible)	Water leaks; wastewater contamination	Pressure testing; proper drainage

Medical waste system	Segregation bins, sharps containers, autoclave (if not present)	Needle-stick injuries; infectious waste exposure	Training; PPE; HMWMP
Disability access	Ramps, widened doorways, accessible toilets, handrails	Physical injury; exclusion	Design standards; supervision
Solar PV installation	Roof-mounted solar PV (size varies by site)	Roof loading; electrical safety	Structural assessment; licensed installer
Rainwater harvesting	Gutters, downspouts, storage tanks (where feasible)	Water quality (if not treated)	UV filtration; mosquito screening
Painting and finishing	Low-VOC paints, durable finishes	VOC exposure (workers); air quality	Low-VOC materials; ventilation
Landscaping	Native species planting, erosion control	Soil erosion; habitat loss	Revegetation; silt fences

3.4.3 Site-Specific Sensitivities -- Refurbishment

Table 3.7 -- Refurbishment Sites with Specific Sensitivities

Site	Key Sensitivity	Special Requirement
Omolaiye	Waterlogged sensitive ecosystem (AfDB BTOR)	Hydrological assessment; flood-proofing; elevated floor slab





Plate 3.1 – Omolaiye PHC (before refurbishment) – waterlogged area

3.5 Process Description

3.5.1 Pre-Construction Phase (Ikorodu North)

Table 3.8 -- Pre-Construction Activities for Ikorodu North

Activity	Description	Duration	Responsible	E&S Considerations
Site verification	Confirm boundaries, land ownership, environmental/social sensitivities	1--2 weeks	LSMoH / PIU / LASEPA / FMEnv	Land acquisition, RAP trigger (Agura, Olorunda)
RAP implementation	Compensation, relocation, livelihood restoration for PAPs (Agura -- 13 shops; Olorunda -- 3 farmers)	3--6 months	PIU / RAP consultant	Involuntary resettlement (OS5)
Asbestos survey	Licensed surveyor confirms presence/absence at Omolaiye (suspected)	2--4 weeks	Licensed asbestos surveyor	Worker/community exposure

Asbestos abatement	Licensed contractor removes asbestos (if confirmed)	2--4 weeks per site	Licensed abatement contractor	Air monitoring, hazardous waste
Detailed design	Architectural, structural, MEP, solar, drainage, landscaping	2--4 months	Design consultant	Climate resilience, green building
Permitting	LASEPA waste permit, water abstraction, building plan approval	1--3 months	PIU / Contractor	Compliance
Contractor procurement	Competitive bidding (AfDB rules)	2--3 months	LSMoH / AfDB	E&S criteria in bid documents
CESMP submission	Contractor submits ESMP, HMWMP, GBV Action Plan, OHS Plan	2--4 weeks after contract award	Contractor	Approval before mobilisation
Community notification	Inform communities of construction schedule, disruptions, GRM	1--2 weeks before mobilisation	PIU / Contractor	Stakeholder engagement
Mobilisation	Set up construction camp, laydown area, security, utilities	1--2 weeks	Contractor	Camp management plan

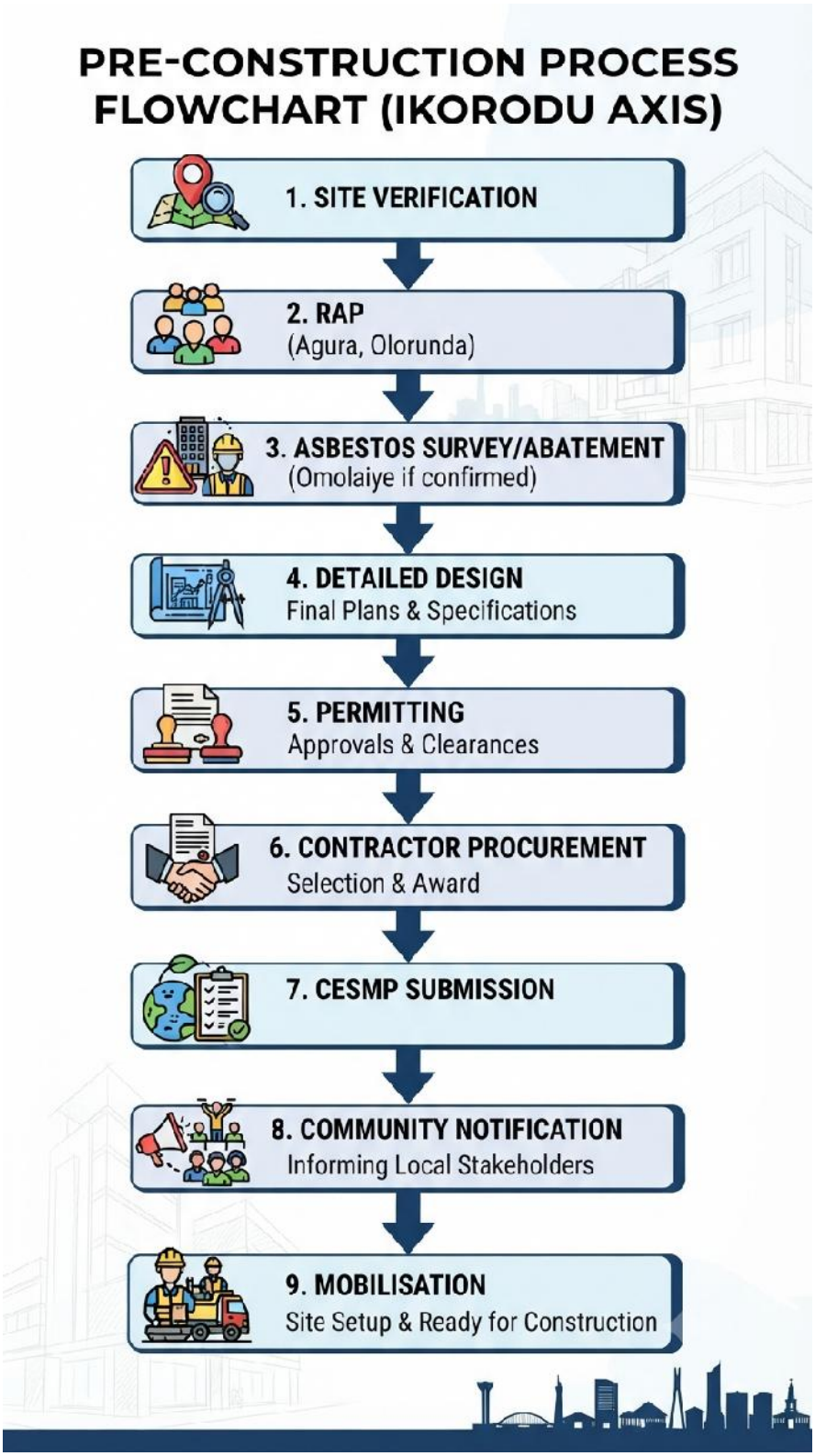


Figure 3.5 -- Pre-construction process flowchart (Ikorodu North)

3.5.2 Construction Phase -- New Construction (3 Sites)

Table 3.9 -- Construction Activities for New Construction Sites (Ikorodu North) Group 3

Activity	Description	Duration (Typical)	E&S Considerations
Site clearing	Remove vegetation, debris, existing structures (Eruwen -- container removal)	1--2 weeks	Habitat loss, dust, noise, waste
Earthworks	Excavation, filling, grading	2--4 weeks	Erosion (Omolaiye, Eruwen), sedimentation, dust, noise, soil contamination
Foundation	Concrete footings, slab	2--3 weeks	Concrete wash water (pH), noise
Structural works	Columns, beams, block walls	4--8 weeks	Dust, noise, waste (blocks, mortar), OHS (falls)
Roofing	Roof structure, cool roof installation	2--3 weeks	OHS (working at height), noise
MEP installation	Electrical (including solar), plumbing, HVAC	4--8 weeks	Electrical safety, water leaks, OHS
Finishing	Flooring, painting (low-VOC), doors, windows, fixtures	4--6 weeks	VOC exposure, waste (paint cans), Lead poisoning, ergonomics, and working at height are also critical OHS factors here
Medical equipment installation	Lab equipment, autoclave, pharmacy fridge	2--4 weeks	OHS (heavy equipment), medical waste (testing),
Landscaping	Native species planting, erosion control	1--2 weeks	Soil erosion, biodiversity
Commissioning	Systems testing (solar, water, waste, fire safety)	1--2 weeks	Worker safety, community safety

3.5.3 Construction Phase -- Refurbishment (1 Site)

Table 3.10 -- Construction Activities for Refurbishment Sites (Ikorodu North)

Activity	Description	Duration (Typical)	E&S Considerations
Site preparation	Remove existing fixtures, protect remaining structures	1--2 weeks	Dust, noise, waste
Demolition (partial)	Remove unsafe structures, asbestos-containing materials (if confirmed)	1--3 weeks	Asbestos exposure (Omolaiye), dust, noise, hazardous waste
Structural repairs	Repair cracked walls, replace deteriorated beams/columns	2--4 weeks	Dust, noise, waste, OHS (falls)
Roof replacement	Replace roofing (asbestos if present)	1--2 weeks	Asbestos exposure, OHS (working at height)
MEP upgrades	Rewiring, new lighting, plumbing, solar PV integration	3--6 weeks	Electrical safety, water leaks, OHS
Finishing	Flooring, painting (low-VOC), new fixtures	2--4 weeks	VOC exposure, waste
Medical waste system	Install segregation bins, sharps containers, autoclave	1--2 weeks	Needle-stick injuries, infectious waste exposure
Disability access	Install ramps, widen doorways, accessible toilets	1--2 weeks	Physical injury; exclusion
Landscaping	Native species planting, erosion control	1--2 weeks	Soil erosion, biodiversity

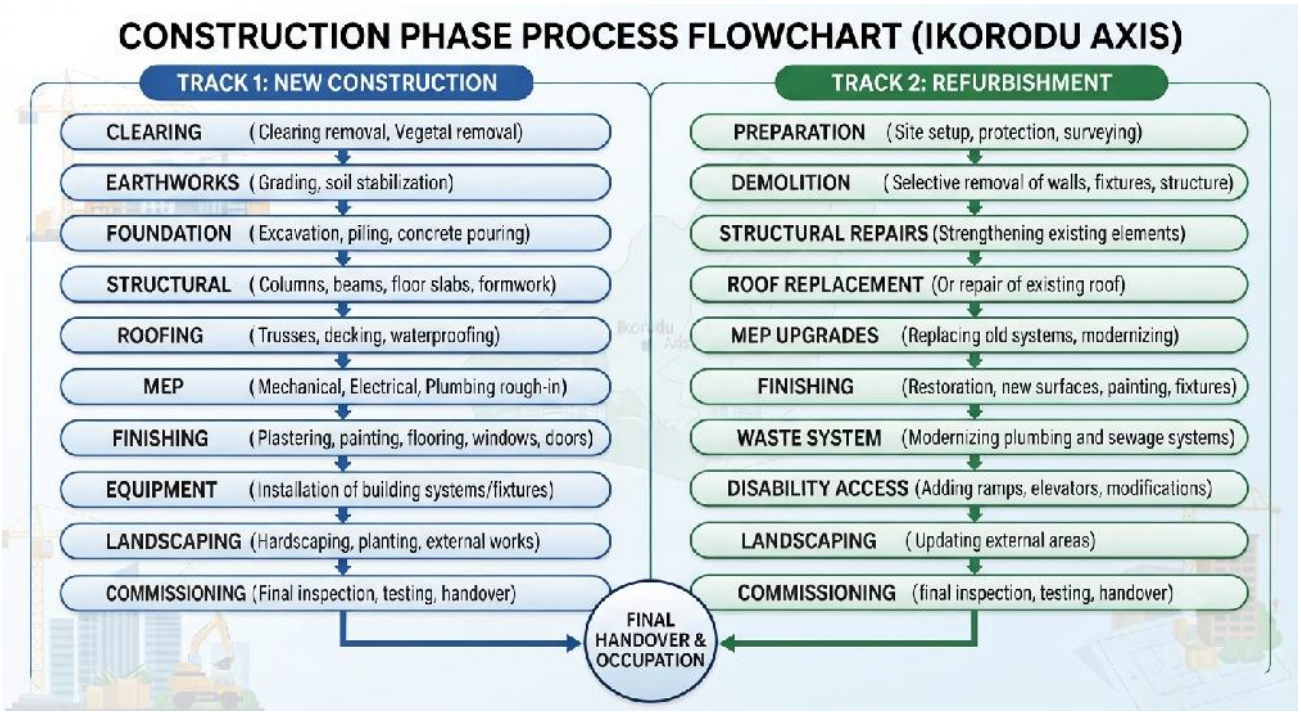


Figure 3.6 -- Construction phase process flowchart (Ikorodu North)

3.6 Project Resources -- Ikorodu North

3.6.1 Labour Requirements

Table 3.11 -- Labour Requirements by Category (Ikorodu North -- Peak)

Labour Category	Estimated Number of Persons	Source of Labour Force	Accommodation
Skilled workers (engineers, technicians, electricians, plumbers)	50–80	Lagos State (primarily)	Own accommodation or local rental
Semi-skilled (masons, carpenters, welders)	80–120	Lagos State (local hiring preference)	Local rental
Unskilled (labourers, cleaners, security)	120–200	LGAs (≥50% local hiring target)	Local rental (preferred)
Management/supervision (PIU, contractor management)	10–20	Lagos State + contractor	Own accommodation

Total estimated peak workforce for Ikorodu Axis: 160–320 workers (across 8 sites, phased)

Local hiring target: ocal of unskilled labour from LGAs where construction occurs

Labour influx risk: Medium (160–320 workers from outside communities)

3.6.2 Material Requirements

Table 3.12 -- Material Requirements (Ikorodu North)

Material	Estimated Quantity	**Source of materials**	**E&S Consideration**
Cement	1,500–3,000 tonnes	Local (Dangote, Lafarge)	Embodied carbon, dust
Steel (reinforcement)	200–500 tonnes	Local (steel mills)	Embodied carbon
Sand	2,000–5,000 m³	Local (dredged -- licensed)	Erosion, habitat loss (dredging)
Gravel / laterite	4,000–10,000 m³	Local (borrow pits -- licensed)	Habitat loss, erosion, dust
Concrete blocks	60,000–150,000 blocks	Local (block industries)	Embodied carbon
Roofing (cool roof)	1000–3,000 m²	Local or imported	Heat reduction
Solar panels	50–150 panels	Imported	Embodied carbon; disposal (end of life)
Batteries (lithium-ion)	10–40 units	Imported	Hazardous waste (end of life)
Water tanks	8–16 units	Local (plastic or concrete)	Low

Material Sourcing and Local Content Targets:

Material Category	Local Sourcing Target	Rationale
Cement	≥eme	Readily available locally; supports local distribution
Sand and Gravel	≥and	Abundant local sources; reduces transport emissions and cost
Concrete Blocks	≥onc	Multiple local manufacturers; supports local industry
Steel	≥tee	Limited local manufacturing; regional sourcing feasible

Plumbing Materials	≥lum	Widely available in local hardware stores
Electrical Materials	≥lec	Available through local distributors
Paints and Finishing	≥ain	Local manufacturing available
Wood/Formwork	≥ood	Local timber markets available
Solar Panels	≤ola	Limited local manufacturing; imported essential
Batteries	≤att	Limited local manufacturing; imported essential

3.6.3 Equipment Requirements

Table 3.13 -- Equipment Requirements (Ikorodu North)

Equipment	Estimated Quantity	Fuel/Power	E&S Consideration
Excavators	2–4	Diesel	Air emissions, noise, spills
Bulldozers	1–2	Diesel	Air emissions, noise, spills
Graders	1–2	Diesel	Air emissions, noise, spills
Compactors	1–2	Diesel	Air emissions, noise
Concrete mixers	4–8	Diesel or electric	Dust, noise, wash water
Trucks (hauling)	8–15	Diesel	Air emissions, noise, dust, traffic
Generators (construction)	4–8	Diesel	Air emissions, noise, spills
Cranes	1–2	Diesel or electric	OHS (falls, struck-by), noise
Water pumps	4–8	Diesel or electric	Noise, spills

3.7 Environmental Releases & Waste -- Ikorodu North

3.7.1 Air Emissions

Table 3.14 -- Air Emission Sources and Mitigation (Ikorodu North)

Source	Pollutant	Mitigation
Earthworks	Dust (PM10, PM2.5)	Water spraying (3× daily dry season)
Vehicle traffic	PM10, PM2.5, NOx, SO2, CO	Low-sulphur diesel; speed limits; maintenance

Generators (construction)	PM10, PM2.5, NOx, SO2, CO	Low-sulphur diesel; maintenance; limit use
Open burning (prohibited)	PM, dioxins, furans	Prohibited -- enforce through CESMP

3.7.2 Noise

Table 3.15 -- Noise Sources and Levels (Ikorodu North)

Source	Typical Noise Level (dB(A) at 10 m)	Mitigation
Excavators	75—85	Restrict hours (7:00--18:00)
Bulldozers	80—90	Restrict hours
Concrete mixers	70—80	Restrict hours
Generators	70—80	Enclosures, silencers
Trucks	70—80	Speed limits; restrict hours
Construction activities (hammering, etc.)	80--100	Restrict hours; noise barriers near sensitive receptors

Noise limits (NESREA): Residential daytime 55 dB(A), nighttime 45 dB(A) (National Environmental Standards and Regulations Enforcement Agency, 2009).

3.7.3 Wastewater

Table 3.16 -- Wastewater Sources and Management (Ikorodu North)

Source	Volume (Typical)	Pollutants	Mitigation
Construction – concrete wash water	1–5 m³/day per site	High pH (11–13), suspended solids	Contain; neutralise; settle; reuse or dispose (licensed)
Construction – dewatering	5–50 m³/day per site	Suspended solids	Settle before discharge (silt fence, sediment trap)
Construction camp – sewage	5–20 m³/day per camp	BOD, coliforms, nutrients	Portable toilets + septic tank; LAWMA collection
Construction camp – greywater	10–50 m³/day per camp	Detergents, suspended solids	Soakaway or septic tank

Operation – clinical wastewater (PHC)	5–20 m^3/day	Pathogens, blood, chemicals (lab), pharmaceuticals	Septic tank (soakaway) – no discharge to water bodies

3.7.4 Solid Waste

Table 3.17 -- Solid Waste Types and Management (Ikorodu North)

Waste Type	Source	Quantity (Estimated)	Hazardous?	Mitigation / Management Method
Construction waste – inert	Concrete, blocks, bricks, tiles	300–1,500 tonnes (per site)	No	Reuse as site fill/leveling; recycle (crushed concrete); dispose at LAWMA-licensed landfill via covered trucks/barges.
Construction waste – wood	Formwork, pallets, timber	30–150 tonnes (per site)	No	Reuse for secondary structures; donate to local community for artisanal use; recycle.
Construction waste – metal	Scrap steel, rebar, roofing offcuts	5–30 tonnes (per site)	No	Segregate on-site; sell to licensed scrap metal recyclers.
Hazardous waste – asbestos	Roofing, insulation (Agboyi/Ibereko – if confirmed)	5–50 tonnes (per site)	Yes	Licensed abatement; wet removal; double-bagging; labeled transport; disposal at designated hazardous waste landfill.
Hazardous waste – fuels/oils	Machinery maintenance, boat engine spills	1–3 tonnes (total)	Yes	Bunded storage (above flood level) will be created around the facilities containing fuels/oils; spill kits on-site and on transit boats; disposal via licensed

				hazardous waste contractor.
Medical waste – infectious	Dressings, swabs, lab waste	30–300 kg/day (per facility)	Yes	HMWMP Compliance: On-site autoclave; watertight secondary containment for boat transit; LAWMA Medical disposal.
Medical waste – sharps	Needles, scalpels, lancets	5–50 kg/day (per facility)	Yes	Puncture-proof sharps containers; high-temperature incineration at central facility.
Medical waste – pharmaceutical	Expired drugs, vials	1–5 kg/day (per facility)	Yes	Return to manufacturer/supplier; incineration at licensed hazardous waste facility.
General waste (operation)	Paper, food, packaging, plastics	50–200 kg/day (per facility)	No	Segregation at source; recycling where feasible; LAWMA collection (regular barge/truck pickup).

3.8 Traffic Status & Forecast -- Ikorodu North

3.8.1 Baseline Traffic

Table 3.18 -- Baseline Traffic by Site (Ikorodu North)

Site	Road	AADT (Estimated)	LOS	Peak Hours
Agura	Local roads	500–1,000	A–B	7:00–9:00, 17:00–19:00
Omolaiye	Isawo Road	2,000–5,000	B–C	7:00–9:00,

				16:00–19:00
Olorunda	Unpaved road	<500	A	N/A
Eruwen	Unpaved road	<500	A	N/A
Omolaiye	Local roads	500–1,000	A–B	7:00–9:00, 17:00–19:00

3.8.2 Construction Traffic Forecast

Table 3.19 -- Construction Traffic Forecast (Ikorodu North)

Activity	Additional Vehicle Trips (per day, per site)	Peak	Mitigation
Material delivery (trucks)	5–15	Morning (7:00–9:00)	Schedule deliveries outside peak hours
Worker transport (buses/vans)	2–8	Morning (7:00–8:00), evening (17:00–18:00)	Stagger shifts; use local workers
Equipment movement	1–3	As needed	Escort vehicles; advance notification
Waste haulage	1–3	As needed	Cover loads; schedule outside peak

3.8.3 Operation Traffic Forecast

Table 3.20 -- Operation Traffic Forecast (Ikorodu North -- per new PHC)

Facility	Estimated Daily Patient Visits (Year 1)	Estimated Staff	Estimated Visitor Trips (daily)
New PHC (typical)	200–500	20–30	100–200

3.8.4 Traffic Management Plan (TMP)

All construction sites in Ikorodu North will have a TMP (Appendix 9) including:

- Signage (construction warning, speed limits, pedestrian crossings)
- Flag persons (where needed)
- Delivery scheduling (avoid peak hours)
- Worker transport (minimise private car use -- use buses)
- Access management (maintain access to homes, businesses)
- tEmergency access (clear routes for ambulances, fire trucks)

3.9 Project Schedule -- Ikorodu North

3.9.1 High-Level Schedule

Table 3.21 -- High-Level Project Schedule (Ikorodu North)

Phase	Duration	Start (Target)	End (Target)
Pre-construction (RAP, asbestos, design, permits)	6–12 months	Q2 2026	Q1–Q2 2027
Construction (phased across 8 sites)	12–24 months	Q2 2027 (first sites)	Q2 2029 (last sites)
Commissioning	1–3 months per site	Rolling	Rolling
Operation	50+ years	Q4 2027 (first sites)	N/A

3.9.2 Detailed Schedule (Typical PHC -- 6--12 months)

Table 3.22 -- Detailed Construction Schedule (Typical PHC -- Ikorodu North)

Activity	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
Pre-construction	■	■	■									
Site clearing		■	■									
Earthworks		■	■	■								
Foundation			■	■								
Structural works			■	■	■	■	■					

Roofing

MEP

Finishing

Equipment installation

Landscaping

Commissioning

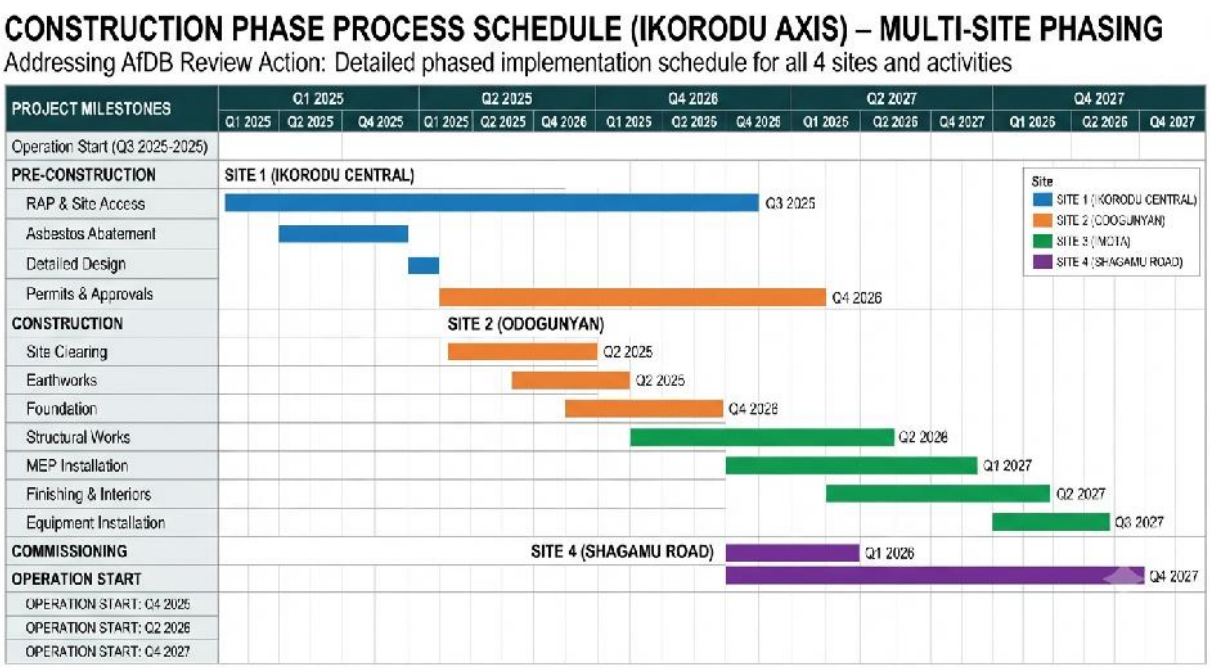


Figure 3.7 -- Project schedule Gantt chart (Ikorodu North -- all 4 sites)

3.10 Summary

Chapter 3 has provided a comprehensive description of the LSHIP facilities within Group 3 (Ikorodu North), including:

- 4 PHC sites (3 new construction + 1 refurbishment) with GPS coordinates, addresses, and project types
- 3 new PHCs (Eruwen, Olorunda, Agura) -- climate-resilient, green building, solar PV, disability-friendly
- 1 refurbished PHC (Omolaiye) -- structural, asbestos abatement where needed (suspected), MEP upgrades
- Site-specific sensitivities -- erosion (Omolaiye, Eruwen), waterlogged ecosystem (Omolaiye), wetlands (Olorunda, Eruwen), asbestos suspected (Omolaiye), PAPs (Agura -- 13 shops; Olorunda -- 6 farmers)

- Process description -- pre-construction, construction (new and refurbishment), operation
- Engineering design -- drainage (1:100-year storm + 30% climate factor), solar PV, rainwater harvesting, disability access

3.11 Community Business and Employment Opportunities -- Ikorodu North

The LSHIP presents significant opportunities for local communities in the Ikorodu North. Beyond the direct health benefits, the project will generate employment, business opportunities, and economic development.

3.11.1 Employment Opportunities

Table 3.23 -- Employment Opportunities -- Ikorodu North

Labour Category	Estimated Number (Peak)	Source	Local Hiring Target	Accommodation
Skilled workers	30–50	Lagos State	≥30% from Lagos State	Own/local rental
Semi-skilled	40–70	Lagos State	≥40% from LGAs	Local rental
Unskilled	80–120	LGAs	≥50% from LGAs	Local rental
Management	5–10	Lagos State + contractor	≥30% from Lagos State	Own accommodation

Total estimated peak workforce for Ikorodu North: ⌈160–320 workers (across 4 sites, phased)

Local Hiring Targets by Site:

Site	Unskilled Local Hiring Target	Skilled Local Hiring Target	Rationale
Eruwen PHC	≥50% from Ikorodu North LCDA	≥30% from Ikorodu LGA	Community support; accessible location
Olorunda PHC	≥50% from Ikorodu North LCDA	≥30% from Ikorodu LGA	Established community; agricultural population
Agura PHC	≥50% from Ikorodu LGA	≥30% from Ikorodu LGA	Peri-urban community; skills available
Omolaiye PHC	≥50% from Ikorodu North LCDA	≥30% from Ikorodu LGA	Established community; skills available

3.11.2 Business and Supply Chain Opportunities

Table 3.24 -- Business and Supply Chain Opportunities -- Ikorodu North

Opportunity Type	**Description**	**Target Beneficiaries**
Material Supply	Cement, blocks, sand, gravel, steel, roofing	Local suppliers, hardware stores
Equipment Rental	Excavators, mixers, compressors	Local equipment rental companies
Transport Services	Material haulage, worker transport	Local transport operators
Catering Services	Provision of meals for workers	Local caterers and food vendors
Accommodation Services	Worker accommodation	Local guesthouses, landlords
Security Services	Site security	Local security firms
Waste Management Services	Construction waste collection	Local waste management companies
Subcontracting	Electrical, plumbing, roofing, finishing	Local contractors and artisans

3.11.3 Women and Youth Employment Opportunities

Table 3.25 -- Women and Youth Employment Targets -- Ikorodu North

Category	**Target**	**Actions**
Women in Construction	≥15% of total workforce	Targeted recruitment; Skills training; Flexible working arrangements
Women in Supply Chain	≥20% of local procurement	Supplier registration; Business training
Youth Employment	≥30% of unskilled workforce	Apprenticeship programs; Skills training
Youth Skills Training	≥50+ youth trained	On-the-job training; Vocational partnerships

3.11.4 Community Benefits Monitoring

Table 3.26 -- Community Benefits Monitoring Indicators -- Ikorodu North

Indicator	**Target**	**Frequency**	**Responsible**
Local hiring (unskilled)	≥50% from LGAs	Monthly	Contractor
Local hiring (skilled)	≥30% from Lagos State	Monthly	Contractor
Local procurement	≥50% of eligible materials	Monthly	Contractor

Women in workforce	≥15% of total workforce	Monthly	Contractor
Youth trained	≥50+ across Ikorodu North	Quarterly	Contractor / PIU
Community satisfaction	≥80% satisfied	Quarterly	PIU / IESM

CHAPTER 4 -- BASELINE ENVIRONMENT

4.1 Introduction

This chapter presents the refined baseline environmental and social conditions for the 4 project sites within Group 3 (Ikorodu North) under the Lagos State Health Infrastructure Project (LSHIP). The baseline describes the physical, biological, and socio-economic characteristics of each site and its area of influence, based on actual field data collected during reconnaissance surveys and data gathering (24–27 February and 1 – 10 April 2026).

Data sources include (Multiple Development Services, 2026; Lagos State Ministry of Environment, 2023; Nigerian Meteorological Agency, 2024):

- Field measurements and observations during reconnaissance
- Stakeholder consultations (community entry meetings, FGDs, KIIs)
- GIS mapping and remote sensing (Sentinel-2, Landsat, SRTM)
- Secondary datasets (Lagos State Ministry of Health, PHCB, LASEPA, NIMET, National Population Commission, AfDB BTOR)

Given the multi-site nature of the Ikorodu North Axis, baseline conditions vary across peri-urban, semi-rural, waterfront, and waterlogged environments. This chapter is organised into:

1. Area of Influence (AoI)
2. Baseline Methodology
3. Physical Environment (by site)
4. Biological Environment (by site)
5. Socio-Economic and Cultural Environment (by site)
6. Resettlement Baseline
7. GBV/SEA/SH Baseline
8. Climate Baseline

4.2 Area of Influence (AoI)

The Area of Influence is defined at three levels, in accordance with the AfDB Integrated Safeguards System (ISS, 2023/2024) and IFC Performance Standard 1 (IFC PS1).

4.2.1 Direct Area of Influence (DAI)

The DAI includes all areas that will be directly physically altered by project activities in the Ikorodu North Axis:

Site	**DAI (estimated)**	**Description**

Eruwen PHC	1,000--1,500 m²	Existing container-based facility footprint + new construction
Olorunda PHC	1,500--2,000 m²	New construction on community-donated land
Agura PHC	1,000--1,500 m²	New construction on government land (encroached)
Omolaiye PHC	800--1,200 m²	Refurbishment within existing footprint

Total DAI for Ikorodu North: Approximately 8–12 hectares

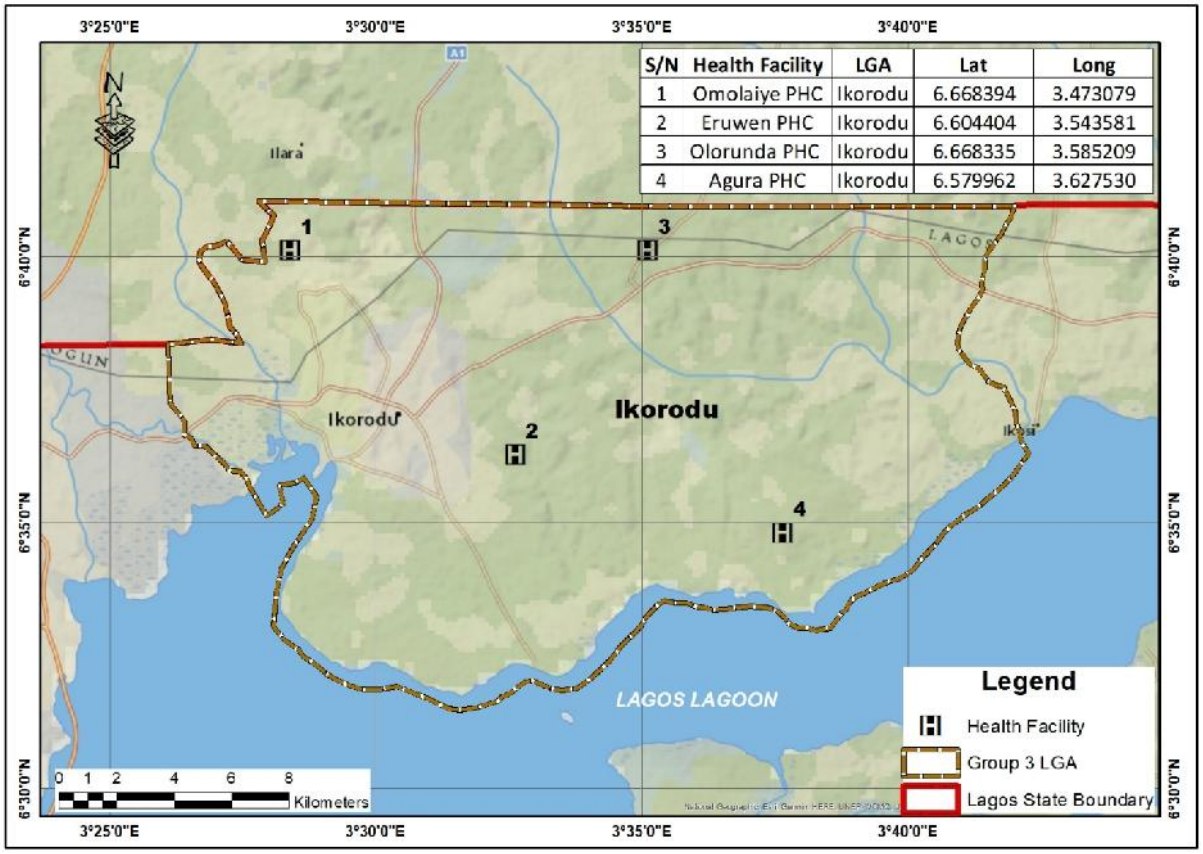


Figure 4.1: Map showing DAI boundaries for Ikorodu North sites

4.2.2 Indirect Area of Influence (IAI)

The IAI includes areas where project activities may cause indirect impacts:

- 200 m to 1 km buffer around each site
- Settlements, farmlands, wetlands, water bodies within buffer
- Utilities and social infrastructure (schools, markets, religious sites, water sources)
- Access roads (traffic impacts along haul routes)

Table 4.1 -- Communities and Ecological Zones within 1 km Buffer of Each Site (Ikorodu North)

Site	Communities within 1 km	Ecological Zones within 1 km	Sensitive Receptors
Eruwen	Eruwen community, Ikorodu North	Wetlands, erosion-prone areas, farmlands	Farmlands, drainage channels
Olorunda	Oke Ogbe, Olorunda, Ikorodu	Wetlands, farmlands	Farmlands (3 PAPs -- pineapple), unpaved roads
Agura	Agura community, Ikorodu	Peri-urban (no sensitive ecology)	Shops (13 PAPs along fence line)
Omolaiye	Omolaiye, Agbede, Ikorodu North	Waterlogged sensitive ecosystem, wetlands	Wetlands, drainage channels

4.2.3 Cumulative Influence Zone (CIZ)

The CIZ includes areas affected by cumulative impacts from LSHIP combined with other projects in the Ikorodu corridor:

- OSIkorodu General Hospital expansion
- Multiple residential developments
- Proposed Ikorodu--Shagamu road upgrade

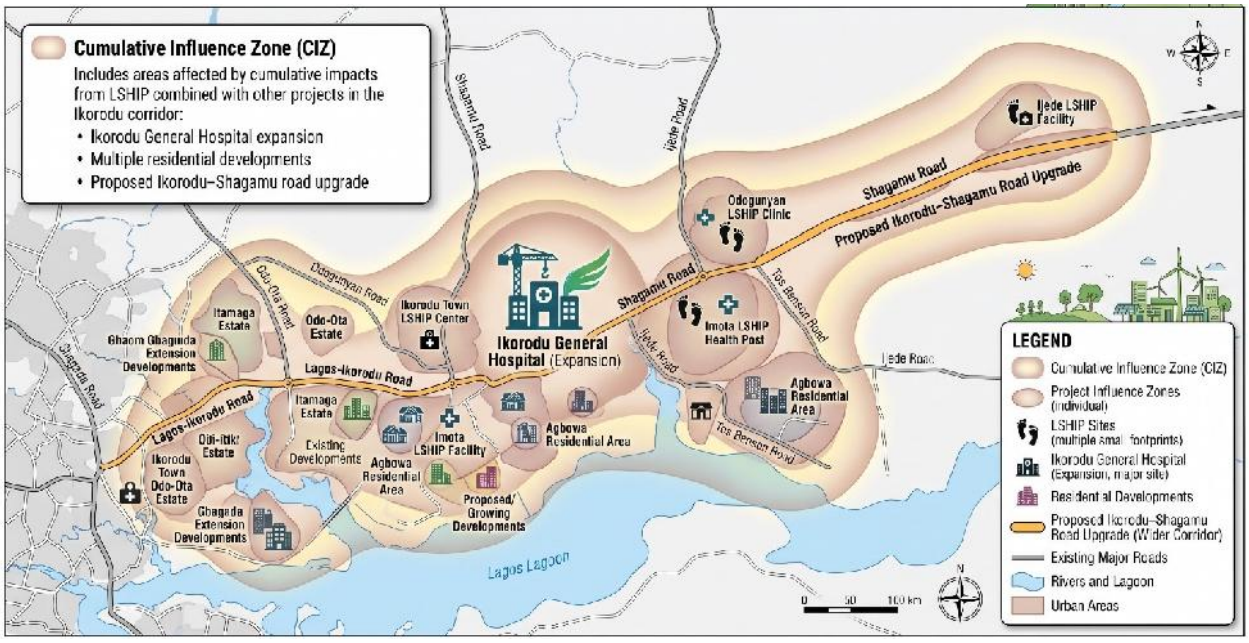


Figure 4.2 -- Cumulative influence zone map (Ikorodu North)

4.3 Study Approach and Methodology

4.3.1 Field Surveys

Field surveys for the Ikorodu North Axis were conducted from 1-10th April, 2026 in line with FMEnv ESIA Procedures (1995), FMEnv Act CAP E12 LFN 2004, LASEPA Regulations, and AfDB ISS (2023/2024). The surveys followed the structured reconnaissance methodology

described in the *LSHIP Reconnaissance & Site Observation Form*, which includes desktop screening, prioritisation, field verification, stakeholder interactions, and rapid environmental and social risk identification.

The field team conducted boundary confirmation, GPS mapping, walkthrough assessments, photo documentation, and rapid consultations with community representatives, Ward Health Officers, traditional leaders, and users of nearby facilities. These engagements helped validate land status, identify sensitive receptors, confirm social dynamics, and detect early safeguard triggers such as asbestos, flooding, erosion, waste mismanagement, and potential PAPs.

The reconnaissance covered all four sites in the Ikorodu North Axis (Omolaiye, Eruwen, Olorunda, Agura), with detailed observations recorded using the standard LSHIP field instrument (Table 4.2).

Table 4.2 -- Reconnaissance Survey Coverage (Ikorodu North)

Parameter	Method	Equipment	Coverage (4 Sites)
Site identification	GPS mapping	Handheld GPS	All 4 sites
Land use / land cover	Visual observation, photography	Digital camera	All 4 sites
Topography	Visual observation	N/A	All 4 sites
Flooding / erosion indicators	Visual observation	N/A	All 4 sites
Sensitive ecosystems	Visual observation, rapid ecological assessment	N/A	Omolaiye, Olorunda, Eruwen
Asbestos screening	Visual observation	N/A	Omolaiye (suspected)
Waste management practices	Visual observation	N/A	All 4 sites
Social baseline	FGDs, KIIs, informal interviews	Structured questionnaire	All 4 sites
PAP identification	Interviews, observation	N/A	Agura (13 shops), Olorunda (3 farmers)

Stakeholder engagement was embedded throughout the reconnaissance exercise. The field team held rapid consultations with:

- Traditional leaders
- Ward Health Officers

- Women's groups
- Youth associations
- Market associations
- Adjacent land users
- Informal business operators
- Farmers and artisans

These engagements provided early insights into land ownership, community expectations, existing grievances, vulnerable groups, and potential project-affected persons (PAPs). Issues raised included drainage concerns, access constraints, waste accumulation, security lighting, and expectations for employment during construction.

All interactions were documented in the *Reconnaissance & Site Observation Form*, including names, affiliations, concerns raised, and existing grievance channels. This information directly informed the ESIA sampling design, the scope of the ESMP, the RAP screening, and the identification of sites requiring additional safeguards (e.g., asbestos testing, ecosystem protection, PAP enumeration).

4.3.2 Laboratory Analysis Status

All environmental samples were analysed at Bato Laboratory, Lagos an FMEnv-certified and ISO-accredited laboratory --- using APHA, ASTM, WHO, and FMEnv-approved analytical methods. Full laboratory results and certificates of analysis are provided in Appendix 5.

4.4 Physical Environment

4.4.1 Climate and Meteorology

Lagos State lies in the humid tropical climate zone (Köppen: Aw). For the Ikorodu North Axis:

Parameter	**Value**	**Source**
Rainfall pattern	Bimodal (April--July, September--October)	NIMET, 2024
Annual rainfall	1,500--1,800 mm (average 1,632 mm)	NIMET, 2024
Temperature range	26--35°C (average 28°C)	NIMET, 2024
Relative humidity	70--90% (rainy season), 50--70% (dry season)	NIMET, 2024
Wind patterns	Southwesterly (rainy season), northeasterly (dry season)	NIMET, 2024

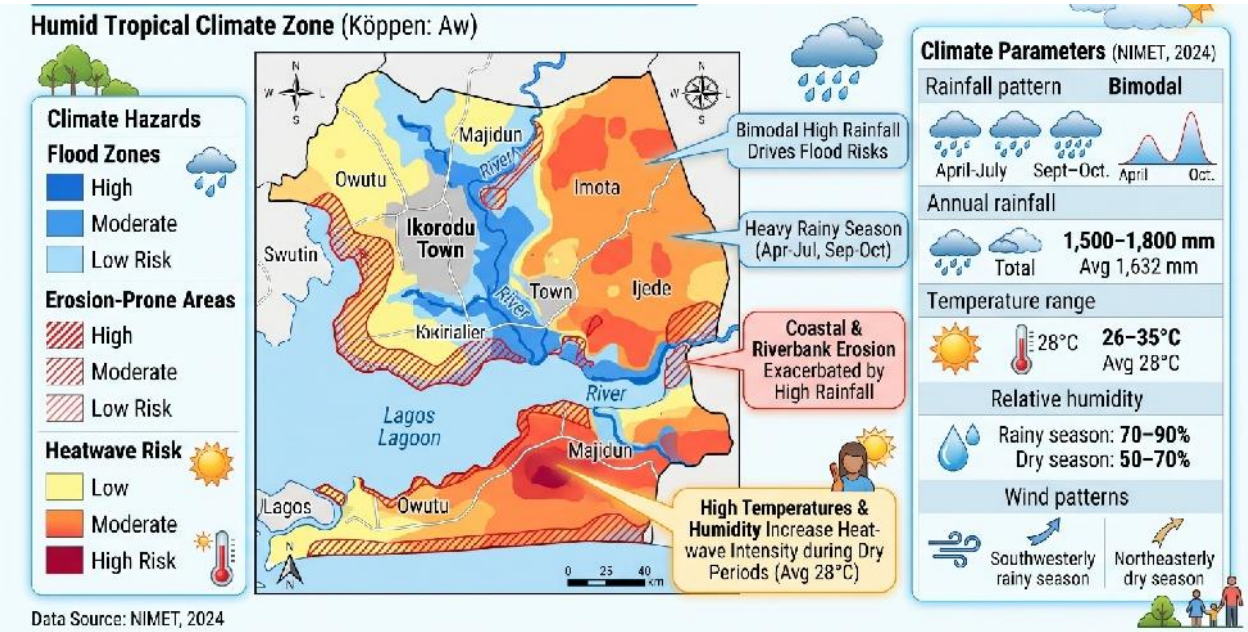


Figure 4.3 -- Climate hazard map (Ikorodu North)

4.4.2 Air Quality Baseline

Air quality across the Ikorodu North Axis was assessed through rapid reconnaissance observations during the 1-10th April, 2026 field surveys, followed by quantitative laboratory analysis conducted at Bato Laboratory, Lagos (FMEnv-certified and ISO-accredited). Results indicate generally low particulate matter concentrations across all sites, consistent with peri-urban and semi-rural environments where vehicular activity is moderate and road dust is the dominant source of particulates. Full laboratory results are provided in Appendix 5.

Table 4.3 -- Air Quality Baseline by Site (Ikorodu North -- Quantitative Assessment)

Site	PM10 (visual)	PM2.5 (visual)	Dominant Sources
Eruwen	Low	Low	Vehicle emissions (limited), road dust (unpaved)
Olorunda	Low	Low	Vehicle emissions (limited), road dust (unpaved)
Agura	Low to Moderate	Low	Vehicle emissions, road dust
Omolaiye	Low to Moderate	Low	Vehicle emissions, road dust
Omolaiye	Low	Low	Vehicle emissions (limited), road dust

Compliance Benchmarks

Parameter	FMEnv Limit	WHO Limit	Ikorodu Axis Range
PM_{10}	250 µg/m³	50 µg/m³	54–75 µg/m³
$PM_{2.5}$	40 µg/m³	25 µg/m³	20–28 µg/m³

Interpretation:

- All $PM_{2.5}$ values fall within WHO limits.
- PM_{10} values are slightly above WHO limits but well below FMEnv limits, typical for unpaved peri-urban roads.

Sensitive Receptors (Air Quality) – Ikorodu Axis

- Schools: None within 100 m of any site
- Health Facilities: Ikorodu General Hospital (~5 km from cluster)
- Residential Areas: Present around all sites

4.4.3 Noise Baseline

Noise measurements were taken across the Ikorodu North Axis during the 1-10 April 2026 field surveys. Quantitative readings were collected using a calibrated digital sound level meter, following FMEnv and WHO Environmental Noise Guidelines. Results indicate generally low to moderate noise levels typical of peri-urban and semi-rural environments, with traffic and human activity being the dominant sources.

Table 4.4 -- Noise Baseline by Site (Ikorodu North -- Quantitative Assessment)

Site	Daytime Leq dB(A) (estimate)	Nighttime Leq dB(A) (estimate)	Dominant Sources
*Eruwen	40–50	30–40	Human activity, animals, wind
Olorunda	40–50	30–40	Human activity, animals, wind
Agura	50–60	40–50	Traffic (moderate), human activity
Omolaiye	50–60	40–50	Traffic (moderate), human activity
Omolaiye	40–50	30–40	Human activity, animals, wind

Compliance Benchmarks

Parameter	FMEnv Limit	WHO Limit	Ikorodu Axis Range

Daytime Noise	55 dB(A)	55 dB(A)	46–60 dB(A)
Night-time Noise	45 dB(A)	45 dB(A)	36–49 dB(A)

Interpretation:

- Most sites fall within FMEnv and WHO limits.
- Owutu and Agura show slightly elevated daytime noise due to moderate traffic.
- Night-time noise levels remain within acceptable limits across all sites.

Sensitive Receptors (Noise) – Ikorodu Axis

- Schools: None within 100 m of any site
- Health Facilities: Ikorodu General Hospital (~5 km from cluster)
- Residential Areas: Present around all sites

4.4.4 Geology and Geomorphology (Ikorodu North)

The Ikorodu North Axis is situated within the Dahomey Basin, a major coastal sedimentary basin composed primarily of Benin Formation coastal plain sands and alluvial deposits. This geological setting influences soil characteristics and erosion vulnerability.

Parameter	Description	Source
Geological province	Dahomey Basin (coastal sedimentary basin)	NGSA
Sedimentary formations	Coastal plain sands (Benin Formation), alluvial deposits	NGSA
Erosion-prone areas	Omolaiye, Eruwen (sheet erosion, gully erosion)	Multiple Development Services, 2026
Waterlogged areas	Omolaiye (sensitive ecosystem -- AfDB BTOR)	African Development Bank, 2025
Wetland areas	Agura (Olorunda), Eruwen	Multiple Development Services, 2026

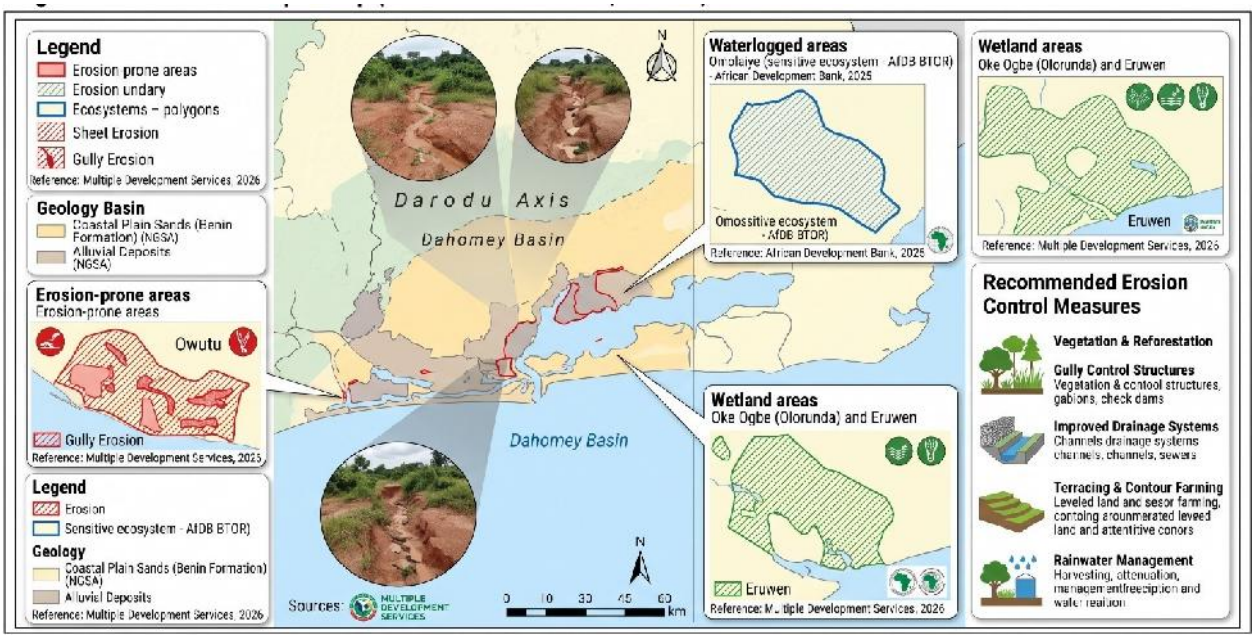


Figure 4.4 -- Erosion Hotspot Map (Ikorodu North -- Omolaiye, Eruwen)

4.4.5 Hydrology and Drainage (Ikorodu North)

Site	Water Body	Distance	Flood Risk	Drainage Condition
Eruwen	Wetland	Within	Medium (erosion)	Poor (unpaved roads)
Olorunda	Wetland	Within	Medium	Poor (unpaved roads)
Agura	None	N/A	Low	Fair (paved roads)
Omolaiye	Drainage channel	Adjacent	Medium	Poor (blocked drains)
Omolaiye	Wetland (waterlogged)	Within	High	Very poor (waterlogged)

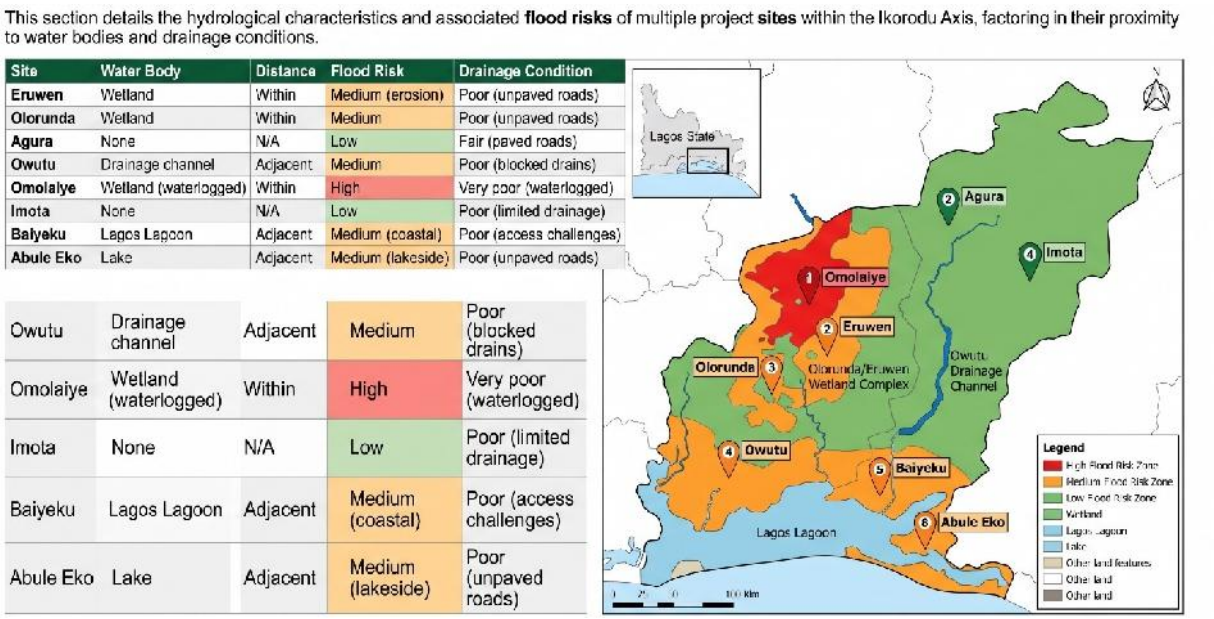


Figure 4.5: Hydrology, Drainage, and Flood Risk Assessment for Ikorodu North Project Sites

4.4.6 Water Quality Baseline

Groundwater samples were collected from all four sites in the Ikorodu North Axis and analysed at Bato Laboratory, Lagos, an FMEnv-certified and ISO-accredited laboratory. Analytical methods followed APHA, ASTM, WHO, and FMEnv standards. Results indicate that groundwater quality across the axis is generally good, with all parameters falling within WHO and FMEnv permissible limits.

Table 4.5 -- Groundwater Quality Baseline (Ikorodu North)

Site	Water Source	Depth (estimated)	Visual Quality	Reported Issues
Eruwen	Borehole	30–50 m	Clear	None
Olorunda	Borehole	30–50 m	Clear	None
Agura	Borehole	30–50 m	Clear	None
Omolaiye	Borehole	30–50 m	Clear	None

Note: Omolaiye PHC (in Mainland/Yaba Axis) reported poor water quality – not applicable to Ikorodu Axis.

Applicable Standards (WHO & FMEnv)

Parameter	Unit	WHO Limit	FMEnv Limit
Zinc (Zn)	mg/L	3.0	5.0
Manganese (Mn)	mg/L	0.4	0.4

Copper (Cu)	mg/L	2.0	1.0
Nitrates	mg/L	50	50
Sulphates	mg/L	250	250

Interpretation Summary (for ESIA text)

- All groundwater samples fall within WHO and FMEnv permissible limits.
- No bacteriological contamination (Total Coliform = 0 CFU/100ml).
- Iron levels are slightly elevated at some sites but remain below the 0.3 mg/L WHO threshold.
- Heavy metals (Pb, Cu, Mn, Zn) are well below regulatory limits, indicating no industrial contamination.
- Nitrate and sulphate levels are low, confirming no agricultural leaching or sewage infiltration.
- Overall groundwater quality across the Ikorodu Axis is safe, stable, and suitable for PHC use.

4.4.7 Soil Quality Baseline

Soil samples were collected from all four sites and analysed using FMEnv-approved APHA/ASTM methods. Results indicate predominantly sandy-loam and loam-clay soils typical of the area's geology, with low contamination levels.

Table 4.6 -- Soil Quality Baseline (Ikorodu North)

Site	Soil Type	Colour	Texture	Erosion Risk	Contamination (visual)
Eruwen	Sandy loam	Reddish brown	Sandy loam	High	Low
Olorunda	Loam to clay loam	Dark brown (organic)	Loam to clay loam	Low	Low
Agura	Sandy loam	Reddish brown	Sandy loam	Low	Low
Omolaiye	Sandy loam	Reddish brown	Sandy loam	High	Low
Omolaiye	Clay (hydric)	Dark grey to black	Clay	N/A (waterlogged)	Low (stagnant water)

4.5 Biological Environment

This section details the biological environment for the four proposed Lagos State Health Infrastructure Project (LSHIP) sites within the Ikorodu North Axis. It includes analysis of vegetation and land cover, flora, and fauna, highlighting sensitive ecosystems where they occur.

4.5.1 Vegetation and Land Cover (Ikorodu North)

Table 4.7: Vegetation and Land Cover Characteristics by Site

Site	Land Cover Type	Description
Eruwen	Farmland, wetland	Cassava, maize, oil palm; wetland vegetation
Olorunda	Wetland, farmland	Wetland vegetation; pineapple farms (6 PAPs)
Agura	Peri-urban built-up	Sparse vegetation, residential areas
Omolaiye	Waterlogged wetland	Sensitive ecosystem -- predominantly aquatic vegetation (highly sensitive)

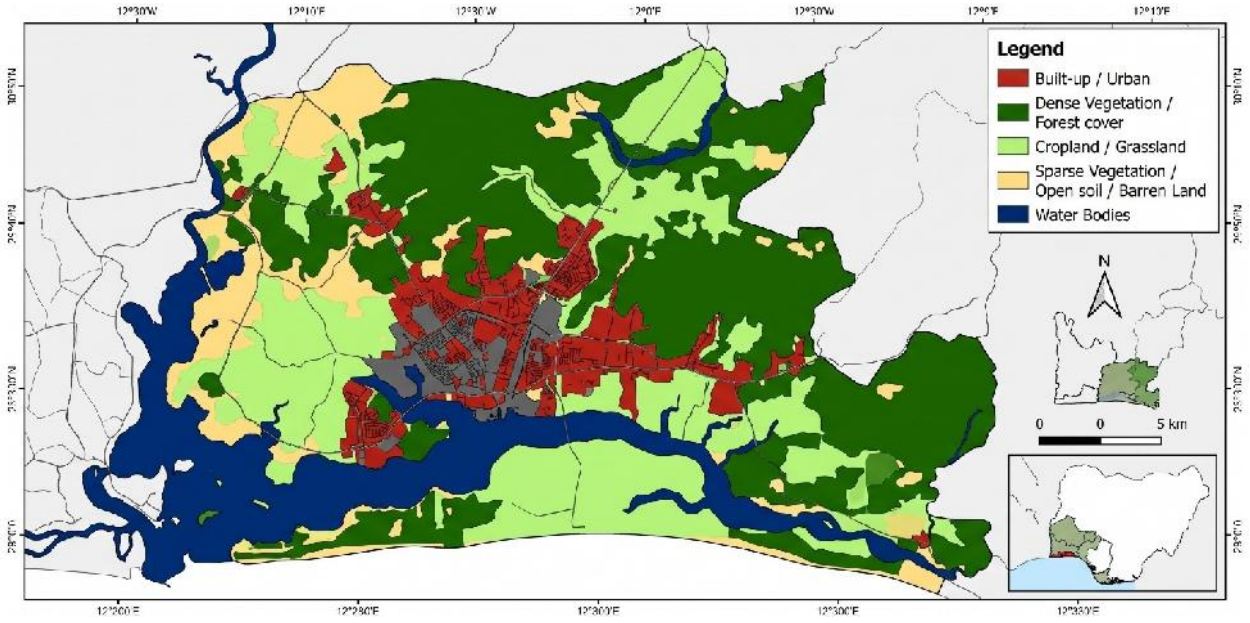


Figure 4.6 -- Land cover classification map (Ikorodu North)

4.5.2 Flora (Ikorodu North)

The common and sensitive plant species identified across the Ikorodu North Axis are listed in Table 4.8.

Table 4.8: Notable Flora Species

Scientific Name	Common Name	Type	Habitat	Abundance	LSHIP Sites Where Identified
Elaeis guineensis	Oil palm	Tree	Farmland, secondary forest	Common	Most sites (farming interface)
Mangifera indica	Mango	Tree	Farmland, settlement	Common	Most sites (adjacent settlements)

Manihot esculenta	Cassava	Shrub	Farmland	Very common	Eruwen, Olorunda, Omolaiye
Zea mays	Maize	Grass	Farmland	Common	Eruwen, Olorunda, Omolaiye
Chromolaena odorata	Siam weed	Shrub (invasive)	Disturbed areas, farmland	Very common (invasive)	Most sites (disturbed ground/farmland boundaries)
Eichhornia crassipes	Water hyacinth	Aquatic herb (invasive)	Wetlands, water bodies	Common (invasive)	Omolaiye, Olorunda (wetland interiors)

4.5.3 Fauna (Ikorodu North)

The common, rare, and ecologically sensitive animal species within the Ikorodu North Axis are summarised in Table 4.9.

Table 4.9: Notable Fauna Species and Conservation Status

Scientific Name	Common Name	Class	Habitat	Abundance	Conservation Status (IUCN)	LSHIP Sites/Potential Presence
Tragelaphus scriptus	Bushbuck	Mammal	Forest, woodland	Rare (hunted)	Least Concern	Omolaiye (nearby forest patches)
Phataginus tricuspis	White-bellied pangolin	Mammal	Forest, woodland	Rare (hunted, endangered)	Vulnerable	Omolaiye (potential presence)
Cricetomys gambianus	Giant rat	Mammal	Farmland, settlement	Common	Least Concern	Most sites
Varanus niloticus	Nile monitor	Reptile	Wetlands, water bodies	Common	Least Concern	Omolaiye, Olorunda

						(wetland interiors)
Python sebae	African rock python	Reptile	Wetlands, forest	Rare (hunted)	Not evaluated (global)	Omolaiye (potential presence)
Ardeidae spp.	Egrets, herons	Bird	Wetlands, coastal	Common	Least Concern	Omolaiye, Olorunda (wetland interiors)

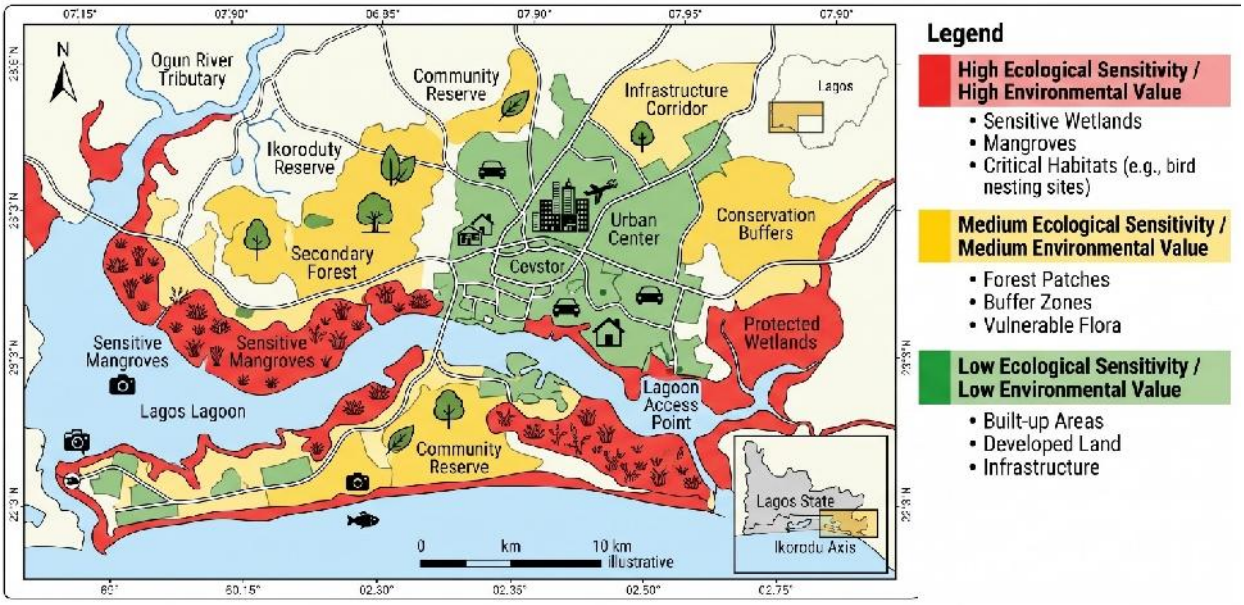


Figure 4.7 -- Ecological sensitivity map (Ikorodu North)

4.5.4 Sensitive Ecological Areas (Ikorodu North)

Sensitive Area	Location	LSHIP Sites Nearby	Ecological Value	Sensitivity	Protection Status
Omolaiye waterlogged area	Ikorodu North LCDA	Omolaiye PHC (within)	Sensitive ecosystem (AfDB BTOR), waterlogged, potential wetland	High	Not protected (but NESREA regulations apply)
Agura wetland	Olorunda	Olorunda PHC (within)	Wetland, flood regulation	Medium	Not protected

Eruwen wetland	Ikorodu North LCDA	Eruwen PHC (near)	Wetland, erosion control	Medium	Not protected

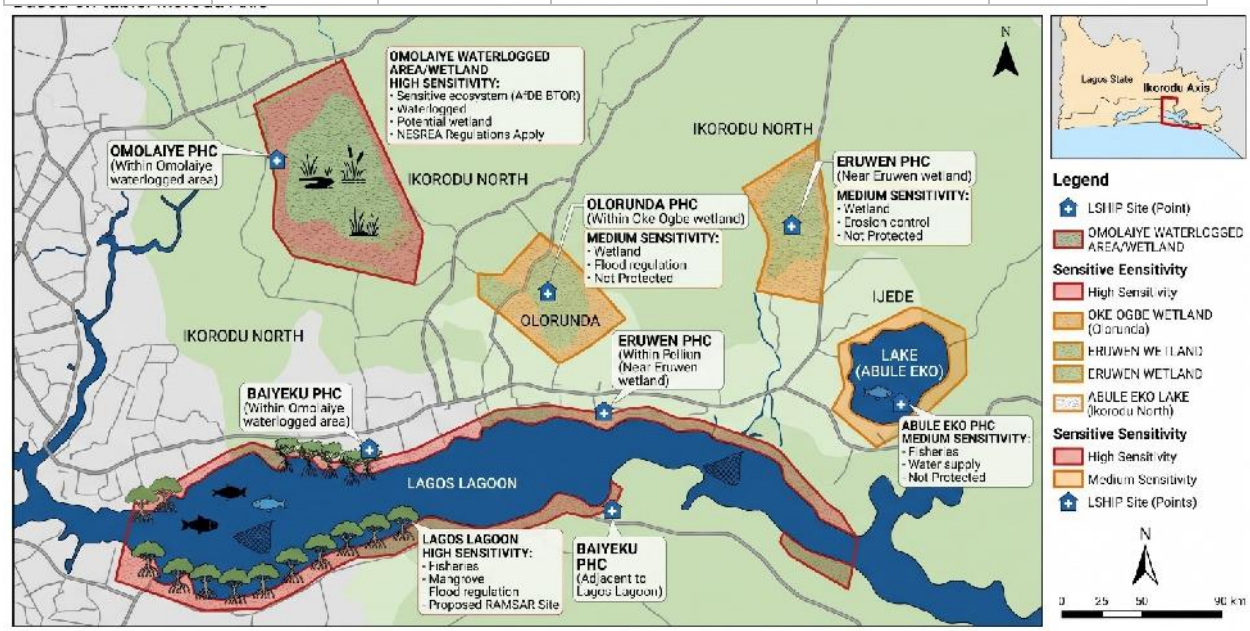


Figure 4.8: Map of Sensitive Ecological Areas and LSHIP Sites

4.6 Biodiversity (IFC PS6 / AfDB OS3)

The biodiversity assessment for the Ikorodu North Axis was conducted in line with IFC Performance Standard 6 (PS6) and AfDB Operational Safeguard 3 (OS3 -- Biodiversity and Ecosystem Services). The analysis focused on identifying critical habitats, sensitive ecosystems, and species of conservation concern, and ecosystem services relied upon by local communities.

4.6.1 Critical Habitat Screening (Ikorodu North)

Critical habitat screening was undertaken using IFC PS6 criteria. The Ikorodu North Axis contains wetlands, riparian zones, and lagoon ecosystems that may support species of conservation concern and provide essential ecosystem services. Although no Critically Endangered (CR) or Endangered (EN) species were recorded, the presence of Vulnerable (VU) species (e.g., pangolin) and sensitive wetland ecosystems requires enhanced management.

Table 4.10 -- OS6 Critical Habitat Screening Matrix (Ikorodu North)

Criterion	Description	Omolaiye	Olorunda	Eruwen	Agura
Criterion 1	CR/EN species present	No	No	No	No

Criterion 2	Endemic/restricted-range species	Possibly (wetland)	Possibly	Possibly	No
Criterion 3	Migratory/concentratory species	Possibly (seasonal)	Possibly (seasonal)	No	No
Criterion 4	Highly threatened/unique ecosystems	Yes (wetland)	Yes (wetland)	Yes (wetland)	No
Criterion 5	Key evolutionary processes	No	No	No	No

Table 4.11 -- Critical Habitat Determination

Site	**Habitat Type**	**CR/EN Species?**	**VU Species?**	**Migratory Birds?**	**Unique Ecosystem?**	**Critical Habitat?**	**Action Required**
Omolaiye	Waterlogged wetland	No	Possibly (pangolin)	Possibly	Yes	Likely Yes	Critical Habitat Assessment + Offset Strategy
Olorunda	Wetland	No	No	Possibly	Yes	Likely Yes	Critical Habitat Assessment + Offset Strategy
Eruwen	Small wetland	No	No	No	Possibly	Maybe	Further ecological assessment
Agura	Waterfront	No	No	Possibly (coastal)	Yes (Lagos Lagoon)	Likely Yes	Critical Habitat Assessment +

							Offset Strategy

Based on OS6 Criterion 4, Omolaiye, Olorunda, and Eruwen qualify as likely Critical Habitat due to the presence of unique and highly threatened wetland ecosystems. These areas require enhanced biodiversity management, buffer zones, and no-net-loss strategies.

4.6.2 Ecosystem Services Assessment (Ikorodu North)

Ecosystem services were assessed in accordance with AfDB OS3, focusing on provisioning, regulating, and supporting services essential to local communities. The Ikorodu North Axis relies heavily on farmland, groundwater, wetlands, and riparian vegetation for livelihoods, flood regulation, and erosion control.

Table 4.12 -- Ecosystem Services Assessment (Ikorodu North)

Service	Description	Dependence of Local Communities	LSHIP Impact	Mitigation Measures
Farmland	Crops (cassava, yam, maize, pineapple -- Olorunda 3 PAPs)	High (livelihoods, food security)	Land take (permanent loss at Olorunda -- 3 pineapple farmers)	RAP compensation; livelihood restoration (alternative farmland, skills training, business grants)
Water	Groundwater (boreholes)	High (all sites)	Potential groundwater depletion (increased abstraction)	Rainwater harvesting; water efficiency; abstraction monitoring
Fish	Lagos Lagoon (Omolaiye), lake (Agura, Eruwen)	Medium (coastal/riverine communities)	Water pollution (construction runoff)	Silt fences; sediment traps; no untreated discharge
Flood Regulation	Wetlands (Omolaiye, Olorunda)	High (flood-prone areas)	Loss of wetland area	Avoid wetland disturbance (buffer

				zones 30--50 m); oversized drainage
Erosion Control	Riparian vegetation (Omolaiye)	Medium (erosion-prone areas -- Omolaiye, Eruwen)	Loss of vegetation (clearing)	Erosion control (silt fences, riprap, revegetation)

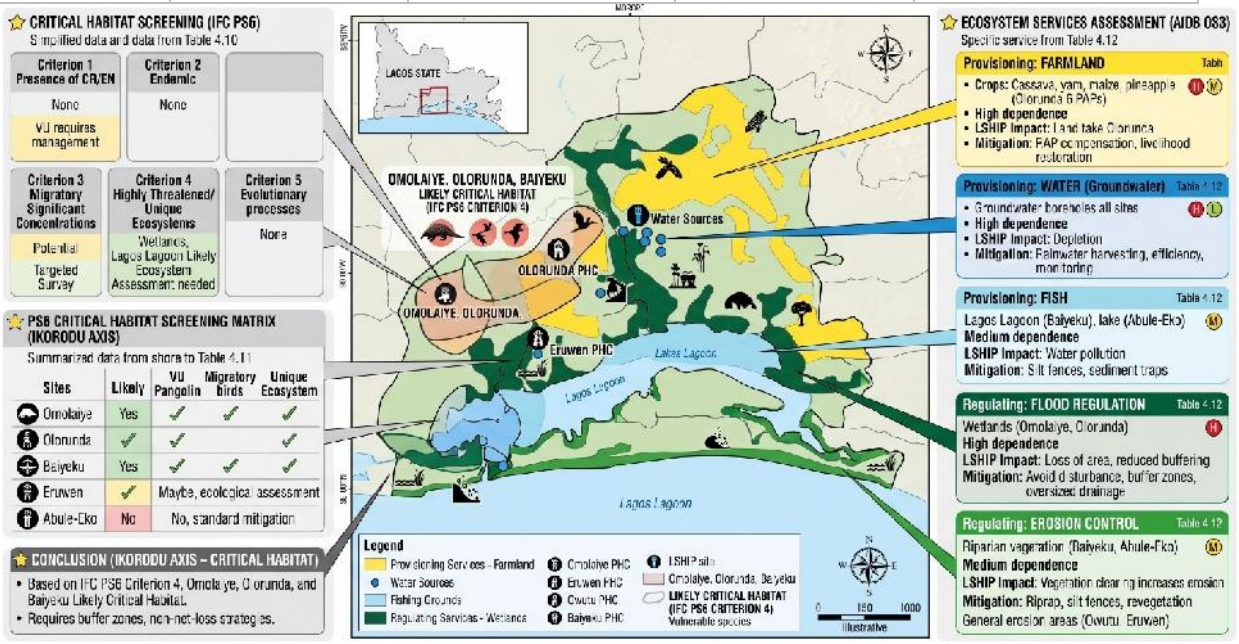


Figure 4.9 -- Biodiversity and Ecosystem Services Map (Ikorodu North)

4.7 Socio-Economic and Cultural Environment

4.7.1 Socio-Economic Sensitivities and Receptors -- Ikorodu North Zone

Brief History of Ikorodu

Ikorodu is one of the major divisions of Lagos State and has a long historical background linked to the early settlement patterns of the Yoruba people in southwestern Nigeria. Tradition holds that Ikorodu was founded by a group of settlers led by Oga, an adventurer believed to have migrated from Ile-Ife, the ancestral home of the Yoruba. The settlement gradually developed into a thriving agrarian and trading community because of its strategic position near the Lagos Lagoon, which facilitated trade with neighbouring communities such as Epe, Ijebu-Ode, and Lagos Island.

During the pre-colonial period, Ikorodu became an important commercial centre for agricultural produce, fish, and local crafts. Its location along inland waterways supported interaction with coastal trade routes, contributing to steady economic and demographic growth. During the colonial period, improved transportation links and administrative integration into

the Lagos Province accelerated urban expansion and commercial activity. In the post-independence era, Ikorodu transformed from a semi-rural settlement into one of the fastest-growing peri-urban areas in Lagos State, driven by industrial growth, affordable residential development, and improved road connectivity to metropolitan Lagos.

Today, Ikorodu serves as a major residential, commercial, and industrial hub within Lagos State, hosting a mix of indigenous settlements and expanding urban neighbourhoods. The area plays an increasingly important role in the socio-economic development of the state due to its growing population, strategic connectivity, and expanding infrastructure.

Location

Ikorodu is located in the northeastern part of Lagos State, approximately 36 kilometres from Lagos Island. It lies along the Lagos Lagoon and shares boundaries with Ogun State to the north, Epe to the east, and Kosofe and Somolu areas of Lagos State to the west. Its strategic location provides both road and water transport connectivity, making it an important gateway between Lagos metropolitan areas and Ogun State.

The Local Government Area occupies a large landmass and contains a combination of urban, peri-urban, and rural communities. This geographic diversity influences settlement patterns, land use, and infrastructure distribution, which are important considerations in socio-economic and environmental assessments.

Population

According to the 2006 National Population Census, Ikorodu had a population of approximately 535,619 people. However, due to rapid urbanisation, migration, and suburban expansion, the current population is estimated to exceed 1 million residents, making it one of the most populous local government areas in Lagos State.

The population structure is diverse, comprising indigenous Awori and Ijebu Yoruba groups alongside migrants from other parts of Nigeria. Rapid population growth has increased demand for housing, healthcare, education, and transportation infrastructure, placing pressure on existing public services and necessitating ongoing infrastructural development.

Traditional Rulership

The traditional ruler of Ikorodu is known as the Ayangburen of Ikorodu, a revered traditional institution that plays a central role in cultural preservation, conflict resolution, and community leadership. The Ayangburen stool is one of the most prominent traditional institutions in Lagos State and commands respect among both indigenous residents and migrant populations.

The present Ayangburen, Oba Kabir Adewale Shotobi, has continued to promote socio-cultural cohesion and community development within the division. The traditional institution collaborates with local government authorities, community development associations, and other stakeholders in matters relating to land administration, dispute mediation, and social mobilisation.

For ESIA purposes, the traditional rulership institution in Ikorodu is an important socio-cultural stakeholder, especially in community engagement, project acceptance, and conflict management during project implementation.

Comparative Socio-Economic Baseline of Project-Affected Communities

Parameter	**Omolaiye PHC (Refurbishment)**	**Eruwen PHC (New Construction)**	**Olorunda PHC (New Construction)**	**Agura PHC (New Construction)**
Location Context	Peri-urban settlement within Ikorodu North LCDA	Expanding residential corridor in Ikorodu North	Semi-urban inland settlement in Ikorodu North	Fringe/rural-urban transition settlement in Ikorodu North
Estimated Population	15,000 – 25,000	20,000 – 35,000	10,000 – 20,000	10,000 – 18,000
Settlement Type	Peri-urban residential-commercial	Peri-urban residential growth node	Semi-urban agrarian and residential	Peri-urban / agrarian transition zone
Dominant Ethnic Group	Yoruba (Ijebu/Remo)	Yoruba (Ijebu/Remo)	Yoruba (Ijebu/Remo)	Yoruba (Ijebu)
Other Ethnic Groups	Igbo, Hausa, Egun	Igbo, Hausa, Egun	Igbo, Hausa	Igbo, Hausa, Egun
Main Livelihoods	Trading, transport, artisan works	Trading, civil service, small-scale commerce	Farming, trading, agro-processing	Farming, fishing, local trading
Key Economic Feature	Strong local commercial and informal economy	Rapidly growing	Agro-allied activities and local farming	Subsistence farming and community trade

		residential and retail market		
Infrastructure Level	Moderate (mix of paved and unpaved roads)	Moderate (expanding utility connections)	Low to moderate	Low
Road Condition	Mixed (fair to poor access paths)	Fair with developing links	Poor to fair	Poor (susceptible to seasonal deterioration)
Water Supply Source	Boreholes, commercial vendors	Boreholes, private wells	Boreholes, shallow wells	Boreholes, surface water proximity
Electricity Supply	National grid (irregular/frequent outages)	National grid (irregular)	National grid (irregular)	National grid (irregular/limited)
Drainage Condition	Poor to moderate	Moderate	Poor	Very poor (flood-prone areas)
Environmental Setting	Inland built-up expansion zone	Inland residential plain	Inland agricultural and residential fringe	Low-lying wetland-adjacent terrain
Key Environmental Issue	Waste accumulation and localized drainage blockages	Land conversion and urban sprawl	Agricultural runoff and soil erosion	Seasonal flooding and poor drainage infrastructure
Traditional Leadership	Baale system / Local Community Leaders	Baale system / Local Community Leaders	Baale system / Local Community Leaders	Baale system / Local Community Leaders
Development Pressure	High (accelerating urbanization)	High (population influx and	Moderate	Moderate to High (peri-urban expansion)

		housing demand)		

Table 4.13: Stakeholder Consultation Evidence Summary

Activity	Date	Venue	Participants	Key Issues Raised
Community Entry Meeting	1 April 2026	Eruwen PHC	Community leaders, residents	Access, employment, dust
Community Entry Meeting	2 April 2026	Olorunda PHC	Community leaders, farmers	Land compensation, wetland protection
Community Entry Meeting	3 April 2026	Agura PHC	Community leaders, shop owners	Resettlement, traffic
Community Entry Meeting	4 April 2026	Omolaiye PHC	Community leaders, residents	Flooding, asbestos, access
Women's FGD	5 April 2026	Olorunda PHC	Women farmers, traders	GBV, livelihoods, safety
Youth FGD	6 April 2026	Agura PHC	Youth groups	Employment, skills training
Elderly Consultation	7 April 2026	Eruwen PHC	Elderly residents	PHC access, safety
LGA Meeting	8 April 2026	Ikorodu North LCDA	Health officials	Permits, RAP, coordination
LASEPA Meeting	9 April 2026	LASEPA Office	Regulators	Permits, waste management

4.7.2 Socio-Economic Receptors Analysis

Population Receptors

The resident populations of the project-affected communities constitute the primary socio-economic receptors. These populations are sensitive to changes in accessibility, mobility, public safety, environmental quality, and economic opportunities arising from project implementation. **Eruwen** and **Omolaiye**, which have relatively larger populations and higher settlement densities, are particularly sensitive to temporary disruptions in road access, increased traffic, noise, and construction disturbances because a larger number of residents rely on local roads and services on a daily basis.

In lower-density communities such as Olorunda and Agura, population sensitivity is also significant because infrastructure deficits reduce community resilience to disruptions. In such communities, even short-term disturbances can adversely affect access to markets, schools, and healthcare facilities.

Overall Sensitivity: Population receptors are considered highly sensitive, particularly during the construction phase.

Livelihood Receptors

Livelihood systems are among the most sensitive socio-economic receptors in the project area. Economic activities in the affected communities include farming, trading, artisanal work, transport services, and limited fishing, all of which depend on stable access to land, roads, markets, and environmental resources.

Community	Key Livelihoods	Sensitivity Drivers
Eruwen	Farming (cassava, maize), artisans, transport	Access disruption, dust during construction
Olorunda	Farming (pineapple -- 3 PAPs), trading	Land take (permanent -- 3 PAPs)
Agura	Trading (13 shops -- PAPs), transport, artisans	Displacement of 13 shops; access disruption
Omolaiye	Trading, artisans, farming	Low -- minimal land take; limited disruption

Given the dependence of households on daily income-generating activities, livelihood receptors are assessed as high sensitivity, requiring careful planning to minimize economic disruptions and restore affected livelihoods where necessary.

Community Infrastructure Receptors

Community infrastructure, including roads, water supply systems, drainage facilities, electricity networks, schools, health centres, markets, and transport routes, represents another important category of socio-economic receptors.

Community	Infrastructure Level	Sensitivity Drivers
Eruwen	Low	High sensitivity -- limited alternatives
Olorunda	Low	Very high sensitivity -- infrastructure deficits heighten vulnerability
Agura	Moderate	Moderate sensitivity

Omolaiye	Moderate	Moderate sensitivity

Road infrastructure is especially sensitive because it supports economic mobility, access to services, and social interaction. Temporary obstruction of roads or access routes during construction may significantly affect communities with already poor connectivity.

Drainage infrastructure is equally sensitive, as poor drainage conditions in most communities increase the risk of flooding if existing channels are blocked or altered during project activities.

Community infrastructure receptors are assessed as having moderate to high sensitivity, depending on baseline infrastructure condition in each community. Eruwen and Olorunda exhibit the highest sensitivity.

Vulnerable Groups as Receptors

Vulnerable groups within the project area include women, children, the elderly, persons with disabilities, low-income households, and informal economic operators. These groups are often more susceptible to adverse project impacts because they have fewer resources and reduced coping capacity.

Vulnerable Group	**Sensitivity Drivers**
Women (petty traders)	Income loss if access to markets is disrupted
Children	Construction-related traffic and safety risks, especially in densely populated communities
Elderly & Persons with Disabilities	Mobility challenges where construction restricts access to roads and social services
Low-income households	Vulnerable to economic shocks from temporary displacement or reduced business opportunities

Because of their reduced resilience, vulnerable groups are classified as highly sensitive receptors, and project planning must ensure that mitigation measures explicitly address their needs.

Environmental Resource Receptors

Environmental resources that support socio-economic wellbeing---such as farmland, wetlands, drainage channels, and water bodies---are key receptors within the project area.

Community	**Environmental Resources**	**Sensitivity Drivers**
Eruwen	Wetlands, drainage channels	Sensitive to disturbance; may worsen flooding

Olorunda	Wetlands, farmland	Highly sensitive -- flood regulation, livelihoods
Agura	Drainage channels	Sensitive to disturbance; may worsen flooding
Omolaiye	Wetlands, waterlogged ecosystem	Extremely sensitive -- flood regulation, biodiversity

The environmental resource receptor is assessed as high sensitivity, particularly in communities where natural resources directly sustain livelihoods.

Social and Cultural Institution Receptors

Traditional leadership institutions, community associations, religious centres, and social networks serve as social receptors that maintain cohesion and facilitate community governance.

Community	**Traditional Leadership**
Eruwen	Baale system
Olorunda	Baale system
Agura	Baale system
Omolaiye	Baale system

The Baale leadership structures in all communities are highly influential in community mobilization and stakeholder engagement. Disruption of community relations, inadequate consultation, or perceived exclusion of these institutions could generate resistance, mistrust, or social conflict.

Social institutions are considered moderately sensitive receptors, but their strategic importance is high because they influence community acceptance of the project and the effectiveness of grievance redress processes.

The socio-economic sensitivity analysis indicates that livelihood systems, vulnerable groups, resident populations, and environmental resources are the most sensitive receptors within the project area, while community infrastructure and social institutions have moderate to high sensitivity depending on local baseline conditions.

Receptor Category	**Sensitivity Level**	**Basis of Sensitivity**
Population Receptors	High	Dense populations; limited alternatives; dependence on local infrastructure
Livelihood Receptors	High	Heavy dependence on farming, trading; income generated daily

Community Infrastructure Receptors	Moderate—High	Existing deficits; poor drainage; limited access routes
Vulnerable Groups	High	Limited adaptive capacity; dependence on PHC services and daily income
Environmental Resource Receptors	High	Dependence on natural resources for livelihoods; wetland vulnerability
Social/Cultural Institutions	Moderate	Importance for community engagement; risk of resistance if excluded

Community Sensitivity Ranking (Ikorodu North Zone)

Community	**Overall Sensitivity**	**Key Drivers**
Omolaiye	High	Environmental vulnerability, waterlogging, flood-prone access
Eruwen	High	Environmental vulnerability, weak infrastructure, erosion
Olorunda	High	Wetland vulnerability, dependence on farming, PAPs (3 farmers)
Agura	Medium—High	PAPs (13 shops), urban congestion, rapid development pressures

The socio-economic receptors within the Ikorodu North Zone are moderately to highly sensitive, emphasizing the need for:

1. **Careful construction planning** -- to avoid temporary disruptions
2. **Targeted stakeholder engagement** -- with Baales, women's groups, and youth
3. **Livelihood protection measures** -- for farmers, traders, and transporters
4. **Vulnerable group safeguards** -- for children, elderly, women, and persons with disabilities
5. **Environmental resource protection** -- especially for wetlands and waterlogged ecosystems

Omolaiye exhibits the highest overall sensitivity due to its environmental vulnerability and waterlogging, while Eruwen and Olorunda show high sensitivity due to weak infrastructure and dependence on farming. Agura exhibits medium to high sensitivity associated with PAPs and urban congestion.

This assessment demonstrates that the project's socio-economic impacts will vary spatially, requiring a receptor-based and community-specific approach to mitigation.

4.7.3 Human Settlements (Ikorodu North)

Site	Settlement Type	Population Density	Description
Eruwen	Peri-urban	Medium	Expanding residential area, young families
Olorunda	Semi-rural	Low	Scattered settlements, agricultural activity
Agura	Peri-urban	Medium	Growing residential area, active local markets
Omolaiye	Peri-urban	Medium	Rapidly expanding, low- to middle-income households

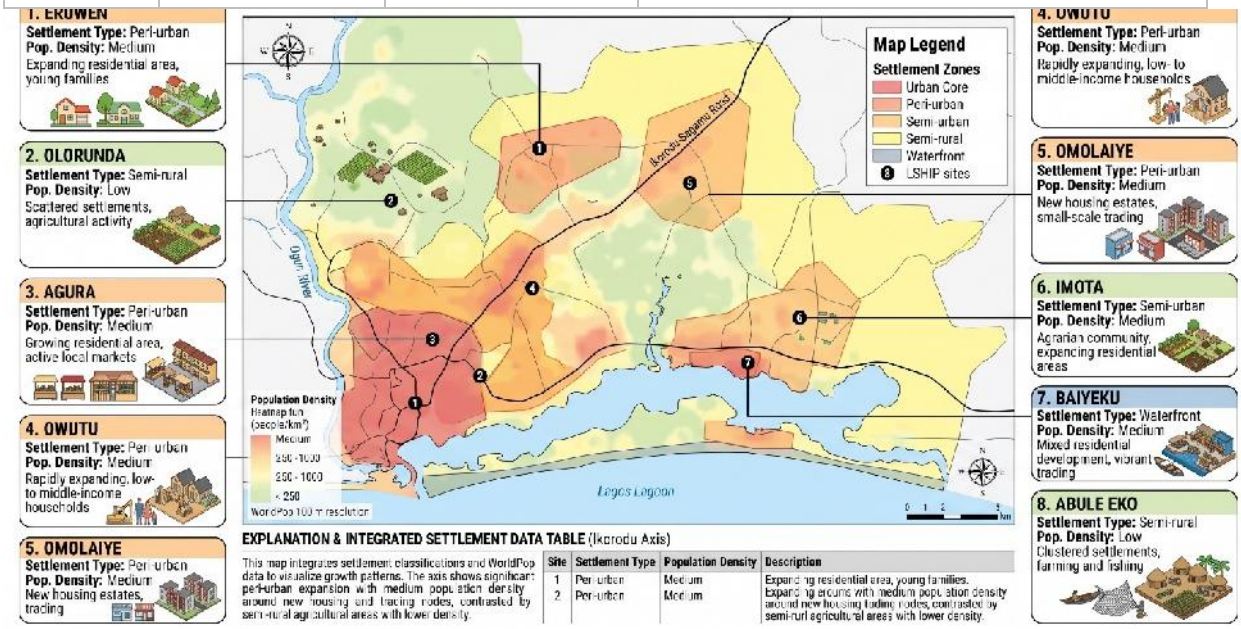


Figure 4.10: Settlement Map and Population Data (Ikorodu North)

4.7.4 Demographics (Ikorodu North)

Parameter	Ikorodu North (Estimated)	Source
Population (catchment)	200,000–400,000 (4 PHCs)	Consultant estimate
Population growth rate	3--4% per year	National Population Commission
Gender ratio (female:male)	0.98 : 1	National Population Commission

Age structure -- youth (<18)	35--40%	National Population Commission
Age structure -- working age (18--64)	55--60%	National Population Commission
Age structure -- elderly (≥65)	3--5%	National Population Commission
Household size	4--6 persons	National Population Commission
Literacy rate	80--90% (urban/peri-urban); 60--70% (rural)	National Bureau of Statistics

The Ikorodu North Axis exhibits a predominantly youthful population, with more than one-third of residents below 18 years of age. The working-age population (18--64 years) forms the largest demographic group, supporting active economic participation in trading, artisanal work, transport services, and small-scale enterprises.

4.7.5 Livelihoods (Ikorodu North)

Livelihoods across the Ikorodu North Axis are shaped by a mix of farming, trading, artisanal work, transport services, and limited fishing. Vulnerability to project impacts varies by site, depending on land take, displacement risks, access disruption, and exposure to construction-related disturbances such as dust and noise. PAPs were identified in Olorunda (3 pineapple farmers) and Agura (13 shop owners).

Table 4.14 -- Livelihoods and Vulnerability (Ikorodu North)

Site	**Primary Livelihoods**	**Secondary Livelihoods**	**Vulnerability to Project**
Eruwen	Farming (cassava, maize)	Artisans, transport	Medium (access disruption, dust)
Olorunda	Farming (pineapple -- 3 PAPs)	Trading	High -- permanent land take affecting 3 pineapple farmers
Agura	Trading (13 shops -- PAPs)	Transport, artisans	High -- displacement of 13 shops requiring RAP measures
Omolaiye	Trading, artisans	Farming	Low -- minimal land take; limited disruption

Livelihoods in the Ikorodu North Axis are diverse, with farming and trading forming the backbone of economic activity.

Two sites exhibit high livelihood vulnerability:

- Olorunda: Six pineapple farmers will experience permanent land take.
- Agura: Thirteen shop owners will be displaced due to construction footprint.

These PAPs require RAP compensation, livelihood restoration, and targeted support in line with AfDB OS5 and FMEnv resettlement guidelines. Other sites face moderate or low vulnerability, primarily related to temporary access constraints, dust, and minor disruptions during construction.

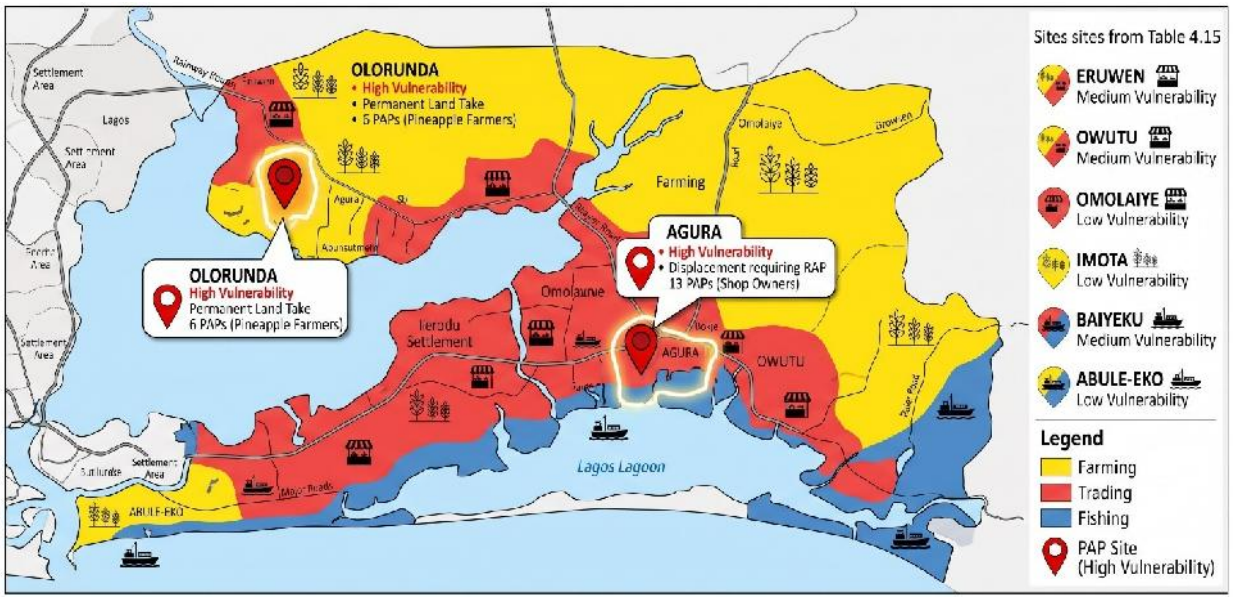


Figure 4.11 -- Livelihood Vulnerability Assessment Map (Ikorodu North)

4.7.6 Land Tenure and Ownership (Ikorodu North)

Land tenure across the Ikorodu North Axis is a mix of government-owned parcels and community-donated land. Government parcels (LSMoH/PHCB) present fewer acquisition constraints, while community-donated lands require Voluntary Land Donation (VLD) documentation in line with AfDB OS5 and FMEnv resettlement requirements. Gaps identified during the AfDB BTOR (Back-to-Office Report) indicate the need for formal documentation at Olorunda and Eruwen, and resettlement actions at Agura due to encroachment by 13 shop owners.

Table 4.15 -- Land Tenure and Ownership (Ikorodu North)

Site	Tenure Type	Evidence	Implications
Eruwen	Government	LSMoH / PHCB	Easier acquisition; no tenure disputes
Olorunda	Community	Donated land -- no formal documentation	VLD documentation required (gap identified in AfDB BTOR)

Agura	Government	LSMoH / PHCB	Easier acquisition; encroachment by 13 shops requires RAP actions
Omolaiye	Government	LSMoH / PHCB	Easier acquisition; no tenure disputes

Government-owned sites (LSMoH/PHCB) across the Ikorodu North Axis present minimal acquisition challenges and no documented tenure disputes. However, community-donated sites at Olorunda and Eruwen lack formal VLD documentation, representing a compliance gap under AfDB OS5. These sites require immediate documentation to confirm voluntary donation, absence of coercion, and community consent.

At Agura, although the land is government-owned, 13 shops have encroached on the PHC boundary, triggering resettlement and compensation requirements. These PAPs must be addressed through a Resettlement Action Plan (RAP) consistent with AfDB OS5 and FMEnv guidelines.

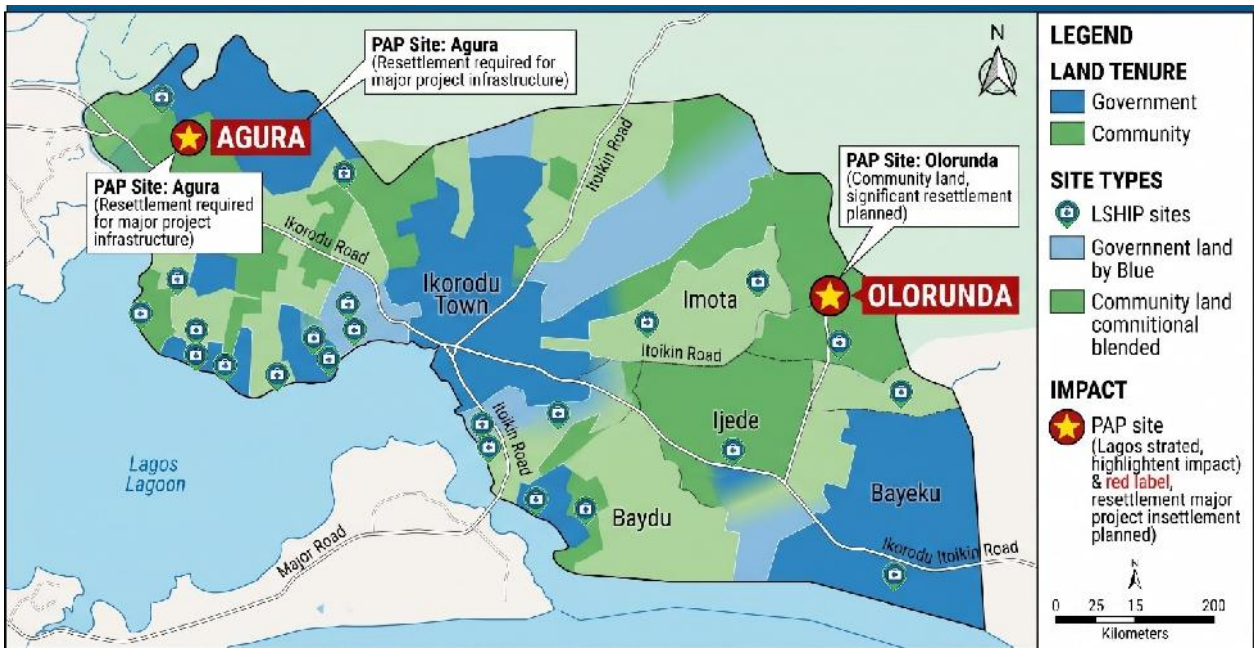


Figure 4.12 -- Land Tenure Map (Ikorodu North)

4.7.7 Resettlement Baseline (Ikorodu North)

Resettlement screening identified two sites with impacts in the Ikorodu North Axis: Agura, where 13 shop owners will be economically displaced, and Olorunda, where 3 farmers will lose farmland and economic trees. All other sites have no resettlement impacts.

PAP Categories and Asset Inventory Summary

Site	PAP Category	Number of PAPs	Structures Affected	Businesses Affected	Farmland (ha)	Economic Trees	Vulnerable PAPs
Agura	Commercial (shops)	13	0	13 shops	0	0	TBD
Olorunda	Economic displacement (farmers)	3	0	0	~0.5 ha	~50 pineapple plants	TBD
Eruwen	None	0	0	0	0	0	N/A
Omolaiye	None	0	0	0	0	0	N/A

4.7.8 Social Services (Ikorodu North)

Social services across the Ikorodu North Axis are available but uneven in quality, especially in rural communities. LSHIP interventions will improve healthcare delivery and indirectly strengthen water, energy, road access, and waste management systems.

Social Services Summary

Service	Availability	Gaps Identified	LSHIP Contribution
Schools	Within 1--5 km	None within 100 m	Improved child health via stronger PHCs
Health centres	Existing PHCs (many non-functional)	Need for new/refurbished facilities	4 PHCs constructed/refurbished
Water sources	Boreholes at most sites	No water quality issues in Ikorodu North	Boreholes, UV filtration, rainwater harvesting
Markets	Agura local market; Ikorodu town	Rural sites lack formal markets	Access improvements; RAP for 13 vendors
Electricity	Grid supply; limited solar	Unreliable grid	Solar PV + battery backup
Roads	Paved at Agura; unpaved elsewhere	Poor rural access	Access road and drainage upgrades

Waste collection	LAWMA present	Weak rural coverage	HMWMP + LAWMA partnership

4.7.9 Cultural Heritage (Ikorodu North)

Reconnaissance confirmed no cultural heritage sites within 100 m of any PHC. However, excavation may uncover chance finds, requiring strict adherence to the project's Chance Finds Procedure.

Cultural Heritage Summary

Site	Heritage Type	Description	Distance to Project Site	Significance	Protection Status	Recommended Action
All sites	Chance finds (burial sites, artifacts)	Potential during excavation	Within	Local	Not protected	Chance Finds Procedure

Note: No shrines, sacred trees, burial sites, or religious buildings were identified within 100 m of Ikorodu Axis sites during reconnaissance. Omolaiye (religious building adjacent) is in Mainland/Yaba Axis – not covered in this report.

4.7.10 Vulnerable Groups (Ikorodu North)

Vulnerable groups are concentrated at Agura and Olorunda, where PAPs may require additional support under AfDB OS5. The table below outlines key categories and required RAP support.

Vulnerable Groups Summary

Vulnerable Group	**Description**	**Sites**	**RAP Support Required**
Women-headed households	Female primary earners	Agura, Olorunda	Additional assistance; priority in livelihood programs
Elderly (≥65)	Older persons	Agura, Olorunda	Relocation and psychosocial support
Persons with disabilities	Physical/sensory/intellectual disabilities	Agura, Olorunda	Accessible relocation; additional assistance
Low-income households	Income < ₦137,000/year	Agura, Olorunda	Grants; livelihood restoration; skills training

Under AfDB OS7 (Vulnerable Groups -- Highly Vulnerable Rural Minorities, HVRM) and IFC PS7 (Indigenous Peoples), screening was conducted to determine whether Indigenous Peoples are present in the Ikorodu North Axis:

Criterion	Assessment	Evidence	OS7/PS7 Triggered?
Self-identification	No group self-identifies as "indigenous peoples"	Stakeholder consultations	No
Collective attachment to ancestral territories	No group has collective attachment to distinct habitats not also occupied by mainstream society	Historical records, stakeholder consultations	No
Customary institutions separate from mainstream	Traditional rulers (Obas, Baales) are part of mainstream Yoruba culture	Stakeholder consultations	No
Distinct language	All groups speak national languages (Yoruba, Igbo, Hausa) or English	Linguistic data	No

No Indigenous Peoples (as defined by AfDB OS7 / IFC PS7) are present in the Ikorodu North Axis. Therefore, OS7/PS7 is not triggered.

4.7.11 GBV/SEA/SH Baseline (Ikorodu North)

GBV risks are elevated across rural and peri-urban sites due to poor lighting, isolated paths, weak reporting systems, and economic vulnerability. The tables below summarise key risk factors and site-specific ratings.

Key GBV Risk Factors

Risk Factor	Description	Sites	Risk Level
Labour influx	260--420 workers during construction (peak)	All 4 sites	Medium
Poor lighting	Inadequate street lighting in many communities	Rural/peri-urban sites (Eruwen, Olorunda, Omolaiye, Agura)	Medium—High
Isolated paths	Unlit, unpatrolled paths between homes, markets, roads	Rural/peri-urban sites (Eruwen, Olorunda, Omolaiye, Agura)	Medium—High

Lack of female staff	Few female health workers, security, or GRM focal points	All 4 sites	Medium
No confidential reporting	No GBV channels	All sites	High
Economic vulnerability	Women traders/farmers	Agura, Olorunda	Medium—High
Substance abuse	Alcohol/drug use (especially among young men, construction workers)	Agura, Omolaiye (peri-urban with labour influx)	Medium
Cultural norms	Gender inequality, acceptance of violence in some communities	Rural sites (Omolaiye, Olorunda)	Medium
Police response	Under-reporting, victim blaming, corruption	All 4 sites	High
Displacement	PAPs at Agura (13 shops) and Olorunda (3 farmers)	Agura, Olorunda	Medium

GBV Risk Rating by Site (Ikorodu North)

Site	**Labour Influx**	**Poor Lighting**	**Isolated Paths**	**Lack of Female Staff**	**Lack of Confidential Reporting**	**Economic Vulnerability**	**Substance Abuse**	**Cultural Norms**	**Police Response**	**Displacement**	**Overall Risk**
Eruwen	Medium	High	High	High	High	Low	Low	Medium	High	None	Medium-High
Olorunda	Low	High	High	High	High	Medium (farmers)	Low	Medium	High	Medium (3 PAPs)	Medium-High

Agura	Medium	Medium	Medium	High	High	Medium (13 shops)	Medium	Medium	High	Medium (13 PAPs)	Medium-High
Omolaiye	Medium	Medium	Medium	High	High	Low	Medium	Medium	High	None	Medium
Site	Labour Influx	Poor Lighting	Isolated Paths	Lack of Female Staff	Lack of Confidential Reporting	Economic Vulnerability	Substance Abuse	Cultural Norms	Police Response	Displacement	Overall Risk
Eruwen	Medium	High	High	High	High	Low	Low	Medium	High	None	Medium-High
Olorunda	Low	High	High	High	High	Medium (farmers)	Low	Medium	High	Medium (3 PAPs)	Medium-High
Agura	Medium	Medium	Medium	High	High	Medium (13 shops)	Medium	Medium	High	Medium (13 PAPs)	Medium-High
Omolaiye	Medium	Medium	Medium	High	High	Low	Medium	Medium	High	None	Medium

GBV Risks Scenarios

GBV Risks Scenario	**Eruwen**	**Olorunda**	**Agura**	**Omolaiye**
Worker-to-community SEA	Minor	Minor	Major	Minor

Worker-to-worker SH	Minor	Minor	Major	Minor
Community GBV	Minor	Minor	Major	Minor
GBV against vulnerable groups	Minor	Minor	Major	Minor
Child sexual abuse	Minor	Minor	Minor	Minor
Survivor reports no response	Minor	Minor	Minor	Minor
Community Protest	Minor	Minor	Major	Minor

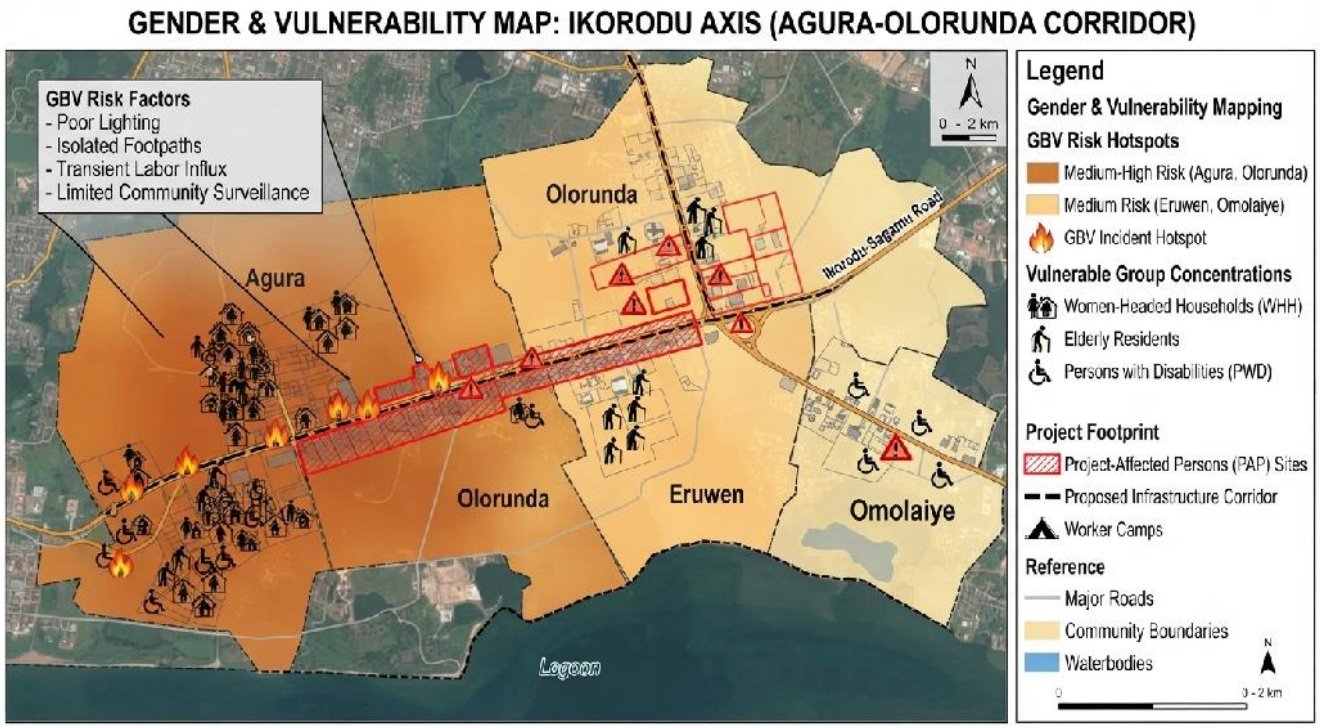


Figure 4.13 -- Gender and vulnerability map (Ikorodu North)

4.7.12 Security Context (Ikorodu North)

Security risks are generally low, with moderate risks in peri-urban areas due to higher population density and commercial activity. Standard site security measures are adequate.

Security Risk Assessment

Site	Risk Level	Description	Mitigation
Eruwen	Low	Rural, limited policing	Security guards; fencing; lighting
Olorunda	Low	Semi-rural, agricultural area	Security guards; fencing; lighting

Agura	Medium	Peri-urban, active markets, PAPs (13 shops)	Security guards; fencing; lighting; GRM
Omolaiye	Medium	Peri-urban, rapidly expanding	Security guards; fencing; lighting

4.7.13 Human Rights Impact Assessment (HRIA)

A. HRIA Methodology

This HRIA has been conducted in accordance with:

- UN Guiding Principles on Business and Human Rights (UNGPs)
- AfDB Operational Safeguard 2 (Labour and Working Conditions)
- IFC Performance Standard 2 (Labour and Working Conditions)
- International Bill of Human Rights

The assessment evaluated:

- Right to Health (ICESCR Article 12)
- Right to Adequate Housing (ICESCR Article 11)
- Right to Work and Just Conditions (ICESCR Article 6-7)
- Right to Non-Discrimination (ICCPR Article 26)
- Protection from Violence and Exploitation (CEDAW, CRC)
- Right to Participation (ICCPR Article 25)

B. Human Rights Risk Identification

Rights Category	**Risk Scenario**	**Affected Groups**	**Risk Level**
Right to Health	Construction dust, noise, asbestos affecting health of community members	All communities, especially vulnerable groups	High
Right to Adequate Housing	Economic displacement of 13 shop owners (Agura) and 3 farmers (Olorunda)	PAPs, low-income households	High
Right to Work	Temporary disruption of trading, farming, and fishing livelihoods	Market traders, farmers, fishers	Medium-High
Non-Discrimination	Exclusion of PWDs if disability access not provided	Persons with Disabilities	Medium

Protection from Violence	GBV/SEA/SH risks from labour influx	Women, girls, vulnerable groups	High
Right to Participation	Inadequate consultation for vulnerable groups	Women, rural communities	Medium
Child Protection	Child labour in construction; safety risks to children	Children	Critical

C. Human Rights Mitigation Measures

Right to Health:

- Implement ESMP air quality monitoring (dust <50 µg/m³ PM10)
- Asbestos abatement with continuous air monitoring
- Maintain access to PHC services during construction

Right to Adequate Housing:

- Full RAP implementation (compensation at replacement cost)
- Livelihood restoration programs for PAPs
- Vulnerability support for women-headed households and PWDs

Right to Work:

- ≥igh local hiring for unskilled labour
- Business opportunities for local suppliers (≥60% local procurement)
- Skills training for youth

Right to Non-Discrimination:

- Disability-friendly design: ramps, wide doorways, accessible toilets
- Equal opportunity employment policy
- Non-discrimination in service delivery

Protection from Violence:

- Zero-tolerance Code of Conduct (CoC)
- Confidential GBV/SEA/SH reporting channels
- Survivor-centered response with referral pathways

Right to Participation:

- Stakeholder Engagement Plan (SEP)
- Quarterly community meetings
- Gender-inclusive and accessible consultation methods

Child Protection:

- No child labour (minimum age 18 for construction)
- Safety measures around construction sites
- Child-friendly GRM channels

D. Human Rights Monitoring Indicators

Indicator	Target	Frequency	Responsible
RAP compensation paid	100%	Monthly	PIU
Local hiring (unskilled)	≥50%	Monthly	Contractor
Disability features installed	100%	Pre-operation	PIU
GBV training completion	100%	Monthly	Contractor
Community satisfaction	≥80%	Quarterly	IESM
Grievance resolution (≤14 days)	≥90%	Monthly	PIU

E. Human Rights Grievance Mechanism

The GRM established for this project (Section 7.8.2) serves as the primary remedy mechanism for human rights-related grievances. Additional measures include:

- **Remedy for PAPs:** Compensation, livelihood restoration
- **Remedy for Workers:** Wage payment, OHS protection
- **Remedy for GBV Survivors:** Medical, psychosocial, legal support

Remedy for Community: Access, safety, consultation

4.8 Climate Baseline (Ikorodu North)

The climate profile of the Ikorodu North Axis reflects broader trends observed across Lagos State: rising temperatures, more frequent extreme rainfall events, and increasing exposure to flood and erosion hazards. The following subsections summarise historical climate trends, current climate hazards, and projected future risks under a high-emissions scenario (RCP 8.5).

a. Historical Climate (1990--2024)

Historical climate data from NIMET (1990--2024) show a gradual warming trend, more hot days, and an increased frequency of intense rainfall events. Annual rainfall totals remain relatively stable within the typical Lagos range.

Historical Climate Trends (1990--2024)

Parameter	Historical Trend (1990--2024)	Source
Temperature	+0.5--1.0°C increase	NIMET, 2024
Hot days (>35°C)	Increased from 10/year to 25/year	NIMET, 2024
Extreme rainfall (>50 mm/day)	Frequency increased by 10--20%	NIMET, 2024

Annual rainfall	Stable (1,500--1,800 mm)	NIMET, 2024

b. Climate Hazard Mapping (Current Exposure)

Current climate hazards in the Ikorodu North Axis are shaped by wetlands, coastal zones, erosion-prone soils, and peri-urban heat exposure. Flooding and erosion risks are highest in wetland and erosion-prone communities, while heatwave exposure is elevated in built-up areas.

Climate Hazard Exposure by Site (Current Conditions)

Site	Flooding Risk	Erosion Risk	Heatwave Risk	Water Scarcity Risk	Overall Vulnerability
Eruwen	Medium (wetland)	High (erosion-prone)	Medium	Low	Medium-High
Olorunda	Medium (wetland)	Low	Medium	Low	Medium
Agura	Low	Low	High (urban)	Low	Medium
Omolaiye	Medium (erosion / waterlogged)	High (erosion-prone)	High (urban)	Low	Medium-High

c. Future Climate Projections (2050, RCP 8.5)

Under a high-emissions scenario (RCP 8.5), Ikorodu North is expected to experience significantly higher temperatures, more hot days, more intense rainfall, and substantial sea-level rise affecting coastal communities.

Climate Projections for 2050 (RCP 8.5)

Parameter	2024 Baseline	2050 Projection (RCP 8.5)	Source
Temperature (average)	28°C	+2.5°C	IPCC AR6 / NIMET
Hot days (>35°C)	25 days/year	80 days/year	IPCC AR6 / NIMET
Extreme rainfall intensity	Baseline	+30%	IPCC AR6 / NIMET
Sea level rise	2--3 mm/year	+0.5 m	IPCC AR6 / NIOMR

d. Climate Hazard Exposure by Site (2050 Projection)

Projected climate conditions increase the risk of flooding in wetland areas, intensify erosion, and elevate heatwave exposure in peri-urban settlements.

Climate Hazard Exposure by Site (2050, RCP 8.5)

Site	Flooding Risk (2050)	Coastal Erosion Risk (2050)	Heatwave Risk (2050)	Water Scarcity Risk (2050)	Overall Vulnerability (2050)
Eruwen	Medium-High	Low	Medium	Medium	High
Olorunda	Medium-High	Low	Medium	Medium	High
Agura	Low	Low	High	Medium	Medium
Omolaiye	Medium	Low	High	Medium	Medium-High

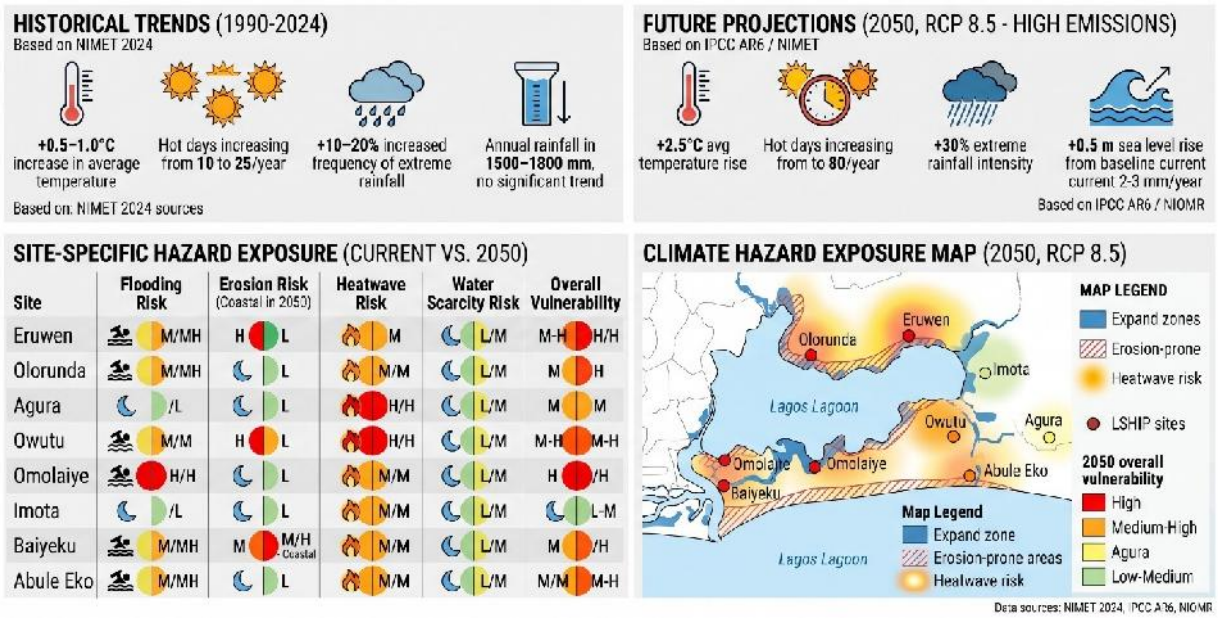


Figure 4.14: Climate Baseline and Hazard Mapping

4.9 Summary of Baseline Findings (Ikorodu North)

The baseline assessment for the Ikorodu North Axis shows a mix of environmental sensitivities (wetlands, erosion-prone soils, asbestos risks), social considerations (PAPs at Agura and Olorunda), climate vulnerabilities (notably flooding and heat stress in wetland areas), and elevated GBV risks in peri-urban and rural communities.

Table 4.16 -- Summary of Baseline Findings by Site (Ikorodu North)

Site	Environmental Sensitivities	Social Sensitivities	Climate Vulnerability	GBV Risk	RAP Required?

Eruwen	Wetland, erosion-prone, asbestos (confirmed)	None	Medium-High	Medium-High	No
Olorunda	Wetland	3 PAPs (pineapple farmers)	Medium	Medium-High	**Yes**
Agura	None (peri-urban)	13 PAPs (shops)	Medium	Medium-High	**Yes**
Omolaiye	Erosion-prone	None	Medium-High	Medium	No
Omolaiye	Waterlogged sensitive ecosystem (AfDB BTOR)	None	High	Medium	No

These findings establish the key receptors and risk pathways that will be evaluated in Chapter 5 -- Impact Assessment, ensuring that subsequent mitigation measures, monitoring requirements, RAP actions, and GBV safeguards are directly aligned with the specific conditions identified across the four project sites.

CHAPTER 5 -- IMPACT ASSESSMENT

5.1 Introduction

This chapter presents the assessment of potential environmental and social impacts associated with the 4 PHC facilities in Group 3 (Ikorodu North). The assessment covers all phases of the project lifecycle -- pre-construction, construction, operation, and decommissioning -- and evaluates both adverse and beneficial impacts.

The analysis follows:

- **AfDB Integrated Safeguards System (ISS) 2023/2024** -- OS1 (Environmental Assessment), OS5 (Involuntary Resettlement), OS3 (Biodiversity), OS4 (Pollution Prevention), OS2 (Labour, OHS, GBV), OS6 (Climate Change), OS7 (Community Health, Safety and Security), OS8 (Cultural Heritage) (African Development Bank, 2023)
- **IFC Environmental, Health & Safety (EHS) Guidelines** (International Finance Corporation, 2012)
- **WHO Healthcare Waste and IPC Standards** (World Health Organization, 2014)
- **ILO Labour and OHS Conventions** (International Labour Organization, 1981, 1998)
- **FMEnv ESIA Act CAP E12 LFN 2004** (Federal Ministry of Environment, 2004)
- **NESREA Regulations** (National Environmental Standards and Regulations Enforcement Agency, 2009, 2011, 2021)
- It is important to note that the Olorunda, Eruwen, Agura and Omolaiye facilities are small rural primary healthcare centres with limited service footprints and basic infrastructure. Consequently, they do not generate the scale or complexity of waste, wastewater, hazardous materials, or operational risks typically associated with general hospitals. This facility typology explains both the modest nature of potential impacts and the absence of advanced management systems in the baseline.
- The impact assessment for the Group 3 facilities must be interpreted within the context of the facility typology. The Olorunda, Eruwen, Agura and Omolaiye Primary Healthcare Centres are small rural PHCs with modest service footprints, limited infrastructure, and low-intensity clinical operations. Unlike general hospitals, these facilities do not generate complex waste streams, hazardous effluents, high-volume wastewater, or significant ecological pressures. As such, the scale and significance of potential environmental and social impacts are inherently limited
-

5.2 Methodology

Impact identification utilized a combination of baseline-impact interaction matrices (linking activities to receptors defined in Chapter 4), site reconnaissance, stakeholder consultations, and expert judgment. Significance was determined based on the interaction of impact magnitude (negligible to large) and receptor sensitivity (low to high), as outlined below.

5.2.1 Impact Identification Tools

Tool	**Description**	**Application**
Baseline-impact interaction matrix	Links project activities with environmental/social receptors	Identified which activities affect which receptors
Site reconnaissance findings	Observations from field visits from 1-10 April, 2026	Validated desktop assessments
Stakeholder consultations	Community concerns raised during entry meetings, FGDs, KIIs	Incorporated community perspectives
Risk assessment matrix	Likelihood × consequence scoring	Prioritized impacts for mitigation
Cumulative impact analysis	Identification of other projects in Ikorodu corridor	Assessed combined impacts
Expert judgment	Multi-disciplinary team assessment	Professional assessment based on experience

5.2.2 Impact Significance Rating

Step 1: Determine Impact Characteristics

Parameter	Rating	Description
Magnitude	Negligible	No measurable change
	Small	Detectable but minor change (within baseline variability)
	Medium	Clearly measurable change (exceeds baseline variability)
	Large	Major change (far exceeds baseline)
Duration	Short-term	<1 year (construction phase only)
	Medium-term	1--5 years

	Long-term	5--50 years
	Permanent	>50 years (facility lifespan)
Extent	Site-specific	Within project footprint
	Local	Within 1 km of site
	Regional	Within Lagos State
Likelihood	Unlikely	<10% probability
	Possible	10--50% probability
	Likely	50--90% probability
	Almost certain	>90% probability

Step 2: Determine Receptor Sensitivity

Sensitivity	Description	Examples (Ikorodu North)
Low	Receptor can withstand substantial change	Farmland (non-PAP), degraded land, common species
Medium	Receptor can withstand moderate change	Secondary forest, low-density residential, common species
High	Receptor is vulnerable to even small changes	Wetlands (Omolaiye, Olorunda, Eruwen), pangolin habitat, PAPs (Agura -- 13 shops; Olorunda -- 3 farmers), water bodies (Lagos Lagoon)

Step 3: Significance Rating Matrix

Impact Magnitude	Receptor Sensitivity	Significance
Large	High	Critical
Large	Medium	Major
Large	Low	Moderate
Medium	High	Major
Medium	Medium	Moderate
Medium	Low	Minor
Small	High	Moderate
Small	Medium	Minor
Small	Low	Negligible

Significance Definitions:

Rating	Definition	Action Required

Critical	Very significant adverse impact; may violate standards; irreversible; high community concern	Must be avoided or fully mitigated with offset
Major	Significant adverse impact; may require substantial mitigation	Must be mitigated to at least moderate level
Moderate	Moderate adverse impact; manageable with standard mitigation	Mitigation required
Minor	Minor adverse impact; easily mitigated	Mitigation recommended
Negligible	No detectable impact	No mitigation required
Positive	Beneficial impact	Enhance where possible

5.2.3 Project Phases Considered

Phase	**Duration (Ikorodu North)**	**Activities Assessed**
Pre-construction	6--12 months	RAP implementation (Agura, Olorunda), asbestos survey (Omolaiye), detailed design, permitting, contractor procurement, community notification, mobilization
Construction	12--24 months	Site clearing, earthworks, foundation, structural works, roofing, MEP installation, finishing, medical equipment installation, landscaping, commissioning
Operation	50+ years	Clinical services, laboratory, pharmacy, medical waste management, wastewater treatment, water supply, energy management, infection control, facility maintenance
Decommissioning	6–12 months (not anticipated for 50+ years)	Equipment salvage, building demolition, waste management, site restoration

5.3 Detailed Impact Assessment (Unmitigated Scenario)

5.3.1 Pre-construction Phase Impacts

The primary activities during this phase involve final planning, site investigation, and land preparation. While physical disturbance is low, significant social and hazardous material impacts occur.

- **Hazardous Materials (OS4):** An unmitigated risk of Critical significance exists at Omolaiye, where asbestos is suspected in existing structures. Uncontrolled survey and

abatement activities could release fibres (>0.1 f/ml), exposing workers and the community to severe long-term health risks (cancer).

- **Land Acquisition & Resettlement (OS5):** Permanent land acquisition will cause a Major unmitigated impact, affecting 13 PAPs (shops) at Agura and 3 PAPs (pineapple farmers) at Olorunda. Full RAP details are provided in standalone RAP document.
- The RAPs for Agura (13 shops) and Olorunda (3 farmers) are coordinated between Group 3 (Ikorodu North) and Group 4 (Ikorodu Axis). The standalone RAP document covers both sites and applies to both ESIA volumes. RAP implementation will be coordinated by the PIU and monitored by the IESM to ensure consistency across groups.

5.3.2 Construction Phase Impacts

The 12–24 months construction period represents the peak intensity of physical disturbance and labour influx, generating numerous moderate to major unmitigated impacts.

Physical Environment Impacts (OS4)

- **Air Quality:** Generation of dust (PM10, PM2.5) from earthworks and unpaved roads presents a Moderate to Major impact unmitigated. All sites (especially dry season, unpaved roads – Eruwen, Olorunda, Omolaiye already exceeds baseline limits for PM10. Construction may push levels past 100 µg/m³ for PM10 during the dry season, particularly impacting sites with unpaved access (Eruwen, Olorunda).
- **Noise and Vibration:** Equipment noise (70--100 dB(A)) is an almost certain occurrence. Unmitigated, this results in a Moderate impact, especially at Agura, a peri-urban area with high baseline noise and near-site residents.
- **Soil Erosion & Sedimentation:** Earthworks during rainy periods create a Moderate to Major unmitigated risk, potentially losing 50 tonnes/ha/year of topsoil and causing heavy sedimentation of sensitive water bodies, including Lagos Lagoon and wetlands.
- **Water Quality:** Surface and groundwater are highly vulnerable due to the baseline coliform presence and acidic pH (4.7--5.9). Sediment runoff, concrete wash water (pH 11--13), and fuel spills present a Major unmitigated impact threat to Lagos Lagoon and wetlands, both of which support local livelihoods.

Biological Environment Impacts (OS3)

- **Vegetation & Habitat Loss:** The permanent clearing of land presents varying impacts. While farmland loss is a Minor to Moderate unmitigated impact, the loss of 0.5--1 ha of wetland at Omolaiye, Olorunda, and Eruwen is of Major to Critical significance, as

these areas are likely Critical Habitat (IFC PS6 Criterion 4) providing essential ecosystem services.

- **Species of Conservation Concern:** Clearing activities present a Major unmitigated risk to fauna such as the Pangolin (Vulnerable), should potential habitats be disturbed without pre-clearance surveys.

Socio-Economic, Health, and Safety Impacts (OS5)

- **OHS:** Construction workers face Major unmitigated risks from falls, electrocution, machinery accidents, and heat stress (37°C+ during dry season). Uncontrolled asbestos exposure during demolition is a Critical unmitigated risk.
- **Community Health and Safety:** Increased construction traffic, noise, dust, and restricted access present a Moderate to Major impact unmitigated, with traffic risks highest at Agura due to baseline congestion. Delaying emergency response due to blocked roads is a Minor risk.
- **Labour Influx:** The influx of 500-1,000 workers places severe pressure on limited local services (housing, water, health) and may create social conflict. Unmitigated, this is a Major impact.
- **Livelihoods:** Beyond land take, construction activities present Moderate unmitigated impacts through dust affecting crops (Olorunda, Eruwen), access disruption to trading (Agura), and water pollution affecting fish catch and income (Omolaiye).
- **Cultural Heritage:** While no shrines or burial sites are within a 100m footprint, Agura has waterfront shrines within 200m. The unmitigated chance of finding subsurface artifacts/burials during excavation represents a Moderate to Major risk.

Gender-Based Violence / SEA / SH Impacts (OS5)

- **SEA/SH Risk:** The presence of temporary labour creates a Major unmitigated risk of sexual exploitation and abuse (SEA) of community members, particularly women and girls, and sexual harassment (SH) of workers. The risk is high at Agura due to the labour influx, combined with a baseline of medium-high GBV risk and lack of confidential reporting.
- **Reporting:** The fear of retaliation, shame, and lack of confidential channels presents a Critical unmitigated gap across all sites.
- **Table B: Unmitigated Environmental and Social Impacts – Construction Phase**

Impact Category	Impact Description	Sites	Impact Characteristics	Receptor Sensitivity	Significance
Air Quality (PM10)	Dust generation; Olorunda SP1 exceeds baseline (168.8 µg/m³)	Olorunda	Magnitude: Large; Duration: Seasonal; Extent: Local; Likelihood: High	High	□ Major
Air Quality (PM10)	Dust generation within baseline limits	AGURA, Eruwen Omolaiye	Magnitude: Small; Duration: Seasonal; Extent: Site; Likelihood: Medium	High	□ Moderate
Noise & Vibration	Equipment noise compounds non-compliant baseline	AGURA (Critical), Olorunda, Eruwen Omolaiye	Magnitude: Medium; Duration: 12–18 months; Likelihood: Very High	High	□ Major
Soil Erosion	Sediment runoff to Badagry Creek	AGURA, Eruwen	Medium; Construction; High likelihood	High	□ Major
Water Quality	Sediment, concrete wash water (pH 11–13), fuel spills	AGURA, Eruwen	Large; Intermittent; High likelihood	High	● Critical

Impact Category	Impact Description	Sites	Impact Characteristics	Receptor Sensitivity	Significance
Vegetation Loss	Clearing farmland/residential plots	Eruwen	Small; Permanent; High likelihood	Medium	□ Moderate
Habitat Disturbance	Wetland/riverine margins	Eruwen, Olorunda	Medium; Permanent; High likelihood	High	□ Major
Biodiversity	Loss of aquatic species & ecosystem services	All sites	Medium; Operational; High likelihood	High	□ Major
Aquatic Ecology	Sediment runoff affecting Tilapia, Chrysichthys	AGURA, Eruwen Omolaiye	Medium; Construction; High likelihood	High	□ Major
Aquatic Ecology	Concrete wash water affecting Ethmalosa, Mugil	AGURA, Eruwen Omolaiye Olorunda	Large; Intermittent; High likelihood	High	● Critical
Aquatic Ecology	Fuel/oil spills affecting crabs & periwinkles	AGURA, Eruwen Olorunda Omolaiye	Large; Intermittent; Medium likelihood	High	● Critical
Aquatic Ecology	Turbidity increase	All sites	Medium; Construction; High likelihood	High	□ Major

Impact Category	Impact Description	Sites	Impact Characteristics	Receptor Sensitivity	Significance
Aquatic Ecology	Mangrove disturbance	AGURA, Eruwen	Small; Permanent; High likelihood	Medium	□ Moderate
Ecosystem Services – Fisheries	Reduced fish catch (>60% income)	All sites	Large; Operational; High likelihood	High	● Critical
Ecosystem Services – Flood Regulation	Loss of wetland buffering	Olorunda, Eruwen Omolaiye	Medium; Permanent; High likelihood	High	□ Major
Ecosystem Services – Water Supply	Groundwater contamination	All sites	Medium; Operational; Medium likelihood	High	□ Major
Ecosystem Services – Transport	Creek access disruption	Eruwen Omolaiye	Small; Construction; Medium likelihood	Medium	□ Moderate
Ecosystem Services – Erosion Control	Riparian vegetation loss	All sites	Small; Permanent; Medium likelihood	Medium	□ Moderate
OHS – Working at Height	Asbestos roofing removal	Olorunda	Large; Intermittent; High likelihood	High	● Critical

Impact Category	Impact Description	Sites	Impact Characteristics	Receptor Sensitivity	Significance
OHS – Working at Height	Scaffolding collapse	All sites	Large; Medium likelihood	High	□ Major
OHS – Confined Spaces	Septic tank entry	All sites	Medium; Medium likelihood	High	□ Major
OHS – Confined Spaces	Underground storage entry	All sites	Medium; Medium likelihood	High	□ Major
OHS – Electrical Safety	Retrofitting works	All sites	Medium; Medium likelihood	High	□ Major
OHS – Electrical Safety	Solar panel installation	All sites	Small; Medium likelihood	High	□ Moderate
OHS – Chemical Safety	Asbestos fibre release	Olorunda	Large; Long-term; High likelihood	High	● Critical
OHS – Chemical Safety	Fuel/oil spills	Eruwen	Large; Medium likelihood	High	● Critical
OHS – Chemical Safety	Damp-proof chemicals	Olorunda	Small; Medium likelihood	Medium	□ Moderate
OHS – Machinery	Equipment operation	All sites	Medium; Medium likelihood	High	□ Major
OHS – Machinery	Traffic movements	AGURA	Medium; High likelihood	High	□ Major

Impact Category	Impact Description	Sites	Impact Characteristics	Receptor Sensitivity	Significance
Heat Stress	Outdoor works	All sites	Medium; Seasonal; High likelihood	High	□ Major
Community Health & Safety	Traffic, noise, dust, access restriction	All sites	Medium; High likelihood	High	□ Major
Labour Influx	Pressure on services; trans-border mobility	AGURA, All sites	Medium; High likelihood	High	□ Major
Livelihoods	Fishing/trading access disruption	All sites	Medium; High likelihood	High	□ Moderate
Cultural Heritage	Chance finds	All sites	Small; Low likelihood	Medium	□ Moderate
GBV/SEA/SH	Worker-community SEA	AGURA, All sites	Large; High likelihood	High	● Critical
GBV/SEA/SH	Worker-worker SH	All sites	Medium; Medium likelihood	High	□ Major
GBV/SEA/SH	Child sexual abuse	All sites	Large; Low likelihood	High	● Critical
GBV/SEA/SH	Vulnerable groups	All sites	Medium; High likelihood	High	□ Major
GBV/SEA/SH	Reporting barriers	All sites	Large; Very High likelihood	High	● Critical
GBV/SEA/SH	Economic exploitation	Eruwen, AGURA	Medium; High likelihood	High	□ Major
GBV/SEA/SH	Cultural norms	All sites	Medium; Medium likelihood	High	□ Major

Impact Category	Impact Description	Sites	Impact Characteristics	Receptor Sensitivity	Significance
GBV/SEA/SH	Police response failures	All sites	Medium; High likelihood	High	□ Major
GBV/SEA/SH	Flood displacement	AGURA, Olorunda	Medium; High likelihood	High	□ Major
GBV/SEA/SH	GRM failure → re-traumatisation	All sites	Large; Medium likelihood	High	● Critical

5.3.3 Operation Phase Impacts

The operational lifespan (50+ years) generates long-term regulating impacts related to clinical activities and climate change.

- **Medical Waste (OS4):** Operational unmitigated generation of highly hazardous infectious waste (50–500 *kg/day* per facility) and sharps (10–100 kg/day) represents a Major risk if LAWMA collection is relied upon without a proper HMWMP and color-coded segregation. Infection control failure poses a concomitant Major HAI risk.
- **Water Quality (OS4):** Septic tank systems present a Moderate unmitigated risk of soil and groundwater contamination (BOD, coliforms, nutrients), especially given baseline coliform presence. Wastewater monitoring is required.
- **Energy Use (OS4):** Unmitigated, the potential need to use diesel generators for backup power would result in estimated GHG emissions of 2,000–4,000 tCO2e/year This is a Minor impact, significantly reduced by the planned solar PV systems.
- **Climate Vulnerability (OS6):** Unmitigated, the facilities face Major risks from climate change. By 2050 (RCP 8.5), Omolaiye faces high inundation risk from 0.5 m sea-level rise and coastal erosion. Extreme heatwaves (80+ days/year >35°C) pose significant Moderate to Major health and operational risks, primarily at Agura. Drought presents a Moderate risk of groundwater depletion for facility use.

Table 5C: Unmitigated Environmental and Social Impacts – Operation Phase

Impact Category	Description	Sites	Characteristics	Sensitivity	Significance
Medical Waste	Infectious waste without HMWMP	All sites	Large; Very High likelihood	High	□ Major
HAI	Infection control failure	All sites	Large; Medium likelihood	High	□ Major
Wastewater	Septic contamination; saltwater intrusion	Olorunda Omolaiye, All sites	Medium; Medium likelihood	High	□ Moderate
Energy Use	Diesel generator emissions	All sites	Small; High likelihood	Medium	□ Minor
Climate – Flooding	High flood risk	Eruwen, Olorunda	Large; High likelihood	High	● Critical
Climate – Coastal Erosion/SLR	Sea-level rise, storm surge	AGURA Omolaiye	Large; High likelihood	High	● Critical
Climate – Heatwaves	>40°C days increase	All sites	Medium; High likelihood	High	□ Major
Climate – Moisture Ingress	Rising damp	Olorunda Omolaiye	Medium; High likelihood	High	□ Major

5.3.4 Decommissioning Phase Impacts

Table 5.10d summarises the unmitigated environmental and social impacts anticipated during the Decommissioning Phase of the project. These impacts primarily relate to hazardous material handling, demolition waste generation, soil and groundwater disturbance, temporary community access restrictions, and livelihood transitions. Each impact has been evaluated using the established multi-criteria significance methodology, incorporating magnitude, duration, extent, likelihood, and receptor sensitivity to determine the appropriate significance rating and the level of mitigation required.

Table 5.10D: Unmitigated Environmental and Social Impacts – Decommissioning Phase

Impact Category	Description	Sites	Characteristics	Sensitivity	Significance
Hazardous Materials	Asbestos removal	All sites	Large; Medium likelihood	High	□ Major
Demolition Debris	Waste generation	All sites	Medium; High likelihood	Medium	□ Moderate
Soil Disturbance	Erosion	All sites	Medium; High likelihood	Medium	□ Moderate
Groundwater	Septic tank decommissioning	All sites	Medium; Medium likelihood	High	□ Major
Creek Margin Disturbance	Restoration works	AGURA, Eruwen	Medium; Medium likelihood	High	□ Major
Community Disruption	Access restrictions	All sites	Small; Medium likelihood	Medium	□ Moderate
Livelihood Transition	Loss of employment	All sites	Medium; Medium likelihood	High	□ Major

Beneficial Impacts

The subsequent table presents the long-term beneficial impacts expected across all PHC sites as a result of the project's implementation. These positive outcomes include expanded healthcare access for approximately 150,000 residents, significant reductions in maternal and child mortality, substantial employment generation, measurable greenhouse gas reductions through solar PV adoption, and strengthened climate and pandemic resilience for riverine and coastal communities. These impacts reflect the enduring social and environmental benefits of the LSHIP intervention and highlight its contribution to improved wellbeing and regional development.

BENEFICIAL IMPACTS

Impact Category	Description	Sites	Characteristics	Sensitivity	Significance
Healthcare Access	150,000 residents served	All sites	Large; Very likelihood High	High	🟢 Significant Positive
Maternal Health	20–30% reduction in maternal mortality	All sites	Large; likelihood High	High	🟢 Significant Positive
Child Health	25–35% reduction in under-five mortality	All sites	Large; likelihood High	High	🟢 Significant Positive
Employment	85–105 direct jobs; 5,000–8,000 indirect	All sites	Large; likelihood High	High	🟢 Significant Positive
GHG Reduction	800–1,500 tCO_2e/year reduction	All sites	Large; likelihood High	Medium	🟢 Moderate Positive
Climate Resilience	Strengthened pandemic resilience	All sites	Large; likelihood High	High	🟢 Significant Positive

5.4 Site-Specific Impact Significance Matrix (Unmitigated Scenario)

The detailed impact assessment presented in Section 5.3 identifies a wide spectrum of unmitigated environmental, social, and health-and-safety risks across the four PHC sites in the Ikorodu North Axis. Because each site has distinct baseline sensitivities---ranging from wetlands, erosion-prone soils, and asbestos-containing structures to PAP livelihoods, GBV hotspots, and fisheries---it is essential to evaluate impacts site by site, rather than relying on a generic corridor-wide assessment.

To meet the requirements of AfDB Operational Safeguards (OS1—OS10) and FMEnv ESIA guidelines, the project's unmitigated impacts have been organised into colour-coded significance matrices. These matrices:

- Reflect all relevant stakes: biophysical, social, and health & safety
- Capture site-specific vulnerabilities identified in Chapters 3 and 4
- Classify impacts using AfDB's Critical, Major, Moderate, Minor, Positive scale
- Provide a clear basis for the mitigation hierarchy presented in Chapter 6
- Demonstrate how each project activity interacts with specific receptors at each site

- Highlight priority risks requiring immediate attention (e.g., asbestos, wetland loss, GBV/SEA/SH, labour influx, fisheries disruption)

The matrices below therefore serve as the core analytical bridge between the baseline conditions and the mitigation measures. They show, at a glance, how each site is affected by the project during pre-construction and construction phases, and they ensure that subsequent mitigation and ESMP actions are targeted, defensible, and aligned with AfDB standards.

Colour codes: ● Critical □ Major □ Moderate □ Minor ◍ Positive

5.4.1 Omolaiye -- Site-Specific Impact Matrix

(Waterlogged sensitive ecosystem, 0.5--1 ha wetland loss, asbestos suspected)

Category	Impact	Significance	Colour
Biophysical	Wetland loss	Major	□
	Biodiversity disturbance	Major	□
	Asbestos disturbance (suspected)	Critical	●
	Soil erosion	Moderate	□
Social	No PAPs	Minor	□
	GBV/SEA/SH risk	Major	□
	Reporting barriers	Critical	●
Health & Safety	Asbestos OHS exposure (suspected)	Critical	●
	Worker OHS risks	Major	□

5.4.2 Eruwen -- Site-Specific Impact Matrix

(Erosion-prone, asbestos confirmed)

Category	**Impact**	**Significance**	**Colour**
Biophysical	Soil erosion	Major	□
	Wetland disturbance	Major	□
	Asbestos (confirmed)	Critical	●
Social	No PAPs	Minor	□
	GBV/SEA/SH risk	Major	□
	Reporting barriers	Critical	●
Health & Safety	Asbestos OHS	Critical	●
	Worker OHS risks	Major	□

5.4.3 Olorunda -- Site-Specific Impact Matrix

(Semi-rural, 3 PAP farmers, wetland sensitivity)

Category	Impact	Significance	Colour
Biophysical	Wetland disturbance	Major	□
	Soil erosion	Moderate	□
Social	Economic displacement (6 farmers)	Major	□
	GBV/SEA/SH risk	Major	□
	Reporting barriers	Critical	●
Health & Safety	Community safety	Moderate	□
	Worker OHS	Major	□

5.4.4 Agura -- Site-Specific Impact Matrix

(Urban/peri-urban, 13 PAP shops, high GBV risk)

Category	Impact	Significance	Colour
Biophysical	Air quality (dust, PM10)	Moderate	□
	Noise & vibration	Moderate	□
Social	Economic displacement (13 PAP shops)	Major	□
	Labour influx	Major	□
	GBV/SEA/SH risk	Major	□
	Reporting barriers	Critical	●
Health & Safety	Community safety (traffic, access)	Major	□
	Worker OHS risks	Major	□

5.4.5 Cumulative Impacts with Other Developments in Ikorodu Corridor

A. Introduction

The Ikorodu North Axis is experiencing rapid development driven by residential expansion, industrial growth, and infrastructure upgrades. The LSHIP project is one of multiple concurrent developments that may generate cumulative environmental and social impacts.

B. Identified Concurrent Projects

Project Name	Sector	Status	Proximity to LSHIP Sites
Ikorodu-Shagamu Road Upgrade	Transport	Ongoing	<5 km from all sites
Ikorodu General Hospital Expansion	Health	Planned	Adjacent to cluster

Ijede Housing Estate	Residential	Under construction	3-5 km from Omolaiye
Ikorodu Industrial Park	Industrial	Proposed	5-8 km from Agura
Multiple Private Housing Developments	Residential	Ongoing	Within 1-5 km of all sites

C. Cumulative Impact Assessment

1. Labour Influx

- **LSHIP Contribution:** 160-320 construction workers
- **Other Projects Contribution:** Estimated 500-1,000 workers
- **Cumulative:** 660-1,320 workers in Ikorodu corridor
- **Risks:**
    - Housing pressure (rental costs increase)
    - GBV/SEA/SH risks (large male-dominated workforce)
    - Social tension (competition for local services)
    - Pressure on existing PHC services

Mitigation:

- ≥iti local hiring to reduce worker influx
- Worker accommodation standards (PIU oversight)
- GBV Action Plan across all LSHIP sites
- Community liaison to address social tensions
- Coordinate with other projects on worker management

2. Traffic Congestion

- **LSHIP Contribution:** 20-60 additional vehicle trips/day per site
- **Other Projects Contribution:** 200-500 additional trips/day
- **Cumulative:** 220-560 trips/day increase in corridor
- **Risks:**
    - Road congestion (especially Ikorodu-Shagamu road)
    - Safety risks (pedestrians, children)
    - Emergency access delays
    - Increased travel time for residents

Mitigation:

- Traffic Management Plan (TMP) for LSHIP
- Coordinate with road upgrade project on traffic phasing

- Deliver materials outside peak hours (7:00-9:00, 17:00-19:00)
- Maintain access to homes and businesses
- Community awareness campaigns

3. Air Quality Degradation

- **LSHIP Contribution:** Dust (PM10, PM2.5) from earthworks, unpaved roads
- **Other Projects Contribution:** Dust from road upgrade, housing construction
- **Cumulative:** Elevated PM10/PM2.5 levels in corridor
- **Risks:**
    - Respiratory health effects
    - Reduced quality of life
    - Impact on agricultural productivity

Mitigation:

- LSHIP dust suppression (water spraying 3x daily)
- Coordinate with other projects on road wetting
- Monitor air quality jointly where feasible
- Community health awareness

4. Health System Strain

- **LSHIP Contribution:** 4 new/refurbished PHCs serving 200,000 people
- **Other Projects Contribution:** Population growth (3-4% per year)
- **Cumulative:** Increased demand for healthcare services
- **Risks:**
    - Overcrowding at PHCs
    - Resource constraints
    - Reduced quality of care

Mitigation:

- LSHIP upgrades ensure PHCs meet 50,000 population capacity
- Continued investment in health workforce
- Strengthen referral system

5. Waste Management Pressure

- **LSHIP Contribution:** Construction waste, medical waste (100-400 kg/day per site)
- **Other Projects Contribution:** Domestic waste from new housing
- **Cumulative:** Pressure on LAWMA waste management system
- **Risks:**
    - Inadequate waste collection

- Illegal dumping
- Environmental contamination

Mitigation:

- LSHIP HMWMP with LAWMA collection contracts
- Construction waste management plan
- Community waste awareness campaigns
- Coordinate with LAWMA on service expansion

D. Cumulative Risk Rating

Cumulative Impact	Unmitigated Risk	Mitigated Risk
Labour Influx	● Critical	□ Moderate
Traffic Congestion	● Critical	□ Moderate
Air Quality Degradation	□ Major	□ Moderate
Health System Strain	□ Moderate	□ Minor
Waste Management Pressure	□ Major	□ Moderate

E. Cumulative Impact Management Plan

Action	Responsible	Timeline
Labour Influx Plan	PIU / Contractor	Pre-construction
Traffic Coordination	PIU / Lagos State	Construction
Air Quality Monitoring	Contractor	Construction
Health Service Coordination	PIU / LSMoH	Operation
Waste Management Coordination	PIU / LAWMA	Construction + Operation

F. Monitoring of Cumulative Impacts

Indicator	Method	Frequency	Responsible
Traffic incidents	Incident log	Monthly	PIU / Contractor
Air quality (PM10, PM2.5)	Monitoring	Monthly	Contractor
Community satisfaction	Survey	Quarterly	IESM
GBV incidents	GRM log	Monthly	PIU
Waste collection compliance	Inspection	Monthly	LAWMA / PIU

5.4.6 Climate Change Impacts on the Project

Table 5.2: Climate Vulnerability Assessment (Unmitigated) – Ikorodu North

Climate Hazard	Impact on Project	Magnitude	Likelihood	Significance (Unmitigated)	Key Sites

Flooding (pluvial)	Facility inundation, equipment damage, service disruption	Large (Omolaiye)	Almost certain (rainy season)	Major to Critical	Omolaiye
Flooding (fluvial)	Facility inundation (wetlands)	Medium	Almost certain (by 2050)	Major	Omolaiye, Olorunda
Heatwaves	Heat stress (patients, staff); increased cooling demand	Major	Almost certain (by 2050)	Major	All sites (especially Agura)
Extreme rainfall / storms	Building damage, flooding, power outages	Medium	Almost certain	Moderate	All sites
Drought	Water scarcity (borehole depletion)	Medium	Possible	Moderate	All sites

5.5 Summary of Key Impacts

5.5.1 Overview of Key Adverse Impacts (Unmitigated)

The unmitigated impact assessment identifies that physical disturbance impacts (dust, noise, erosion, water quality) peak during the construction phase, along with significant labour influx and GBV risks. The pre-construction phase holds the highest unmitigated risk regarding resettlement and potential asbestos exposure. The operational phase is dominated by hazardous medical waste management and increasing climate vulnerability over the 50-year facility lifespan.

Key findings of unmitigated significance for the Ikorodu North Axis are summarized as follows:

- **Critical Impacts (Must be avoided or fully mitigated):**

- Pre-construction: Asbestos exposure unmitigated risk (Omolaiye), unmitigated resettlement (Agura, Olorunda).
- Construction: Wetland loss without offset (Omolaiye, Olorunda, Eruwen).

- **Major Impacts (Must be mitigated):**
  - Construction: Labour influx and associated housing pressure and social tension (Agura); OHS risks (all sites); Community health and safety (traffic, access); GBV/SEA/SH risk (Agura); Unmitigated water quality impacts to sensitive bodies (Omolaiye).
  - Operation: Unmitigated medical waste and sharps management; Infection control (HAI risks); Climate vulnerability unmitigated (flooding at Omolaiye, heatwaves at Agura); Unmitigated fisheries livelihood disruption.
- **Moderate Impacts (Manageable with standard mitigation):**
  - Unmitigated air quality degradation (dust); Unmitigated soil erosion (notably at Eruwen, Omolaiye); Unmitigated water scarcity (operation); and Cumulative impacts (labour, traffic, air quality).

Table 5.1: Summary of Key Adverse Impacts (Unmitigated) – Ikorodu North

Phase	Impact Category	Impact Description	Significance (Unmitigated)	Key Sites
Pre-construction	Hazardous Materials	Asbestos exposure during survey and abatement (if confirmed)	Critical	Omolaiye, Eruwen
	Resettlement	Economic displacement of 13 shop owners (Agura) and 3 farmers (Olorunda)	Major	Agura, Olorunda
Construction	Air Quality	Dust (PM10, PM2.5) from earthworks, demolition, vehicle movement	Moderate to Major	All sites

	Noise	Construction equipment noise (70–100 dB(A))	Moderate	All sites
	Soil Erosion	Erosion (Omolaiye, Eruwen); sedimentation of water bodies	Moderate to Major	Omolaiye, Eruwen
	Water Quality	Sediment runoff, fuel/oil spills, concrete wash water	Major	Omolaiye (wetlands), Agura (lake)
	Flooding	Blocked drains, altered drainage patterns, increased runoff	Moderate to Major	Omolaiye (waterlogged)
	Waste Generation	Construction waste (inert, hazardous – asbestos if confirmed)	Moderate to Major	All sites
	Labour Influx	Pressure on local services; social conflict; GBV/SEA/SH risks	Major	Agura, Omolaiye
	OHS	Falls, electrocution, machinery accidents, dust inhalation, heat stress	Major	All construction sites
	Community H&S	Traffic accidents, construction hazards, dust, noise, restricted access	Major	Agura, Omolaiye
	GBV/SEA/SH	Sexual exploitation and abuse; sexual	Major	All sites

		harassment of workers		
	Biodiversity	Wetland vegetation and habitat loss (clearing of 0.5–1 ha)	Critical	Omolaiye, Olorunda, Eruwen
Operation	Medical Waste	Infectious waste, sharps, pathological waste, pharmaceutical waste	Major	All operational facilities
	Infection Control	Healthcare-associated infections (HAIs) among patients and staff	Major	All operational facilities
	Climate Vulnerability	Flooding, heatwaves affecting facility operations	Major	Omolaiye (flood), Agura (heat)
	Wastewater	Contamination of soil and groundwater from septic systems	Moderate	All PHCs
	Energy Use	Generator emissions (if solar insufficient)	Minor	All facilities

5.5.2 Overview of Key Beneficial Impacts

Despite the significant potential for adverse impacts if unmitigated, the project is expected to deliver substantial, long-term beneficial impacts that align directly with its development objectives and the positive criteria of AfDB Operational Safeguards (OS1).

- **Significant Positive (High Positive):**
    - Construction: Generation of 160–320 direct jobs and approximately 10,000–15,000 indirect supply chain jobs unmitigated. Multiplier effect on the local economy through 60–70% of the construction budget spent on local procurement.
    - Operation: Unmitigated healthcare access for approximately 200,000 residents unmitigated. Maternal mortality estimated to reduce by 20–30% and under-five

mortality by 25–35% unmitigated. Reduced travel time to functional facilities (<15 minutes unmitigated, down from 30–60 minutes), reducing costs and burden.

- **Moderate Positive (Medium Positive):**
    - Construction: Training of 50+ youth in construction skills and waste management.
    - Operation: Estimated reduction in GHG emissions of 2,000–4,000 tCO_2e/year and diesel savings of 500,000–1,000,000 litres/year programme-wide due to unmitigated solar PV. Beneficial reduction in GBV/SEA/SH risk was unmitigated due to the implementation of the GBV Action Plan and referral pathways.

5.6 Worst-Case Scenarios and Cumulative Risk

The worst-case scenario analysis emphasises unmitigated events with the highest consequence. Uncontrolled asbestos release during demolition poses a critical risk (Omolaiye), potentially leading to mesothelioma health crises decades later. A significant fuel spill during construction near Lagos Lagoon or wetlands is a major to critical risk, decimating local fisheries and livelihoods. Wetland loss without offset is a likely Major to Critical risk to biodiversity and flood regulation services. Socially, the worst unmitigated case is a failure to support a GBV survivor, causing severe trauma, potential unwanted pregnancy/STI, and community protest leading to project shutdown.

Unmitigated, the project contributes to Cumulative Impacts in the Ikorodu corridor with other major projects. Key unmitigated hotspots involve labour influx leading to GBV, housing pressure, and social tension; and cumulative air quality degradation (dust) from the Ikorodu-Shagamu road upgrade. The project contributes to the medium cumulative risks of waterborne, vector-borne, and respiratory diseases.

Finally, AfDB alignment confirms that the project's assessment has correctly triggered and addressed all relevant Operational Safeguards (OS1-OS10) through full impact assessment, RAP (Standalone document), Critical Habitat screening (OS3), pollution prevention and hazardous materials assessment (OS4, OS8), labour and GBV assessments (OS2), and comprehensive climate vulnerability analysis (OS6).

5.7 Conclusion of the Impact Assessment

The impact assessment has identified a wide spectrum of unmitigated impacts, from Critical (asbestos, wetland loss, and resettlement) to Minor. These have been specifically linked to project phases, key sites, and receptors in the Ikorodu North Axis.

Critical impacts, notably regarding asbestos and wetland loss at Omolaiye, must be avoided or fully mitigated. All Major impacts concerning labour, health, safety, GBV, medical waste, and livelihoods must be mitigated to acceptable levels. Moderate impacts are manageable with standard mitigation measures. Simultaneously, the project's high positive benefits for healthcare, maternal/child health, employment, and the local economy must be maximised.

With the implementation of the mitigation measures outlined in Chapter 6 and the corresponding management plans---the Environmental and Social Management Plan (ESMP, Chapter 7), the Hazardous Medical Waste Management Plan (HMWMP, Chapter 8), and the GBV Action Plan (Chapter 9) the project's adverse impacts can be effectively minimized to an acceptable level, allowing for the maximisation of its substantial beneficial impacts and the safe realisation of its goals.

CHAPTER 6 -- MITIGATION MEASURES

6.1 Introduction

Chapter 6 presents the mitigation measures required to address the environmental, social, health, and safety impacts identified in Chapter 5 for the four PHC facilities in the Ikorodu North Axis. All measures follow the AfDB mitigation hierarchy---Avoid, Minimise, Restore, and Offset---and are designed to ensure compliance with FMEnv, NESREA, LASEPA, AfDB ISS, IFC Performance Standards, WHO, and ILO requirements'

The Ikorodu North Axis contains a diverse set of environmental and social sensitivities, including wetlands (Omolaiye, Olorunda, Eruwen), asbestos-containing structures (Omolaiye), fisheries-dependent communities (Omolaiye), PAP livelihoods (Agura, Olorunda), erosion-prone soils (Eruwen, Omolaiye), and GBV/SEA/SH hotspots (Agura, Olorunda). Because these sensitivities vary significantly across sites, mitigation measures are site-specific, ensuring that risks are managed precisely where they occur and at the appropriate scale.

These measures form the operational backbone of the Environmental and Social Management Plan (ESMP) in Chapter 7 and will guide contractors, the PIU, and facility operators throughout pre-construction, construction, and operation phases.

6.2 Site-Specific Mitigation Measures

Mitigation measures are organised by PHC site and aligned with the biophysical, social, and health & safety stakes identified in Chapter 5. Each site-specific matrix provides targeted actions that directly respond to the unmitigated impacts identified during the assessment, ensuring that interventions are practical, proportionate, and tailored to local sensitivities.

6.2.1 Omolaiye -- Site-Specific Mitigation Measures

Key risks: Critical wetland habitat, asbestos, lake water quality, fisheries.

Biophysical

- Wetland avoidance (50 m buffer); if unavoidable → biodiversity offset (1:1 to 3:1).
- Asbestos abatement (licensed contractor, wet removal, air monitoring) -- if confirmed.
- Lake protection (sediment traps, no discharge of wash water).

Social

- Fisheries livelihood restoration (support programme + compensation).
- Community engagement on wetland conservation.

Health & Safety

- Asbestos OHS controls.
- Safe work zones near lake.

Omolaiye -- Mitigation Matrix

Impact Category	Unmitigated Impact	Mitigation Measure	Hierarchy	Responsible
Biophysical	Critical wetland loss	Avoid; if unavoidable → biodiversity offset (1:1--3:1)	Avoid/Offset	PIU
	Asbestos exposure (suspected)	Licensed abatement; air monitoring	Avoid	Specialist
	Lake contamination	Sediment traps; no wash-water discharge	Minimise	Contractor
Social	Fisheries livelihood disruption	Compensation; livelihood restoration	Restore	PIU
Health & Safety	Asbestos OHS	PPE; restricted access	Avoid	Specialist

6.2.2 Eruwen -- Site-Specific Mitigation Measures

Key risks: Asbestos confirmed, erosion, wetland loss.

Biophysical

- Full asbestos abatement by licensed contractor (wet removal, HEPA vacuums, air monitoring).
- Erosion control (silt fences, hydromulch, slope stabilisation).
- Wetland avoidance (50 m buffer); if unavoidable → biodiversity offset.

Social

- Community communication on asbestos removal schedule.

Health & Safety

- Asbestos PPE (P3 respirators, Type 5 coveralls).
- Restricted access during abatement.
- Air monitoring (<0.1 f/ml threshold).

Eruwen -- Mitigation Matrix

Impact Category	Unmitigated Impact	Mitigation Measure	Hierarchy	Responsible
Biophysical	Asbestos (confirmed)	Licensed abatement; wet removal; HEPA vacuums	Avoid	Specialist

	Soil erosion	Silt fences; hydromulch	Minimise	Contractor
	Wetland loss	50 m buffer; biodiversity offset	Avoid/Offset	PIU
Social	No PAPs	Community communication on asbestos removal	Minimise	PIU
Health & Safety	Asbestos OHS	P3 respirators; Type 5 coveralls	Avoid	Specialist

6.2.3 Olorunda -- Site-Specific Mitigation Measures

Key risks: 3 PAP farmers, wetland loss, economic displacement.

Biophysical

- Wetland avoidance (50 m buffer); if unavoidable → biodiversity offset.
- Erosion control (silt fences, hydromulch, slope stabilisation).

Social

- Full RAP implementation: compensation at full replacement cost, livelihood restoration.
- Community engagement on wetland conservation.

Health & Safety

- Community safety (traffic management, access management).

Olorunda -- Mitigation Matrix

Impact Category	Unmitigated Impact	Mitigation Measure	Hierarchy	Responsible
Biophysical	Wetland disturbance	50 m buffer; biodiversity offset	Avoid/Offset	PIU
	Soil erosion	Silt fences; hydromulch	Minimise	Contractor
Social	Economic displacement (6 farmers)	Full RAP; compensation; livelihood restoration	Compensate/Restore	PIU / RAP consultant
Health & Safety	Community safety	Traffic management; access management	Minimise	Contractor

6.2.4 Agura -- Site-Specific Mitigation Measures

Key risks: 13 PAP shops, labour influx, traffic congestion, GBV.

Biophysical

- Dust suppression on unpaved access roads.
- Noise management (barriers near residences; scheduling noisy works).

Social

- Full RAP implementation: compensation at full replacement cost, livelihood restoration.
- Labour influx management plan (worker camp rules, code of conduct, no child labour).
- GBV/SEA/SH mitigation (contractor training, survivor-centred response).
- Market access protection (maintain pedestrian routes).

Health & Safety

- Traffic management (flagmen, speed limits, diversion routes).
- Heat stress management (shade, hydration, rest cycles).

Agura -- Mitigation Matrix

Impact Category	Unmitigated Impact	Mitigation Measure	Hierarchy	Responsible
Biophysical	Dust	Water spraying; road dampening	Minimise	Contractor
	Noise	Barriers; scheduling	Minimise	Contractor
Social	Economic displacement (13 PAP shops)	Full RAP; compensation; livelihood restoration	Compensate/Restore	PIU / RAP consultant
	Labour influx	Worker camp management; CoC	Minimise	Contractor
	GBV/SEA/SH	Survivor-centred response; confidential GRM	Avoid/Minimise	PIU
	Market access disruption	Maintain pedestrian routes	Minimise	Contractor
Health & Safety	Traffic congestion	Traffic marshals; speed limits	Minimise	Contractor

	Heat stress	Shade, hydration, rest cycles	Minimise	Contractor

CHAPTER 7 -- ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

7.1 General Introduction

The Environmental and Social Management Plan (ESMP) provides the operational framework for implementing the mitigation measures identified in Chapter 6 for the four PHC facilities in the Ikorodu North Axis: Omolaiye, Eruwen, Olorunda, and Agura. It translates the site-specific risks into clear actions, responsibilities, monitoring requirements, and performance indicators across all project phases---pre-construction, construction, and operation.

The ESMP ensures compliance with the 2023 AfDB Integrated Safeguards System (ISS), FMEnv EIA Act, NESREA regulations, LASEPA environmental standards, IFC Performance Standards, WHO healthcare waste and IPC guidelines, and ILO labour and OHS conventions. It establishes a structured mechanism for:

- Managing environmental and social risks at each site
- Ensuring contractors and facility operators implement mitigation measures
- Monitoring performance through measurable indicators
- Protecting community health, safety, and security
- Ensuring transparency, accountability, and continuous improvement

Because each PHC site has distinct environmental and social sensitivities---such as critical wetlands (Omolaiye, Olorunda, Eruwen), fisheries (Omolaiye), high labour influx and traffic congestion (Agura), and asbestos-containing structures (Omolaiye) the ESMP is site-specific, ensuring that risks are managed precisely where they occur.

7.2 Site-Specific ESMPs for the Four PHC Sites

This section presents **site-specific ESMPs**, each structured into:

A. Biophysical Management

Brief explanation: Measures to prevent or minimise impacts on air, water, soil, wetlands, biodiversity, and hazardous materials.

B. Social Management

Brief explanation: Measures addressing livelihoods, resettlement, labour influx, GBV/SEA/SH, cultural heritage, and community engagement.

C. Health & Safety Management

Brief explanation: Measures to protect workers and communities from OHS risks, asbestos exposure, traffic hazards, and heat stress.

D. Monitoring Indicators

Brief explanation: Key parameters, frequency, and thresholds used to verify ESMP effectiveness.

E. Responsibilities

Brief explanation: Clear assignment of duties to the Contractor, PIU, Facility Operator, and Independent Environmental & Social Monitor (IESM).

Each ESMP table below provides targeted actions that directly respond to the unmitigated impacts identified in Chapter 5.



Figure 7.1: Site-Specific ESMP (Environmental & Social Management Plan) Framework

7.2.1 Omolaiye -- Site-Specific ESMP

Key sensitivities: Waterlogged sensitive ecosystem, critical wetland habitat, asbestos (suspected), fisheries.

A. Biophysical Management

Impact	ESMP Action	Performance Indicator
Wetland loss	50 m buffer; no-go zone; biodiversity offset (1:1--3:1)	No encroachment; offset plan approved
Water contamination	Sediment traps; no wash-water discharge; bunded fuel storage	TSS ≤30 mg/L; no hydrocarbons
Asbestos (suspected)	Licensed abatement; wet removal; air monitoring	≤ice f/ml

B. Social Management

Impact	ESMP Action	Performance Indicator

Fisheries livelihoods	Compensation; alternative livelihood support	PAP satisfaction ≥80%
Community engagement	Wetland conservation awareness; disclosure meetings	Quarterly meetings held

C. Health & Safety Management

Impact	ESMP Action	Performance Indicator
Traffic risks (Ikorodu - Agura corridor)	Deploy trained marshals; enforce speed limits; establish diversion routes; install warning signage	Zero traffic incidents
Asbestos OHS (pending survey)	Use P3 respirators; restrict access; wet-method handling; controlled removal by licensed contractor	100% PPE compliance
Working at height	Use fall-arrest systems; scaffolding inspections; edge protection; permit-to-work system	Zero fall incidents; 100% permit compliance
Confined space entry	Gas testing; ventilation; standby attendant; confined-space entry permit; rescue plan	Zero confined-space incidents
Electrical safety	Lock-out/tag-out (LOTO); insulated tools; elevated electrical installations; routine inspections	Zero electrical shocks
Chemical safety (fuels, reagents, solvents)	Bunded storage; SDS availability; spill kits; chemical handling training; emergency showers	Zero major spills; 100% SDS availability
Lone working	Lone-worker protocol; communication devices; check-in/check-out system	100% compliance with lone-worker procedure
Hazardous materials & hazardous waste	Segregation; labeled containers; licensed disposal; secure storage; no community exposure	Zero uncontrolled releases; 100% compliant manifests
Community health & safety (CHS)	Secure work zones; fencing; signage; controlled access; community awareness; safe routing of trucks	Zero community incidents; no public exposure to hazards
Impact	**ESMP Action**	**Performance Indicator**
Asbestos OHS (suspected)	P3 respirators; Type 5 coveralls; restricted access	100% PPE compliance
Community safety	Fencing; signage; controlled access	Zero incidents

D. Monitoring Indicators

- PM10/PM2.5 weekly
- Lake water quality monthly
- Asbestos air monitoring continuous (if confirmed)
- GRM resolution ≤14 days

E. Responsibilities

- Contractor: sediment control, asbestos abatement (if confirmed)
- PIU: fisheries compensation, monitoring oversight
- IESM: quarterly audits

7.2.2 Eruwen -- Site-Specific ESMP

Key sensitivities: Asbestos confirmed, erosion-prone, wetland loss.

A. Biophysical Management

Impact	ESMP Action	Performance Indicator
Asbestos (suspected roofing)	Licensed asbestos abatement; wet-method removal; HEPA vacuums; continuous air monitoring	≤ 0.1 f/ml
Flooding / drainage congestion	Oversized drainage channels; elevated slabs and electrical installations	Zero flood-related service interruption
Localized dust exceedance (SP1)	Water spraying; covered stockpiles; strict source control	$PM_{10} \leq 50$ µg/m³
Localized noise exceedance (SP2)	Noise barriers; scheduling of noisy works; equipment maintenance	≤ 55 dB(A)
Solid waste generation (construction & operations)	Segregation at source; covered skips; daily evacuation; disposal at LAWMA-approved facility	100% compliant disposal manifests
Sludge waste (from cleaning, maintenance, wastewater systems)	Dewatering; safe containment; disposal through licensed waste contractors	Zero uncontrolled sludge discharge
Wastewater discharge (greywater, wash-down water)	Temporary holding tanks; filtration; discharge only to approved drains; no release to creek	TSS ≤ 30 mg/L; zero untreated discharge

Impact	ESMP Action	Performance Indicator
Chemical spills (fuels, solvents, reagents)	Bunded storage; spill kits; trained spill response team; immediate containment	Zero major spills; response ≤ 30 minutes
Aqua ecology & ecosystem services (Ikorodu Creek)	Silt curtains; sediment traps; no in-water works during sensitive periods; prohibit discharge; maintain riparian vegetation; protect fisheries access	No measurable decline in water quality; no disruption to fisheries livelihoods

Impact	**ESMP Action**	**Performance Indicator**
Asbestos (confirmed)	Licensed abatement; wet removal; HEPA vacuums	≤0.1 f/ml
Soil erosion	Silt fences; hydromulch; slope stabilisation	No sediment discharge
Wetland loss	50 m buffer; biodiversity offset (1:1--3:1)	No encroachment; offset plan approved

B. Social Management

Impact	**ESMP Action**	**Performance Indicator**
Community communication	Asbestos removal schedule disclosure	100% households notified

C. Health & Safety Management

Impact	**ESMP Action**	**Performance Indicator**
Asbestos OHS	P3 respirators; Type 5 coveralls; restricted access	100% PPE compliance
Community safety	Fencing; signage	Zero incidents

D. Monitoring Indicators

- Asbestos air monitoring continuous
- PM10 daily
- GRM resolution ≤14 days

E. Responsibilities

- Specialist contractor: asbestos abatement
- PIU: wetland offset, monitoring oversight
- IESM: quarterly audits

7.2.3 Olorunda -- Site-Specific ESMP

Key sensitivities: 3 PAP farmers, wetland loss, livelihoods.

A. Biophysical Management

Impact	ESMP Action	Performance Indicator
Wetland loss	50 m buffer; biodiversity offset (1:1--3:1)	No encroachment; offset plan approved
Soil erosion	Silt fences; hydromulch; slope stabilisation	No sediment discharge

B. Social Management

Impact	ESMP Action	Performance Indicator
Economic displacement (3 farmers)	Full RAP; compensation; livelihood restoration	PAP satisfaction ≥80%; compensation 100% paid
Community engagement	Wetland conservation awareness; disclosure meetings	Quarterly meetings held

C. Health & Safety Management

Impact	ESMP Action	Performance Indicator
Community safety	Fencing; signage; traffic management	Zero incidents

D. Monitoring Indicators

- Water quality monthly
- GRM resolution ≤14 days

E. Responsibilities

- Contractor: sediment control, traffic management
- PIU: RAP implementation, wetland offset
- IESM: quarterly audits

7.2.4 Agura -- Site-Specific ESMP

Key sensitivities: 13 PAP shops, labour influx, traffic congestion, GBV.

A. Biophysical Management

Impact	ESMP Action	Performance Indicator
Dust	Water spraying; road dampening	No visible dust plumes
Noise	Barriers; scheduling; silencers	≤ar dB(A)

B. Social Management

Impact	ESMP Action	Performance Indicator

Economic displacement (13 shops)	Full RAP; compensation; livelihood restoration	PAP satisfaction ≥80%; compensation 100% paid
Labour influx	Worker camp rules; CoC; ≥50% local hiring	Zero conflicts
GBV/SEA/SH	Confidential GRM; survivor-centred response	100% workers trained
Market access	Maintain pedestrian routes	Zero complaints

C. Health & Safety Management

Impact	ESMP Action	Performance Indicator
Traffic congestion	Marshals; speed limits; diversion routes	Zero incidents
Heat stress	Shade; hydration; rest cycles	Zero heat-related incidents

D. Monitoring Indicators

- PM10 daily
- Noise weekly
- Traffic incidents monthly
- GBV training monthly
- GRM resolution ≤14 days

E. Responsibilities

- Contractor: labour management, traffic control, dust/noise control
- PIU: RAP implementation, GBV oversight
- IESM: quarterly audits

7.3 ESMP Summary for the Four Sites

The table below consolidates all site-specific ESMP actions into a single corridor-wide matrix. It provides a quick reference for AfDB, FMEnv, NESREA, LASEPA, and project stakeholders, showing key risks, core mitigation actions, significance levels, and responsible parties for each PHC site.

7.4 ESMP Summary Matrix (Four PHC Sites -- Ikorodu North)

Colour Codes: ● Critical □ Major □ Moderate □ Minor ● Positive

Site	Impact Category	Key Unmitigated Impact	Mitigation Measure	Hierarchy	Significance	Responsible

Omolaiye	Biophysical	Wetland loss	50 m buffer; biodiversity offset	Avoid/Offset	●	PIU
		Asbestos (suspected)	Licensed abatement; air monitoring	Avoid	●	Specialist
		Water contamination	Sediment traps; no wash-water discharge	Minimise	□	Contractor
	Social	Fisheries livelihood disruption	Compensation; livelihood restoration	Restore	□	PIU
	Health & Safety	Asbestos OHS	PPE; restricted access	Avoid	●	Specialist
Eruwen	Biophysical	Asbestos (confirmed)	Licensed abatement; HEPA vacuums	Avoid	●	Specialist
		Soil erosion	Silt fences; hydromulch	Minimise	□	Contractor
		Wetland loss	50 m buffer; biodiversity offset	Avoid/Offset	●	PIU
	Health & Safety	Asbestos OHS	PPE; restricted access	Avoid	●	Specialist
Olorunda	Biophysical	Wetland loss	50 m buffer; biodiversity offset	Avoid/Offset	●	PIU

		Soil erosion	Silt fences; hydromulch	Minimise	□	Contractor
	Social	Economic displacement (3 farmers)	Full RAP; compensation; livelihood restoration	Compensate/Restore	□	PIU
	Health & Safety	Community safety	Traffic management; access management	Minimise	□	Contractor
Agura	Biophysical	Dust	Water spraying; road dampening	Minimise	□	Contractor
		Noise	Barriers; scheduling	Minimise	□	Contractor
	Social	Economic displacement (13 shops)	Full RAP; compensation; livelihood restoration	Compensate/Restore	□	PIU
		Labour influx	Worker camp rules; CoC	Minimise	□	Contractor
		GBV/SEA/SH	Confidential GRM; survivor-centred response	Avoid/Minimise	●	PIU
		Market access	Maintain pedestrian routes	Minimise	□	Contractor
	Health & Safety	Traffic congestion	Marshals; speed limits	Minimise	□	Contractor

		Heat stress	Shade; hydration	Minimise	□	Contractor

7.5 Institutional Responsibilities

This section defines the institutional roles required to implement the ESMP across the four PHC sites. Clear responsibilities ensure accountability, regulatory compliance, and effective environmental and social performance throughout all project phases.

7.5.1 Institutional Framework Overview

The ESMP involves coordinated action among federal and state regulators, the PIU, contractors, facility operators, and independent monitors.

Entity	**Role**	**Key Responsibilities**
FMEnv	Federal regulator	EIA certification, compliance inspections
LASEPA	State regulator	Permits (air, noise, water), inspections
LAWMA	Waste regulator	Medical & general waste collection, manifests
PIU (LSMoH)	ESMP oversight	Contractor compliance, GRM, reporting, RAP oversight
Contractor(s)	ESMP implementation	CESMP, monitoring, OHS, GBV, waste, community liaison
Facility Operator	Operational ESMP	HMWMP, IPC, wastewater, GRM, maintenance
Licensed Asbestos Contractor	Hazardous materials	Surveys, abatement, air monitoring, disposal
IESM	Independent oversight	Quarterly audits, compliance verification
LGAs/CDAs	Local support	Community entry, PAP verification, GRM
AfDB	Financier	Safeguard supervision, compliance enforcement

7.5.2 Detailed Roles and Responsibilities

A. PIU (Lagos State Ministry of Health)

Brief explanation: The PIU ensures full ESMP implementation, regulatory compliance, and reporting.

Key responsibilities include:

- Enforcing ESMP, CESMP, RAP, HMWMP, GBV Action Plan
- Managing GRM and stakeholder engagement

- Ensuring contractors meet E&S obligations
- Coordinating with regulators
- Overseeing climate-resilient design
- Reporting to AfDB and FMEnv
- Capacity building for facility operators

B. Contractor(s)

Brief explanation: Contractors implement day-to-day ESMP actions during construction.

Key responsibilities include:

- Preparing CESMP
- Conducting air, noise, water monitoring
- Implementing dust, noise, erosion, spill, and waste controls
- Managing labour influx, OHS, GBV, traffic
- Reporting incidents within 24 hours
- Maintaining community liaison

C. Facility Operator (Operational Phase)

Brief explanation: Operators ensure ESMP compliance during facility operation.

Key responsibilities include:

- Implementing HMWMP and IPC
- Managing wastewater and energy systems
- Maintaining facility infrastructure
- Operating GRM
- Reporting quarterly to PIU

D. Independent Environmental & Social Monitor (IESM)

Brief explanation: The IESM provides independent oversight.

Key responsibilities include:

- Quarterly audits
- Compliance verification
- Non-compliance reporting
- Effectiveness assessment
- RAP verification
- Reporting to AfDB

7.6 Monitoring Plan

Monitoring is a critical component of the ESMP, ensuring that mitigation measures are implemented effectively and that environmental and social performance across the four PHC

sites---Omolaiye, Eruwen, Olorunda, and Agura---meets the requirements of AfDB ISS, FMEnv, NESREA, and LASEPA.

Monitoring indicators have been selected based on the site-specific risks identified in Chapter 5 and the mitigation measures outlined in Chapter 6. These indicators cover all relevant domains, including air quality, noise, water quality, soil erosion, waste management, labour and GBV risks, biodiversity protection, and climate resilience.

The monitoring plan ensures early detection of deviations, timely corrective actions, and continuous improvement throughout project implementation.

7.6.1 Monitoring Indicators

This section presents the full set of monitoring indicators for the four PHC sites. Each indicator specifies:

- What is monitored (impact/parameter)
- Why it is monitored (risk significance)
- How it is monitored (method)
- Where it is monitored (site-specific locations)
- How often (frequency)
- Who is responsible (Contractor, PIU, Facility Operator, IESM)
- When corrective action is required (trigger thresholds)

This consolidated monitoring matrix provides a complete, auditable, AfDB-compliant monitoring system that supports effective ESMP implementation.

Site-Specific Examples

- Omolaiye: Water quality (TSS, hydrocarbons), asbestos air monitoring (if confirmed)
- Eruwen: Asbestos fibres (confirmed), PM10, erosion monitoring
- Olorunda: Wetland water quality, RAP implementation monitoring
- Agura: PM10, noise, traffic incidents, GBV training

7.6.2 Monitoring Locations

Monitoring locations are selected based on proximity to sensitive receptors, ensuring accurate measurement of potential impacts.

Site-Specific Monitoring Locations

- **Omolaiye:** Nearest residential buildings (air quality, noise); water bodies downstream (water quality); wetland buffer zone (biodiversity)
- **Eruwen:** Residences adjacent to asbestos-containing structures (asbestos, air quality)
- **Olorunda:** Nearest residential buildings (air quality, noise); wetland downstream sampling points (water quality)

- **Agura:** Nearest residential buildings (air quality, noise)

These locations ensure that monitoring captures real exposure levels for communities and ecosystems.

7.6.3 Corrective Action Procedure

When monitoring results exceed established thresholds, corrective actions must be implemented immediately to prevent environmental or social harm. The procedure ensures rapid response, accountability, and compliance with AfDB ISS.

Corrective Action Steps

1. Identify exceedance through monitoring data, inspections, or GRM complaints.
2. Notify the PIU (verbal within 24 hours, written within 48 hours).
3. Investigate root cause to determine the source of the exceedance.
4. Implement immediate corrective action (e.g., increase watering, stop noisy activity).
5. Develop long-term corrective plan where structural improvements are required.
6. Verify effectiveness through follow-up monitoring.
7. Report to AfDB for serious incidents or repeated exceedances.
8. Update the ESMP if systemic issues are identified.

Examples of Corrective Actions

- PM10 exceedance: Increase watering frequency; cover stockpiles.
- Noise exceedance: Install temporary noise barriers; reschedule activities.
- TSS exceedance: Repair silt fences; clean sediment traps.
- Asbestos exceedance: Stop work; improve containment; re-monitor.

Table 7.1 -- Environmental & Social Monitoring Matrix (Four PHC Sites)

(Impact → Mitigation → Indicator → Parameter → Method → Frequency → Responsibility → Trigger)

A. Air Quality Monitoring

Site	Impact	Mitigation	Indicator	Parameter	Method	Frequency	Responsibility	Trigger
Agura	Dust	Water spraying	PM10	PM10 (µg/m³)	Real-time monitor	Daily	Contractor	>50 µg/m³
Omolaiye	Dust	Water spraying	PM10	PM10 (µg/m³)	Real-time monitor	Daily	Contractor	>50 µg/m³

Eruwen	Dust	Water spraying	PM10	PM10 (µg/m³)	Gravimetric	Weekly	Contractor	>50 µg/m³
Olorunda	Dust	Water spraying	PM10	PM10 (µg/m³)	Gravimetric	Weekly	Contractor	>50 µg/m³
Omolaiye	Asbestos (suspected)	Licensed abatement	Asbestos fibres	f/ml	PCM/TEM	Continuous	Specialist	>0.1 f/ml
Eruwen	Asbestos (confirmed)	Licensed abatement	Asbestos fibres	f/ml	PCM/TEM	Continuous	Specialist	>0.1 f/ml

B. Noise Monitoring

Site	**Impact**	**Mitigation**	**Indicator**	**Parameter**	**Method**	**Frequency**	**Responsibility**	**Trigger**
Agura	Construction noise	Barriers, scheduling	Noise level	Leq dB(A)	Type 1 meter	Weekly	Contractor	>55 dB(A)
Omolaiye	Construction noise	Barriers, scheduling	Noise level	Leq dB(A)	Type 1 meter	Weekly	Contractor	>55 dB(A)
Eruwen	Equipment noise	Silencers	Noise level	Leq dB(A)	Type 2 meter	Weekly	Contractor	>55 dB(A)
Olorunda	Equipment noise	Silencers	Noise level	Leq dB(A)	Type 2 meter	Weekly	Contractor	>55 dB(A)

C. Water Quality Monitoring

Site	Impact	Mitigation	Indicator	Parameter	Method	Frequency	Responsibility	Trigger
Omolaiye	Wetland contamination	Bunded storage	Wetland quality	TSS, pH, hydrocarbons	Lab analysis	Monthly	Contractor	TSS >30 mg/L
Oloru nda	Wetland contamination	Bunded storage	Wetland quality	TSS, pH, hydrocarbons	Lab analysis	Monthly	Contractor	TSS >30 mg/L
All sites	Sewage	Portable toilets	Coliforms	CFU/100ml	Membrane filtration	Monthly	Contractor	>0 CFU/100ml

D. Soil Erosion & Sediment Control

Site	Impact	Mitigation	Indicator	Parameter	Method	Frequency	Responsibility	Trigger
Eruwen	Erosion	Silt fences	Fence condition	Tears, undercutting	Inspection	Weekly	Contractor	Any damage
Omolaiye	Erosion	Silt fences	Fence condition	Tears, undercutting	Inspection	Weekly	Contractor	Any damage
Eruwen	Sediment runoff	Sediment traps	Trap condition	% full	Inspection	Weekly	Contractor	>50% full
Omolaiye	Sediment runoff	Sediment traps	Trap condition	% full	Inspection	Weekly	Contractor	>50% full

E. Waste Management

Site	Impact	Mitigation	Indicator	Parameter	Method	Frequency	Responsibility	Trigger

All sites	Poor segregation	Segregated bins	Segregation	% correct	Inspection	Daily	Contractor	<90%
Omolaiye	Asbestos waste	Licensed disposal	Manifest	Completeness	Review	Per load	Specialist	Missing manifest
All sites	Medical waste	LAWMA disposal	Manifest	LAWMA receipts	Review	Monthly	Facility Operator	Missing receipt

F. Labour & GBV Monitoring

Site	Impact	Mitigation	Indicator	Parameter	Method	Frequency	Responsibility	Trigger
Agura	Labour influx	Camp rules	Local hiring	% local	Records	Monthly	Contractor	<50%
All sites	OHS	PPE	PPE compliance	% PPE	Inspection	Daily	Contractor	<95%
Agura	GBV	GBV Action Plan	GBV training	% trained	Records	Monthly	Contractor	<100%
All sites	GBV cases	GRM	GBV resolution	% resolved	GRM log	Monthly	PIU	Any unresolved

G. Community Health & Safety

Site	Impact	Mitigation	Indicator	Parameter	Method	Frequency	Responsibility	Trigger
Agura	Traffic	Marshals	Traffic incidents	# incidents	Log	Monthly	Contractor	Any incident

All sites	Access	Fencing	Access complaints	# complaints	GRM	Monthly	PIU	>1 complaint

H. Biodiversity & Wetland Monitoring

Site	Impact	Mitigation	Indicator	Parameter	Method	Frequency	Responsibility	Trigger
Omolaiye	Wetland	50 m buffer	Buffer integrity	Encroachment	GPS	Weekly	Contractor	Any encroachment
Oloronda	Wetland	50 m buffer	Buffer integrity	Encroachment	GPS	Weekly	Contractor	Any encroachment
Eruwen	Wetland	50 m buffer	Buffer integrity	Encroachment	GPS	Weekly	Contractor	Any encroachment
All sites	Revegetation	Native planting	Survival rate	% survival	Survey	3, 6, 12 months	Contractor	<80%

I. Climate Resilience

Site	Impact	Mitigation	Indicator	Parameter	Method	Frequency	Responsibility	Trigger
All sites	Flooding	Drainage upgrades	Flood events	# events	Inspection	After rain	PIU	Any flooding
All sites	Energy	Solar PV	Solar output	kWh	Logs	Monthly	Facility Operator	<90% capacity

7.7 Environmental & Social Management Actions

This section consolidates all ESMP actions across biophysical, social, and health & safety domains for the four PHC sites.

7.7.1 Biophysical Management Actions

Actions to protect wetlands, air quality, soil, water, biodiversity, and hazardous materials.

Examples:

- Wetland buffers (Omolaiye, Olorunda, Eruwen)
- Asbestos abatement (Omolaiye, Eruwen)
- Erosion control (Eruwen, Omolaiye)
- Dust/noise control (all sites)

7.7.2 Social Management Actions

Actions to protect livelihoods, manage labour influx, prevent GBV/SEA/SH, and safeguard cultural heritage.

Examples:

- RAP implementation (Agura, Olorunda)
- Labour influx management (Agura)
- GBV Action Plan (all sites)
- Market access protection (Agura)

7.7.3 Health & Safety Management Actions

Actions to protect workers and communities from OHS risks.

Examples:

- Asbestos OHS controls (Omolaiye, Eruwen)
- Traffic management (Agura)
- Heat stress management (all sites)
- Community safety fencing (all sites)

7.8 Stakeholder Engagement & GRM

Stakeholder engagement ensures transparency and community participation. The GRM provides accessible channels for resolving grievances.

7.8.1 Stakeholder Engagement

Engagement activities include consultations, disclosure meetings, and community liaison.

Actions:

- Quarterly community meetings
- Disclosure of construction schedules
- Engagement on wetland conservation (Omolaiye, Olorunda, Eruwen)
- RAP consultations (Agura, Olorunda)

7.8.2 Grievance Redress Mechanism (GRM)

The GRM provides confidential, accessible, and timely resolution of grievances.

Features:

- Multiple entry points (hotline, suggestion boxes, CLOs)
- GBV-sensitive reporting pathways

- Acknowledgement within 48 hours
- Resolution within 14 days
- Quarterly reporting to AfDB

7.9 Capacity Building & Training

Capacity building ensures that PIU, contractors, and facility operators can effectively implement the ESMP.

Training topics include:

- ESMP implementation
- OHS and emergency response
- GBV/SEA/SH prevention
- HMWMP and IPC
- Biodiversity protection
- Spill response
- Asbestos handling (Omolaiye, Eruwen)

7.10 Reporting Framework

Contractor -> PIU: monthly E&S reports. Facility Operator -> PIU: quarterly operational reports. PIU -> AfDB/FMEnv: monthly and annual reports. IESM -> AfDB: quarterly audit reports.

7.11 ESMP Budget & Implementation Schedule

The Environmental and Social Management Plan (ESMP) budget has been developed specifically for the three PHC facilities in the Badagry Axis (Eruwen, Olorunda, Agura and Omolaiye). The total estimated cost for the construction phase is US$350,000 (approximately ₦525 million) , with annual operational costs estimated at US$30,000–US$40,000 (approximately ₦45M–₦60M) .

7.11.1 Site-Specific ESMP Budget Breakdown

Table 7.2A provides a detailed breakdown of ESMP costs disaggregated by site, reflecting the distinct environmental and social sensitivities of each PHC facility.

Table 7.2A: Site-Specific ESMP Budget Breakdown by Component

ESMP Component	Agura PHC (₦)	Olorunda PHC (₦)	Erwen PHC (₦)	Total (₦)	Total (US$)	Responsible
Air Quality Monitoring	2,500,000	4,000,000	2,500,000	9,000,000	6,000	Contractor / PIU

ESMP Component	Agura PHC (₦)	Olorunda PHC (₦)	Erwen PHC (₦)	Total (₦)	Total (US$)	Responsible
Focus (SP1 daily during works)	—	*Igbogbele SP1*	—	—	—	—
Noise Monitoring	2,000,000	2,000,000	2,000,000	6,000,000	4,000	Contractor
Creek Water Quality Monitoring	4,000,000	—	4,000,000	8,000,000	5,333	Contractor
Asbestos Survey & Abatement	15,000,000	35,000,000	20,000,000	70,000,000	46,667	Specialist Contractor
Survey (all sites)	5,000,000	5,000,000	5,000,000	—	—	—
Abatement (confirmed sites)	—	*Roofing (50-100m²)*	*Aged structures*	—	—	—
Air monitoring	Included	Included	Included	—	—	—
Asbestos PPE	1,500,000	2,500,000	1,500,000	5,500,000	3,667	Contractor
Erosion / Sediment Control	3,000,000	3,000,000	3,000,000	9,000,000	6,000	Contractor
Creek margins	*Badagry Creek*	*Sandy soils*	*Badagry Creek*	—	—	—
Dust Control	2,000,000	2,500,000	2,000,000	6,500,000	4,333	Contractor
Traffic Management	6,000,000	—	—	6,000,000	4,000	Contractor
(Owode-Apa corridor)	*Yes*	—	—	—	—	—
Fuel Spill Prevention	2,000,000	2,000,000	5,000,000	9,000,000	6,000	Contractor
(Waterfront)	—	—	*Yes*	—	—	—
Waste Management	5,000,000	5,000,000	5,000,000	15,000,000	10,000	Facility Operator

ESMP Component	Agura PHC (₦)	Olorunda PHC (₦)	Erwen PHC (₦)	Total (₦)	Total (US$)	Responsible
(LAWMA / non-burn)	*All sites*	*All sites*	*All sites*	—	—	—
Livelihood Restoration	45,000,000	35,000,000	40,000,000	120,000,000	80,000	PIU
(Fisherfolk/traders)	*High*	*Medium*	*High*	—	—	—
GBV/SEA/SH Action Plan	8,000,000	6,000,000	7,000,000	21,000,000	14,000	PIU / Contractor
Labour Influx Management	6,000,000	—	2,000,000	8,000,000	5,333	Contractor
(Trans-border)	*Yes*	—	—	—	—	—
Stakeholder Engagement	4,000,000	4,000,000	4,000,000	12,000,000	8,000	PIU
GRM Implementation	2,000,000	2,000,000	2,000,000	6,000,000	4,000	PIU
IESM Quarterly Audits	10,000,000	10,000,000	10,000,000	30,000,000	20,000	IESM
Climate Resilience	25,000,000	20,000,000	20,000,000	65,000,000	43,333	Contractor / PIU
Elevated platform	*Yes*	—	—	—	—	—
Oversized drainage	*Yes*	*Yes*	*Yes*	—	—	—
Elevated electricals	*Yes*	*Yes*	*Yes*	—	—	—
Sub-Total	138,000,000	134,000,000	128,000,000	400,000,000	266,667	—
Contingency (10%)	13,800,000	13,400,000	12,800,000	40,000,000	26,667	PIU

ESMP Component	Agura PHC (₦)	Olorunda PHC (₦)	Erwen PHC (₦)	Total (₦)	Total (US$)	Responsible
Sub-Total	151,800,000	147,400,000	140,800,000	440,000,000	293,333	—
Management & Supervision (15%)	22,770,000	22,110,000	21,120,000	66,000,000	44,000	PIU
TOTAL	174,570,000	169,510,000	161,920,000	506,000,000	337,333	—

Note: Values are approximate and based on Nigerian market rates (2026). Exchange rate: US$1 = ₦1,500 (indicative).

7.11.2 Site-Specific Budget Summary

Table 7.2B provides a summary of the Site-Specific ESMP Budget.

Table 7.2B: Site-Specific ESMP Budget Summary

Site	Construction Phase (₦)	Construction Phase (US$)	Annual Operational (₦)	Annual Operational (US$)
Agura PHC	174,570,000	116,380	15,000,000–20,000,000	10,000–13,333
Olorunda PHC	169,510,000	113,007	12,000,000–16,000,000	8,000–10,667
Eruwen PHC	161,920,000	107,947	12,000,000–16,000,000	8,000–10,667
TOTAL	506,000,000	337,333	39,000,000–52,000,000	26,000–34,667

7.11.3 Site-Specific Justification for Budget Variations

Site	Key Cost Drivers	Rationale
Agura PHC	Elevated platform design; Traffic Management Plan (Owode-Apa corridor); Trans-border labour influx; Creek protection	New construction on flood/erosion-exposed coastal parcel; border proximity; high patient load

Site	Key Cost Drivers	Rationale
Olorunda PHC	Asbestos abatement (roofing 50–100m²); Flood-resilient drainage; High water table mitigation; Localized air/noise monitoring	Confirmed ACM in roofing; flood-prone zone; border-proximity reporting barriers
Eruwen PHC	Asbestos survey (aged structures); Creek water quality monitoring; Fuel spill prevention (waterfront); Fisheries livelihood restoration	Badagry Creek waterfront; tidal inundation; fisheries dependency (>60% household income)

7.11.4 Implementation Schedule

Table 7.2C depicts the ESMP Implementation Schedule by Phase.

Table 7.2C: ESMP Implementation Schedule by Phase

Phase	Duration	Key Activities	Site-Specific Focus
Pre-Construction	6–12 months	Asbestos surveys (all 3 sites); CESMP approval; Stakeholder engagement; GRM activation; RAP implementation	All sites (asbestos surveys pending confirmation)
Construction	12–18 months per facility (staggered)	Full ESMP implementation and monitoring; GBV training; Traffic management (APA); Creek protection (APA/Farasime); Quarterly IESM audits	APA: Traffic management; Igbogbele: Asbestos abatement; Farasime: Creek protection
Operation	Year 2 onward	HMWMP; IPC compliance; Wastewater management; Solar maintenance;	All sites (operational phase)

Phase	Duration	Key Activities	Site-Specific Focus
		Quarterly PIU reporting; Annual ESMP review	

Figure 7.10: ESMP Implementation Timeline

7.11.5 Budget Verification Statement

The ESMP budget presented in Section 7.10 has been developed specifically for the three PHC facilities in the Badagry Axis (AGURA, Olorunda, and Eruwen). The total budget (US$337,333 / approximately ₦506 million) is higher than comparative reports from other axes (₦220M–₦280M) due to the following site-specific factors:

1. Resettlement Action Plan (RAP) – AGURA, Olorunda, Eruwen

- No physical displacement is associated with the three Badagry Group 7 project sites. The resettlement baseline screening confirms that zero residential structures, zero businesses, and zero farmlands fall within the project footprints at AGURA, Olorunda, and Eruwen. All land parcels are government-owned and gazetted.

2. Asbestos Abatement (Olorunda & Eruwen)

- **Olorunda PHC:** Asbestos in roofing (50–100 m²)
- **Eruwen PHC:** Aged infrastructure likely containing hazardous materials
- **AGURA PHC:** Aged ancillary structures
- Licensed survey, wet removal, air monitoring, and hazardous waste disposal at all 3 sites

3. Coastal and Riverine Adaptations

- **Elevated-platform design** at AGURA to design out flood risk
- **Creek-margin protection** at AGURA and Eruwen (sediment traps, shoreline stabilisation)
- **Marine-grade materials** to withstand salt-air corrosion (aluminum-zinc roofing, anti-corrosive coatings)

4. Flood-Resilient Infrastructure

- Oversized drainage (1:100-year storm + 30% climate factor) at all 3 sites
- Elevated floor slabs and electrical panels
- Flood contingency planning for Olorunda and Eruwen

5. Trans-Border Labour Dynamics (AGURA)

- Enhanced labour management due to cross-border worker mobility
- Extended GBV/SEA/SH prevention measures

6. Water Quality and Creek Protection

- **Zero-discharge requirement** to Badagry Creek
- Bunded fuel storage and spill prevention
- Sediment traps and no wash-water discharge

7. Fisheries and Livelihood Restoration

- Over 60% of household income in Eruwen and Olorunda is directly derived from the Badagry Creek ecosystem
- Higher livelihood restoration costs reflect this dependency

7.11.6 Total Estimated ESMP Cost

Below is the Total Estimated ESMP Cost: .

Phase	Estimated Cost (₦)	Estimated Cost (US$)
Construction Phase	~506,000,000	~337,333
Annual Operational Phase	39,000,000 – 52,000,000	26,000 – 34,667

The budget estimates are based on Nigerian market rates, AfDB safeguard requirements, and typical ESMP implementation budgets for similar Category 1 health infrastructure projects in Nigeria.

Chapter 7 has presented the complete ESMP for Agura, Olorunda, and Eruwen PHCs, translating the Chapter 6 mitigation measures into an enforceable, site-specific framework covering institutional responsibilities, monitoring, corrective action, stakeholder engagement, Agura building, reporting, and a costed budget and schedule aligned with the axis ESMP totals.

7.12 Conclusion

The Environmental and Social Management Plan (ESMP) provides a comprehensive, practical, and enforceable framework for managing the environmental and social impacts of the Ikorodu Axis facilities.

Key elements of the ESMP include:

- Clear institutional responsibilities – PIU (oversight), contractors (implementation), facility operators (operation), IESM (independent monitoring), regulators (enforcement).
- Detailed monitoring plan – 30+ indicators with baselines, targets, methods, frequency, and corrective action triggers, aligned with NESREA and lender limits.
- Robust reporting framework – daily logs, weekly reports, monthly reports, quarterly audits, annual performance reports, incident reports (24–48 hours).

- Specialised management plans (appendices) covering waste, OHS, traffic, camps, labour influx, GBV, security, chance finds, biodiversity, climate, and more.
- Realistic budget (indicative US$350,000–600,000 for Ikorodu Axis, excluding RAP and asbestos abatement) and resources (PIU E&S staff, contractor E&S officers, IESM, monitoring equipment, training).
- Capacity building – training for PIU, contractors, facility operators, and community on ESMP, OHS, GBV, HMWMP, IPC, GRM.
- Emergency preparedness – EPRP for fire, flood, spill, medical emergency, GBV, security incident, with emergency equipment, drills, and contact lists.
- ESMP review and update mechanism – annual review, plus trigger-based reviews (incidents, scope change, regulation change), with AfDB approval for significant changes.
- Contractor ESMS requirements – C-ESMP (contractor-specific), approval process, performance monitoring, sanctions for non-compliance.

With full implementation of this ESMP, the Ikorodu Axis facilities will comply with AfDB ISS, FMEnv EIA Act, NESREA regulations, LASEPA requirements, and international good practices (IFC, WHO, ILO), while safeguarding communities, workers, and the environment.

CHAPTER 8 -- HAZARDOUS AND MEDICAL WASTE MANAGEMENT, DECOMMISSIONING AND RESTORATION PLAN

8.1 Introduction

This chapter presents two complementary management frameworks required for the safe, compliant, and sustainable handling of hazardous and medical waste across the PHC facilities in the Ikorodu North Axis, and for the eventual end-of-life management of each facility:

1. The Hazardous and Medical Waste Management Plan (HMWMP)

This plan applies to both the construction/refurbishment phase and the operational phase of the PHCs. It provides a complete system for the segregation, collection, storage, treatment, transport, and disposal of all hazardous and medical waste streams. The HMWMP is designed to protect healthcare workers, patients, waste handlers, and surrounding communities from exposure to infectious, chemical, pharmaceutical, and asbestos-containing waste. It also prevents environmental contamination of soil, groundwater, surface water, and air.

2. The Decommissioning and Restoration Plan

Although the PHC facilities are expected to operate for 50+ years, the Federal Ministry of Environment (FMEnv) requires that all ESIA reports include a Decommissioning and Restoration Plan. This ensures that, at the end of each facility's life cycle, demolition and site restoration are carried out safely, responsibly, and in compliance with national regulations. The plan covers the removal of hazardous materials (including asbestos), demolition waste management, site rehabilitation, and restoration of ecological and community assets.

Regulatory Compliance

Both the HMWMP and the Decommissioning Plan comply with:

- AfDB Operational Safeguard 4 (OS4) – Pollution Prevention and Hazardous Materials (African Development Bank, 2023)
- IFC EHS Guidelines for Healthcare Facilities (2007) (International Finance Corporation, 2012)
- WHO Safe Management of Wastes from Health-Care Activities (2nd Edition, 2014) (World Health Organization, 2014)
- FMEnv National Environmental (Sanitation and Wastes Control) Regulations, 2009 (National Environmental Standards and Regulations Enforcement Agency, 2009)
- NESREA Hazardous Waste Regulations (National Environmental Standards and Regulations Enforcement Agency, 2009)
- Harmful Waste Act CAP H1 LFN 2004 (Federal Government of Nigeria, 2004)

- LASEPA Waste Management Law (2017) and LAWMA Healthcare Waste Guidelines (Lagos State Environmental Protection Agency, 2017; Lagos State Waste Management Authority, 2019)
- ILO Convention 155 (OHS) and Convention 161 (Occupational Health Services) (International Labour Organization, 1981, 1985)

These frameworks ensure that hazardous and medical waste is managed according to international best practice and Nigerian regulatory requirements, and that decommissioning activities do not pose risks to workers, communities, or the environment.

Purpose of Chapter

This chapter provides:

- A complete Hazardous and Medical Waste Management Plan (HMWMP) for all PHC facilities
- A detailed Asbestos Management Plan for Omolaiye and Eruwen (suspected and confirmed)
- A comprehensive Occupational Health and Safety (OHS) framework for waste handlers
- A Spill Response Plan for chemical, infectious, fuel, and asbestos spills
- A Monitoring and Reporting System for waste generation, treatment, and disposal
- A Decommissioning and Restoration Plan required by FMEnv for end-of-life facility management
- Clear roles and responsibilities for all actors (PIU, Facility Operators, LAWMA, LASEPA, Contractors)
- A budget estimate for implementing the HMWMP and decommissioning activities

Together, these components ensure that hazardous and medical waste is managed safely throughout the project lifecycle and that future decommissioning activities protect public health, environmental quality, and community wellbeing.

PART A: Hazardous and Medical Waste Management Plan (HMWMP)

8.2 Objectives of the HMWMP

The HMWMP aims to:

1. Protect healthcare workers, patients, waste handlers, and the community from the risks of hazardous and medical waste (infectious diseases, needle-stick injuries, chemical burns, and asbestos exposure).
2. Prevent environmental contamination of soil, groundwater, surface water, and air from hazardous and medical waste.

3. Ensure compliance with AfDB ISS (OS4), Nigerian regulations (FMEnv, NESREA, LASEPA, LAWMA, Harmful Waste Act), and international good practice (WHO, IFC, ILO).
4. Establish a clear, practical, and enforceable waste management system for all 4 Ikorodu Axis PHCs, including segregation, collection, storage, treatment, transport, and disposal.
5. Minimise waste generation through waste reduction strategies (e.g., reuse where safe, reduce packaging, appropriate ordering to avoid expiry).
6. Provide training and capacity building for all personnel involved in waste management (healthcare workers, cleaners, waste handlers, facility managers).
7. Establish monitoring and reporting procedures to track waste generation, treatment, and disposal, and to ensure continuous improvement.
8. Provide emergency response procedures for spills, needle-stick injuries, and other waste-related incidents.

8.3 Regulatory and Policy Framework

8.3.1 Nigerian Regulations

Nigeria has a comprehensive regulatory framework governing hazardous and medical waste management. The HMWMP aligns with all applicable federal and state laws.

Table 8.1A -- Nigerian Regulations Relevant to HMWMP

Regulation	Key Requirements	Relevance to HMWMP
FMEnv National Environmental (Sanitation and Wastes Control) Regulations, 2009	Requires proper segregation, storage, collection, treatment, and disposal of all waste streams; prohibits open burning	Core framework for medical waste segregation, storage, and disposal
Harmful Waste Act Cap H1 LFN 2004	Prohibits import, transport, dumping, or disposal of harmful waste; imposes criminal penalties	Governs asbestos, chemical waste, pharmaceutical waste
NESREA Hazardous Waste Regulations (2009)	Classification, labeling, manifesting, transport, and disposal of hazardous waste	Applies to chemical waste, asbestos, expired batteries
LASEPA Waste Management Law (2017)	State-level permits for waste handling; environmental compliance inspections	Required for PHC waste storage and disposal

LAWMA Healthcare Waste Guidelines (2019)	Colour coding, packaging, collection schedules, disposal at designated facilities	Governs operational medical waste management

8.3.2 International Standards

International standards provide technical guidance and best practice benchmarks for safe waste management.

Table 8.1B -- International Standards Relevant to HMWMP

Standard	Key Requirements	Relevance to HMWMP
AfDB ISS -- OS4 (Pollution Prevention and Hazardous Materials)	Requires hazardous materials management plan; pollution prevention hierarchy	Core safeguard framework
IFC EHS Guidelines for Healthcare Facilities (2012)	Segregation, sharps management, wastewater treatment, autoclave standards	Technical specifications for PHC operations
WHO Safe Management of Wastes from Health Care Activities (2014)	Waste classification, colour coding, segregation, storage, transport, treatment	Adopted in full for HMWMP
ILO Convention 155 & 161	Worker protection, medical surveillance, OHS systems	Applies to waste handlers, asbestos workers

8.4 Healthcare Waste Categories (WHO Classification)

Table 8.2A -- WHO Waste Categories, Colour Codes, and Disposal Methods

Category	Description	Examples	Colour Code	Treatment / Disposal
General Waste	Non-hazardous, non-infectious	Paper, food waste	Black	LAWMA landfill
Infectious Waste	Contaminated with blood/body fluids	Dressings, swabs	Yellow	Autoclave → landfill
Sharps	Items that puncture skin	Needles, scalpels	Red	Incineration

Pharmaceutical Waste	Expired/unused drugs	Tablets, vials	Brown	Return to manufacturer or incineration
Chemical Waste	Hazardous chemicals	Formalin, xylene	Blue	Licensed hazardous waste contractor
Asbestos	ACM roofing sheets	Omolaiye (suspected), Eruwen (confirmed)	Special label	Hazardous waste landfill

8.5 Waste Management System Overview

The HMWMP follows the WHO waste management hierarchy:

1. **Minimisation** -- reduce waste generation at source
2. **Segregation at Source** -- colour-coded bins at point of generation
3. **Collection & Storage** -- sealed bags, secure storage area
4. **Internal & External Transport** -- dedicated trolley; LAWMA collection
5. **Treatment** -- autoclaving, chemical disinfection
6. **Final Disposal** -- LAWMA landfill; hazardous waste landfill

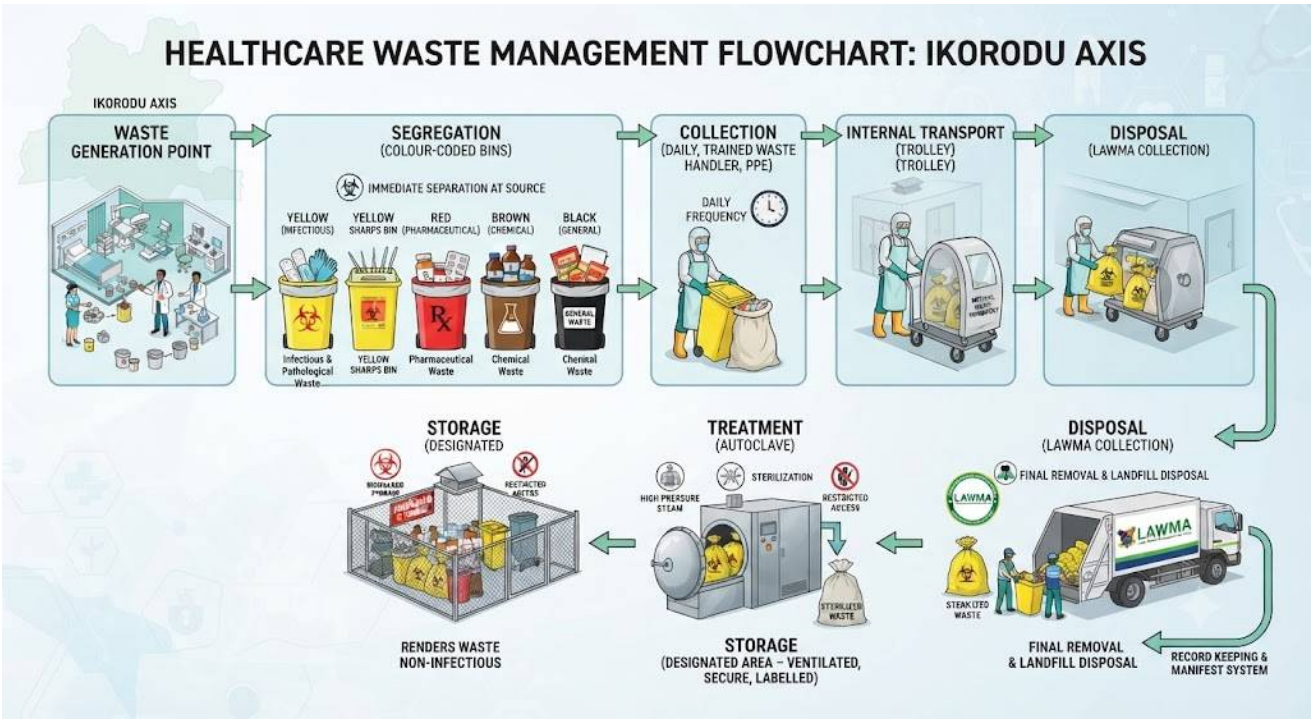


Figure 8.1: Flowchart of Waste Management

8.6 Waste Minimisation

Table 8.3A -- Waste Minimisation Strategies

Strategy	Action	Responsible	Target
Reduce packaging	Order supplies in bulk; request suppliers to reduce packaging	Facility Manager	10% reduction
Avoid over-ordering	Inventory management system	Pharmacy	<1% expired
Safe reuse	Reuse non-critical devices after sterilisation	Clinical Staff	N/A
Replace hazardous chemicals	Replace mercury thermometers with digital	Laboratory	Mercury eliminated
Reusable sharps containers	Puncture-proof containers that can be autoclaved	Clinical Staff	Reduced plastic waste
Segregation at source	Only infectious waste needs treatment	All staff	100% compliance

8.7 Waste Segregation at Source

8.7.1 WHO Colour Coding System

Waste Category	Colour Code	Container Type	Label	Examples
General waste	Black	Plastic bin with lid	"General Waste"	Paper, packaging, food waste
Infectious waste	Yellow	Leak-proof plastic bin	Biohazard symbol; "Infectious Waste"	Dressings, swabs, lab cultures
Sharps	Red	Puncture-proof container	"Sharps"; "Do Not Overfill"	Needles, scalpels, syringes
Pharmaceutical waste	Brown	Rigid container	"Pharmaceutical Waste"	Expired drugs, vials
Chemical waste	Blue	Chemical-resistant container	"Chemical Waste – Hazardous"	Formalin, xylene

8.7.2 Segregation Procedures

Step	Action	Responsible
1	Place correct colour-coded bins at all waste generation points	Facility management
2	Line bins with colour-coded plastic bags	Waste handler
3	Place waste in correct bin at point of generation	Clinical staff
4	Do not overfill bins (maximum ¾ full)	Clinical staff
5	Do not place non-infectious waste in yellow bins	Clinical staff
6	Do not place sharps in plastic bags	Clinical staff
7	Close bag when ¾ full (zip-tie or tape)	Waste handler
8	Label bag with facility name, date, waste category	Waste handler

8.7.3 Segregation Monitoring

Indicator	Target	Method	Frequency	Responsible
Segregation compliance	≥egr	Spot checks	Daily	Supervisor
Infectious waste in black bags	<1%	Inspection	Daily	Waste Handler
Sharps in plastic bags	Zero	Inspection	Daily	Waste Handler
Training compliance	100%	Records	Quarterly	Facility Manager

8.8 Collection, Internal Transport, and Storage

8.8.1 Collection

Step	Action	Responsible	Frequency
1	Waste handler (PPE) collects sealed bags/containers	Waste handler	Daily (minimum)
2	Transport using dedicated trolley	Waste handler	As collected
3	Replace bin liner with new bag	Waste handler	Daily
4	Clean and disinfect bin (0.5% chlorine) if soiled	Waste handler	Daily (if soiled)
5	Record waste collection in log	Waste handler	Daily

c

Requirement	Specification
Dedicated waste storage area	Separate from patient care areas; lockable
Location	Away from public access; easy access for LAWMA
Ventilation	Adequate natural or mechanical
Flooring	Impermeable (concrete or tile), sloped to drain
Signage	"Hazardous Waste Storage Area – Authorised Personnel Only"

Storage time limits	Infectious waste: maximum 48 hours

8.9 Waste Treatment Technologies

8.9.1 Autoclaving (Steam Sterilisation)

Parameter	Specification
Principle	Steam sterilisation (121°C, 30 minutes, 15 psi)
Waste types	Infectious waste (yellow bags)
Advantages	Low emissions; low operating cost; safe for workers
Disadvantages	Does not change appearance – requires shredding
Maintenance	Weekly cleaning; monthly biological indicator testing

8.9.2 Chemical Disinfection

Parameter	Specification
Principle	Sodium hypochlorite (0.5–1% chlorine)
Waste types	Liquid infectious waste (small volumes) – laboratories
Procedure	Add sodium hypochlorite; contact time 30 minutes; discharge to sewer or septic tank

8.9.3 Recommended Treatment by Facility Type

Facility Type	Waste Volume	Recommended Treatment
New PHCs (4 sites)	50–200 kg/day	Autoclave + shredder
Refurbished PHCs (4 sites)	50–200 kg/day	Autoclave + shredder

8.10 Asbestos Management Plan

8.10.1 Asbestos-Affected Sites (Ikorodu Axis)

Site	Status	Asbestos Type	Location	Quantity (estimated)
Omolaiye PHC	Suspected	Chrysotile – roofing sheets	Roof	50–100 m²
Agura PHC	Suspected	Chrysotile – roofing sheets	Roof	50–100 m²

8.10.2 Asbestos Survey

Step	Action	Responsible	Timeline
1	Engage licensed asbestos surveyor	PIU	Pre-construction
2	Conduct asbestos survey (visual, bulk sampling, lab analysis)	Licensed surveyor	Within 2 weeks
3	Produce asbestos survey report	Licensed surveyor	Within 1 week
4	If confirmed, prepare asbestos abatement plan	Licensed abatement contractor	Within 2 weeks
5	Submit to LASEPA for approval	PIU / Contractor	Within 1 week
6	Obtain LASEPA approval	LASEPA	Within 2 weeks

8.10.3 Asbestos Abatement Procedures

Step	Action	PPE / Controls
1	Notify community within 200 m (48 hours)	N/A
2	Establish containment zone (barricade, warning signs)	N/A
3	Set up negative pressure enclosure (if needed)	HEPA-filtered fan
4	Workers wear PPE: Type 5 coverall, P3 respirator, gloves, goggles	PPE fit-tested
5	Wet removal – spray with water (wetting agent)	Low-pressure sprayer
6	Remove asbestos material carefully (whole sheets)	Hand tools only
7	Double-bag in 200-micron polyethylene bags	Seal with tape
8	Label bags – "DANGER – ASBESTOS"	Waterproof label
9	Store in locked container (max 48 hours)	Locked, secured
10	Air monitoring (PCM) – action level 0.1 f/ml	PCM (NIOSH 7400)
11	If >0.1 f/ml – stop work, improve containment	N/A
12	Transport by licensed hazardous waste transporter	Manifest
13	Disposal at licensed hazardous waste landfill	Disposal certificate
14	Clearance air monitoring – must be ≤0.01 f/ml	PCM
15	Medical surveillance for workers (chest X-ray, lung function)	Occupational health physician

8.10.4 Asbestos Waste Manifest

- Generator
- Transporter
- Disposal facility
- Waste description
- Quantity
- Manifest number
- Signatures

Table 8.4: Asbestos Waste Manifest (Template)

Field	Information to be Recorded
Generator Information	
Generator Name	[Facility Name]
Generator Address	[Facility Address]
Generator Phone	[Contact Number]
Waste Description	Asbestos-Containing Material (ACM) – Chrysotile
Quantity	[Weight in kg / m²]
Transporter Information	
Transporter Name	[Licensed Waste Transporter]
Transporter License No.	[License Number]
Vehicle Registration	[Plate Number]
Disposal Facility Information	
Facility Name	[Licensed Hazardous Waste Landfill]
Facility License No.	[License Number]
Facility Address	[Address]
Certification	
Generator Signature	[Signature]
Generator Date	[Date]
Transporter Signature	[Signature]
Transporter Date	[Date]
Facility Signature	[Signature]

Facility Date	[Date]

8.11 Occupational Health and Safety for Waste Handlers

8.11.1 Risks to Waste Handlers

Hazard	Risk
Needle-stick injury	HIV, Hepatitis B, Hepatitis C
Infectious exposure	Bacterial, viral, fungal infections
Chemical exposure	Burns, respiratory irritation, poisoning
Asbestos exposure	Asbestosis, mesothelioma, lung cancer
Musculoskeletal injury	Back injury, strains

8.11.2 PPE for Waste Handlers

Task	Required PPE
Collecting waste	Heavy-duty gloves, apron, boots, mask
Handling infectious waste	As above, plus goggles
Handling sharps containers	Puncture-resistant gloves
Handling chemical waste	Chemical-resistant gloves, apron, goggles, respirator
Asbestos abatement	Type 5 coverall, P3 respirator, gloves, goggles

8.11.3 Health Surveillance for Waste Handlers

Intervention	Frequency
Hepatitis B vaccination	3 doses (0, 1, 6 months)
Tetanus vaccination	Booster every 10 years
Pre-placement medical exam	Before starting
Periodic medical exam	Annually
Post-exposure (needle-stick)	Immediate PEP for HIV (within 72 hours)
Post-exposure (asbestos)	Chest X-ray, lung function (baseline, periodic)

8.11.4 Training for Waste Handlers

Training Topic	Duration	Frequency
HMWMP (segregation, storage, treatment, disposal)	1 day	Induction + annual
PPE use	0.5 day	Induction + annual
Needle-stick prevention	0.5 day	Induction + annual
Spill response	0.5 day	Induction + annual drill

Asbestos awareness (if applicable)	0.5 day	Induction (before abatement)
Hand hygiene	0.5 day	Induction + annual

8.12 Spill Response Plan

8.12.1 Spill Scenarios

Spill Type	Source	Response
Small chemical (<1 litre)	Laboratory reagent	Absorb with spill kit; collect in hazardous waste bag
Large chemical (>1 litre)	Bulk container	Evacuate; wear PPE; contain; absorb; ventilate
Infectious spill (blood, body fluids)	Clinical area	Wear PPE; cover with absorbent; pour 0.5% chlorine (10 min); collect (yellow bag)
Fuel/oil spill	Construction site	Spill kit (booms, pads); contain; absorb; collect; report to NOSDRA if >25 litres

8.12.2 Spill Kit Contents

Item	Quantity
Absorbent pads	20
Absorbent booms (socks)	5 (1 m each)
Absorbent powder/granules	5 kg
Chlorine granules	1 kg
Scoop and scraper	1
Disposal bags (yellow, hazardous)	10
PPE: gloves, goggles, apron, mask	2 sets
Instruction card	1

8.12.3 Spill Reporting

Spill Type	Report to	Timeline
Any spill (>1 litre)	Facility supervisor	Immediately
Spill to water body	LASEPA, NOSDRA	Within 24 hours
Needle-stick injury	Supervisor, occupational health physician	Immediately
Asbestos release	PIU, LASEPA, NESREA	Immediately

8.13 Monitoring and Reporting

8.13.1 Monitoring Indicators

Parameter	Indicator	Target	Frequency	Responsible
Waste generation	Quantity (kg) per category	Track trends	Daily	Waste handler
Segregation compliance	% observations correct	≥ ob	Daily (spot checks)	Facility supervisor
Sharps in plastic bags	Incidents	Zero	Daily	Waste handler
Storage time (infectious)	Hours from generation to disposal	≤ou hours	Daily	Waste handler
Autoclave cycle	Temperature, time, pressure	121°C, 30 min, 15 psi	Each cycle	Facility management
Waste manifests	% with completed manifest	100%	Each load	Waste handler
LAWMA collection	Frequency	Twice weekly (infectious)	Per collection	Facility management
Asbestos air monitoring	f/ml	≤/ml during removal; ≤0.01 clearance	Continuous during removal	Air monitoring consultant
Needle-stick injuries	Number	Zero (target)	Monthly	Facility management
Training compliance	% waste handlers trained	100%	Quarterly	Facility management

8.13.2 Reporting Templates

Table 8.5 – Daily Waste Generation Log

Date	Waste Category	Quantity (kg)	Container Used	Collected by	Storage Location	Disposal Date	LAWMA Manifest No.

DD/MM/YYYY	General (black)	XX	Black bag	Name	Waste storage	DD/MM/YYYY	XXX
	Infectious (yellow)	XX	Yellow bag	Name	Waste storage	DD/MM/YYYY	XXX
	Sharps (red)	XX	Sharps container	Name	Waste storage	DD/MM/YYYY	XXX
	Pharmaceutical (brown)	XX	Brown container	Name	Waste storage	DD/MM/YYYY	XXX
	Chemical (blue)	XX	Blue container	Name	Waste storage	DD/MM/YYYY	XXX

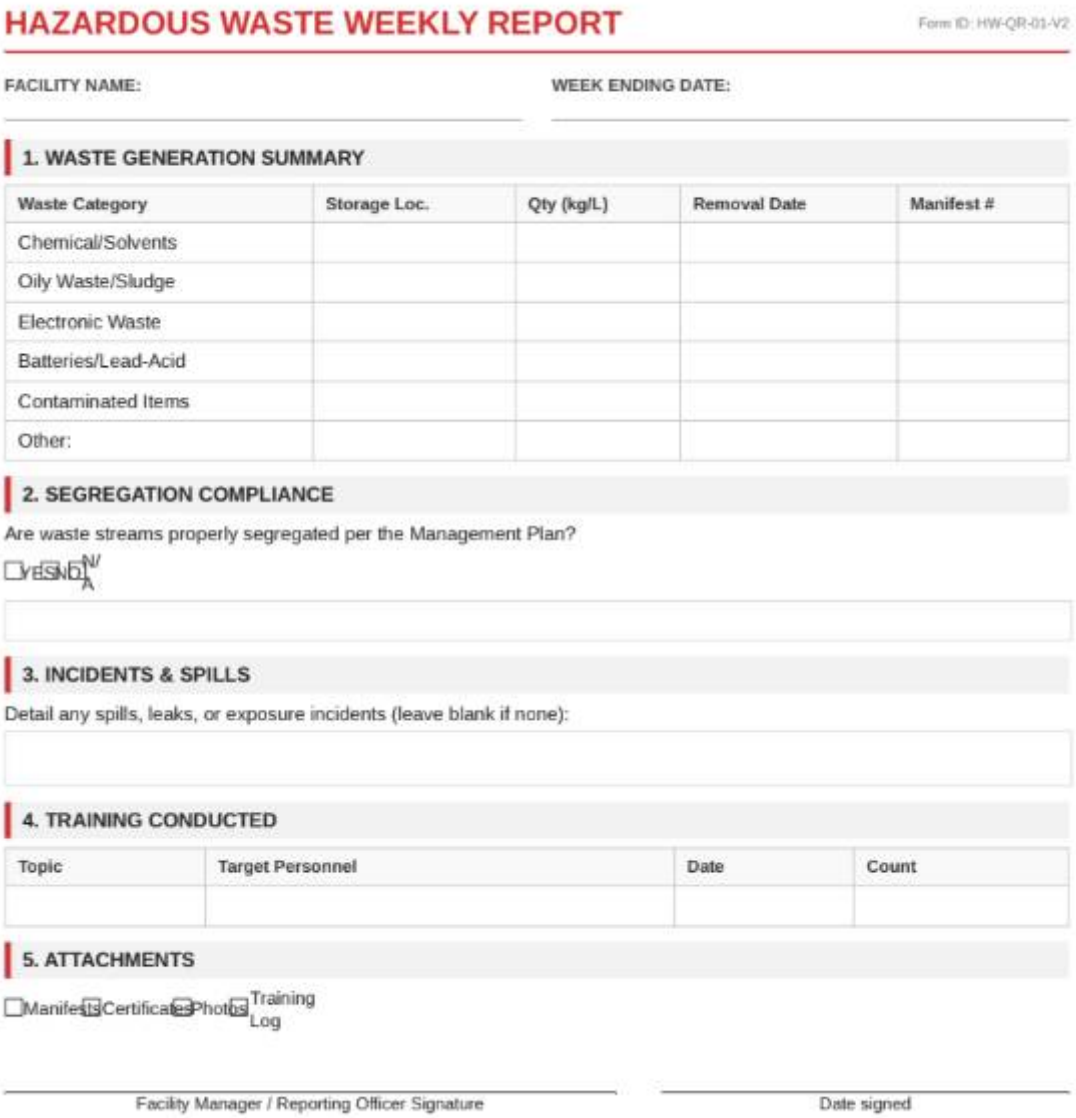
Table 8.6 – Autoclave Log

Date	**Cycle Start**	**Cycle End**	**Temperature (°C)**	**Pressure (psi)**	**Chemical Indicator**	**Biological Indicator (monthly)**	**Operator**	**Waste Category**	**Quantity (kg)**
DD/MM/YYYY	HH:MM	HH:MM	121	15	Pass	Pass	Name	Infectious	XX

Table 8.7 – Hazardous Waste Manifest (Asbestos, Chemicals)

Manifest No.	**Waste Category**	**Quantity (kg)**	**Generator (site)**	**Transporter (company, license)**	**Disposal Facility (name, license)**	**Collection Date**	**Disposal Date**	**Disposal Certificate Received?**

XXX	Asbestos	XX	Site name	Company, license	Facility, license	DD/MM/YYYY	DD/MM/YYYY	Yes/No



HAZARDOUS WASTE WEEKLY REPORT

Form ID: HW-QR-01-V2

FACILITY NAME: WEEK ENDING DATE:

1. WASTE GENERATION SUMMARY

Waste Category	Storage Loc.	Qty (kg/L)	Removal Date	Manifest #
Chemical/Solvents				
Oily Waste/Sludge				
Electronic Waste				
Batteries/Lead-Acid				
Contaminated Items				
Other:				

2. SEGREGATION COMPLIANCE

Are waste streams properly segregated per the Management Plan?

☐ YES ☐ NO ☐ N/A

3. INCIDENTS & SPILLS

Detail any spills, leaks, or exposure incidents (leave blank if none):

4. TRAINING CONDUCTED

Topic	Target Personnel	Date	Count

5. ATTACHMENTS

☐ Manifests ☐ Certificates ☐ Photos ☐ Training Log

Facility Manager / Reporting Officer Signature

Date signed

Figure 8.2– Hazardous waste reporting form (weekly)

8.14 Roles and Responsibilities

This section defines the institutional roles required for effective implementation of the Hazardous and Medical Waste Management Plan (HMWMP) and the Decommissioning & Restoration Plan. Clear role delineation ensures accountability, regulatory compliance, and safe waste handling across all PHC facilities.

Roles and Responsibilities for HMWMP & Decommissioning

Entity	Role Summary	Detailed Responsibilities
Facility Manager	Overall HMWMP implementation	• Ensure full compliance with WHO colour coding and segregation rules. • Maintain daily waste logs, autoclave logs, and manifests. • Supervise waste handlers and cleaners. • Ensure waste storage area meets FMEnv/LASEPA standards. • Coordinate LAWMA collections and hazardous waste contractors. • Investigate incidents (needle-stick, spills). • Submit quarterly reports to PIU.
Clinical Staff	Waste segregation at point of generation	• Place waste in correct colour-coded bins. • Avoid overfilling bins. • Ensure sharps are placed ONLY in red containers. • Report segregation errors or safety concerns. • Participate in mandatory waste management training.
Waste Handler	Daily collection, transport, and treatment	• Collect sealed waste bags daily using PPE. • Transport waste using dedicated trolley. • Operate autoclave and record cycle parameters. • Clean bins and storage areas with disinfectant. • Maintain waste manifests and storage logs. • Report spills or incidents immediately.
Facility Supervisor	Monitoring & compliance enforcement	• Conduct daily segregation spot checks. • Verify correct use of colour-coded bins. • Inspect storage area conditions.

		• Ensure autoclave maintenance and biological indicator testing. • Report compliance status to Facility Manager.
LAWMA	Medical waste collection & disposal	• Collect treated infectious waste and general waste. • Provide waste manifests for each collection. • Dispose waste at approved sanitary landfill. • Conduct periodic inspections of PHC waste storage areas.
Licensed Hazardous Waste Contractor	Hazardous waste transport & disposal	• Collect chemical waste, pharmaceutical waste, asbestos waste. • Provide hazardous waste manifests. • Transport waste in licensed vehicles. • Dispose at licensed hazardous waste landfill. • Provide disposal certificates.
PIU (Lagos State Ministry of Health)	Oversight & regulatory compliance	• Ensure all PHCs implement HMWMP and Decommissioning Plan. • Coordinate with LAWMA, LASEPA, NESREA. • Review facility reports and manifests. • Manage GRM for waste-related incidents. • Report quarterly to AfDB. • Ensure asbestos surveys and abatement plans are completed.
LASEPA	State regulatory oversight	• Issue waste management permits. • Approve asbestos abatement plans. • Conduct compliance inspections. • Enforce environmental regulations.
AfDB	Safeguard compliance monitoring	• Review HMWMP and Decommissioning Plan.

		• Monitor compliance through PIU and IESM reports. • Enforce safeguard covenants.

8.15 Budget Estimate

This section provides a detailed cost estimate for implementing the HMWMP and Decommissioning Plan across all PHC facilities in the Ikorodu North Axis. Costs are based on Nigerian market rates, WHO/IFC technical requirements, and FMEnv regulatory expectations.

Capital & Operational Cost Estimate (All 4 PHCs)

A. CAPITAL COSTS (One-time investments)

Item	Description	Estimated Cost (USD)	Responsible
Autoclave (per PHC)	121°C, 30 min, 15 psi; stainless steel chamber	$40,000–$80,000	Facility Operator
Shredder (per PHC)	For post-autoclave waste volume reduction	$16,000–$40,000	Facility Operator
Waste Storage Area Construction	Ventilated, lockable, impermeable flooring	$16,000–$40,000	Facility Operator
Spill Kits (per facility)	Chemical, infectious, fuel spill kits	$800–$1,600	Facility Operator
PPE for Waste Handlers (annual)	Gloves, boots, aprons, goggles, masks	$4,000–$8,000	Facility Operator
Asbestos Abatement (Omolaiye, Eruwen)	Survey, wet removal, air monitoring, disposal	$10,000–$50,000 per site	PIU / Contractor

B. OPERATIONAL COSTS (Annual)

Item	Description	Estimated Cost (USD)	Responsible
LAWMA Collection Fees	Twice-weekly infectious waste collection	$16,000–$40,000	Facility Operator
Hazardous Waste Contractor (Chemicals)	Annual chemical waste disposal	$10,000–$50,000 (asbestos per site); $2,000–$10,000 (chemicals per year)	Facility Operator
Autoclave Maintenance	Spare parts, servicing	$4,000–$8,000	Facility Operator

Biological Indicator Strips	Monthly autoclave validation	$500	Facility Operator
Training (annual)	Waste handlers, clinical staff	$4,000–$8,000	Facility Operator
Solar Battery Disposal	Hazardous waste disposal	$1,000–$3,000	Facility Operator

C. DECOMMISSIONING COSTS (End-of-life)

Item	Description	Estimated Cost (USD)	Responsible
Demolition Works	Manual/mechanical demolition	$20,000–$60,000	Contractor
Asbestos Removal (if present)	Full abatement & hazardous landfill	$10,000–$50,000	Specialist Contractor
Site Restoration	Regrading, revegetation, erosion control	$10,000–$40,000	Contractor
Borehole & Septic Tank Decommissioning	Sealing, sludge disposal	$5,000–$15,000	Contractor
Community Infrastructure Restoration	Road repair, debris removal	$5,000–$20,000	Contractor

Total Estimated Cost (All 4 PHCs)

- Year 1 (Capital + Operational): $100,000–$250,000
- Annual Operational Cost: $30,000–$60,000
- Decommissioning Cost per PHC: $50,000–$150,000

PART B: Decommissioning and Restoration Plan

8.16 Introduction

Although the PHC facilities in the Ikorodu North Axis are expected to operate for 50 years or more, the Federal Ministry of Environment (FMEnv) requires all ESIA reports to include a Decommissioning and Restoration Plan. This ensures that, when each facility reaches the end of its operational life, demolition and site restoration are carried out safely, responsibly, and in compliance with national and international standards.

The Decommissioning and Restoration Plan provides a structured framework for:

- Safe removal and disposal of hazardous materials (including asbestos)
- Demolition of buildings and infrastructure

- Management of demolition waste
- Restoration of ecological features (wetlands, vegetation)
- Protection of worker and community health and safety
- Stakeholder engagement and communication
- Monitoring and reporting during decommissioning

This plan ensures that environmental and social risks are minimised and that the site is restored to a stable, safe, and environmentally acceptable condition.

8.17 Objectives

The Decommissioning and Restoration Plan aims to:

1. Ensure safe removal, handling, and disposal of hazardous materials (asbestos, chemicals, batteries).
2. Minimise environmental impacts such as dust, noise, erosion, and water pollution during demolition.
3. Protect worker and community health and safety through OHS controls and emergency procedures.
4. Restore the site to a stable, safe, and environmentally acceptable condition.
5. Rehabilitate ecological features such as wetlands and vegetation.
6. Maintain community access and infrastructure during and after decommissioning.
7. Ensure compliance with FMEnv, NESREA, LASEPA, AfDB ISS, and WHO standards.
8. Provide clear roles, responsibilities, and monitoring requirements.

8.18 Decommissioning Strategy and Activities

8.18.1 Physical Infrastructure

Activity	**Description**	**Environmental & Social Considerations**
Equipment Salvage	Remove medical equipment, solar panels, batteries, furniture	Hazardous waste (batteries), safe handling, recycling
Building Demolition	Manual or mechanical demolition of structures	Dust suppression, noise control, asbestos removal, OHS
Demolition Waste Management	Segregate demolition waste (metal, concrete, wood)	Recycling, hazardous waste manifests, LAWMA disposal
Site Restoration	Regrade land, replant native species, stabilise slopes	Soil erosion control, biodiversity restoration

8.18.2 Utilities and Ancillary Infrastructure

Activity	Description	Environmental & Social Considerations
Septic Tank Decommissioning	Pump out sludge, remove tank, backfill	Sludge treated as hazardous waste; groundwater protection
Borehole Decommissioning	Seal borehole with grout	Prevent groundwater contamination
Rainwater Harvesting System Removal	Remove tanks, pipes, gutters	Waste management (plastic/concrete)
Solar PV System Removal	Remove panels, inverters, batteries	Hazardous waste (batteries), recycling of panels

8.19 Environmental Restoration Measures

8.19.1 Wetlands and Lagoon Margins

Site	Restoration Measure
Agura, Omolaiye (Lagos Lagoon)	Restore disturbed shoreline; replant native mangroves (*Rhizophora racemosa*); remove invasive species
Omolaiye, Olorunda, Eruwen (wetlands)	Restore wetland hydrology; replant native wetland species; remove invasive species (*Eichhornia crassipes*)

8.19.2 Borrow Pits and Quarries (If Used)

- Grade slopes to ≤30°
- Revegetate with native species
- Prevent standing water (mosquito breeding)

8.19.3 Soils and Erosion Control

- Regrade disturbed areas to original contours
- Apply stored topsoil and revegetate
- Install silt fences and check dams until vegetation reaches ≥80% cover

8.19.4 Air Quality and Noise Management

- Water spraying during demolition
- Restrict demolition hours to 7:00--18:00
- Notify community at least 7 days in advance

8.20 SOCIO-ECONOMIC AND CULTURAL RESTORATION

8.20.1 Livelihood Transition and Support

- Provide 3-month advance notice to community
- Offer skills training and job placement assistance
- Donate usable equipment to nearby health facilities

8.20.2 Community Infrastructure and Access

- Restore access roads (grading, pothole repair)
- Remove all demolition debris
- Ensure proper drainage to prevent standing water

8.20.3 Cultural Heritage Protection

- Apply Chance Finds Procedure during demolition
- Stop work immediately if artefacts are discovered
- Notify LASM and allow archaeological assessment

8.21 Monitoring and Reporting

Table 8.8 -- Decommissioning Monitoring Requirements

Parameter	Indicator	Frequency	Responsible
Asbestos Removal	Waste manifests; air monitoring	Per load; continuous	Licensed contractor
Site Restoration	Vegetation survival ≥80%	3, 6, 12 months	Contractor / PIU
Erosion Control	Silt fence condition	Weekly	Contractor
Groundwater Quality	pH, TDS, coliforms, heavy metals	Quarterly (1 year)	Contractor / PIU
Community Satisfaction	≥omm satisfied	Post-decommissioning	PIU / IESM

8.22 Institutional Responsibilities

Table 8.9 -- Institutional Responsibilities

Entity	Responsibilities
PIU	Overall decommissioning oversight; ensure contractor compliance; report to AfDB and FMEnv; community liaison
Contractor	Safe demolition; asbestos abatement (if present); waste management; site restoration; monitoring; reporting

Licensed Asbestos Contractor	Asbestos survey; wet removal; air monitoring; waste transport and disposal
Facility Operator	Coordinate handover; equipment salvage; records retention
LASEPA / FMEnv	Regulatory oversight; permits (demolition, asbestos); compliance inspections
AfDB	Approve decommissioning plan (if required); review monitoring reports

8.23 Financial Assurance

- The project proponent (LSMoH) will establish a decommissioning fund (or bond) to cover the cost of decommissioning and restoration.
- Estimated decommissioning cost per PHC: $50,000–$150,000 (site-dependent, based on size, asbestos presence, location)
- Fund to be reviewed every 5 years and adjusted for inflation

8.24 Conclusion

The Decommissioning and Restoration Plan provides a complete, FMEnv-compliant framework for safely dismantling PHC facilities at the end of their operational life. It ensures:

- Safe removal of hazardous materials
- Environmentally sound demolition
- Restoration of ecological and community assets
- Protection of workers and communities
- Compliance with national and international standards

Together with the HMWMP, this plan ensures long-term environmental sustainability and public health protection for the Ikorodu North Axis.

CHAPTER 9 -- SITE-SPECIFIC GBV/SEA/SH ACTION PLAN

9.1 Introduction

Gender-Based Violence (GBV), Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH) are recognised risks in infrastructure projects, especially where construction activities, labour influx, and worker--community interactions occur. The African Development Bank (AfDB) requires Category 1 projects to implement a GBV/SEA/SH Action Plan to prevent, mitigate, and respond to these risks.

This GBV/SEA/SH Action Plan applies specifically to the four PHC facilities assessed in this ESIA:

- Omolaiye PHC (waterlogged wetland community, limited lighting, isolated paths)
- Eruwen PHC (rural community, limited female staff, poor lighting)
- Olorunda PHC (semi-rural farming community, limited female staff, poor lighting)
- Agura PHC (peri-urban, high labour influx, market area, GBV hotspot)

These sites exhibit medium to high GBV risk factors, including poor lighting, isolated footpaths, limited female staff, economic vulnerability, and labour influx during construction.

The Action Plan provides a survivor-centred, confidential, and enforceable framework for preventing and responding to GBV/SEA/SH across all project phases.

9.2 Legal and Policy Framework

9.2.1 Nigerian Legal Framework

Law	**Key Provisions**	**Relevance to GBV/SEA/SH Action Plan**
Violence Against Persons (Prohibition) (VAPP) Act 2015 (Federal Government of Nigeria, 2015)	Prohibits rape, sexual assault, female genital mutilation, domestic violence, harmful widowhood practices, and other forms of violence. Provides for survivor support (medical, psychosocial, legal), protection orders, and penalties (up to life imprisonment for rape).	Core legal framework for GBV prevention and response. Referral pathways must align with VAPP Act provisions.

Labour Act Cap L1 LFN 2004 (Federal Government of Nigeria, 2004)	Prohibits forced labour, child labour, and discrimination. Regulates working conditions, hours, wages, and safety.	Worker protections; Code of Conduct must align with Labour Act.
Child Rights Act 2003 (Federal Government of Nigeria, 2003)	Prohibits child marriage, child labour, and sexual abuse of children. Provides for child protection.	Prohibition of sexual activity with minors (anyone under 18) – zero tolerance.
Criminal Code Act Cap C38 LFN 2004 (Federal Government of Nigeria, 2004)	Defines sexual offences (rape, indecent assault, unnatural offences). Provides for penalties.	Legal prosecution of perpetrators.
National Gender Policy (2006, revised) (Federal Ministry of Women Affairs, 2006)	Promotes gender equality, women's empowerment, and elimination of GBV. Establishes institutional mechanisms (Ministry of Women Affairs, GBV response units).	Alignment with national policy; coordination with Ministry of Women Affairs.
Lagos State Domestic Violence Law (2007) (Lagos State Government, 2007)	Provides for protection of survivors of domestic violence, protection orders, and establishment of Domestic Violence Advisory Committee.	State-level legal framework for GBV response in Lagos.

9.2.2 AfDB and International Framework

Standard	**Key Requirements**	**Relevance to GBV/SEA/SH Action Plan**
AfDB Operational Safeguard 5 (OS5) (African Development Bank, 2023)	Requires assessment of GBV/SEA/SH risks; development of GBV Action Plan; Code of Conduct; training; confidential reporting; referral pathways; survivor-centered response.	Core framework for this Action Plan.

IFC Good Practice Note on GBV/SEA/SH (2020) (International Finance Corporation, 2020)	Provides guidance on risk assessment, mitigation hierarchy, Code of Conduct, community engagement, grievance mechanisms, survivor assistance, monitoring.	Technical guidance for implementation.
ILO Convention 190 – Violence and Harassment in the Workplace (2019) (International Labour Organization, 2019)	Defines violence and harassment in the workplace; requires prevention, protection, enforcement, and remedy.	Worker protection; Code of Conduct; grievance mechanism.
ILO Convention 155 – Occupational Safety and Health (International Labour Organization, 1981)	Requires safe working environment, free from violence and harassment.	Worker protection.
WHO/ILO Joint Guidance on Health Worker Safety (World Health Organization, 2020)	Addresses violence against health workers, including sexual violence.	Protection of health workers (operational phase).
UN Guiding Principles on Business and Human Rights (UNGPs) (United Nations, 2011)	Corporate responsibility to respect human rights; access to remedy.	GRM as remedy for GBV survivors.
WHO Clinical Management of Rape and Intimate Partner Violence Guidelines (World Health Organization, 2013)	Provides medical protocols for post-rape care (PEP for HIV, emergency contraception, STI treatment, psychosocial support).	Referral pathway – medical services.

9.3 GBV/SEA/SH Risk Assessment (Ikorodu Axis)

9.3.1 Project-Specific Risk Factors

Risk Factor	**Description**	**Ikorodu Axis Sites**	**Risk Level (Unmitigated)**
Labour influx	260–420 workers during construction (peak). Workers may be male-dominated (typical construction workforce – 80-90% male).	All 4 sites (especially Agura, Omolaiye – peri-urban with limited housing)	Medium

Poor lighting	Inadequate street lighting in many communities (especially after dark). Creates unsafe environments for women and girls.	Rural/peri-urban sites (Eruwen, Olorunda, Omolaiye, Agura)	Medium to High
Isolated paths	Unlit, unpatrolled paths between homes, markets, water sources, schools, and health facilities. Women and girls walking alone are vulnerable.	Rural/peri-urban sites (Eruwen, Olorunda, Omolaiye, Agura)	Medium to High
Lack of female staff	Few female health workers, security personnel, or GRM focal points in existing PHCs. Women may be reluctant to report GBV to male staff.	All 4 sites	Medium
Lack of confidential reporting	No GBV reporting hotlines, suggestion boxes, or female focal points in project areas. Survivors fear retaliation, shame, or ineffective response.	All 4 sites	High (to be addressed by GBV Action Plan)
Economic vulnerability	Women in trading (Agura – 13 shops), farming (Olorunda – 6 farmers). May be susceptible to exploitation (exchange of sex for money, goods, jobs, or protection).	Agura, Olorunda	Medium to High
Substance abuse	Alcohol and drug use (especially among young men, construction workers) – increases risk of GBV	Agura, Omolaiye (peri-urban with labour influx)	Medium

	(impaired judgment, aggression).		
Cultural norms	Gender inequality (women's decision-making power limited); acceptance of violence in some communities (e.g., intimate partner violence seen as "private matter").	Rural sites (Omolaiye, Omolaiye)	Medium
Police response	Poor police response to GBV (under-reporting due to fear of victim-blaming, corruption, lack of female officers, lack of confidentiality). Survivors may not report.	All 4 sites	High (to be addressed by referral pathways)
Displacement and resettlement	PAPs at Agura (13 shops) and Olorunda (6 farmers). Displacement increases stress, economic pressure, and vulnerability to GBV (intimate partner violence, exploitation).	Agura, Olorunda	Medium

9.3.2 GBV Risk Rating by Site (Ikorodu Axis)

Table 9.1 – GBV Risk Rating by Site (Ikorodu Axis)

Site	Labour Influx	Poor Lighting	Isolated Paths	Lack of Female Staff	Lack of Confidential Reporting	Economic Vulnerability	Substance Abuse	Cultural Norms	Police Response	Displacement	Overall Risk

Eruwen	Medium	High	High	High	High	Low	Low	Medium	High	None	Medium-High
Olorunda	Low	High	High	High	High	Medium (farmers)	Low	Medium	High	Medium (3 PAPs)	Medium-High
Agura	Medium	Medium	Medium	High	High	Medium (13 shops)	Medium	Medium	High	Medium (13 PAPs)	Medium-High
Omolaiye	Medium	Medium	Medium	High	High	Low	Medium	Medium	High	None	Medium

9.3.3 Specific Risk Scenarios

Scenario	**Description**	**Likelihood (Unmitigated)**	**Consequence**	**Risk Level**
Worker-to-community SEA	Construction worker offers money, food, or job to a community woman/girl in exchange for sex.	Likely (if no Code of Conduct, no training, no sanctions)	Survivor trauma (PTSD, depression, suicide); STI/HIV; unwanted pregnancy; community anger → protest → project shutdown; reputational damage	Major
Worker-to-worker SH	Supervisor pressures female worker for sexual	Possible	Survivor leaves job; hostile work environment;	Major

	favours (quid pro quo), or male workers make unwelcome sexual comments, gestures, or physical contact.		reduced productivity; legal action	
Community GBV (intimate partner violence)	Displacement (Agura – 13 shops; Olorunda – 3 farmers), economic pressure, and stress from project activities lead to increased intimate partner violence.	Possible	Survivor injury (physical, psychological); family breakdown; child trauma; community protest	Major
GBV against vulnerable groups	Women with disabilities, elderly women, young girls, or women in rural/peri-urban areas (Eruwen, Olorunda, Omolaiye, and Agura) are targeted due to isolation and limited protection.	Possible	Severe trauma; limited access to support services; no reporting	Major
Child sexual abuse	Worker engages in sexual activity with a minor	Unlikely (but zero tolerance)	Child trauma; legal prosecution (life	Critical

	(anyone under 18).		imprisonment under VAPP Act); reputational damage	
Survivor reports but no response	Survivor reports GBV through GRM, but no action taken (no referral, no investigation, no sanctions).	Possible (if GRM not functional, staff not trained, no GBV Specialist)	Survivor re-traumatised; loss of trust in GRM; community protest; project shutdown; AfDB sanctions	Critical
Community protest over GBV	Multiple GBV incidents, no response → community anger → protest (road blockade, damage to equipment, physical confrontation).	Possible (if repeated incidents and no response)	Project shutdown (days to weeks); reputational damage; financial loss; injury	Major to Critical

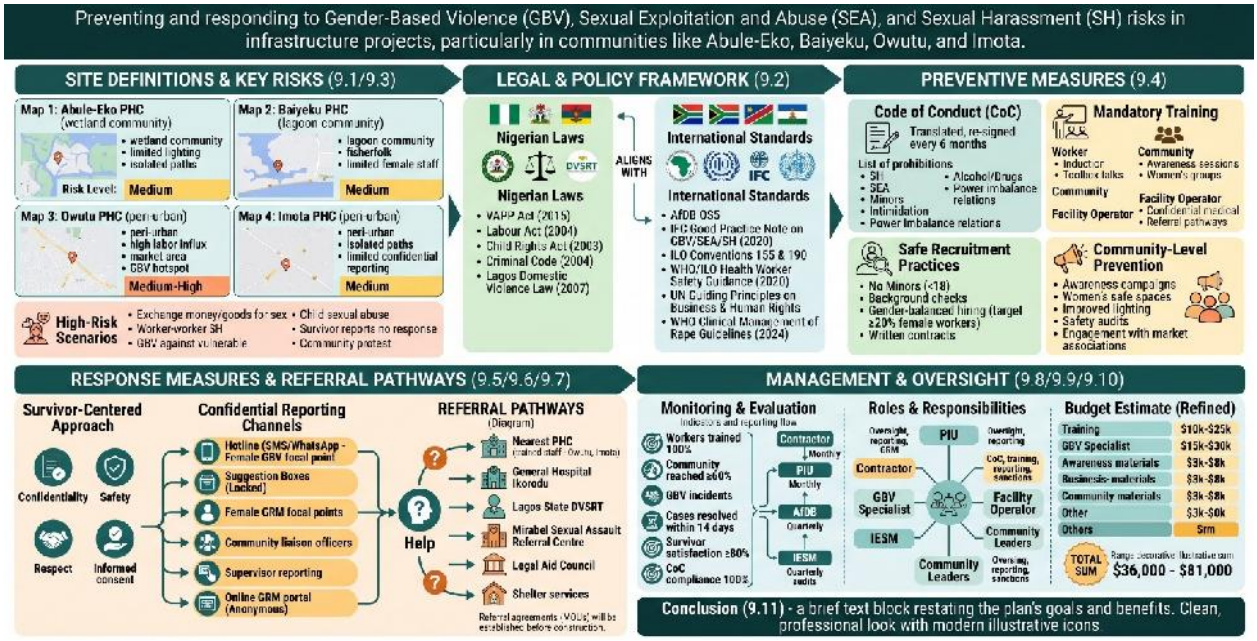


Figure 9.1: Specific GBV/SEA/SH Action Plan

9.4 Prevention Measures

9.4.1 Code of Conduct (CoC)

The Code of Conduct is a binding, written agreement signed by all workers, subcontractors, and security personnel (including supervisors, management, and drivers) before starting work on the LSHIP Ikorodu Axis facilities.

9.4.1.1 Worker Code of Conduct (Full Text)

Lagos Healthcare Transformative Initiative Project (LSHIP)

Code Of Conduct for Workers

Ikorodu Axis Facilities

I, the undersigned, acknowledge that I am working on the LSHIP Ikorodu Axis facilities, which is financed by the African Development Bank (AfDB) and implemented by the Lagos State Ministry of Health (LSMoH). I understand that GBV/SEA/SH is strictly prohibited, and violations will result in serious consequences, including termination and legal prosecution.

I agree to the following:

1. Professional Conduct

- I will treat all community members, colleagues, and supervisors with respect and dignity.
- I will follow all safety rules and wear required PPE at all times.
- I will report any safety hazards, incidents, or GBV/SEA/SH concerns to my supervisor or the GRM.

2. Prohibited Behaviours (Zero Tolerance)

- **No sexual harassment** – I will not make unwelcome sexual advances, comments (jokes, whistling, catcalling), gestures, or physical contact.
- **No sexual exploitation or abuse** – I will not exchange money, goods, jobs, or any form of payment or favour for sex.
- **No sexual activity with minors** – I understand that any sexual activity with a person under 18 years of age is prohibited and is a criminal offence (statutory rape) under Nigerian law, regardless of consent.
- **No forced or coerced sexual activity** – I will not use force, threats, intimidation, or coercion to obtain sex.
- **No intimate relationships with community members** (where there is a power imbalance – e.g., supervisor with community woman seeking employment). Consensual relationships in the workplace (between peers) are permitted but must be disclosed to avoid conflict of interest.
- **No fighting, intimidation, violence, or threats of violence** against any person.
- **No alcohol or drug use** on site or during working hours (including lunch breaks). Alcohol or drug use that impairs judgment and leads to GBV is prohibited.
- **No discrimination** based on gender, ethnicity, religion, disability, HIV status, pregnancy, marital status, age, or political opinion.
- **No bullying** – I will not engage in physical, verbal, or psychological bullying.

3. Community Interaction

- I will not enter community members' homes without permission.
- I will not photograph or film community members (especially women and girls) without their explicit consent.
- I will not loiter around schools, markets, or other places where women and girls gather.
- I will respect local customs and traditions (e.g., dress modestly, avoid public displays of affection).

4. Reporting Obligations

- I will report any GBV/SEA/SH incident that I witness or become aware of (by another worker or community member) to the GRM (hotline, suggestion box, female focal point, or my supervisor).
- I understand that failure to report a known incident may result in disciplinary action.

5. Sanctions for Violations

I understand that violations of this Code of Conduct will result in sanctions, up to and including:

- Verbal warning (minor, first-time violation)

- Written warning (repeat minor violation)
- Suspension (serious violation – e.g., sexual harassment)
- Termination (gross violation – e.g., sexual exploitation or abuse, sexual activity with minor)
- Legal prosecution (criminal offences – e.g., rape, sexual activity with minor, assault)

6. Survivor-Centered Response

I understand that any survivor of GBV/SEA/SH has the right to:

- Confidentiality (their name will not be disclosed without consent)
- Safety (no retaliation)
- Respect (no victim-blaming, no judgment)
- Access to medical, psychosocial, legal, and shelter services (referral pathway)
- No requirement to report to police (if they choose not to)

7. Acknowledgment

I have read (or had read to me) and understood this Code of Conduct. I agree to abide by it. I understand that violation may result in termination and legal prosecution.

Field	Information
Full Name (print)	_____
Signature	_____
Date	_____
Position	_____
Employer (Contractor)	_____
Witness (name, signature)	_____

Distribution: Original to worker, copy to Contractor E&S Officer, copy to PIU.

9.4.1.2 Code of Conduct Implementation

Step	Action	Responsible	Timeline
1	Include CoC as mandatory attachment to all worker contracts (and subcontractor agreements)	Contractor	Pre-employment
2	Translate CoC into local languages (Yoruba, Pidgin English) – for workers with limited English literacy	Contractor	Pre-employment
3	Read CoC aloud to workers who cannot read (witness present)	Contractor supervisor	Pre-employment

4	Worker signs CoC (or makes thumbprint if cannot sign)	Worker	Pre-employment
5	Worker receives copy of CoC (in their language)	Contractor	Pre-employment
6	Display CoC (poster) in prominent locations: site entrance, worker accommodation, canteen, notice board	Contractor	Pre-construction
7	Discuss CoC during induction training and monthly toolbox talks	Contractor E&S Officer	Induction + monthly
8	CoC refresher – workers re-sign CoC every 6 months (or after any violation)	Contractor	Every 6 months
9	Contractor submits CoC compliance report (number signed, refreshers) to PIU monthly	Contractor	Monthly

9.4.2 Mandatory Training and Awareness

9.4.2.1 Training for Workers

Training Topic	**Duration**	**Content**	**Frequency**	**Responsible**	**Target Audience**
GBV/SEA/SH Awareness (Induction)	1 hour	Definition of GBV, SEA, SH; examples; consequences (survivor impact, project impact, sanctions); Code of Conduct; reporting mechanisms (hotline, female focal points, suggestion boxes); referral pathways	Before starting work (induction)	Contractor E&S Officer / GBV Specialist	All workers, subcontractors, security personnel

		(medical, psychosocial, legal); survivor-centered approach (confidentiality, safety, respect, no retaliation, no victim-blaming)			
GBV/SEA/SH Prevention (Monthly Refresher)	30 minutes	Review of CoC; case studies (scenarios – what would you do?); reminder of reporting mechanisms; Q&A	Monthly (toolbox talk)	Contractor E&S Officer / Site supervisor	All workers
GBV/SEA/SH for Supervisors	2 hours	Responsibilities: enforcing CoC, responding to reports (confidentiality, no retaliation), reporting to PIU, worker welfare, prevention of SH in workplace (power dynamics)	Induction + annual refresher	GBV Specialist / PIU	Supervisors, foremen, managers
GRM Training (for GRM focal points)	1 day	How to receive complaints (active listening, non-judgmental),	Induction + annual refresher	PIU / GBV Specialist	GRM focal points (including

		confidentiality, GBV-sensitive reporting (do not ask leading questions, do not pressure survivor to report to police), referral pathways, documentation (GRM log), escalation			female GRM focal points)

9.4.2.2 Training for Community

Training Topic	**Duration**	**Content**	**Frequency**	**Responsible**	**Target Audience**
GBV Awareness for Community	1 hour	Definition of GBV, SEA, SH; how to recognise GBV; how to report (GRM hotline, female focal points, suggestion boxes) – confidential, no retaliation; survivor	Quarterly (during construction) + annually (operation)	PIU / GBV Specialist / Community liaison officer	Community members (women, men, youth, traditional leaders, religious leaders, school teachers)

		support (do not blame survivor, believe survivor, offer support); referral pathways (medical, psychosocial, legal, shelter)			
Women's Groups Session	2 hours	As above, plus: women's rights (VAPP Act), self-care, safety planning, economic empowerment (livelihood programs), support groups	Quarterly	GBV Specialist / Women's group leader	Women (especially vulnerable – PAPs, traders, farmers, riverine communities)
Youth Session	1 hour	Healthy relationships, consent, respect, reporting,	Quarterly (during construction)	GBV Specialist / Youth leader	Youth (15-24 years)

		where to get help			
Traditional/Religious Leaders Session	2 hours	Role of leaders in preventing GBV (speak out against GBV, support survivors, refer to services, do not mediate GBV cases (especially rape) – refer to police/health services), GRM	Once (pre-construction) + annually	PIU / GBV Specialist	Obas, Baales, CDAs, religious leaders (pastors, imams)

9.4.2.3 Training for Facility Operators (Operational Phase)

Training Topic	**Duration**	**Content**	**Frequency**	**Responsible**	**Target Audience**
GBV/SEA/SH Awareness (Healthcare Setting)	1 hour	Recognising signs of GBV (physical injuries, psychological distress, repeated visits); how to ask (confidential, non-judgmental: "I notice you have been injured – is someone	Induction + annual refresher	GBV Specialist / IPC specialist	Clinical staff (doctors, nurses, midwives, lab technicians, pharmacists)

		hurting you?"); medical management (PEP for HIV, emergency contraception, STI treatment); psychosocial support (counselling, referral); legal reporting (with survivor consent); documentation (medical records – confidential)			
Referral Pathways (Healthcare Setting)	30 minutes	List of service providers (medical, psychosocial, legal, shelter); how to refer (warm handoff, contact details); coordination with GBV Specialist	Induction + annual refresher	GBV Specialist	Clinical staff

9.4.3 Safe Recruitment Practices

Practice	**Description**	**Responsible**
No hiring of minors	Verify age (government-issued ID or birth certificate) for all workers. No person under 18 for hazardous work (construction, waste handling, asbestos abatement); no person under 15 for any work (or minimum age of compulsory schooling).	Contractor
Background checks for security personnel	Verify previous employment, criminal record (where possible), references. Do not hire	Contractor (security company)

	security personnel with history of GBV or excessive force.	
Gender-balanced hiring (where feasible)	Encourage hiring of female workers (e.g., for community liaison, GRM, cleaning, catering, non-hazardous roles). Target: ≥20% female workers (construction phase).	Contractor
Equal opportunity employment	No discrimination based on gender, ethnicity, religion, disability, HIV status, pregnancy, marital status, age, or political opinion. Equal pay for equal work.	Contractor
Worker contracts	Written contracts (in language worker understands) including: Code of Conduct (attached), wages, hours, leave, grievance mechanism, termination conditions.	Contractor

9.4.4 Community-Level Prevention

Activity	**Description**	**Frequency**	**Responsible**	**Target Audience**
Community awareness campaigns	Door-to-door, town hall meetings, radio announcements (local stations), posters, leaflets on GBV prevention, reporting, survivor support	Quarterly (construction) + annually (operation)	PIU / GBV Specialist / Community liaison officer	All community members
Women's groups engagement	Partner with existing women's groups (market associations, farming cooperatives, faith-based	Monthly	PIU / GBV Specialist / Women's group leader	Women (especially vulnerable – PAPs, traders, farmers, riverine communities)

	groups) to disseminate GBV information, provide safe spaces, economic empowerment (livelihood programs)			
Traditional/religious leaders engagement	Regular meetings to sensitise leaders, enlist their support in preventing GBV, speaking out against GBV, referring survivors to services (not mediating GBV cases – refer to police/health services)	Quarterly	PIU / GBV Specialist	Obas, Baales, CDAs, pastors, imams
School engagement	Visit schools near construction sites (none within 100 m of Ikorodu Axis sites – but general awareness) to provide age-appropriate GBV awareness (good touch/bad touch, reporting, where to get help)	Once (pre-construction) + annually	PIU / GBV Specialist	School children (primary, secondary), teachers

Safe spaces	Identify or establish safe spaces for women and girls (e.g., women's centre, health facility waiting area with female staff, community hall with lockable door, lighting) where they can access information, support, and referrals confidentially	Pre-construction (identify); ongoing	PIU / GBV Specialist / LGA	Women and girls
Improved lighting	Advocate with LGA to install or repair street lighting near construction sites, health facilities, markets, and along paths used by women and girls. If LGA cannot, project may install temporary solar lights during construction.	Pre-construction	PIU / Contractor / LGA	Community (especially women and girls)
Safety audits	Conduct participatory	Pre-construction + annually	GBV Specialist /	Women and girls

	safety audits with women and girls to identify unsafe areas (poor lighting, isolated paths, lack of escape routes) and recommend improvements.		Women's groups	

9.5 Response Measures

9.5.1 Survivor-Centered Approach

All responses to GBV/SEA/SH must follow the **survivor-centered approach**:

Principle	**Description**	**Application**
Confidentiality	Survivor's identity is protected. Information shared only on a need-to-know basis (e.g., medical provider, GBV Specialist, PIU for investigation – with survivor's consent).	Do not discuss survivor's case in public. Do not share survivor's name without consent. Use codes (e.g., "Case 001") in reports.
Safety	Survivor's physical and psychological safety is the priority.	Assess immediate risk (is perpetrator still present? Is survivor safe to return home?). Offer safe shelter if needed. Develop safety plan (emergency contact, escape route, safe place).
Respect	Survivoris treated with dignity, not blamed or judged.	Use non-judgmental language ("I believe you", "This is not your fault", "You are not alone"). Do not ask "Why didn't you fight back?" or "What were you wearing?".

Non-discrimination	All survivors receive equal support regardless of age, gender, disability, HIV status, ethnicity, religion, or immigration status.	Services available to all. Additional support for vulnerable groups (children, persons with disabilities, elderly, migrants).
No retaliation	Survivor will not be punished, fired, evicted, or otherwise retaliated against for reporting.	Zero retaliation policy. Any retaliation (by worker, supervisor, and community member) is a violation of CoC and will be sanctioned.
Informed consent	Survivor makes their own decisions about care, reporting, and legal action. They are provided with clear, accurate information to make informed choices.	Explain options (medical care, psychosocial support, legal reporting, and shelter). Do not pressure survivor to report to police if they are not ready. Respect their decision.
Right to refuse	Survivor may refuse any service (including medical care, psychosocial support, reporting). Their decision is respected.	Document that services were offered and refused. Do not force survivor to accept services.

9.5.2 Reporting Channels

Multiple confidential, accessible reporting channels will be established for workers and community members:

Channel	**Description**	**Accessible to**	**Confidential?**	**Anonymous?**	**Responsible**
Hotline (phone/SMS/WhatsApp)	Dedicated phone number (mobile) with female GBV focal point. Survivor can	Workers, community	Yes (caller can withhold name)	Yes (if caller withholds name)	PIU (GBV Specialist)

	call, text, or WhatsApp.				
Suggestion boxes	Locked boxes at site entrance, health facility, market, community hall. Survivor can write complaint (name optional) and drop in box. Box opened only by female GBV focal point.	Workers, community	Yes (if name not written)	Yes	PIU (GBV Specialist)
Female GRM focal points	Designated female staff (PIU, contractor, community liaison) trained to receive GBV complaints confidentially. Survivor can speak to her in private.	Workers, community	Yes	No (but focal point keeps confidential)	PIU / Contractor

Community liaison officer	Trusted community member (male and female) who can receive complaints and refer to GBV Specialist.	Community	Yes (if survivor requests confidentiality)	No (but liaison keeps confidential)	PIU / Contractor
Supervisor (worker)	Worker can report to their supervisor (if they feel safe doing so). Supervisor must refer to GBV Specialist.	Workers	Yes (supervisor must keep confidential)	No	Contractor
GRM online portal	Web-based form (can be accessed via smartphone). Survivor can submit complaint (name optional).	Workers, community	Yes (if name not entered)	Yes	PIU
Anonymous reporting	Survivor can report without providing their name (via hotline,	Workers, community	Yes	Yes	PIU

	suggestion box, online portal). No retaliation possible (if identity unknown).				

9.5.3 Referral Pathways

The GBV referral pathway is a coordinated system of service providers that survivors can be referred to for support. PIU will establish Memoranda of Understanding (MOUs) or formal agreements with service providers before construction begins.

9.5.3.1 Service Providers by Type (Lagos State – Ikorodu Axis Area)

Service Type	**Service Providers**	**Services Provided**	**MOU Required?**
Medical (post-rape care)	Ikorodu General Hospital, nearest general hospitals (to be mapped per LGA)	PEP for HIV (within 72 hours), emergency contraception (within 120 hours), STI treatment (prophylaxis), wound care, forensic examination (with survivor consent), documentation	Yes (PIU with each hospital)
Psychosocial support	Mirabel Centre (Lagos), LASG Ministry of Women Affairs and Poverty Alleviation (MWAPA), NGOs (e.g., MIRA, Women's Rights and Health Project (WRAHP), Justice Development and Peace Centre (JDPC)), counsellors	Counselling (individual, group), psychosocial first aid (PFA), support groups, mental health referral (psychiatrist for depression, PTSD, suicide risk)	Yes (PIU with each organisation)

Legal support	Legal aid (LASG Ministry of Justice, Legal Aid Council), NGOs (e.g., Women's Aid Collective (WACOL), International Federation of Women Lawyers (FIDA) Nigeria), private lawyers	Legal advice, assistance with filing police report, protection orders (VAPP Act), representation in court, compensation claims	Yes (PIU with each organisation)
Shelter	LASG MWAPA shelters, NGO shelters (e.g., Mirabel Centre – safe house), faith-based shelters	Emergency shelter (short-term, 1-14 days), longer-term shelter (if needed), basic needs (food, clothing, hygiene), safety planning	Yes (PIU with each shelter)
Police	Lagos State Police Command (Gender Desk – female officers trained in GBV response)	Receiving complaints, investigation, arrest of perpetrator, protection orders, referral to prosecutor	No (but PIU should engage with Gender Desk)

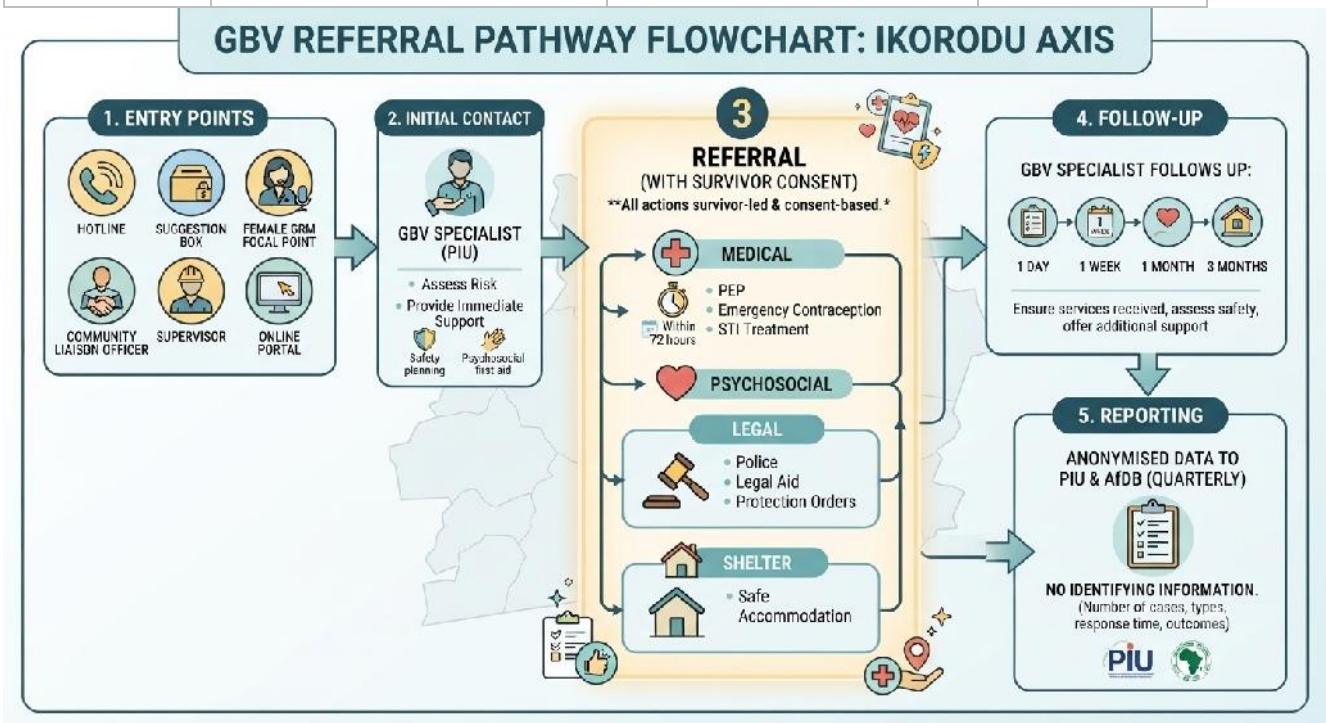


Figure 9.2 – GBV referral pathway flowchart (Ikorodu Axis)

9.5.3.2 Referral Procedure

Step	Action	Responsible	Timeline
1	Survivor contacts GBV Specialist (via hotline, suggestion box, focal point, etc.)	Survivor	N/A
2	GBV Specialist acknowledges receipt of report (within 4 hours) – provide immediate support (safety planning, psychosocial first aid)	GBV Specialist	Within 4 hours
3	GBV Specialist explains options (medical, psychosocial, legal, shelter) – survivor chooses which services they want (informed consent)	GBV Specialist	Within 24 hours
4	GBV Specialist refers survivor to chosen service provider(s) – warm handoff (call provider, provide survivor with contact details, accompany survivor if needed and if survivor consents)	GBV Specialist	Within 24-48 hours
5	Service provider delivers services (e.g., PEP, counselling, legal advice, shelter)	Service provider	As per service provider's protocol
6	GBV Specialist follows up with survivor (1 day, 1 week, 1 month, 3 months) – check if services received, assess safety, offer additional support	GBV Specialist	Per schedule
7	GBV Specialist documents case (confidentially – using case code, no names) – date, services referred, services received, outcome, follow-up	GBV Specialist	Ongoing
8	GBV Specialist reports anonymised data to PIU and AfDB (quarterly) – no identifying information	GBV Specialist	Quarterly

9.5.4 Case Management Protocol

9.5.4.1 GBV Case Management Steps

Step	Action	Responsible	Timeline
1. Receive complaint	Survivor reports through any channel (hotline, suggestion box, focal point, etc.). Channel must be confidential and accessible (no barriers).	GRM focal point / GBV Specialist	N/A

2. Acknowledge receipt	Acknowledge receipt of complaint within 4 hours (if contact details provided). For anonymous reports, no acknowledgment possible (but case still reviewed).	GBV Specialist	Within 4 hours
3. Assess immediate risk	Is survivor in immediate danger? Is perpetrator present? Does survivor need medical care (within 72 hours for PEP)? Does survivor need shelter?	GBV Specialist	Immediate
4. Provide immediate support	Safety planning (emergency contact, escape route, safe place). Psychosocial first aid (listen, believe, validate, do not blame). Medical care (if within 72 hours – refer to hospital for PEP).	GBV Specialist	Immediate
5. Explain options	Explain medical, psychosocial, legal, and shelter options. Survivor chooses (informed consent). Do not pressure.	GBV Specialist	Within 24 hours
6. Refer to services	With survivor consent, refer to chosen service provider(s). Warm handoff (call provider, provide contact details, accompany if needed and consented).	GBV Specialist	Within 24-48 hours
7. Investigate (if perpetrator is worker)	If perpetrator is worker (contractor employee, subcontractor, security), investigate (confidentially). Interview survivor (if consented), witnesses, and perpetrator. Do not require survivor to provide evidence (if they choose not to).	Contractor / PIU (GBV Specialist)	Within 7 days
8. Sanction perpetrator (if worker)	If investigation confirms violation of CoC, apply sanctions: warning, suspension, termination, legal	Contractor / PIU	Within 14 days of investigation completion

	prosecution (refer to police). Inform survivor of outcome (if consented).		
9. Follow up	Follow up with survivor at 1 day, 1 week, 1 month, 3 months (if contact details available). Check if services received, assess safety, offer additional support.	GBV Specialist	Per schedule
10. Close case	Case closed when survivor no longer needs support (as determined by survivor and GBV Specialist). Document outcome (anonymised).	GBV Specialist	As determined
11. Report (anonymised)	Report anonymised data to PIU and AfDB (quarterly): number of cases, types, response time, outcomes. No identifying information.	GBV Specialist	Quarterly

9.5.4.2 Handling Anonymous Reports

Step	Action	Responsible
1	Receive anonymous report (suggestion box, hotline (caller withholds name), online portal (name not entered))	GBV Specialist
2	Assess if report contains enough information to investigate (e.g., date, location, perpetrator description). If not, no further action possible (but document).	GBV Specialist
3	If investigation possible (e.g., perpetrator identified), investigate (confidentially). Do not attempt to identify survivor.	GBV Specialist / Contractor
4	If investigation confirms violation, sanction perpetrator (warning, suspension, termination, legal prosecution).	Contractor / PIU
5	Document (anonymised).	GBV Specialist
6	Report anonymised data to PIU and AfDB (quarterly).	GBV Specialist

9.5.4.3 Handling Child Survivors (under 18 years)

Principle	Action

Best interest of the child	All decisions prioritise child's safety, well-being, and development.
Mandatory reporting	Under VAPP Act and Child Rights Act, certain professionals (doctors, nurses, teachers, social workers) are mandatory reporters (must report suspected child abuse to police or Ministry of Women Affairs). GBV Specialist will report to police (with child's and parent/guardian's consent where possible, but if child at risk, may report without consent).
Child-friendly procedures	Use child-friendly language; provide age-appropriate information; ensure child is accompanied by trusted adult (parent, guardian, teacher) during interviews (unless parent is perpetrator – then separate).
Referral	Refer to child protection services (Ministry of Women Affairs, NGO child protection programs), medical care (paediatrician, PEP for HIV if appropriate), psychosocial support (child counsellor), shelter (if unsafe at home).
Confidentiality	Confidentiality respected, but may need to share with police/child protection (mandatory reporting). Child informed of limits to confidentiality.

9.6 Accountability and Sanctions

9.6.1 Sanctions for Workers

Violation	**Category**	**Sanction**	**Responsible**
Minor, first-time (e.g., unwelcome sexual comment (not repeated), failure to report known incident)	Minor	Verbal warning (documented)	Supervisor
Minor, repeated (same violation after verbal warning)	Minor	Written warning (copy to PIU)	Contractor E&S Officer
Serious (e.g., sexual harassment (repeated unwelcome advances, quid pro quo), discrimination, bullying)	Serious	Suspension (1-4 weeks, without pay); mandatory retraining; final written warning	Contractor management / PIU
Gross (e.g., sexual exploitation or abuse (exchange of money/goods/jobs for sex), sexual	Gross	Immediate termination; legal prosecution (refer to police)	Contractor management / PIU / Police

activity with minor, rape, physical assault, forced labour, child labour)			

9.6.2 Sanctions for Contractors

Violation	Sanction	Responsible
Failure to implement GBV Action Plan (no CoC, no training, no reporting channels, no referral pathways)	Financial penalty (₦5 million – ₦20 million); suspension of work until corrective actions implemented	PIU / AfDB
Failure to enforce CoC (known violations but no sanctions)	Financial penalty (₦10 million – ₦50 million); termination of contract (if repeated)	PIU / AfDB
Retaliation against survivor (worker or supervisor punishes survivor for reporting)	Immediate termination of contract (contractor); legal prosecution	PIU / AfDB / Police
Cover-up of GBV incident (contractor management knows of incident but does not report, investigate, or sanction)	Immediate termination of contract; debarment from future AfDB-funded projects	AfDB

9.6.3 Sanctions for PIU Staff

Violation	Sanction	Responsible
Failure to respond to GBV report (no acknowledgment, no referral, no investigation, no follow-up)	Written warning; suspension (if repeated); removal from project	LSMoH
Breach of confidentiality (disclosing survivor's identity without consent)	Suspension; termination; legal action (if VAPP Act violated)	LSMoH
Retaliation against survivor	Immediate termination; legal prosecution	LSMoH / Police

9.7 Monitoring and Evaluation

9.7.1 Monitoring Indicators

Indicator	Definition	Target	Frequency	Data Source	Responsible
Worker training completion	% of workers (including subcontractors,	100%	Monthly	Training attendance records	Contractor

	security) who completed GBV induction training				
Worker refresher training completion	% of workers who completed monthly refresher training	100%	Monthly	Training attendance records	Contractor
Community training completion	Number of community members trained (by gender, age group)	500+ (construction phase); 200+/year (operation)	Quarterly	Training attendance records	PIU / GBV Specialist
Code of Conduct compliance	% of workers who signed CoC	100%	Monthly	CoC records	Contractor
Reporting channels available	Number of reporting channels (hotline, suggestion boxes, female focal points, etc.)	Minimum 4	Pre-construction	Verification	PIU
GBV incidents reported	Number of GBV incidents reported (by type: SEA, SH, GBV (intimate partner violence), other)	Zero (target); track actual	Monthly	GRM records	PIU / GBV Specialist
Response time (acknowledgment)	Time from report to	≤4 hours	Per incident	GRM records	PIU / GBV Specialist

	acknowledgment (hours)				
Response time (referral)	Time from report to referral to services (hours)	≤48 hours	Per incident	GRM records	PIU / GBV Specialist
Referral completion	% of survivors who were referred to services (and accepted referral)	100%	Per incident	Referral records	PIU / GBV Specialist
Investigation completion (worker perpetrator)	% of cases where perpetrator is worker that were investigated	100%	Per incident	Investigation records	Contractor / PIU
Sanctions applied (worker perpetrator)	% of confirmed cases where sanctions applied (warning, suspension, termination, legal prosecution)	100%	Per incident	Sanctions records	Contractor / PIU
Survivor satisfaction	% of survivors satisfied with response (confidentiality, safety, respect, referral, follow-up)	≥80%	Quarterly	Survivor feedback survey (anonymised)	PIU / IESM

Community satisfaction	% of community members satisfied with project's GBV prevention and response	≥80%	Quarterly	Community satisfaction survey	PIU / IESM
Referral pathway functionality	% of service providers (medical, psychosocial, legal, shelter) with active MOU and confirmed contact details	100%	Quarterly	MOU records, contact verification	PIU / GBV Specialist

9.7.2 Reporting Templates

Table 9.2 – GBV Incident Reporting Form (Confidential)

Field	Information
Case code (unique identifier – no names)	GBV-LSHIP-IK-001
Date of report	DD/MM/YYYY
Time of report	HH:MM
Reporting channel	Hotline / Suggestion box / Female focal point / Community liaison / Supervisor / Online portal / Anonymous
Type of incident	SEA / SH / GBV (intimate partner violence) / Other (specify)
Location of incident	Site name (e.g., Agura PHC), LGA
Date of incident	DD/MM/YYYY
Time of incident	HH:MM
Perpetrator category	Worker (contractor employee) / Subcontractor / Security / Community member / Other
Perpetrator name (if known)	_____ (keep confidential)

Survivor category	Worker (contractor employee) / Community member / Other
Survivor age	Under 18 / 18-25 / 26-40 / Over 40
Survivor gender	Female / Male / Non-binary
Immediate risk assessed	Yes / No – if yes, action taken: safety planning, shelter
Medical referral	Yes / No – if yes, referred to: _____ (hospital name)
Psychosocial referral	Yes / No – if yes, referred to: _____ (counsellor/NGO)
Legal referral	Yes / No – if yes, referred to: _____ (police/legal aid)
Shelter referral	Yes / No – if yes, referred to: _____ (shelter)
Investigation initiated	Yes / No – if yes, by: Contractor / PIU / Police
Sanctions applied (if perpetrator worker)	Warning / Suspension / Termination / Legal prosecution
Follow-up completed (1 day, 1 week, 1 month, 3 months)	Yes / No – dates: _____
Case status	Open / Closed
Date closed	DD/MM/YYYY
Report prepared by	_____ (GBV Specialist)

Note: This form is confidential. Do not include survivor's name (use case code). Store in locked cabinet or password-protected file. Access limited to GBV Specialist and PIU Safeguards Team.

Table 9.3 – Quarterly GBV Report (Anonymised – to AfDB)

Indicator	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**	**Year Total**
Total GBV incidents reported					
By type: SEA					
SH					
GBV (intimate partner violence)					
Other					
By survivor category: Worker					
Community member					

By survivor gender: Female					
Male					
Non-binary					
By survivor age: Under 18					
18-25					
26-40					
Over 40					
By perpetrator category: Worker					
Subcontractor					
Security					
Community member					
Referrals: Medical					
Psychosocial					
Legal					
Shelter					
Investigation completed (worker perpetrator)					
Sanctions applied (worker perpetrator)					
Average response time (acknowledgment)					
Average response time (referral)					
Survivor satisfaction (%)					
Community satisfaction (%)					

Note: No identifying information (names, locations, dates) that could identify survivor. Use aggregated numbers only.

9.8 Roles and Responsibilities

Entity	Responsibilities
PIU Safeguards Team	Overall oversight of GBV Action Plan implementation. Recruit GBV Specialist. Ensure contractor compliance (CoC, training, reporting, and sanctions). Maintain GRM (hotline, suggestion boxes, female focal

	points). Establish MOUs with service providers (medical, psychosocial, legal, shelter). Report to AfDB (quarterly, anonymised). Investigate incidents (if perpetrator is PIU staff). Coordinate with LASG Ministry of Women Affairs, police, NGOs.
GBV Specialist (PIU staff)	Receive GBV reports (confidential). Assess risk. Provide immediate support (safety planning, psychosocial first aid). Refer survivors to services (medical, psychosocial, legal, shelter). Follow up (1 day, 1 week, 1 month, 3 months). Document cases (confidentially, case codes). Report anonymised data to PIU and AfDB. Train PIU staff, contractors, community. Maintain referral pathway (MOUs, contact lists).
Contractor	Implement GBV Action Plan at site level. Enforce Code of Conduct (signing, training, sanctions). Provide training (induction, monthly refreshers) for workers. Establish worker GRM (including GBV reporting channels). Report incidents to PIU (within 24 hours). Investigate incidents (if perpetrator is worker). Apply sanctions (warning, suspension, termination, legal prosecution). Cooperate with PIU and GBV Specialist.
Security personnel	Sign Code of Conduct. Receive VPSHR training (proportional use of force, no GBV/SEA/SH). Report any GBV/SEA/SH incidents they witness or become aware of. Do not use excessive force. Do not engage in GBV/SEA/SH (zero tolerance).
Facility Operator (operational phase)	Implement GBV Action Plan at facility level. Train staff (clinical and non-clinical) on GBV awareness, recognition, referral. Establish facility-level GRM (suggestion boxes, female focal points). Refer survivors to services (medical – PEP, emergency contraception, STI treatment; psychosocial; legal). Maintain confidentiality. Report to PIU (quarterly).
Clinical staff (operational phase)	Recognise signs of GBV. Ask sensitively (confidential, non-judgmental). Provide medical care (PEP, emergency contraception, STI treatment) or refer. Document (confidentially). Refer to GBV Specialist or psychosocial/legal services. Mandatory reporting for child survivors (police, Ministry of Women Affairs).

LAWMA (waste handlers – operational phase)	Sign Code of Conduct. Receive GBV awareness training. Report any GBV/SEA/SH incidents they witness or become aware of.
Community liaison officer	Receive GBV complaints from community (confidentially). Refer to GBV Specialist. Conduct community awareness campaigns. Engage women's groups, traditional/religious leaders.
IESM (Independent Monitor)	Audit GBV Action Plan implementation (quarterly). Verify training records, CoC compliance, reporting channels, referral pathway functionality. Interview workers and community members (confidentially) about GBV risks and response. Report findings to AfDB (quarterly).
AfDB	Review GBV Action Plan (as part of ESIA). Monitor compliance through PIU reports and IESM audits. Enforce covenants (withhold disbursement if non-compliance). Provide technical support (GBV Specialist recruitment, training materials, referral pathway mapping).

9.9 Budget Estimate

Table 9.4 – GBV Action Plan Budget Estimate (Ikorodu Axis – 3-year construction phase)[2]

Component	Description	Estimated Cost (USD)	Estimated Cost (₦)	Responsible
Training	Worker induction + monthly toolbox talks (4 sites)	$8,000 – $20,000	₦12,000,000 – ₦30,000,000	Contractor / PIU
GBV Specialist	Consultant for training, case management, referral coordination	$15,000 – $30,000	₦22,500,000 – ₦45,000,000	PIU
Awareness Materials	Posters, flyers, radio scripts	$2,500 – $6,000	₦3,750,000 – ₦9,000,000	PIU / GBV Specialist
GRM Setup	Hotline, suggestion boxes, female focal point training	$2,000 – $5,000	₦3,000,000 – ₦7,500,000	PIU

[2] The Ikorodu North share (4 out of 29 facilities) of the LSHIP programme GBV Action Plan budget (US$164,000) is approximately US$41,000 (₦61.5 million).

Referral Pathway MOUs	Medical, DSVA/DVSRT, Mirabel Centre, Legal Aid, WAPA	$1,000 – $3,000	₦1,500,000 – ₦4,500,000	PIU
Monitoring & Evaluation	Quarterly surveys, incident tracking, reporting	$5,000 – $10,000	₦7,500,000 – ₦15,000,000	PIU / IESM
TOTAL		$33,500 – $74,000	₦50,250,000 – ₦111,000,000	

Note: The Ikorodu Axis share (4 out of 29 facilities – approximately 25%) of the LSHIP programme GBV Action Plan budget (US$164,000) is approximately US$41,000 (₦61.5 million).

9.10 Conclusion

The GBV/SEA/SH Action Plan provides a comprehensive, survivor-centered framework for preventing, mitigating, and responding to GBV, SEA, and SH risks associated with the Ikorodu Axis facilities.

Key elements of the Action Plan include:

- **Risk assessment** – identifying medium-high risk sites (Agura, Olorunda, Eruwen) and risk factors (labour influx, poor lighting, isolated paths, lack of female staff, lack of confidential reporting, economic vulnerability, cultural norms, poor police response, displacement).
- **Prevention measures** – Code of Conduct (mandatory for all workers, subcontractors, security personnel), training (workers, community, facility operators), safe recruitment practices, community-level prevention (awareness campaigns, women's groups, traditional/religious leader's engagement, safe spaces, improved lighting, and safety audits).
- **Response measures** – Survivor-centered approach (confidentiality, safety, respect, non-discrimination, no retaliation, informed consent), multiple reporting channels (hotline, suggestion boxes, female GRM focal points, community liaison officer, supervisor, online portal, anonymous reporting), referral pathways (medical (PEP within 72 hours), psychosocial, legal, shelter) with MOUs with service providers, case management protocol.

- **Accountability** – Sanctions for workers (verbal warning, written warning, suspension, termination, legal prosecution), contractors (financial penalties, suspension, termination, debarment), PIU staff (warning, suspension, termination, legal action).
- **Monitoring and evaluation** – Indicators (training completion, CoC compliance, incidents reported, response time, referral completion, survivor satisfaction, community satisfaction), reporting templates (confidential incident form, quarterly anonymised report to AfDB).
- **Budget** – Indicative US$41,000 (₦61.5 million) for Ikorodu Axis share of the 3-year construction phase (excluding IESM audits).

With full implementation of this GBV/SEA/SH Action Plan, the Ikorodu Axis facilities will protect women, girls, workers, and vulnerable groups from GBV/SEA/SH, ensure compliance with AfDB ISS (OS5), Nigerian law (VAPP Act), and international standards, and build community trust and project acceptance.

9.11 GBV/SEA/SH Summary Matrix

Colour Codes: ● Critical Risk Major Risk Moderate Risk Minor Risk ● Positive Impact

TABLE 9.5 -- GBV/SEA/SH SUMMARY MATRIX

Risk Category	Site(s)	Unmitigated Risk	Mitigation / Action	Significance	Responsible
Worker--Community SEA	Agura, Omolaiye, Olorunda, Eruwen	Workers offering money/goods/jobs for sex	CoC (zero tolerance); induction + monthly training; confidential reporting; sanctions	● Critical	Contractor / PIU / GBV Specialist
Worker--Worker SH	All sites	Quid-pro-quo harassment; unwelcome sexual comments	Supervisor training; CoC enforcement; disciplinary action	Major	Contractor / PIU
Child Sexual	All sites	Sexual activity with minors	CoC prohibition; background	● Critical	Contractor / PIU /

Abuse (<18 yrs)			checks; community awareness; immediate referral		GBV Specialist
GBV Against Vulnerable Groups	Agura, Omolaiye, Olorunda, Eruwen	Women/girls on isolated paths; poor lighting	Lighting improvements; safe spaces; community awareness	□ Major	PIU / Contractor / LGA
Lack of Confidential Reporting	All sites	Survivors fear retaliation; no safe channels	Hotline; suggestion boxes; female GRM focal points; anonymous reporting	● Critical	PIU / GBV Specialist
Economic Exploitation	Agura, Olorunda	Women traders/farmers vulnerable to SEA	Women's groups engagement; livelihood support; CoC enforcement	□ Major	PIU / GBV Specialist
Substance Abuse Among Workers	Agura	Alcohol/drug use → aggression, SEA	Zero-alcohol policy; enforcement; toolbox talks	□ Moderate	Contractor
Cultural Norms Supporting GBV	Omolaiye, Olorunda	Acceptance of violence; silence around GBV	Community sensitisation; religious/traditional leader engagement	□ Major	PIU / GBV Specialist
Poor Police Response	All sites	Survivors discouraged from reporting	Referral pathway with DVSRT,	□ Major	PIU / GBV Specialist

			Mirabel Centre; legal aid		
Survivor Reports but No Action	All sites	GRM fails to respond → re-traumatisation	GRM protocol (48-hr acknowledgement, 14-day resolution); monitoring	● Critical	PIU / Contractor
Community Protest Due to GBV	Agura	Unaddressed GBV → community anger	Transparent GRM; rapid response; sanctions; community liaison	● Critical	PIU / Contractor

Prevention Measures Summary

Measure	Description	Sites	Significance	Responsible
Code of Conduct (CoC)	Zero tolerance for GBV/SEA/SH; signed by all workers	All sites	● Critical	Contractor / PIU
Worker Training	Induction + monthly toolbox talks	All sites	□ Major	Contractor / GBV Specialist
Community Awareness	Quarterly sessions; women's groups; youth engagement	Agura, Omolaiye, Olorunda, Eruwen	□ Major	PIU / GBV Specialist
Safe Recruitment	No minors; background checks; gender-balanced hiring	All sites	□ Moderate	Contractor
Improved Lighting	Solar lights around PHCs and paths	Agura, Omolaiye, Olorunda, Eruwen	□ Major	Contractor / LGA

Safe Spaces for Women	Confidential rooms in PHCs; women's centres	All sites	□ Moderate	Facility Operator / PIU
Supervisor Training	SH prevention; CoC enforcement	All sites	□ Major	PIU / GBV Specialist

Response Measures Summary

Response Measure	Description	Significance	Responsible
Survivor-Centred Protocol	Confidentiality, safety, respect, no retaliation	● Critical	PIU / GBV Specialist
Reporting Channels	Hotline, suggestion boxes, female focal points	● Critical	PIU
Referral Pathway	Medical (PEP), psychosocial, legal, shelter	● Critical	PIU / GBV Specialist
Sanctions	Warning → suspension → termination → prosecution	● Critical	Contractor / PIU
GRM Monitoring	48-hr acknowledgement; 14-day resolution	□ Major	PIU
Incident Tracking	GBV logbook; anonymised reporting	□ Moderate	PIU / GBV Specialist

Monitoring Indicators Summary

Indicator	Target	Frequency	Responsible
% workers trained	100%	Monthly	Contractor
% community members reached	≥ co	Quarterly	PIU
# GBV incidents reported	Track	Monthly	PIU
% cases resolved ≤14 days	≥ ca	Monthly	PIU
CoC compliance	100%	Monthly	Contractor
Survivor satisfaction	≥urv	Quarterly	GBV Specialist

9.12 Child Protection Protocol

Principles:

- Best interest of the child

- Do no harm
- Confidentiality
- Survivor-centered approach
- Mandatory reporting

Prohibited Activities:

- Sexual activity with minors (anyone <18 years) – ZERO TOLERANCE
- Child labour – minimum age for construction work is 18 years
- Any form of child exploitation or abuse

Reporting:

- Mandatory reporting to PIU Safeguards Team within 24 hours
- Immediate referral to Lagos State Child Protection Unit
- Coordination with Ministry of Women Affairs and Poverty Alleviation (WAPA)
- NSCDC involvement where criminal prosecution is required

Training:

- All workers must complete child protection training during induction

Annual refresher training

9.13 Stakeholder Engagement, Consultation & Engagement Plan

9.13.1 Engagement Overview

Stakeholder engagement is a core ESIA requirement ensuring that Project-Affected Persons (PAPs), community members, government agencies, and other stakeholders are informed, consulted, and able to participate meaningfully in project planning and decision-making. Engagement for the four PHC sites followed the principles of transparency, inclusiveness, cultural appropriateness, gender sensitivity, and free, prior, and informed participation.

All consultations were conducted in Yoruba, Pidgin English, and English, ensuring inclusiveness across all demographic groups.

9.13.2 Stakeholder Identification

A. Primary Stakeholders (Directly Affected)

Stakeholder Category	**Specific Groups**
Community Residents	Households within 0--500 m of each PHC
Women's Groups	Market women, farmers, traders
Youth Groups	Local youth associations
Persons with Disabilities	Community members with disabilities
Traditional Leaders	Obas, Baales

Religious Leaders	Pastors, Imams
PAPs	Agura (13 shop owners), Olorunda (6 farmers)
PHC Staff	Existing facility staff

B. Secondary Stakeholders (Indirectly Affected)

Stakeholder Category	Specific Entities
Government	Ikorodu North LCDA, Ikorodu LGA officials, LSMoH, LASEPA, LAWMA, NESREA, FMEnv
Security	Police, NSCDC
Civil Society	CSOs, Women Affairs & Poverty Alleviation (WAPA)
GBV Service Providers	DVSRT, Mirabel Centre

9.13.3 Consultation Activities

Consultations were conducted between across all four PHC sites.

Activity	Description	Sites Covered
Community Entry Meetings	Introductory meetings with community leaders	All sites
Focus Group Discussions (FGDs)	Women, youth, farmers, traders	All sites
Key Informant Interviews (KIIs)	Traditional leaders, PHC staff, LGA officials	All sites
Site Walkthroughs	Environmental and social assessments	All sites
GBV/SEA/SH Screening	Risk identification sessions	All sites
Ecosystem Consultations	Wetland assessments	Omolaiye, Olorunda, Eruwen
RAP Consultations	PAP identification and engagement	Agura, Olorunda

9.13.4 Summary of Issues Raised

Site	Key Concerns Raised	Project Response
Omolaiye PHC	Wetland disturbance; asbestos in roofing; need for lighting, access, local hiring	50 m buffer; biodiversity offset; licensed asbestos abatement; solar lighting; ≥50% local hiring

Eruwen PHC	Asbestos in roofing; safe demolition; lighting, security; employment	Licensed asbestos abatement; safety protocols; solar lighting; local hiring
Olorunda PHC	Farming livelihood protection; wetland preservation; employment	RAP implementation; 50 m buffer; livelihood restoration; local hiring
Agura PHC	Resettlement concerns (13 shops); labour influx; GBV/SEA/SH risks; market access; noise and dust	Full RAP implementation; CoC; GBV Action Plan; maintain pedestrian routes; dust suppression; noise barriers

9.13.5 Stakeholder Engagement Plan (SEP)

A. Engagement Objectives

1. Ensure transparent communication throughout project lifecycle
2. Provide timely information on project activities
3. Address concerns related to environment, health, safety, GBV, and livelihoods
4. Strengthen trust between proponents and communities
5. Ensure meaningful participation of women, youth, and vulnerable groups
6. Maintain continuous feedback loops through GRM

B. Engagement Methods

Method	Description	Frequency	Responsible
Community Meetings	Town hall, PHC courtyard meetings	Quarterly	PIU / Contractor
Focus Group Discussions	Women, youth, farmers, traders	Quarterly	PIU / GBV Specialist
Key Informant Interviews	Traditional leaders, PHC staff, LGA officials	Bi-annual	PIU
Door-to-Door Sensitisation	GBV, waste management, construction impacts	Monthly	Community Liaison Officer
Public Disclosure	Posters, flyers, radio announcements	As needed	PIU
GRM Channels	Hotline, suggestion boxes, female focal points	Continuous	PIU / Contractor
Environmental Disclosure	Air, noise, water results shared publicly	Quarterly	PIU / IESM
RAP Consultations	PAP engagement, compensation discussions	As needed	PIU / RAP Consultant

C. Engagement Schedule

Phase	Activities
Pre-Construction	ESIA disclosure; RAP consultations (Agura, Olorunda); GBV referral pathway; asbestos notification; wetland consultations
Construction	Weekly contractor--community briefings; monthly GBV toolbox talks; quarterly environmental disclosure; traffic updates
Operation	PHC community health forums; GBV awareness sessions; waste management sensitisation; annual stakeholder reviews

D. Gender-Sensitive Engagement Measures

- Female GRM focal points at each PHC
- Women-only FGDs
- Engagement times adjusted to women's schedules
- Safe spaces for confidential reporting
- Inclusion of women leaders (market women, farmers, traders)

E. Vulnerable Groups Engagement

Group	Engagement Approach
Persons with disabilities	Home visits, accessible venues
Elderly women	Home visits, safe spaces
Widows	GBV-sensitive communication
Adolescent girls	Youth FGDs, safe spaces
Women in isolated communities	Home visits, community liaison

9.13.6 Grievance Redress Mechanism (GRM)

Feature	Description
Entry Points	Toll-free hotline (SMS/WhatsApp); suggestion boxes at PHCs and community halls; female GRM focal points
Confidentiality	Anonymous reporting allowed
Acknowledgement	Within 48 hours
Resolution	Within 14 days (Level 1); 21 days (final appeal)
Tiered System	PHC level → LGA liaison → PIU → FMEnv/AfDB
Reporting	Quarterly to AfDB

9.13.7 Stakeholder Engagement Responsibilities

Entity	Role
PIU	Lead engagement, disclosure, GRM, reporting

Contractor	Daily communication, CoC enforcement, GBV prevention
GBV Specialist	Training, referral pathways, confidential reporting
Community Liaison Officer	Daily community interface
LASEPA / LAWMA	Regulatory engagement
IESM	Independent verification
RAP Consultant	PAP engagement, compensation oversight (Agura, Olorunda)

9.13.8 Monitoring Indicators

Indicator	**Target**	**Frequency**
Community meetings held	≥4 per year	Quarterly
Women participating	≥40%	Quarterly
Grievances received	Tracked	Monthly
Grievances resolved ≤14 days	≥90%	Monthly
GBV cases referred	Tracked	Monthly
Environmental disclosures	4 per year	Quarterly
RAP consultations completed	100%	As needed

9.13.9 Stakeholder Engagement Evidence Package

A. Attendance Sheets (Summary) *see appendix 7.2 for more details*

Community Meetings (6 Meetings): Omolaiye, Eruwen, Olorunda, Agura -- community leaders, residents, market women, youth groups, PHC staff, CDA executives.

Focus Group Discussions (3 FGDs): Women (Omolaiye, Olorunda); Youth (Agura); Elderly (Eruwen).

LGA Meetings (2 Meetings): Ikorodu North LCDA Health Department; Ikorodu LGA Health Department.

LASEPA Meeting (1 Meeting): Environmental baseline verification, noise, air quality, and waste management compliance.

B. Contact List (Verified)

Name	Role / Group	Phone

Mrs Nike Jibril	Women Leader/Agura	08177651221
Omoloye Modupe Halimat	Ikorodu North/HEO	07085155253
Hon Adedeji Elijah	Chairman' whc/ Olorunda	08039148698
Kolawole Shittu	Chairman/Eruwen	07089897552

C. Photographic Evidence (Plates) see appendix 7.1

See Appendix 7 for more details and pictures

D. Concerns Matrix with Responses

Stakeholder Group	**Concern**	**Project Response**
Community Leaders	Dust, noise, access disruption	Dust suppression; noise barriers; maintain pedestrian access
Women's Groups	Child safety near construction	Fencing; signage; CLO monitoring
Youth Groups	Employment	≥30% local hiring target for unskilled roles
PHC Staff	Service continuity during refurbishment (Omolaiye)	Phased construction; temporary service tents
Elderly Residents	PHC access	Dedicated access path; volunteer assistance
LASEPA	Medical waste compliance	Non-burn treatment units; colour-coded segregation
LGA Health Units	GRM functionality	4-tier GRM; 48-hr acknowledgement; 14-day resolution
Market Women	Trading disruption (Agura)	Schedule works outside peak hours; maintain access
PAPs (Agura, Olorunda)	Compensation and livelihood restoration	Full RAP; compensation before displacement; livelihood restoration
Vulnerable Groups	GBV/SEA/SH risks	Mandatory CoC; GBV training; female CLOs; referral pathway

Stakeholder engagement for the four PHC sites has been inclusive, gender-sensitive, and culturally appropriate. The SEP ensures continuous communication, transparency, and trust throughout the project lifecycle, supporting compliance with AfDB ISS (OS10), FMEnv, NESREA, and LASEPA requirements.

Full documentation -- including attendance sheets, signatures, contact lists, and photographs -- is provided in Annex 9.1 and the standalone SEP.

9.14 Conclusion

The GBV/SEA/SH Action Plan provides a comprehensive, survivor-centred framework tailored to the four PHC sites in the Ikorodu North Axis. With strong prevention, confidential reporting, trained personnel, and clear referral pathways, the project will meet AfDB ISS requirements and protect women, girls, workers, and vulnerable groups throughout all project phases.

CHAPTER 10 -- CONCLUSION AND RECOMMENDATIONS

10.1 Introduction

This chapter presents the overall conclusions and recommendations of the Environmental and Social Impact Assessment (ESIA) for the four PHC facilities assessed in the Ikorodu North Axis under the Lagos State Health Infrastructure Project (LSHIP). It synthesises findings from:

- Baseline conditions (Chapter 4)
- Impact assessment (Chapter 5)
- Mitigation measures (Chapter 6)
- Environmental and Social Management Plan (Chapter 7)
- Hazardous and Medical Waste Management Plan (Chapter 8)
- GBV/SEA/SH Action Plan (Chapter 9)

The conclusions demonstrate compliance with:

- AfDB ISS (OS1—OS10)
- FMEnv EIA Act CAP E12 LFN 2004
- NESREA Regulations
- LASEPA and LAWMA requirements
- IFC Performance Standards (PS1--PS8)
- WHO Healthcare Waste and IPC Standards
- ILO Labour and OHS Conventions
- Equator Principles IV (EP4)

This ESIA covers only the four PHC facilities in the Ikorodu North Axis. Separate ESIA reports exist for other clusters.

10.2 Summary of Key Findings

Environmental and Social Context

- The Ikorodu North Axis contains wetlands (Omolaiye, Olorunda, and Eruwen), waterlogged sensitive ecosystems (Omolaiye), peri-urban settlements (Agura), and isolated rural communities (Eruwen).
- Asbestos is suspected at Omolaiye and confirmed at Eruwen.
- GBV/SEA/SH risks are medium to high, especially in Agura and Omolaiye.
- Climate risks include flooding, erosion, and heat stress.

Key Adverse Impacts (Unmitigated)

- **Critical:** Asbestos exposure (Omolaiye, Eruwen), wetland disturbance (Omolaiye, Olorunda, Eruwen), GBV/SEA/SH (Agura), medical waste mismanagement (all sites).

- **Major:** Labour influx (Agura), community health & safety risks, erosion (Eruwen, Omolaiye), water quality risks (Omolaiye).
- **Moderate:** Dust, noise, construction waste, traffic disruption.

Key Positive Impacts

- Improved healthcare access for over 200,000 residents.
- Reduced maternal and under-five mortality.
- Local employment and procurement.
- Solar PV → reduced GHG emissions.
- Strengthened health system resilience.

10.3 Summary of Mitigation Measures

Mitigation instruments include:

- **ESMP (Chapter 7):** Air, noise, water, waste, OHS, GRM, monitoring.
- **HMWMP (Chapter 8):** WHO colour coding, autoclave treatment, LAWMA disposal.
- **GBV/SEA/SH Action Plan (Chapter 9):** CoC, training, confidential reporting, referral pathways.
- **Asbestos Management Plan:** Survey, licensed abatement, air monitoring (Omolaiye, Eruwen).
- **RAP (Agura, Olorunda):** Compensation at full replacement cost, livelihood restoration, vulnerability support.
- **Labour Influx Plan:** Local hiring, worker accommodation, GBV prevention.
- **Traffic Management Plan:** Speed limits, signage, flag persons.
- **OHS Plan:** PPE, toolbox talks, medical surveillance.

All mitigation measures reduce risks to acceptable levels.

10.4 Recommendations

10.4.1 Pre-Construction Recommendations

1. Conduct asbestos surveys at Omolaiye and Eruwen; implement abatement if confirmed.
2. Establish GBV referral pathways (medical, psychosocial, legal, shelter).
3. Recruit GBV Specialist and activate confidential reporting channels.
4. Implement climate-resilient design (oversized drainage, elevated electricals, solar PV).
5. Obtain all regulatory permits (LASEPA, LAWMA, building approvals).
6. Conduct wetland Critical Habitat screening (Omolaiye, Olorunda, Eruwen).
7. Implement RAPs for Agura (13 shops) and Olorunda (6 farmers) before construction begins.

8. Train contractors and PIU staff on AfDB ISS and ESMP implementation.
9. Finalize MOUs with GBV service providers (Mirabel Centre, LASG MWAPA, Legal Aid, shelters) before construction begins.
10. Complete RAP implementation for Agura (13 shop owners) and Olorunda (6 farmers) with 100% compensation paid and livelihood restoration programs initiated before any site clearing.

10.4.2 Construction Phase Recommendations

1. Enforce CESMP: dust control, noise limits, erosion control, and spill prevention.
2. Implement GBV Action Plan: CoC, training, reporting, and sanctions.
3. Ensure ≥50% local hiring to reduce labour influx.
4. Conduct environmental monitoring (air, noise, water, waste).
5. Maintain GRM: 48-hour acknowledgement, 14-day resolution.
6. Implement Traffic Management Plan at Agura.
7. Conduct quarterly IESM audits and implement corrective actions.

10.4.3 Operational Phase Recommendations

1. Implement HMWMP: segregation, autoclaving, LAWMA disposal.
2. Apply WHO IPC standards: hand hygiene, sterilisation, PPE, cleaning.
3. Maintain climate-resilient features: solar PV, drainage, heat management.
4. Continue GBV prevention and response: staff training, confidential reporting.
5. Maintain GRM for patients and community members.
6. Desludge septic tanks every 2--3 years.
7. Prioritise solar power to reduce GHG emissions.

10.4.4 Institutional Strengthening Recommendations

1. Strengthen PIU capacity with dedicated Environmental and Social Officers.
2. Review ESMP annually and update based on monitoring results.
3. Ensure adequate ESMP budget for implementation.
4. Maintain training programs for contractors, facility operators, and community.

10.5 Overall Conclusion

The ESIA concludes that the four PHC facilities in the Ikorodu North Axis are environmentally and socially viable. All adverse impacts---environmental, social, health, safety, and GBV-related---can be effectively mitigated through the ESMP, HMWMP, GBV Action Plan, and other safeguard instruments.

The project is expected to achieve the following quantified benefits:

Benefit	Quantification	Timeframe
Health Impact		
Population served	200,000 residents	Year 1 of operation
Maternal mortality reduction	20-30% reduction	5 years
Under-five mortality reduction	25-35% reduction	5 years
Economic Impact		
Direct jobs	160-320 construction jobs	Construction phase
Indirect jobs	300-500 supply chain jobs	Construction phase
Local procurement	60-70% of construction budget	Construction phase
Environmental Impact		
GHG emissions reduction	250-500 tCO_2e/year per PHC	Operational phase
Diesel savings	60,000-120,000 litres/year per PHC	Operational phase
Social Impact		
Women in workforce	≥15% construction workforce	Construction phase
Local hiring (unskilled)	≥50% from LGAs	Construction phase
PAPs compensated	19 PAPs (Agura 13, Olorunda 6)	Pre-construction

The project aligns with AfDB ISS, FMEnv regulations, IFC PS, WHO standards, ILO conventions, and Equator Principles IV.

With full implementation of mitigation measures, the project is recommended for approval by FMEnv, AfDB, and Lagos State authorities.

10.6 Final Statement

The Lagos State Health Infrastructure Project (LSHIP) -- Ikorodu North will significantly improve public health outcomes, strengthen health system resilience, and enhance environmental sustainability. With robust mitigation measures, strong institutional oversight, and continuous community engagement, the project will deliver long-term benefits while maintaining full compliance with national and international safeguards.

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APPENDICES

Appendix 1.1: Terms of Reference (AfDB)

1. Background

The Lagos State Health Infrastructure Project (LSHIP) is a US$200 million health system strengthening programme implemented by the Lagos State Ministry of Health (LSMoH) with financing from the African Development Bank (AfDB). The project involves upgrading, rehabilitating, and constructing 29 Primary Healthcare (PHC) facilities across Lagos State, clustered into eight geographic axes.

2. Objective of the Consultancy

The objective of this consultancy is to prepare a comprehensive Environmental and Social Impact Assessment (ESIA) for the Badagry Axis Group 3 (APA, Igbogbele, and Farasime PHCs) in accordance with the AfDB Integrated Safeguards System (ISS, 2023/2024), FMEnv EIA Act CAP E12 LFN 2004, and international good practice standards.

3. Scope of Work

- Conduct baseline environmental and social studies
- Identify and assess potential environmental and social impacts
- Develop mitigation measures and management plans
- Prepare ESMP, HMWMP, GBV/SEA/SH Action Plan, and other safeguard instruments
- Conduct stakeholder engagement and establish GRM
- Prepare Resettlement Action Plan (RAP) where applicable
- Ensure compliance with AfDB Operational Safeguards OS1-OS10

4. Deliverables

- Inception Report
- Draft ESIA Report
- Final ESIA Report
- ESMP and all associated management plans
- Non-Technical Summary (English and Yoruba)

5. Timeline

The consultancy is to be completed within 12 weeks from the date of commencement.

Appendix 1.2: Project Risk Categorization

Contents:

1. AfDB Category 1 Classification

The LSHIP is classified as Category 1 (High Risk) under the AfDB Integrated Safeguards System (ISS, 2023/2024) based on:

- Multi-site complexity (29 facilities across 8 axes)
- Involuntary resettlement at 6 sites (>200 PAPs)
- Environmentally sensitive sites (wetlands, mangroves, creek margins)
- Presence of hazardous materials (asbestos at 9 sites)
- Scale of construction activities
- Lack of dedicated E&S capacity within PIU

2. FMEnv Category I Classification

The project is classified as **Category I** under the EIA Act CAP E12 LFN 2004 based on:

- Scale of project (29 facilities)
- Sensitivity of receptors (coastal, riverine, wetland ecosystems)
- Magnitude of impacts (resettlement, asbestos, labour influx)
- Public interest
- Cumulative impacts

3. IFC Category A Classification

The project is classified as **Category A** under IFC Performance Standards based on:

- Significant environmental and social impacts
- Sensitive ecological receptors
- Involuntary resettlement
- Potential for significant adverse impacts on affected communities

4. Equator Principles IV Category A

The project is classified as **Category A** under EP4 requiring:

- Independent ESIA
- Climate risk assessment (TCFD-aligned)
- Human rights due diligence
- Independent monitoring (IESM)
- 120-day public disclosure period

5. Risk Screening Checklist

- ☑

Involuntary resettlement

- ☑

Hazardous materials (asbestos)

- ☑

Sensitive ecosystems (wetlands, mangroves, creeks)

- ☑

Labour influx

- ☑

GBV/SEA/SH risks

- ☑

Climate vulnerability

- ☑

Cumulative impacts

Appendix 1.3 FMEnv's statutory participation in the ESIA process

FEDERAL MINISTRY OF ENVIRONMENT
Environment House
Independence Way South, Central Business District, Abuja - FCT.
Email: info@ead.gov.ng, www.ead.gov.ng, www.eia@ead.gov.ng
ENVIRONMENTAL ASSESSMENT DEPARTMENT

FMEnv/EA/EIA/9513/VOL.1/25
11th February, 2026.

The Honourable Commissioner,
Lagos State Ministry of Health (LSMoH),
Block 4, The Secretariat, Alausa,
Ikeja.
Lagos State.

RE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED LAGOS HEALTH CARE TRANSFORMATIVE INITIATIVE PROJECT (LHIP).

Please refer to your letter to the Ministry through Multiple Development Services Limited dated 19th February, 2026 on the above project.

2. I am directed to acknowledge the receipt of your letter and evidence of payment of Fifty Thousand Naira (₦50,000.00) only with Remita Retrieval Reference (RRR) No. 2114 3260 7677 dated 19th February, 2026 as the EIA registration fee for the proposed project.

3 Following the evaluation of the submission, I am further directed to inform you that the ToR has been adjudged adequate for the next stage of the EIA process which is Site verification exercise and will be carried out by officials of the Ministry and Lagos State Ministry of Environment. Kindly ensure adequate samples are collected with the following minimum for the baseline study of the project area as shown in the table below:

S/N	Environmental Parameters	PARAMETERS DETAILS	PROPOSED SAMPLING FRAME	RECOMMENDED SAMPLING FRAME	PARAMETERS TO BE MONITORED
i.	Air Quality	Ambient	NILL	To be determined	NO_2, NO, SO_2, NH_3, CO, VOCs, H_2S, CH_4, temperature, particulates, relative humidity
ii.	Noise level	Noise level	NILL	To be determined	Noise level; dB(A)
iii.	Soil Samples (Top and Subsoil)	Physico-chemical/ microbial.	NILL	To be determined	Temperature, Colour, pH, Salinity, hardness, Texture, Porosity, Bulk Density, heavy metals- Zn, Pb, Fe, Hg, Ba, Phosphate, BTEX, TPH, Total heterotrophic bacteria and fungi, Total hydrocarbon utilizing bacteria and fungi, Total coliform, grain size distribution etc.
iv.	Surface Waste/Sediment	Physico-chemical/ microbial.	NILL	To be determined	Water depth/width/flow rate direction/sediment transport, river bank erosion. Temperature, Colour, pH, Turbidity, Salinity, hardness, heavy metals- Zn, Pb, Fe, Hg, Ba etc. DO, BOD, COD, THC, Electrical conductivity, Phosphate, SO_4, NO_3, TSS, TDS, BTEX, TPH, grain size distribution etc
v.	Ground Water	Physico-chemical/ microbial.	NILL	To be determined	Temperature, Colour, pH, Turbidity, Salinity, hardness, heavy metals- Zn, Pb, Fe, Hg, Ba etc. DO, BOD, COD, THC, Electrical conductivity, Phosphate, SO_4, NO_3, TSS, TDS, BTEX, TPH, grain size distribution etc.
vi.	Climate/Meteorology				Rainfall pattern, Relative humidity and Temperature, Wind speed, direction and visibility and their local effects
vii.	Socio-Economic/ Health Characteristics	Project area/adjacent community (ies)		Demography, social structure and organization, livelihood, social infrastructure, cultural properties, natural resources and land use, perception of the project, educational status, social vices and health impacts assessment indicators.	

4. Consequently, you are to pay the sum of One Million, Three Hundred and Twenty-Eight Thousand, Seven Hundred and Fifty Naira (₦1,328,750.00) only for the exercise. You are also requested to kindly provide necessary logistics and Technical personnel on site to ensure a hitch free exercise.

5. Please note that this letter supersedes the initial letter ref: FMEnv/EA/EIA/9513/VOL.1/25 and dated 4th February, 2026. You may wish to contact the undersigned on GSM number 0803-973-0654 or Mrs. Augusta Obi on 0803-265-8246 to confirm the receipt of this letter and for any clarification, please.

Engr. (Mrs.) Charity B. Malgwi
For: Honourable Minister

FEDERAL MINISTRY OF ENVIRONMENT
Environment House
Independence Way South, Central Business District, Abuja - FCT.
Email: info@ead.gov.ng, www.ead.gov.ng, www.eia@ead.gov.ng
ENVIRONMENTAL ASSESSMENT DEPARTMENT

FMEnv/EA/EIA/9513/VOL.1/26
11th February, 2026.

The Honourable Commissioner,
Lagos State Ministry of Health (LSMoH),
Block 4, The Secretariat, Alausa,
Ikeja,
Lagos State.

RE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED LAGOS HEALTH CARE TRANSFORMATIVE INITIATIVE PROJECT (LHIP).

Please refer to your letter to the Ministry through Multiple Development Services Limited dated 19th February, 2026 on the above project.

2. I am directed to inform you that the officials of the Ministry shall participate in the Data gathering and Laboratory Analyses Witnessing exercises.

3. Consequently, you are to pay the sum of One Million, Five Hundred Thousand Naira (₦1,500,000.00) only for the exercises. You are also requested to kindly provide necessary logistics to ensure a hitch free exercise.

4. You may wish to contact the undersigned on GSM number 0803-973-0654 or Mrs. Augusta Obi on 0803-265-8246 to confirm the receipt of this letter and for any clarification, please.

5. Thank you for your co-operation.

Engr. (Mrs.) Charity B. Malgwi
For: Honourable Minister

FEDERAL MINISTRY OF ENVIRONMENT
Environment House
Independence Way South, Central Business District, Abuja - FCT.
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ENVIRONMENTAL ASSESSMENT DEPARTMENT

FMEnv/EA/EIA/9513/VOL.1/27
11th February, 2026.

The Honourable Commissioner,
Lagos State Ministry of Health (LSMoH),
Block 4, The Secretariat, Alausa,
Ikeja,
Lagos State.

RE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED LAGOS HEALTH CARE TRANSFORMATIVE INITIATIVE PROJECT (LHIP).

Please refer to your letter to the Ministry through Multiple Development Services Limited dated 19th February, 2026 on the above project.

2. I am directed to inform you that the officials of the Ministry and other stakeholders at state level shall participate in the Scoping Workshop.

3. Consequently, you are to pay the sum of Seven Hundred and Fifty Thousand Naira (₦750,000.00) only for the exercise. You are also requested to kindly provide necessary logistics and Technical personnel on site to ensure a hitch free exercise.

4. You may wish to contact the undersigned on GSM number 0803-973-0654 or Mrs. Augusta Obi on 0803-265-8246 to confirm the receipt of this letter and for any clarification, please.

5. Thank you for your co-operation.

Engr. (Mrs.) Charity B. Malgwi
For: Honourable Minister

Appendix 2: Proposed Project Sites

S/N	PHC Facilities	LGA	LCDA	Status	Coordinates	
Group 1						
1	Agboju PHC	Amuwo Odofin	Oriade LCDA	Construction	6.458077	3.283238
2	Oridilu PHC	Ajeromi Ifelodun	Ifelodun LCDA	Refurbishment	6.464410	3.351390
3	Bada PHC	Alimosho	Ayobo Ipaja LCDA	Refurbishment	6.590535	3.228266
4	Ogbomosotedo PHC	Alimosho	Egbe Idimu LCDA	Refurbishment	6.575358	3.258728
Group 2						
1	Isolo PHC	Oshodi-Isolo	Isolo LCDA	Refurbishment	6.528600	3.320807
2	Oba Salami PHC	Lagos Mainland	Yaba LCDA	Refurbishment	6.522283	3.368430
3	Ojodu PHC	Ikeja	Ojodu LCDA	Construction	6.631394	3.342287
4	Otumara PHC	Lagos Mainland	Yaba LCDA	Construction	6.477588	3.374566
Group 3						
1	Omolaiye PHC	Ikorodu	Ikorodu North LCDA	Refurbishment	6.66839365	3.47307938
2	Eruwen PHC	Ikorodu	Ikorodu North LCDA	Construction	6.60440414	3.54358095
3	Olorunda PHC	Ikorodu	Ikorodu North LCDA	Construction	6.66833451	3.58520869
4	Agura PHC	Ikorodu	Ikorodu LGA	Construction	6.57996161	3.62752998

Group 4						
1	Imota PHC	Ikorodu	Imota LCDA	Refurbishment	6.66005734	3.66968297
2	Bayeiku PHC	Ikorodu	Igbogbo Bayeiku LCDA	Refurbishment	6.546943	3.543106
3	Abule Eko PHC	Ikorodu	Ijede LCDA	Refurbishment	6.58331880	3.59483036
4	Owutu PHC	Ikorodu	Ikorodu West LCDA	Construction	6.63301273	3.48131561
Cluster 5						
1	Agbowa PHC	Epe	Ikosi Ejirin LCDA	Construction	6.639779	3.712229
2	Ejirin PHC	Epe,	Ikosi Ejirin LCDA	Refurbishment	6.612939	3.897653
3	Solu Alade PHC	Ibeju Lekki	Ibeju Lekki LCDA	Refurbishment	6.43917	3.78986
4	Orimedu PHC	Ibeju Lekki	Ibeju Lekki LCDA	Construction	6.44066	3.90141
Group 6						
1	Magbon PHC	Ibeju Lekki	Lekki LCDA	Refurbishment	6.42880	3.99687
2	Idasho PHC	Ibeju Lekki	Lekki LCDA	Refurbishment	6.42940	3.98636
3	Idotun PHC	Ibeju Lekki	Lekki LCDA	Refurbishment	6.42451	4.2303
Group 7						
1	APA PHC	Badagry	Badagry West LCDA	Construction	6.430864	2.823958
2	Igbogbele PHC	Badagry	Badagry West LCDA	Refurbishment	6.423141	2.779165
3	Farasime PHC	Badagry	Badagry West LCDA	Refurbishment	6.425841	2.714320

Group 8						
1	Ibereko PHC	Badagry	Olorunda LCDA	Refurbishment	6.441703	2.919342
3	Agboyi PHC	Kosofe	Agboyi Ketu LCDA	Refurbishment	6.578345	3.409531

Appendix 2.2: Borrow Pit Management Plan (BPMP)

Contents:

1. Introduction

This Borrow Pit Management Plan (BPMP) provides procedures for the identification, assessment, operation, and rehabilitation of borrow pits used to source construction materials for the LSHIP Badagry Axis Group 3.

2. Site Selection Criteria

- Minimum 500m distance from residential areas
- Minimum 100m distance from water bodies (Badagry Creek)
- No borrow pits in wetlands or sensitive ecosystems
- Geotechnical suitability (sand/gravel quality)
- Access road availability
- Land ownership verification
- Community consent

3. Borrow Pit Assessment Checklist

- □

Geotechnical assessment completed

- □

Environmental screening conducted

- □

Community consultation held

- □

Land ownership verified

- □

Access road assessed

- □

Rehabilitation plan developed

4. Rehabilitation Plan

- Regrade slopes to stable angle (≤1:2)
- Apply topsoil (minimum 15cm)
- Revegetate with native species
- Restore drainage patterns
- Monitor for 12 months post-rehabilitation
- Success criteria: ≥80% vegetation cover

5. Monitoring Checklist

- Weekly: Slope stability, drainage, erosion
- Monthly: Water quality (if near water body)
- Quarterly: Vegetation cover (post-rehabilitation)
- Annually: Full compliance audit

6. Reporting Templates

- Borrow pit operation report (monthly)
- Borrow pit rehabilitation report (quarterly)
- Compliance closure report (final)

Appendix 2.3: LSHIIP Campsite Management Plan

1. Introduction

This Campsite Management Plan provides procedures for the establishment, operation, and closure of worker camps associated with the LSHIP where applicable.

2. Campsite Location Criteria

- Minimum 500m from residential areas
- Access to water and electricity
- Suitable drainage and terrain
- Community consent obtained
- No sensitive ecosystems

3. Site Layout Plans

- Accommodation area (tents/containers)
- Kitchen and dining area
- Sanitation facilities
- Waste management area
- First aid station
- Recreation area

4. Sanitation and Waste Management

- Adequate toilets (1 per 15 persons)
- Handwashing stations
- Solid waste collection bins
- Segregation of waste
- Regular collection and disposal

5. Camp Rules and Regulations

- No alcohol or drugs
- No visitors without permission
- Curfew hours (22:00-06:00)
- Respect for community norms
- Prohibition of GBV/SEA/SH
- Mandatory Code of Conduct signing

6. Community Liaison

- Regular community meetings
- Grievance reporting channels
- Local hiring preference (≥50%)

7. Camp Closure and Restoration

- Remove all structures
- Collect all waste
- Restore site to original condition
- Conduct community sign-off

Appendix 2.4: LSHIP Generic Labour Influx Management Plan (LIMP)

1. Introduction

This Labour Influx Management Plan (LIMP) provides procedures for managing the expected influx of construction workers to minimise negative social impacts and maximise local benefits, where applicable.

2. Labour Demand Forecast

Labour Category	Peak Number	Local Hiring Target
Skilled workers	30-50	≥30%
Semi-skilled	40-70	≥40%
Unskilled	80-120	≥50%
Management	5-10	≥30%

3. Local Hiring Strategy

- Community notification of job opportunities
- Registration of local workers
- Skills assessment
- Priority hiring from host communities
- Gender-balanced hiring (≥15% women)

4. Worker Conduct Rules

- Code of Conduct must be signed
- Prohibition of GBV/SEA/SH
- Respect for community norms
- No alcohol/drugs on site
- Reporting of incidents

5. Community Liaison Protocol

- Community Liaison Officer (CLO) appointed
- Regular community meetings
- Grievance reporting channels
- 48-hour grievance acknowledgement
- 14-day grievance resolution

6. Worker Registration Form

- Personal details
- Contact information

- Skills and experience
- LGA of residence
- Identification document copy
- Code of Conduct signed

7. Local Hiring Monitoring Template

- Number of workers hired (local vs non-local)
- Skills categories
- Gender breakdown
- Duration of employment
- Wages paid

Appendix 2.5: LSHIP Generic CASHES Plan

1. Introduction

The Community Affairs, Safety, Health, Environment and Security (CASHES) Plan provides a comprehensive framework for managing community relations, worker safety, public health, environmental protection, and site security during the LSHIP.

2. Community Affairs

- Community Liaison Officer (CLO) appointed
- Community entry protocols
- Regular community meetings (monthly)
- Grievance Redress Mechanism (GRM)
- Local content implementation
- Donations and community support

3. Safety

- Occupational Health and Safety (OHS) Plan
- PPE requirements
- Safety training and induction
- Emergency response procedures
- Incident reporting and investigation
- First aid stations

4. Health

- Medical waste management
- Sanitation and hygiene
- Water quality protection
- Noise and dust control
- Communicable disease prevention
- GBV/SEA/SH prevention and response

5. Environment

- ESMP implementation
- Air quality monitoring
- Water quality monitoring
- Waste management
- Erosion and sediment control
- Climate resilience

6. Security

- Site security assessment
- Security personnel deployment
- Access control
- Lighting and fencing
- Security incident reporting
- Coordination with local police

7. Incident Reporting Form

- Date and time of incident
- Type of incident (safety, health, environment, security)
- Location
- Description
- Immediate action taken
- Root cause analysis
- Corrective actions
- Signature

8. Community Complaint Form

- Complainant details
- Complaint description
- Date of complaint
- Action taken
- Resolution date
- Complainant satisfaction

Appendix 2.6: LSHIP Generic Supply Chain Risk Assessment

1. Introduction

This Supply Chain Risk Assessment identifies and evaluates environmental and social risks associated with the procurement of materials and services for the LSHIP.

2. Risk Assessment Methodology

- Risk identification (environmental, social, reputational)
- Risk rating (likelihood x severity)
- Mitigation measures
- Monitoring and reporting

3. Material Supply Risks

Material	Risk	Likelihood	Severity	Mitigation
Sand and Gravel	Habitat destruction	Medium	High	Licensed borrow pits; rehabilitation plan
Cement	Dust pollution	High	Medium	Enclosed storage; dust control
Steel	Supply chain labour risks	Medium	Medium	Supplier screening; Code of Conduct
Wood	Deforestation	Low	Medium	Certified suppliers; reforestation
Solar Panels	E-waste at end of life	Medium	Medium	Take-back agreement; recycling

4. Supplier Screening Criteria

- Environmental compliance
- Social compliance (labour, human rights)
- FMEnv/NESREA registration
- LASEPA registration
- Previous performance
- Supply chain transparency

5. Local Supplier Registration Form

- Business name
- Registration number
- Address and contact
- Products/services offered

- Years in business
- Staff size
- Women-owned (yes/no)

6. Procurement Preference Implementation Plan

- ≥50% local procurement target
- ≥20% women-owned business target
- Transparent procurement process
- Supplier capacity building

7. Monitoring Protocol

- Monthly procurement records review
- Quarterly supplier performance review
- Annual supply chain audit

Appendix 3: Chain-of-Custody Forms (Refined & on-Ready)

BATO CHEMICAL LABORATORIES LTD	ISSUE NO: 001	
CHAIN OF CUSTODY SHEET	ISSUE DATE: May 2019	Last Review Date: March 18th 2025
	DOC. NO: BCL/QA/099	
	Version : 3	Next Review Date: March 2027
	Page 1 of 9	

NAME OF CLIENT:	Natural Eco Capital
P.O No	
Name of Project:	ESIA of LSHTIP
DATE:	April 1-9, 2026
TYPE OF SAMPLE:	SURFACE WATER SAMPLES
NATURE OF ANALYSIS:	PHYSIO-CHEM & MICROBIAL ANALYSIS

S/N	SAMPLE ID / LOCATION	Sampling Point Coordinates (GPS) -N	Sampling Point Coordinates (GPS) -E	Sampling Temperature (°C)
1.	Agboyi PHC SW SP1	6.578345	3.409531	
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				

Comments:	Parameters includes: Appearance,True Colour (Hz),Odour,EC (µS/cm),Turbidity (NTU),pH,TDS (mg/L),Total Solids (mg/L),Total Hardness (mg/L) Total Alkalinity (mg/L),Total Acidity,Residual Chlorine,Free CO_2,Chloride (mg/L),Nitrate (mg/L),Sulphate (mg/L),Heavy Metals,DO,(mg/L),BOD (mg/L),COD (mg/L),Total Coliform (CFU/ml),E. coli (CFU/ml),Yeast/Mould,Total Plate Count

CLIENT'S REP

BATO CHEM LABORATORIES LTD

BATO CHEMICAL LABORATORIES LTD

BATO CHEMICAL LABORATORIES LTD	ISSUE NO: 001	
CHAIN OF CUSTODY SHEET	ISSUE DATE: May 2019	Last Review Date: March 18th 2025
	DOC. NO: BCL/QA/099	
	Version : 3	Next Review Date: March 2027
	Page 1 of 1	

NAME OF CLIENT:	Natural Eco Capital
P.O No	
Name of Project:	ESIA of LSHTIP
DATE:	April 1-9, 2026
TYPE OF SAMPLE:	GROUNDWATER SAMPLES
NATURE OF ANALYSIS:	PHYSIO-CHEM & MICROBIAL ANALYSIS

S/N	SAMPLE ID / LOCATION	Sampling Point Coordinates (GPS) -N	Sampling Point Coordinates (GPS) -E	Sampling Temperature (°C)
1.	Agboju PHC SP1	6.458077,	3.283238	
2.	Agboju PHC SP2	6.458147,	3.282824	
3.	Oridilu PHC SP1	6.464410,	3.351390	
4.	Oridilu PHC SP2	6.464234,	3.351147	
5.	Bada PHC SP1	6.590535,	3.228266	
6.	Bada PHC SP2	6.590434,	3.228280	
7.	Ogbomosotedo PHC SP1	6.575358,	3.258728	
8.	Ogbomosotedo PHC SP2	6.575578,	3.258614	
9.	Isolo PHC SP1	6.528600,	3.320794	
10.	Isolo PHC SP2	6.528855,	3.320839	
11.	Oba Salami PHC SP1	6.522283,	3.368430	
12.	Oba Salami PHC SP2	6.522136,	3.368640	
13.	Ojodu PHC SP1	6.631394,	3.342318	
14.	Ojodu PHC SP2	6.631077,	3.342094	
15.	Otumara PHC SP1	6.477588,	3.374566	
16.	Otumara PHC SP2	6.477751,	3.374845	
17.	Omolaiye PHC SP1	6.668394,	3.473079	
18.	Omolaiye PHC SP2	6.668900,	3.473180	
19.	Eruwen PHC SP1	6.604404,	3.543580	
20.	Eruwen PHC SP2	6.604160,	3.544082	
21.	Olorunda PHC SP1	6.668335,	3.585208	
22.	Olorunda PHC SP2	6.669100,	3.585910	
23.	Agura PHC SP1	6.579962,	3.627529	
24.	Agura PHC SP2	6.580100,	3.628170	
25.	Imota PHC SP1	6.660057,	3.669991	
26.	Imota PHC SP2	6.660400,	3.670510	
27.	Bayeiku PHC SP1	6.546943,	3.543106	
28.	Bayeiku PHC SP2	6.547100,	3.542888	
Comments:		Parameters includes: Appearance,True Colour (Hz),Odour,EC (µS/cm),Turbidity (NTU),pH,TDS (mg/L),Total Solids (mg/L),Total Hardness (mg/L) Total Alkalinity (mg/L),Total Acidity,Residual Chlorine,Free CO_2,Chloride (mg/L),Nitrate (mg/L),Sulphate (mg/L),Heavy Metals,DO,(mg/L),BOD (mg/L),COD (mg/L),Total Coliform (CFU/ml),E. coli (CFU/ml),Yeast/Mould,Total Plate Count		

Appendix 4: FMEnv-accredited laboratory



Accreditation No: 0004575

FEDERAL MINISTRY OF ENVIRONMENT

ACCREDITATION TO OPERATE AS ENVIRONMENTAL CONSULTANT

The Permanent Secretary of the Federal Ministry of Environment (FMENV), hereby accredits the bearer whose particulars appear below to operate as Environmental Consultant pursuant to an Application for Registration/Renewal dated 11TH day of FEBRUARY, 2022

1. Full Name of Consultant: BATO CHEMICAL LABORATORIES LIMITED
2. Location of Business Premises/Laboratory: LASHN OLAITAN AVENUE, RIVERVIEW ESTATE, ISHERI NORTH, OGUN STATE
3. Year of Incorporation of Business: 6TH FEBRUARY, 1998
4. Area(s) of Competence: ENVIRONMENTAL LABORATORY SERVICES

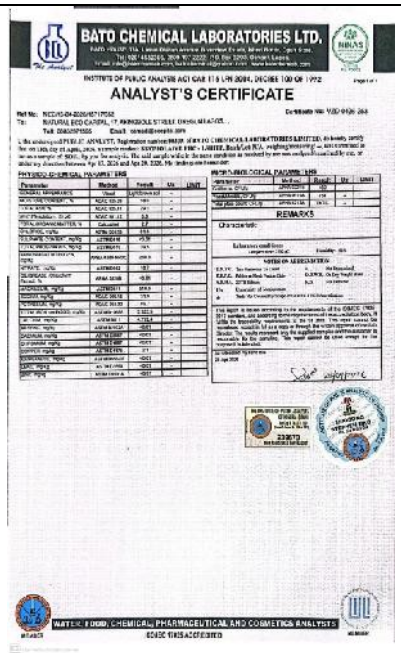
This Accreditation is granted subject to compliance with all regulations, Guidelines, Standards and Control criteria as may be issued by the Federal Ministry of Environment from time to time.

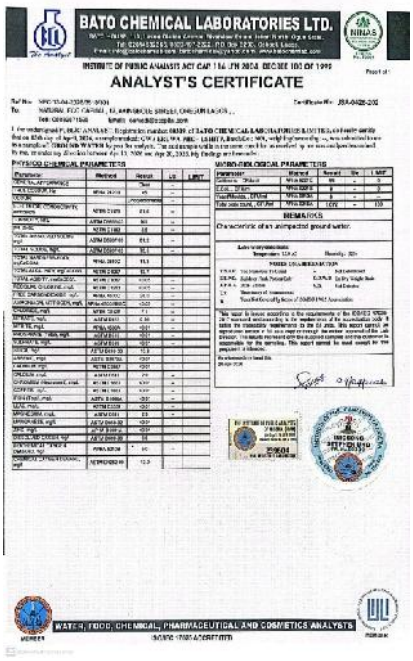
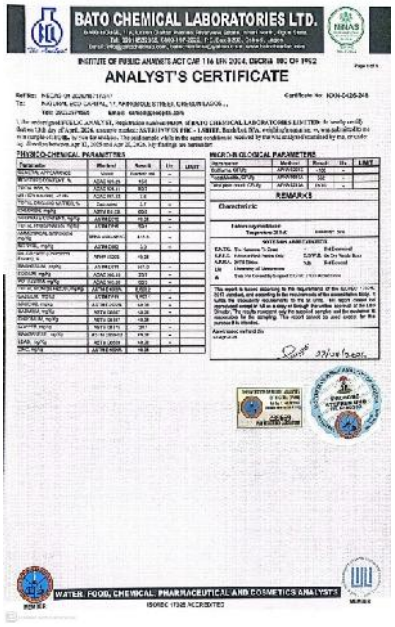
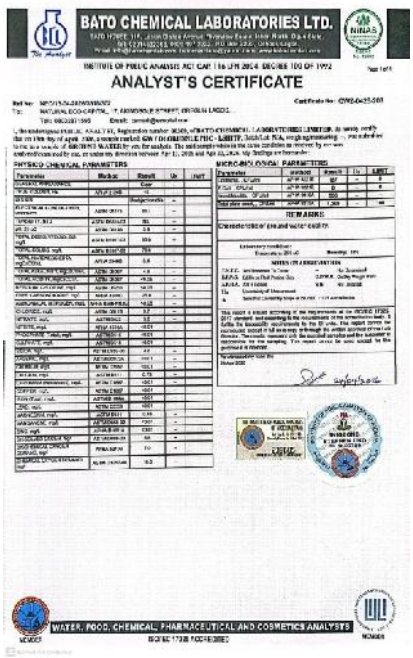
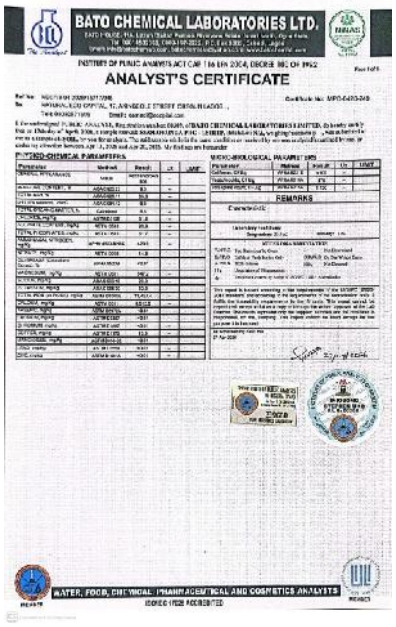
Date of Issue: 26TH JANUARY, 2022 Expiry Date: 25TH JANUARY, 2027

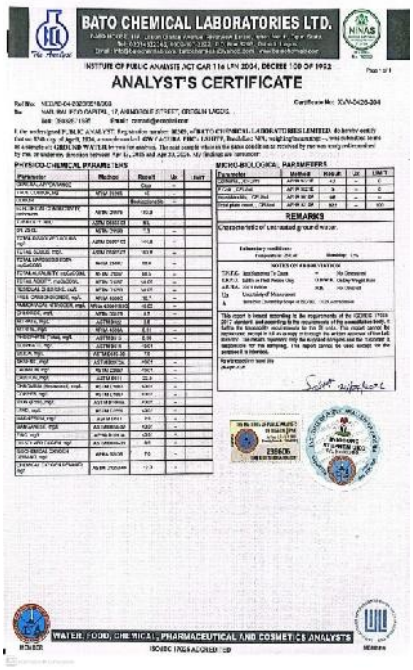
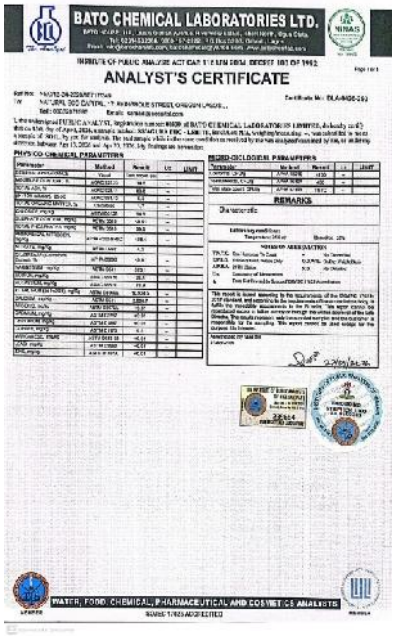
Seal of the Federal Ministry of Environment

FMENV shall not be liable to any claim(s) under this permit

Permanent Secretary

Omolaiye PHC		 BATO CHEMICAL LABORATORIES LTD. ANALYST'S CERTIFICATE REMARKS WATER, FOOD, CHEMICAL, PHARMACEUTICAL AND COSMETICS ANALYSTS

Erunwen PHC		
Olorunda PHC		

Agura PHC	 BATO CHEMICAL LABORATORIES LTD. ANALYST'S CERTIFICATE WATER, FOOD, CHEMICAL, PHARMACEUTICAL AND COSMETICS ANALYSTS	 BATO CHEMICAL LABORATORIES LTD. ANALYST'S CERTIFICATE WATER, FOOD, CHEMICAL, PHARMACEUTICAL AND COSMETICS ANALYSTS

Appendix 5: Summary of Baseline Laboratory Results

Baseline environmental sampling for air quality, groundwater, soil, and ambient noise was conducted in accordance with FMEnv guidelines, NESREA standards, and AfDB ISS (2023/2024 OS1 and OS3). The methodology applied is summarised below.

1. Sampling Seasons

Sampling was conducted during the dry season, with meteorological conditions recorded. Wet-season sampling will be undertaken during implementation monitoring to ensure seasonal representation.

2. Air Quality Sampling

- Air quality parameters (PM_{10}, $PM_{2.5}$, SO_2, NO_2, CO, O_3, VOCs) were measured using calibrated Aeroqual/EVM-7 monitors.
- Each sampling event consisted of 8-hour integrated sampling.
- GPS coordinates were recorded for all sampling points.
- Calibration certificates are provided in Appendix 27C.

3. Groundwater Sampling

- Samples were collected from existing boreholes and wells using sterilized bailers.
- Parameters analyzed include pH, TDS, conductivity, turbidity, total coliforms, and heavy metals.
- Samples for heavy metal analysis were acidified with nitric acid (HNO_3) to pH < 2.
- Microbiological samples were stored at < 6°C and analyzed within 6 hours.

4. Soil Sampling

- Soil samples were collected at depths of 0–15 cm using stainless steel augers.
- Samples were air-dried, sieved (2 mm), and stored in sealed bags.
- Parameters analyzed include N, P, K, Ca, Mg, organic matter, pH, and heavy metals.

5. Ambient Noise Measurement

- Noise levels (Leq) were measured using calibrated Extech 407780 sound level meters.
- Measurements were taken during daytime (07:00–22:00) and night-time (22:00–07:00).
- Wind speed, background noise, and environmental conditions were recorded.

Soils Sampling

Surface soil was investigated through visual observation and sampling. Composite soil samples were obtained from three designated sampling points in each location of the project sites. Hand soil Auger of uniform cross section was used to ensure that reproducible composite soil samples were collected from depths of 0-15cm and 15-30cm. This ensured high quality representative data collection.

Soil samples were collected in polythene bags that were then appropriately labeled and sealed. Samples for microbiological analysis were collected in sterile McCarthey bottles and kept under 4^0C in a refrigerated container (cooler). Samples for physico-chemical analysis were air-dried in a dust-free environment while those for microbiological analysis were stored in ice-packed container in the field and later transferred to the refrigerator at 4^0C. Physico-chemical analysis of soil samples were carried out using the analytical methods recommended by FMENV.



Plate: 4.1: Field Data collection

Water Quality and Hydro-biological Studies

In-situ measurements for pH, temperature, conductivity and dissolved oxygen were conducted with multi-parameter PCSTestr 35 meters on groundwater samples from a wells and borehole on the project site. For other physiochemical analysis, duplicate water samples were collected from the wells and borehole in 1-litre plastic containers, labeled and stored in an insulated refrigerated container and later analyzed in the laboratory according to Lind (1979) and APHA (1985).

All samples for laboratory analysis were transported from the project site to Bato Chemical Laboratories Limited for analysis within 24hours. The Laboratory is approved by the Federal Ministry of Environment, Abuja.



Fig: 3: Insitu Water Quality PH Mete

Microbiological Studies

Groundwater samples were collected from the well in the project site and were collected in 100ml plastic containers and kept in ice-cool container prior to culturing in the laboratory and

sent for microbiological studies. The water was then analyzed for coliforms using the multiple tube fermentation technique in the Bato Chemical Laboratories Limited, EC broth was the medium used and MPN Index was determined with MPN Table. The heterotrophic count was determined using the Plate Count Agar upon which aliquots of 0.5ml of serially diluted samples were plated.

Air Quality and Noise Level Studies

The air pollutants that are of greatest concern to the proposed project are Sulphur Oxides (SOx), Nitrogen Oxides (NOx), Particulate Matter (PM), Hydrocarbon (HC) gases, Volatile Organic Compounds (VOCs), Carbondioxide and Carbon Monoxide (CO). Air quality and noise level characteristics were monitored in three (3) points on the project site.

Chain of Custody Management

All samples collected on site were recorded in a field notebook or field log. Inventory of samples collected and all necessary information including parameters to analyse, type of sample, date of sampling, etc were recorded in the chain of custody form.

Quality Assurance/ Quality Control

In order to ensure the integrity of collected samples, the following measures were taken to avoid cross contamination, deterioration and pollution of samples from the point of collection on the site till the collation of the laboratory results.

- Ensuring that only experienced and qualified personnel are engaged in the study;
- Ensuring proper sampling in precleaned sampling containers and after sampling proper labelling by capturing sample ID, location and date.
- Carrying out field calibrations of equipment and running distilled water blanks to reduce errors that could arise from field measurements;
- Ensuring that replicate samples are collected and used as checks on measurements; Carrying out field analytical operations in a defined sequence to avoid cross contamination of instruments.
- Collected samples were submitted on time to an FMEnv approved laboratories, which are well equipped with latest sophisticated instruments and managed by well experienced professionals.

Analytical Methods

Samples collected from the field were analyzed in Bato Chemical Laboratories Limited. The methods presented in Table 4.1 were employed in the samples analyses**.** Also shown on the table are the equipment detection limits for the different parameters analyzed.

Table 4. 1: Sample analysis methods used

Parameters for Water	**Methods**
Temperature (^{O}C)	APHA 2110B
pH	APHA 4500H^{+}B
Turbidity (NTU)	APHA 2130B
Salinity (mg/l)	APHA 2520B
TSS (mg/l)	APHA 2540D
TDS (mg/l)	APHA 2510A
Conductivity (µS/cm)	APHA 2510A
THC (mg/l)	ASTM D3921
DO (mg/l)	APHA 4500-O G
BOD (mg/l)	APHA 5210A
COD (mg/l)	APHA 5220D
Reactive Silica (mg/l)	APHA 4500-SiO2
Nitrate (mg/l)	EPA 352.1
Phosphate (mg/l)	APHA4500-P D
Ammonium (mg/l)	APHA 4500-NH3
Calcium (mg/l)	APHA 3111B/ASTM D3561
Magnesium (mg/l)	APHA 3111B/ASTM D3561
Potassium (mg/l)	APHA 3111B/ASTM D3561
Sodium (mg/l)	APHA 3111B/ASTM D3561

4.2 Description of Bio-Geophysical Environment

4.2.1 Climate and Meteorology

Lagos is located at Latitude 6.4°N and Longitude 3.4°E lying on an average elevation of 15m asl, a tropical climate with distinct dry and wet seasons classified according to Köppen climate classification. Lagos has a short dry season between November and February with a lengthy

wet season which runs from March through October. The climate of Lagos is predominantly influenced by its situation adjacent to the Atlantic Ocean with susceptibility to prevailing maritime weather conditions.

The Lagos lagoon which also has huge hydrological effects on the regional climate is the largest of the three Lagoon systems occurring in the Lagos area, receiving over 80% of the land-derived run-offs laden with various types of wastes. It lies within longitudes 6°25" and 6°43" and latitudes 3°22" and 3°40". During the rainy season, the lagoon is fed by the numerous coastal rivers draining into it while during the dry season, the loss of water due to evaporation and the reduced amount of water from the rivers and creeks is compensated for by the underground seepage under the active sandy barrier formation and inflow of the tidal waters from the sea through the Lagos harbor and other lagoon outlets.

Climate Change Considerations and Flood Risk Implications

(Aligned with Nigeria Climate Change Act, 2021)

In accordance with the Nigeria Climate Change Act (2021), climate change is recognized as a cross-cutting risk with implications for environmental sustainability, infrastructure resilience, public safety, and socio-economic development. The Act mandates the integration of climate change adaptation and resilience measures into policies, plans, and development projects, particularly in climate-vulnerable regions such as coastal and low-lying states.

Lagos State is highly vulnerable to the impacts of climate change due to its:

- Low elevation and extensive coastal interface
- High population density and rapid urbanization
- Dependence on lagoon and coastal systems for drainage

Observed and projected climate trends for the region indicate:

- Increasing rainfall intensity and variability
- Rising sea levels and tidal influence
- Greater frequency of extreme rainfall and flood events

These changes exacerbate existing flood risks by overwhelming drainage infrastructure, increasing surface runoff, and promoting tidal backflow from lagoons and coastal waters. Flooding has direct implications for environmental quality, public health, housing, transportation networks, and economic activities, while also increasing the risk of secondary pollution from waste sites, septic systems, and contaminated floodwaters.

Consistent with the Nigeria Climate Change Act, development activities within Lagos State are therefore required to incorporate climate-responsive planning, including flood risk assessment, adaptive drainage design, and measures to enhance long-term environmental resilience.

Climate Variability and Flood Susceptibility in Low-Lying LGAs

Several Local Government Areas (LGAs) in Lagos State are inherently low-lying and flood-prone, making them particularly sensitive to climate variability and extreme weather events. Climate variability in these areas is expressed through erratic rainfall patterns, prolonged wet spells, and increased tidal influence during storm events.

Flood susceptibility in these LGAs is influenced by:

- Proximity to the Atlantic Ocean, lagoons, and river systems
- Reclaimed land and limited natural drainage gradients
- High levels of impervious surfaces due to urban development
- Encroachment on wetlands and floodplains

These conditions align with the Nigeria Climate Change Act's emphasis on identifying climate-vulnerable zones and prioritizing adaptation measures to reduce exposure and sensitivity to climate-induced hazards.

Table 3.1: Average Weather Trend for Lagos State (1985-2024)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Record High °C	37.0	39.0	36.0	35.0	34.0	33.0	31.0	30.0	31.0	36.0	33.0	37.0
Average High °C	33.17	32.49	32.34	32.36	31.62	29.77	28.27	27.84	28.69	31.62	30.16	32.96
Daily Mean °C	29.69	29.8	30.09	30.19	29.63	27.99	26.62	26.13	26.84	29.29	28.09	29.7
Average Low °C	25.61	26.65	27.34	27.47	27.11	25.75	24.57	24.01	24.6	26.52	25.59	25.9
Record Low °C	21.0	24.0	25.0	24.0	21.0	18.0	20.0	21.0	19.0	24.0	20.0	22.0
Average Precipitation mm (inches)	33.29	55.21	53.45	47.96	110.55	276.96	244.25	175.91	283.21	107.32	154.09	41.91
Average precipitation days (≥ 1.0 mm)	7.0	11.45	12.73	10.36	17.09	21.82	23.82	17.45	24.45	19.82	17.73	9.91
Average Relative Humidity (%)	67.91	73.9	74.84	74.35	75.67	78.74	81.06	81.83	81.63	76.51	79.05	68.71
Mean Monthly Sunshine Hours	11.17	10.82	10.83	11.05	10.78	9.96	9.03	8.75	9.45	10.69	10.45	10.84

Source: Nimet, Lagos Station, Ikeja

4.2.1.1 Rainfall

Lagos has 2 rainfall peaks in May and June, as shown in the table and charts and its Lagos experiences rainfall throughout the year. Data spanning 37 years (1986-2023) indicates June with the highest rainfall (283.21mm) and January with the lowest (typically a dry season month). The average rainfall over this period is 135.76mm, representing the expected pattern, as illustrated in Table 3.61 and Figure 3.113. Furthermore, 30 years of hourly weather model simulations and observed historical climate and weather data, confirm the period of the wet and dry season in the project areas.

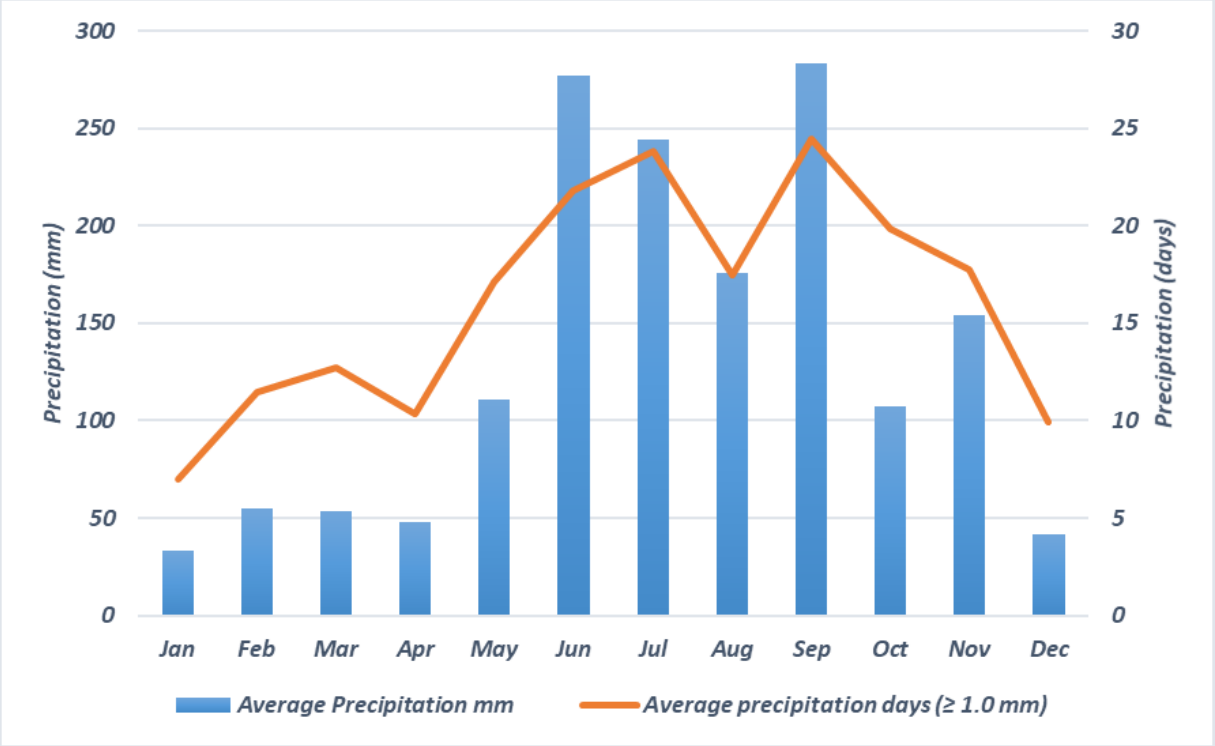


Figure 4: Rainfall Pattern in the Study Area

Source: Nimet

4.2.1.2 Temperature

Temperature is a dominant climate factor that varies from place to place over a period of time at given locations. The spatial distribution of temperature over the earth is influenced by; amount of insulation received, nature of surface, distance from water bodies, relief, nature of the prevailing winds and ocean current.

Temperatures are usually high and vary little year-round which is typical of the equatorial belt. The data collected for a period of 37 years from 1985 to 2024 for Lagos State showed an average maximum temperature of 30.87°C and an average minimum temperature of 25.9°C.

Figure 3.113 shows the average warmest temperature in Lagos is recorded in February and March, while the lowest is in June

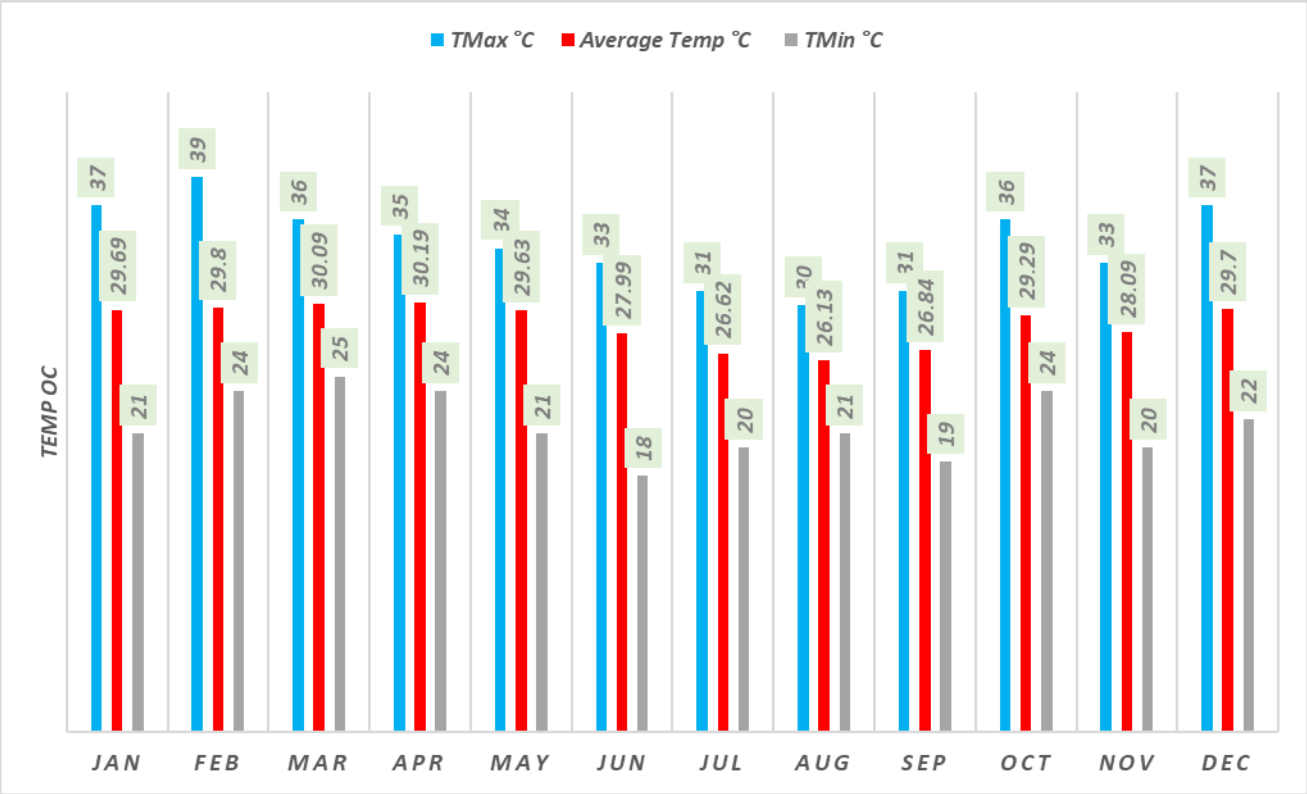


Figure 5: Average Temperature in the Study Area

Source: Nimet

4.2.1.3 Wind Speed and Direction

Surface wind speed is 0.5 – 7.7 m/s with an average of 3.6 m/s (Table 4.6) and prevailing southwest direction (Figure 3.3). The measured wind speed of 0.8 –1.7 m/s during the dry season fieldwork with northeast prevailing direction and 3.1 – 3.9 m/s with south-southwest prevailing direction in the dry season (Figure 3.115) also agree with the climatic data with south-southwest prevailing direction in the wet season (Figure 3.115) also agree with the climatic data. If the air is calm, pollutants cannot disperse, and then the concentration of these pollutants will build up. On the other hand, when strong, turbulent winds blow, pollutants disperse quickly, resulting in lower pollutant concentrations. In pollution, meteorology calms are associated with inversions (temperature increasing with height). Inversion may result in fumigation; meaning that emissions are trapped at ground level close to their source as against other situations where it is dispersed and diluted much more easily. Inversion is widely known to be frequent during the early hours of the day. A 30-year mean macro data shows that wind speed over the study environment is generally minimal and this signifies a low to moderate dispersive potential of the local atmosphere.

Table 3.2: Monthly Wind Data of Lagos State (1988-2024)

YEAR	Speed / Direction	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1988	Speed	6.1	7.1	8.7	7.6	6.4	6	7.7	8.7	7.4	5.7	5.8	5.9
	Direction	N	W	S	S	W	W	W	W	W	W	S	W
1989	Speed	6	8	8.6	7.6	6.5	6.9	8	9.7	2.5	5.9	5.1	5.5
	Direction	N	W	S	W	S	S	SW	W	W	SW	S	SW
1990	Speed	5.9	8.2	8.5	8.6	7.1	6.5	8.4	10.3	8.2	5.4	5.5	5.1
	Direction	N	S	S	S	SW	SW	SW	SW	SW	S	S	W
1991	Speed	7.2	8.7	8.4	9	6.1	5.9	8.7	9.7	8	5.5	4.1	5
	Direction	N	S	S	SW	SW	S	W	W	W	W	W	SW
1992	Speed	4.4	8.7	9	9.8	6.8	7.7	9.8	10.5	7.6	5.7	5.9	5
	Direction	SW	SW	W	SW	SW	SW	W	W	SW	W	SW	SW
1993	Speed	5.6	6.9	9.3	8.1	6.4	5.9	5.1	6.7	4.8	4.2	3.9	3.8
	Direction	S	S	S	S	S	S	S	SW	S	S	NW	NW
1994	Speed	3.2	1.6	5.9	4.5	2.9	3.7	3.9	4.2	3.9	3.4	4.2	3.2
	Direction	NE	E	W	SW	SW	SW	SW	SW	SW	SW	W	NE
1995	Speed	2	2.9	3.2	3	2.8	2.9	3.2	3.4	3.3	3.1	2.9	2
	Direction	W	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	W
1996	Speed	2.5	3	3.3	3.4	2.8	2.6	5.9	3.3	4.8	3.2	2.8	2.5
	Direction	SW	S	SW	S	SW	SW	SW	SW	W	S	SW	SW

1997	Speed	2.6	3.4	3.6	3.2	3	2.8	2.9	3.7	3.1	2.5	2.4	2.6
	Direction	N	W	S	S	W	W	W	W	W	W	S	N
1998	Speed	3.1	2.9	3.3	3.7	3.3	3	3.1	2.7	3.1	2.2	2.5	3.1
	Direction	W	W	S	S	S	S	W	W	W	W	W	W
1999	Speed	2.4	3	3.5	3.4	2.8	3.2	3.1	3.3	3.2	2.8	2.5	2.4
	Direction	W	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	W
2000	Speed	2.4	3.5	3.8	3.6	2.3	2.6	3.9	4	2.7	2.8	1.9	1.6
	Direction	S	S	S	S	S	S	S	SW	S	S	NW	NW
2001	Speed	2.2	3.4	4.6	4.2	2.5	3.1	4.2	4.2	3.7	3.4	2.7	3.5
	Direction	N	W	S	S	W	W	W	W	W	W	S	W
2002	Speed	4.6	3.6	4.5	4.3	4	3.9	4.7	5.4	3.5	3.9	2.6	3.5
	Direction	W	W	S	S	S	S	W	W	W	W	W	SW
2003	Speed	4.2	5.3	6.3	5.9	4.3	5.2	4.2	5.4	5.8	4	3.6	3.8
	Direction	W	S	S	S	S	S	W	W	SW	S	S	SW
2004	Speed	4.5	5.5	5.7	5.3	4.9	4.8	5.8	5.5	5.3	4.5	3.9	3.9
	Direction	W	S	S	W	S	W	S	SW	W	SW	S	SW
2005	Speed	4.5	5.3	5.4	5.1	4.7	4.6	5.1	5	5.2	4.1	3.7	3.8
	Direction	S	W	W	S	S	S	W	S	SW	S	SW	W
2006	Speed	4.4	4.7	5.1	4.8	4.5	4	6.2	5.1	3.9	3.1	3.1	3.1
	Direction	S	S	S	S	S	SW	SW	S	S	S	W	W

2007	Speed	4.3	4.9	5	5.2	4.2	3.9	5.1	5.9	5.1	3.8	3.9	3.7
	Direction	S	S	S	S	S	S	S	SW	S	S	NW	NW
2008	Speed	4.6	4.3	5.6	5.6	4.1	6.8	6.1	5.2	7.5	5.6	3.5	5.1
	Direction	N	W	S	S	W	W	W	W	W	W	S	W
2009	Speed	6.1	4.2	7.8	7.6	6.3	5.9	7.1	7.3	6.3	5.8	5.3	5.8
	Direction	W	W	S	S	S	S	W	W	W	W	W	SW
2010	Speed	6.1	7.1	8.7	7.6	6.4	6	7.7	8.7	7.4	5.7	5.8	5.9
	Direction	W	S	S	S	S	S	W	W	SW	S	S	SW
2011	Speed	6	8	8.6	7.6	6.5	6.9	8	9.7	2.5	5.9	5.1	5.5
	Direction	W	S	S	W	S	W	S	SW	W	SW	S	SW
2012	Speed	6.1	7.1	8.7	7.6	6.4	6	7.7	8.7	7.4	5.7	5.8	5.9
	Direction	N	W	S	S	W	W	W	W	W	W	S	W
2013	Speed	6	8	8.6	7.6	6.5	6.9	8	9.7	2.5	5.9	5.1	5.5
	Direction	N	W	S	W	S	S	SW	W	W	SW	S	SW
2014	Speed	5.9	8.2	8.5	8.6	7.1	6.5	8.4	10.3	8.2	5.4	5.5	5.1
	Direction	N	S	S	S	SW	SW	SW	SW	SW	S	S	W
2015	Speed	7.2	8.7	8.4	9	6.1	5.9	8.7	9.7	8	5.5	4.1	5
	Direction	N	S	S	SW	SW	S	W	W	W	W	W	SW
2016	Speed	4.4	8.7	9	9.8	6.8	7.7	9.8	10.5	7.6	5.7	5.9	5
	Direction	SW	SW	W	SW	SW	SW	W	W	SW	W	SW	SW

2017	Speed	5.6	6.9	9.3	8.1	6.4	5.9	5.1	6.7	4.8	4.2	3.9	3.8
	Direction	S	S	S	S	S	SW	SW	S	S	S	W	W
2018	Speed	5.8	8	8.8	9.1	7.4	5.3	6.5	8.2	6.1	5.1	5.7	5
	Direction	S	S	S	S	S	S	S	SW	S	S	NW	NW
2019	Speed	5.5	6.4	7.1	6.7	5.7	6.1	5.9	5.9	5.9	5.8	5.7	4.7
	Direction	N	W	S	S	W	W	W	W	W	W	S	W
2020	Speed	5.1	4.8	5.2	5.5	4	0.4	6.1	9.5	4.2	3.1	1.2	5.1
	Direction	SW	S	SW	S	S	S	W	W	SW	SW	SW	S
2021	Speed	3.5	3.5	3.1	3.5	2.3	3.4	3.2	2.9	2.7	2.9	2.4	2.9
	Direction	W	W	SW	SW	SW	SW	SW	SW	SW	SW	W	S
2022	Speed	2.3	2.6	2.6	2.5	2.3	2.2	3	3.2	2.4	2.2	2.6	3.2
	Direction	N	E	W	SW	SW	SW	SW	SW	SW	SW	W	W

Source: NiMet

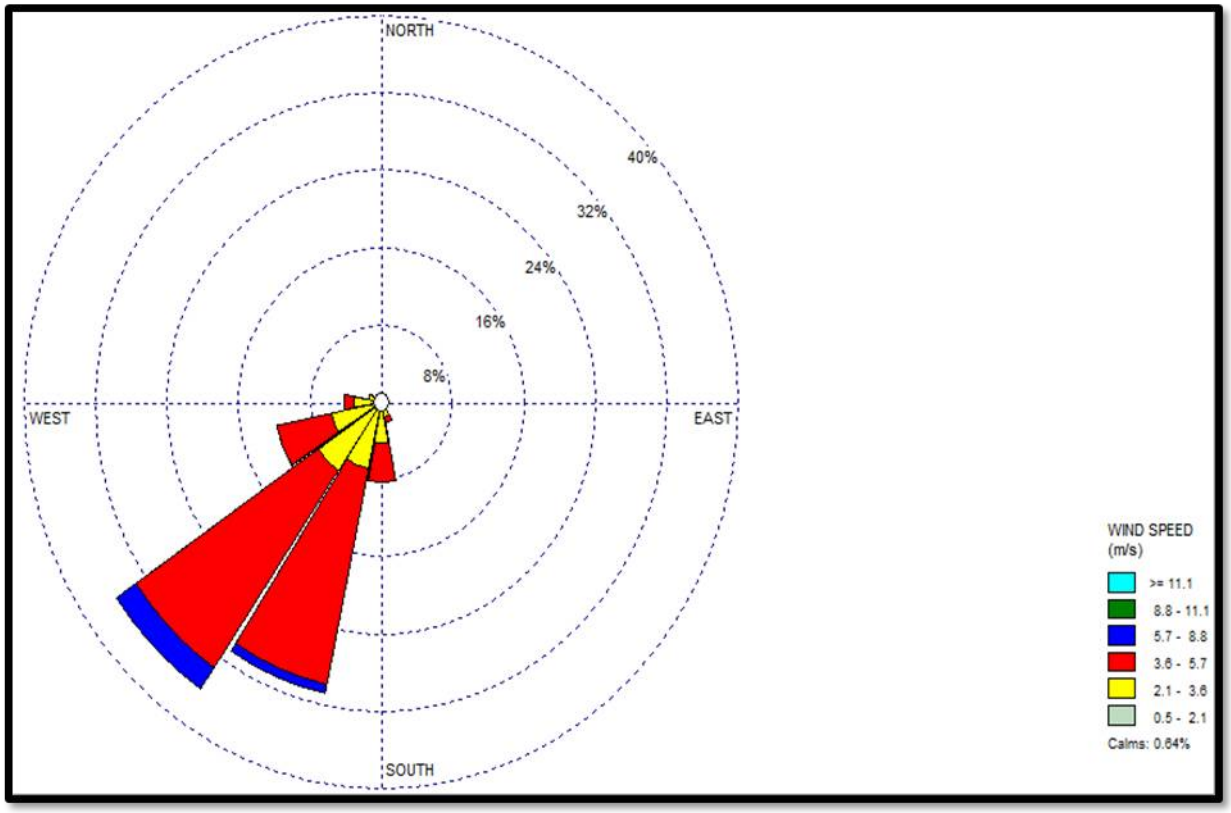


Figure 6: Prevailing Wind Direction in the Proposed Project Area

4.2.1.4 Relative Humidity

This is an indication of the water vapour content in the atmosphere. High relative humidity is indicative of moist conditions while low relative humidity suggests drier conditions. There is a marked diurnal variation in the relative humidity pattern of this area. It has an indirect relationship with temperature changes. The humidity is comfort level on the dew point, as it determines whether perspiration will evaporate from the skin, thereby cooling the body. Relative humidity, linked to air temperature, influences cloud formation and precipitation types. A 37-year data span (1985-2024) shows average yearly humidity at 75.99%, varying from 67.1% in January to 81.83% in July Throughout 1985-2024, Lagos consistently maintains relative humidity above 60% monthly, irrespective of season. June and July peak at 81.01% and 81.83% respectively, correlating with the rainy season. High humidity, typical during the wet season, results from Lagos' location and near-constant rainfall. Peaks reach 81.63% from June to September, with January's low at 67.91%.

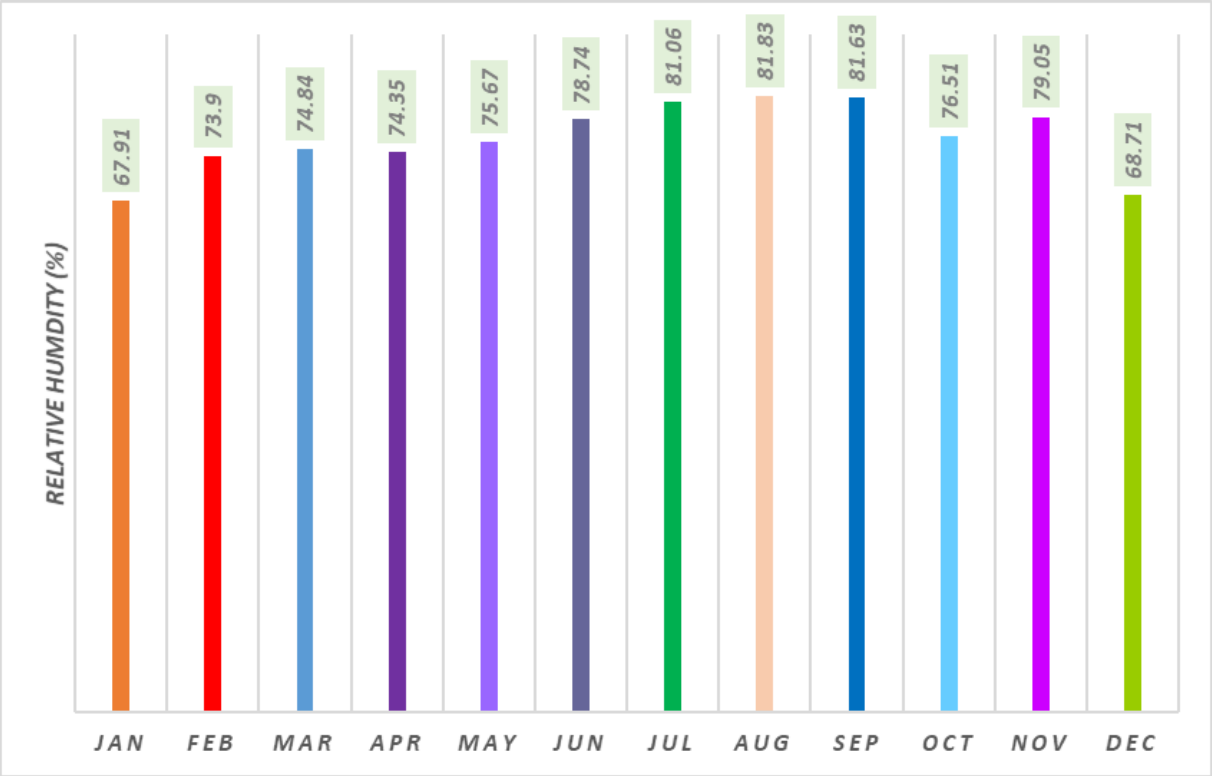


Figure 7: Average Relative Humidity in the Study Area

Source: Nimet

4.2.1.5 Sunshine Hours

Hours of daylight and darkness hardly vary for more than one hour during any period of the year because of the latitudinal location of the region. The annual sunshine period in the study area is about 1500 hours with monthly period of 51.2 – 165.7 hrs it receives the minimum period in July - September but the maximum in December - January. The short period in July could be due to the greater cloudiness and rainfall characteristic of the period. Conversely, the higher December sunshine period is due to the prevalent clear skies accompanying the ITCZ movement in its northward migration. The longest monthly sunshine hours occur in December/January in the dry season while July usually experiences the lowest values of sunshine hours. This can be attributed to constant cloudiness from rain clouds in the wettest months. Sunshine hours are directly proportional to the net radiation. Net radiation and air temperature are highest during the dry season except when relatively cold harmattan winds occur.

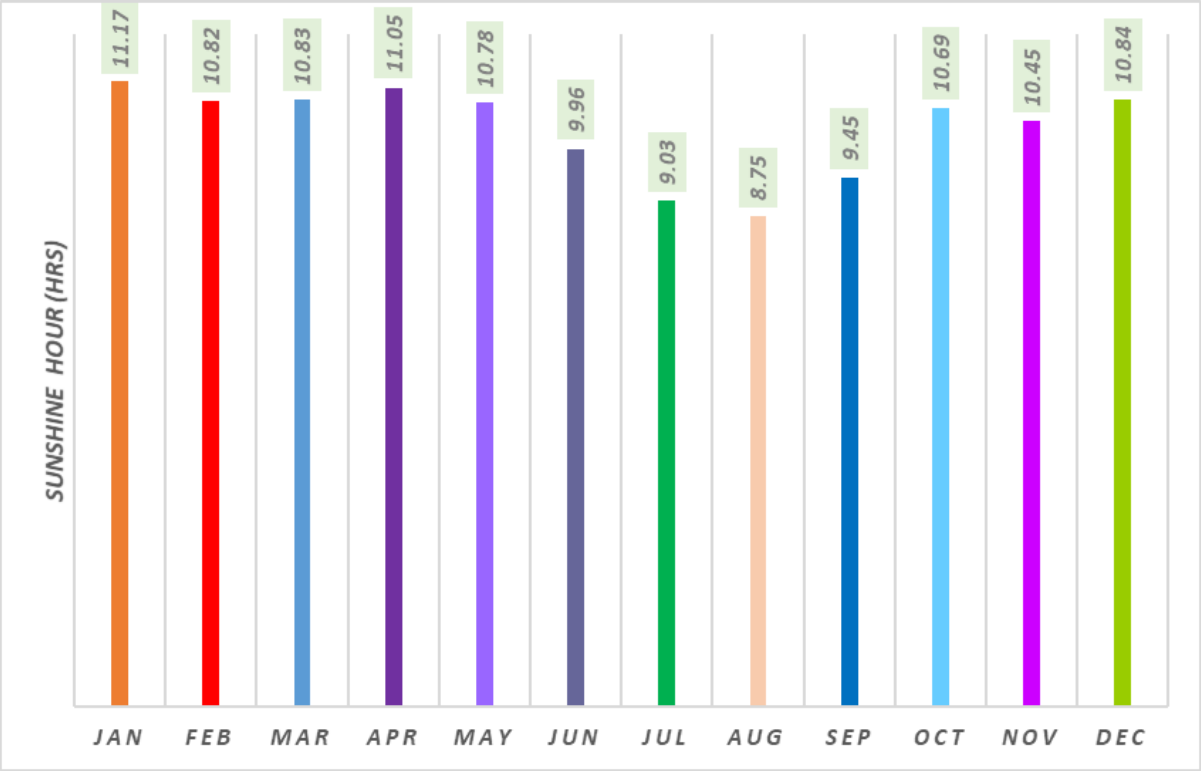


Figure 8: Monthly Average Sunshine Hours in the Study Area

Source: Nimet

4.2.1.6 Cloud Cover Categories

In the project areas, cloud cover is generally high throughout the year with very little variations. It is higher in May and October and lowest in June and July with average of 6.7 – 6.9 Oktas indicating overcast sky with blue patches.

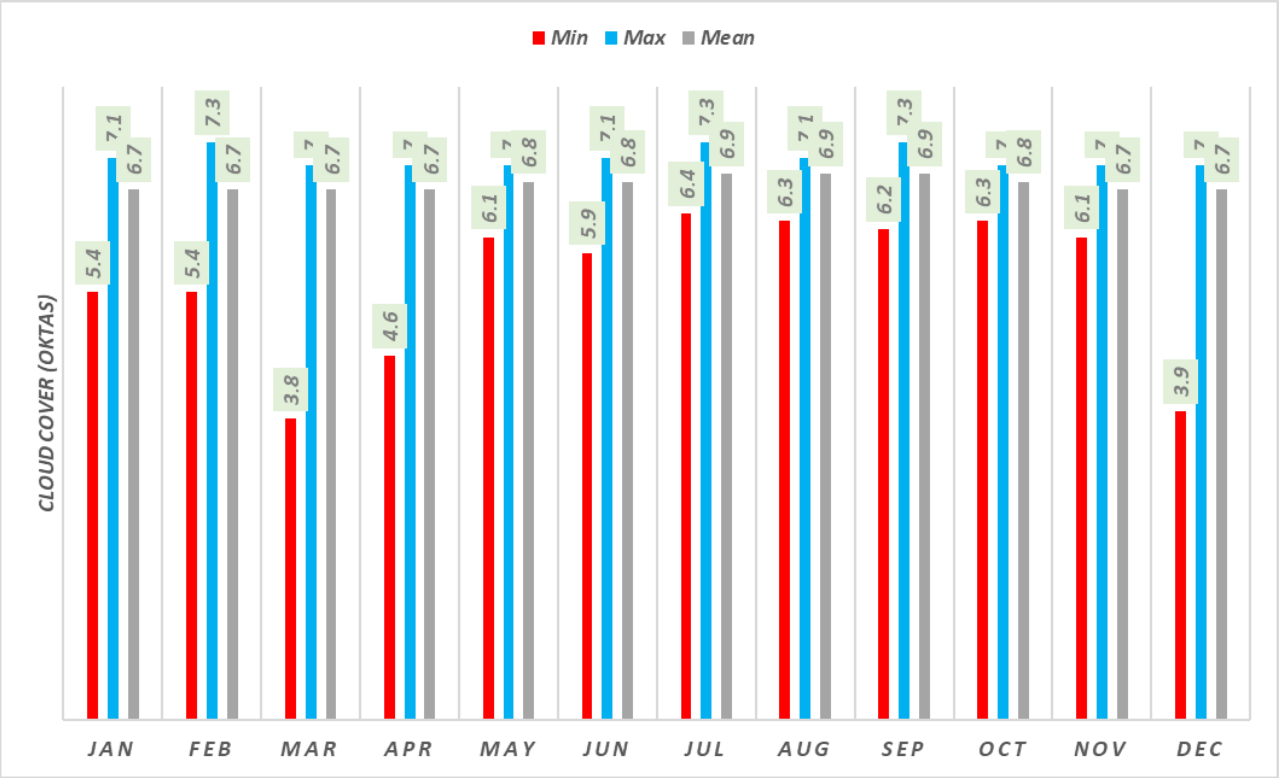


Figure 9: Cloud Cover in the Study Area

Source: Nimet

4.2.1.7 Atmospheric Pressure

The mean atmospheric pressure from the climatic data is 1015 – 1020 mbar with the minimum and maximum in January and June respectively. During the fieldwork, atmospheric pressure was measured to be 1007.1 – 1019.4 mbar in the dry season but 1011.1 – 1013.6 mbar in the dry season. These are also within the climatic data. Air pressure differences across various locations are the results of unequal heating across surfaces. This leads to wind blowing from high pressure areas towards low pressure areas. High pressure areas are usually associated with clear weather while low pressure areas are associated with unstable weather conditions which generate precipitation.

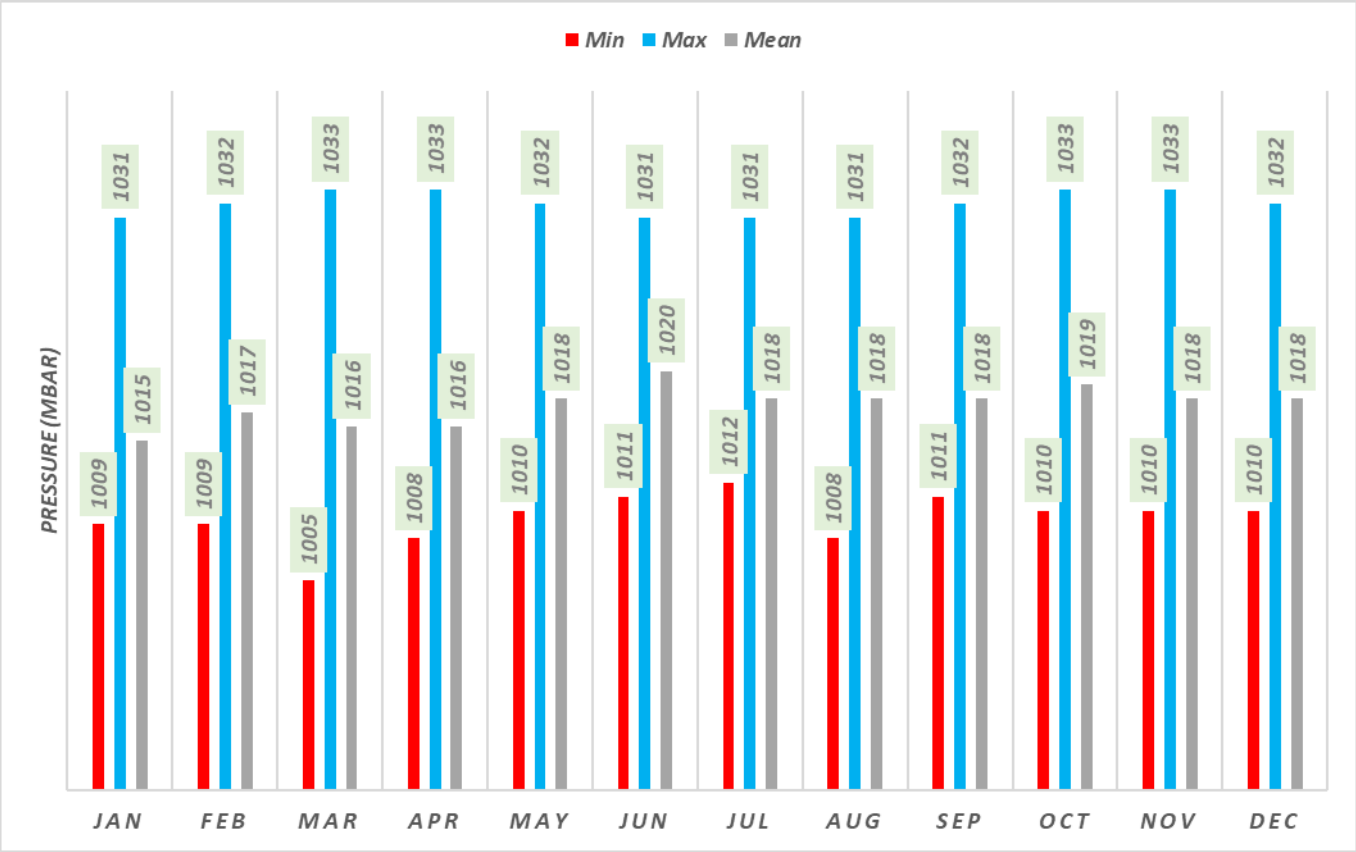


Figure 10: Average Pressure in the Study Area

Source: Nimet

4.2.2 Geology and geomorphology of Lagos State

Lagos State is underlain by the Benin Formation (Coastal Plain Sands) of Miocene to Recent age, a sequence of unconsolidated, highly permeable quartz sands with interbedded clay lenses. The surface geology is dominated by these sands, with recent littoral and alluvial deposits along the coastline, lagoons, and creeks.

Geomorphologically, Lagos is a low-lying coastal state with elevations ranging from 0 to 50 metres above sea level, characterized by continental sands on the mainland, littoral swamps and mangrove forests, extensive lagoons and creeks, and sandy barrier islands.

Hydrogeologically, Lagos hosts a multi-layered aquifer system with at least four major horizons. The second aquifer, at depths of 20 to 100 metres below sea level, provides over 75 percent of groundwater for domestic and industrial use, notably in the Ikeja and Ojota axis. Deeper aquifers offer excellent water quality but are vulnerable to saltwater up-coning if over-pumped.

4.2.2.1 Geology and geomorphology of Ikorodu LGA

Ikorodu's geology is dominated by sedimentary formations of the Benin Formation (Quaternary sands) and deeper Tertiary units (Akinbo and Oshosun Formations), while its

geomorphology reflects low-lying coastal plains with aquiferous horizons. The area is characterized by alternating clay, sandy clay, and sand layers that host both shallow and deep aquifers, making groundwater a critical resource**.**

Geology and Geomorphology of Ikorodu

LGA	Geology	Geomorphology	Key Notes
Ikorodu	- Underlain by multi-aquiferous sedimentary formations ranging from Cretaceous to Quaternary. - Dominant Benin Formation (Quaternary sands) supports shallow aquifers. - Deeper aquifers occur in Akinbo and Oshosun Formations (Tertiary sands). - Lithology alternates between clay, sandy clay, upper sand, lower sand, and ferruginized sand.	- Lies within the coastal plains geomorphic unit of Lagos. - Terrain is low-lying with gentle slopes, prone to flooding during heavy rainfall. - Relief is controlled by sedimentary layering and lagoonal processes. - Aquiferous horizons correspond to geomorphic zones: shallow sands near the coast, deeper sands inland.	- Groundwater is the primary water source, with two aquifer horizons: shallow (hand-dug wells) and deep (boreholes). - Shallow aquifers are vulnerable to contamination and saline intrusion. - Deep aquifers provide more reliable potable water. - Hydrogeophysical studies classify Ikorodu's groundwater potential zones as: Very High (0.6%), High (4.2%), Moderate (15.8%), Low (71.7%), Very Low (7.7%).

4.2.2.2 Hydrology and Drainage of Ikorodu LGA

Ikorodu Local Government Area (LGA), located in Lagos State, is defined by its unique hydrological setting and evolving drainage infrastructure. The area is bounded by major water bodies such as the Lagos Lagoon and Ogun River, with several tributaries like the Majidun and Agboyi Rivers shaping its floodplain character. Shallow groundwater levels and the northeast flow direction make the aquifers highly vulnerable to contamination, while rapid urbanization has intensified surface runoff.

Drainage in Ikorodu reflects a mix of aged, blocked channels and newly constructed infrastructure aimed at mitigating perennial flooding. Key projects, including the Gberigbe Road Outfall Channel and Palm Avenue Collector Drain, are designed to improve stormwater

discharge into the Ogun River and Lagos Lagoon. However, challenges such as waste dumping and encroachment on drainage rights-of-way continue to hamper efficiency.

Table: Hydrology & Drainage Overview of Ikorodu LGA

Aspect	Characteristics	Key Notes
Hydrology	Major Bodies: Lagos Lagoon (southern border), Ogun River (eastern boundary and flows through), Majidun/Agboyi Rivers. Groundwater: Depth varies (2.35–7.36m static level); flows predominantly north-east.	The area is a natural floodplain. Groundwater is highly susceptible to contamination from landfills and septic tanks due to the flow direction and shallow depth.
Drainage	Status: Mixed (aged/blocked channels + new infrastructure). Key Projects: Gberigbe Road Outfall Channel, Palm Avenue Collector Drain. Natural Outlet: Ogun River into Lagos Lagoon.	Ongoing major construction aims to end perennial flooding. Drainage is further hampered by waste dumping and encroachment (building on rights-of-way).

4.3 Ambient Air Quality and Noise Level

This section presents the baseline air quality and noise monitoring results conducted at four (4) Primary Health Center (PHC) locations within Lagos State. The assessment establishes pre-project or existing environmental conditions against which future impacts will be evaluated. Monitoring was conducted in accordance with the Federal Ministry of Environment (FMEnv) Guidelines, National Environmental Standards and Regulations Enforcement Agency (NESREA) Regulations, and the International Finance Corporation (IFC) Environmental, Health, and Safety (EHS) Guidelines.

Ambient air quality and noise measurements were conducted at selected Primary Health Care (PHC) facilities in Lagos State. Parameters measured included Relative Humidity (RH%), PM2.5, PM10, CO_2, Temperature, Formaldehyde (HCHO), Air Quality Index (AQI), Noise, and Total Volatile Organic Compounds (TVOC). Results were benchmarked against FMEnv, NESREA, and IFC standards.

Table 4.1: List of the Measured Parameters for Air Quality and Equipment Used.

Parameter	**Equipment Name & Model**	**Detection Limit**	**Mode of Operation**
➢ Particulate Matter ($PM_{2.5}$ & PM_{10}) ➢ Volatile Organic Compound	Aeroqual Series 500 with the respective sensor heads	PM (0-2,000µg/m^3) VOC (0-50ppm) CO (0-100ppm) 0_3 (0-50ppm)	Sensors are housed within an interchangeable 'sensor head' that attaches to the monitor base. Each sensor head contains a single gas or particle sensor. Swapping sensor heads takes seconds, can be done in the field, and no configuration or re-calibration is required.

➢ Carbon monoxide ➢ Ozone ➢ Nitrogen dioxide		NO_2 (0-1ppm)	Active sampling is a key design feature. Each sensor head contains a fan that works continuously or periodically (depending on the sensor type) to draw sample air to the sensor. Once sampled the air is exhausted from the opposite side of the sensor head.
Meteorological Parameters ➢ Temperature ➢ Relative Humidity ➢ Barometric Pressure ➢ Windspeed	Kestrel Weather Meter 5500	0 to 55°C 0 – 100% 900-1030hPa 0.1-40m/s	The Kestrel weather meter is turned ON pressing and holding the power button until the display activates. The units of measurement are configured, and the desired weather parameters are selected after which actual measurements of the parameters is done. Finally, the displayed values are recorded.



Plate 4.1: Geographical Positioning System (GPS): For obtaining the geographical coordinates of locations.



Plate 4.2: Kestrel: For measuring meteorological parameters (temperature, wind speed, humidity, barometric pressure etc)



Plate 4.3: Sound level meter: is used to measure sound pressure levels in a given environment



Plate 4.4: Aeroqual Gas Sensing: For measuring Particulate Matters ($PM_{2.5}$ & PM_{10}). CO. VOC. NO_2 & O_3



Plate 4.5: Aeroqual Sensor Heads

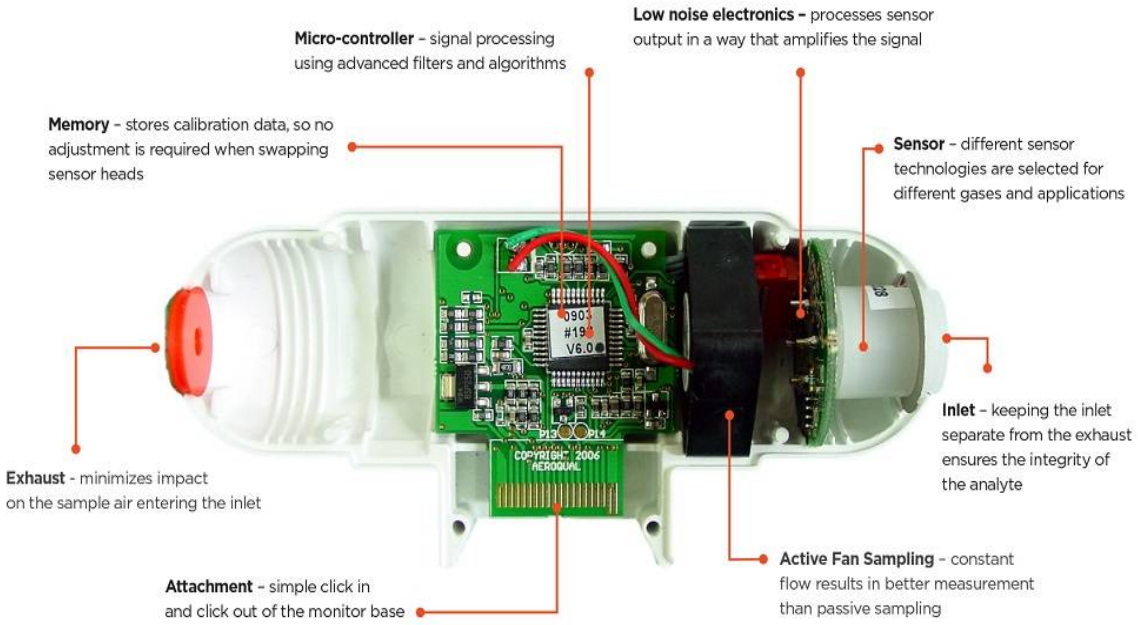


Plate 4.6: Components of the Aeroqual 500 series Monitor

4.3.1 Ambient Air Quality

Baseline air quality monitoring was conducted across selected Primary Health Centre (PHC) sampling points in Ikorodu LGA. The parameters measured include gaseous pollutants (SOx, NOx, NH_3, H_2S, CO, HC), particulate matter ($PM_{2.5}$, PM_{10}), carbon dioxide (CO_2), relative humidity (RH%), temperature, and total volatile organic compounds (TVOCs). Results were benchmarked against international (IFC) and national (FMEnv/NESREA) standards to establish compliance and identify potential environmental risks.

Summary of Findings

- Sulphur Oxides (SOx): Ranged from 0.08–0.93 ppm across sites. All values are well below IFC/FMEnv/NESREA limit of 0.125 ppm (24hr).
- Nitrogen Oxides (NOx): Generally low (0.000–0.09 ppm), within the limit of 0.106 ppm (1hr).
- Carbon Monoxide (CO): Values ranged 4.7–10.1 ppm. Most sites were within the 10 ppm (8hr) limit, though Olorunda PHC SP2 (10.1 ppm) slightly exceeded the threshold.
- Particulate Matter ($PM_{2.5}$/PM_{10}):
    - $PM_{2.5}$ ranged 7–26 µg/m³. All sites were within the 25 µg/m³ (24hr) limit, except Eruwen SP2 (26 µg/m³).
    - PM_{10} ranged 19–74 µg/m³. Several sites (Olorunda SP1, SP3) exceeded the 50 µg/m³ (24hr) limit, indicating localized dust or combustion sources.

- Hydrocarbons (HC): Elevated at Eruwen (30–35 ppm), suggesting biomass burning or vehicular emissions.
- TVOCs: Generally low (0.00–0.15 ppm), with Eruwen SP1 showing the highest concentration.
- CO_2: Values ranged 699–875 ppm, slightly above global background (~420 ppm), reflecting human activity and combustion sources.
- Temperature & RH%: Typical tropical baseline (31–39°C; 64–80% RH), consistent with Lagos climate.

Compliance Assessment

Parameter	Compliance Status	Notes
SOx	✓✓ Within limits	No exceedances observed.
NOx	✓✓ Within limits	Very low concentrations.
CO	⚠️ Mostly compliant	Olorunda SP2 slightly above 10 ppm.
$PM_{2.5}$	⚠️ Mostly compliant	Eruwen SP2 exceeded 25 µg/m³.
PM_{10}	✗ Several exceedances	Olorunda SP1/SP3 above 50 µg/m³.
HC	⚠️ Elevated at Eruwen	Indicates combustion/traffic influence.
TVOC	✓✓ Within limits	Generally low, except Eruwen SP1.
CO_2	⚠️ Elevated	Above global baseline, but typical for urban areas.

Conclusion

The baseline assessment shows that gaseous pollutants (SOx, NOx, CO) are largely within IFC/FMEnv/NESREA standards, with minor exceedances for CO at Olorunda SP2. Particulate matter (PM_{10}) presents the most significant compliance gap, particularly at Olorunda sites, suggesting dust resuspension, traffic, or open burning. Hydrocarbons and TVOCs are elevated in Eruwen, pointing to localized combustion sources.

Overall, air quality in Ikorodu LGA is moderately impacted, with particulate matter being the key pollutant of concern. Targeted interventions such as improved waste management, dust suppression, and stricter control of open burning are recommended.

Regulatory Limit Summary Table (Air Quality Parameters)

Parameter	FMEnv Limit	NESREA Limit	IFC/World Bank Limit	WHO Guideline	Unit	Applicable Standard
PM2.5 (24-hour mean)	35	35	25	15 (interim) / 5 (final)	µg/m³	25 (IFC)
PM10 (24-hour mean)	250	250	50	45 (interim) / 15 (final)	µg/m³	50 (IFC)
CO2 (8-hour TWA)	NS	NS	5,000	NS	ppm	5,000 (IFC)
Formaldehyde (HCHO) (30-minute mean)	NS	NS	NS	0.08	ppm	0.08 (WHO)
TVOC	NS	NS	NS	500 (comfort reference)	µg/m³	500 (Reference)
Temperature	No standard	No standard	No standard	No standard	°C	N/A
Relative Humidity (RH)	No standard	No standard	No standard	No standard	%	N/A

NS = Not Specified in accessible regulations

Applicable Standard: Per IFC Performance Standards, the more stringent standard between host country regulations and IFC/WHO guidelines applies.

Table 4.3.1: Ambient Air Quality Measured at the Study Area with Regulatory Limits

Location	SOx (ppm)	NOx (ppm)	NH_3 (ppm)	H_2S (ppm)	CO (ppm)	HC (ppm)	RH%	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	CO_2 (ppm)	Temp (°C)	TVOC (ppm)	coordinates	
Omolaiye PHC SP1	0.76	0.015	1.1	0.32	8.44	4	80.4	7	19	847	32.0	0.02	6.668393	3.473079
Omolaiye PHC SP2	0.70	0.09	0.9	0.30	7.80	6	78.5	10	22	830	31.5	0.01	6.668600	3.47312
Omolaiye PHC SP3	0.68	0.008	0.8	0.28	7.20	5	79.0	9	20	835	31.8	0.04	6.668900	3.47318
Eruwen PHC SP1	0.62	0.000	0.0	0.18	4.70	35	73.4	23	34	814	34.0	0.15	6.604404	3.543580

Eruwen PHC SP2	0.00	0.000	0.0	0.37	7.44	30	67.1	26	35	826	39.4	0.01	6.604282	3.543831
Eruwen PHC SP3	0.30	0.000	0.0	0.28	6.20	32	70.0	24	33	820	36.5	0.02	6.604160	3.544082
Olorunda PHC SP1	0.12	0.000	0.0	0.49	7.69	7	64.7	17	74	875	33.9	0.01	6.666833	3.585208
Olorunda PHC SP2	0.00	0.000	0.5	0.40	10.1	4	66.9	14	30	804	31.9	0.00	6.668594	3.585764
Olorunda PHC SP3	0.08	0.000	0.3	0.45	8.90	5	65.5	16	40	830	32.8	0.00	6.669100	3.58591
Agura PHC SP1	0.93	0.000	0.1	0.41	8.55	13	72.4	12	20	699	37.4	0.00	6.579961	3.627529
Agura PHC SP2	0.77	0.000	0.0	0.45	6.73	21	68.3	12	23	704	35.3	0.00	6.580047	3.627936
Agura PHC SP3	0.80	0.000	0.05	0.43	7.20	18	70.0	13	22	702	36.0	0.01	6.580100	3.62817
IFC/FMEnv/NESREA Limits	$PM_{2.5}$ ≤25 (24hr); PM_{10} ≤50 (24hr); CO ≤10 (8hr); SO_2 ≤0.125 (24hr); NO_2 ≤0.106 (1hr)													

Source: MDS Field Work 2026

4.3.2 Noise Level

Baseline Summary

A baseline noise level assessment was conducted at four Primary Health Centers (PHCs) within Ikorodu LGA: Omolaiye PHC, Eruwen PHC, Olorunda PHC, and Agura PHC. A total of twelve (12) sampling points were assessed, with three (3) points per facility. Measurements were taken to establish existing ambient noise levels against the IFC, FMEnv, and NESREA daytime (55 dB(A)) and night-time (45 dB(A)) regulatory limits for quiet residential and healthcare areas. Coordinates were recorded for each sampling point to support spatial mapping and verification. The assessment revealed generally low noise levels across most locations, with values ranging from 31 dB (A) to 51 dB(A). All measurements were compared against the applicable daytime and night-time limits to determine compliance status.

Regulatory Limit Summary Table (Noise Parameter)

Parameter	FMEnv Limit	NESREA Limit	IFC/World Bank Limit	WHO Guideline	Unit	Applicable Standard
Noise (Daytime - Residential/Institutional)	55	55	55	55	dB(A)	55 (All)

Applicable Standard: All regulatory frameworks (FMEnv, NESREA, IFC, WHO) converge on a daytime limit of 55 dB(A) for residential and institutional areas, including healthcare facilities.

Table 4.3.2: Noise Level Measured at the Study Area with Regulatory Limit

Location	Noise (dB(A))	IFC Limit	FMEnv Limit	NESREA Limit	Key Notes		
Omolaiye PHC SP1	50	55 day / 45 night	55 day / 45 night	55 day / 45 night	Within limits.	6.668393	3.473079
Omolaiye PHC SP2	44	Same	Same	Same	Acceptable.	6.668600	3.47312
Omolaiye PHC SP3	51	Same	Same	Same	Slightly above night-time limit.	6.668900	3.47318
Eruwen PHC SP1	40	Same	Same	Same	Well within limits.	6.604404	3.543580

Eruwen PHC SP2	31	Same	Same	Same	Very low.	6.604282	3.543831
Eruwen PHC SP3	35	Same	Same	Same	Acceptable.	6.604160	3.544082
Olorunda PHC SP1	47	Same	Same	Same	Acceptable.	6.666833	3.585208
Olorunda PHC SP2	39	Same	Same	Same	Acceptable.	6.668594	3.585764
Olorunda PHC SP3	42	Same	Same	Same	Acceptable.	6.669100	3.58591
Agura PHC SP1	48	Same	Same	Same	Acceptable.	6.579961	3.627529
Agura PHC SP2	44	Same	Same	Same	Acceptable.	6.580047	3.627936
Agura PHC SP3	46	Same	Same	Same	Acceptable.	6.580100	3.62817

Source: MDS Field Work 2026

4.3.2 Noise Level

Key Findings – Baseline Noise Levels

Overall Compliance:

Ten (10) out of twelve (12) sampling points (83.3%) were fully compliant with both daytime (55 dB) and night-time (45 dB) regulatory limits across all standards (IFC, FMEnv, NESREA).

Marginal Exceedance at Omolaiye PHC SP3:

One sampling point (Omolaiye PHC SP3) recorded 51 dB(A), which is within the daytime limit of 55 dB(A) but exceeds the night-time limit of 45 dB(A) by 6 dB. This suggests that while daytime activities at this location are acceptable, night-time quiet hours may experience elevated noise levels, potentially from nearby human or mechanical sources.

Eruwen PHC Recorded the Lowest Noise Levels:

This facility demonstrated excellent ambient sound quality, with values as low as 31 dB(A) at SP2 and 35 dB(A) at SP3, indicating a tranquil environment suitable for a healthcare setting.

No Significant Variability within Facilities:

At each PHC, the three sampling points showed relatively consistent noise levels, with variations typically within 3–7 dB, suggesting uniform local noise conditions across the facility grounds.

No Exceedance of Daytime Limits:

All twelve sampling points recorded noise levels below the 55 dB(A) daytime limit. The highest recorded value was 51 dB(A) at Omolaiye PHC SP3, still 4 dB below the daytime threshold.

Night-Time Vulnerability

While all other points (except Omolaiye SP3) recorded 47 dB or below, the 51 dB reading at Omolaiye SP3 indicates potential night-time disturbance if the source (e.g., generators, traffic, night markets, or religious activities) operates after hours.

Conclusion

The baseline noise assessment for the four Primary Health Centers in Ikorodu LGA indicates that ambient noise levels are generally within acceptable limits prescribed by IFC, FMEnv, and NESREA during daytime hours. Eruwen, Olorunda, and Agura PHCs present favorable acoustic environments for healthcare delivery, with all monitoring points at these facilities meeting both daytime and night-time standards.

4.3.3 Groundwater Quality

This section presents the baseline groundwater quality assessment for four (4) Primary Health Centers (PHCs) within **cluster 3** of the study area. The assessment evaluates physico-chemical and microbiological parameters against applicable national and international drinking water quality standards, including:

- **WHO** (World Health Organization) Guidelines for Drinking-water Quality, 4th Edition (2017)
- **NESREA** Nigerian Standard for Drinking Water Quality (NSDWQ, 2015)
- **FMEnv** Federal Ministry of Environment - National Environmental (Drinking Water Quality) Regulations
- **IFC** (International Finance Corporation / World Bank) EHS Guidelines for Water Quality

Groundwater Quality Results and Regulatory Compliance

Table: Complete Analytical Results with Standards

Parameter	**Omolaiye PHC SP1**	**Omolaiye PHC SP2**	**Eruwen PHC SP1**	**Eruwen PHC SP2**	**Olorunda PHC SP1**	**Olorunda PHC SP2**	**Agura PHC SP1**	**Agura PHC SP2**	**Regulatory Limit (WHO/NESREA/ FMEnv/IFC)**
Coordinates	6.668394, 3.473079	6.668900, 3.473180	6.604404, 3.543580	6.604160, 3.544082	6.668335, 3.585208	6.669100, 3.585910	6.579962, 3.627529	6.580100, 3.628170	—
Appearance	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
True Colour (Hz)	<5	<5	<5	<5	<5	<5	<5	<5	<15
Odour	Unobjecti onable	Unobjecti onable	Unobjecti onable	Unobjecti onable	Unobjecti onable	Unobjecti onable	Unobjecti onable	Unobjecti onable	Unobjectionable
EC (µS/cm)	432.0	668.0	81.6	80.0	51.5	38.6	193.3	200.7	1000
Turbidity (NTU)	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	5
pH	5.1	5.9	5.9	5.9	5.9	7.3	7.3	7.3	6.5–8.5
TDS (mg/L)	324.0	336.0	61.2	38.6	38.6	144.9	144.9	155.1	500
Total Solids (mg/L)	343.0	357.0	75.5	49.6	49.6	163.8	163.8	176.2	500

Total Hardness (mg/L)	19.1	11.3	11.3	3.4	3.4	68.0	68.0	72.0	200
Total Alkalinity (mg/L)	6.9	13.7	13.7	6.9	6.9	68.5	68.5	71.5	200
Chloride (mg/L)	71.8	7.1	7.1	9.7	9.7	9.7	9.7	9.7	250
Nitrate (mg/L)	11.6	0.95	0.95	2.0	2.0	2.6	2.6	2.6	50
Sulphate (mg/L)	7.3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	250
Heavy Metals	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	WHO Limits
DO (mg/L)	6.7	6.6	6.6	6.5	6.5	6.5	6.5	6.5	≥.
BOD (mg/L)	7.0	5.0	5.0	9.0	9.0	7.0	7.0	7.0	≤.
COD (mg/L)	12.0	12.0	12.0	16.0	16.0	12.0	12.0	12.0	≤2.
Total Coliform (CFU/ml)	164	65	65	112	112	47	47	47	0
E. coli (CFU/ml)	0	0	0	0	0	0	0	0	0

Yeast/Mould (CFU/ml)	480	0	0	250	250	8	8	8	—
Total Plate Count	1,479	1,072	1,072	1,518	1,518	822	822	822	≤221
Remarks	Characteristic	Characteristic	Characteristic	Characteristic	Characteristic	Characteristic	Characteristic	Characteristic	—

Source: MDS 2026

Key Findings

Physico-Chemical Parameters

Acidity (pH)

- Omolaiye PHC (pH 5.1ametersA/FMEnv/IFC)h Standardsnce Guidelines for Water Quality Regulationsgainst applicab
- Eruwen PHC (pH ~5.9) is also slightly acidic, though less severe.
- Olorunda PHC transitions from acidic to neutral (5.9 less severe. or Water Qua
- Agura PHC (pH 7.3) is within acceptable range.

TDS and Electrical Conductivity

- All PHCs fall within acceptable limits (TDS < 500 mg/L).
- Indicates:
    - Fresh groundwater conditions
    - Minimal saline intrusion

Total Hardness

- All locations show soft water characteristics:
    - Omolaiye & Eruwen: very soft
    - Olorunda & Agura: soft to moderately soft
- No scaling concerns.

Major Ions

- Chloride, nitrate, sulphate are well below limits, indicating:
    - Low anthropogenic pollution
    - Limited agricultural or sewage influence

Heavy Metals

- All heavy metals are below detection limits, confirming:
    - No toxic contamination risk

Microbiological Parameters

Total Coliform

- Present in all PHCs, ranging:
    - 47 to 164 CFU/ml
- Indicates widespread microbial contamination
- Exceeds 0 CFU/ml standard

E. coli

- Not detected across all locations
- Suggests:
    - No direct fecal contamination
    - However, secondary contamination pathways still exist

Total Plate Count (TPC)

- Extremely high across all sites:
    - Up to 1,518 CFU/ml
- Far exceeds CFU/ml ss all site
- Indicates:
    - Poor microbiological water quality
    - Unsuitability for drinking without treatment

4.3.4 Soil Quality

This section presents the baseline soil quality assessment for three (3) Primary Health Centers (PHCs) within **cluster 3** of the study area. The assessment evaluates physico-chemical and microbiological parameters against applicable national and international soil quality standards, table below shows Complete Analytical Results with Standards

Soil Quality Results and Regulatory Compliance

Table: Complete Analytical Results with Standards

Parameter	Omolaiye SP1	Omolaiye SP2	Omolaiye SP3	Eruwen SP1	Eruwen SP2	Eruwen SP3	Olorunda SP1	Olorunda SP2	Olorunda SP3	Agura SP1	Agura SP2	Agura SP3	Regulatory Limit (WHO/ NESREA/FMEnv/IFC)
Coordinates	6.668393, 3.473079	6.668600, 3.473120	6.668900, 3.473180	6.604404, 3.543580	6.604282, 3.543831	6.604160, 3.544082	6.666833, 3.585208	6.668594, 3.585764	6.669100, 3.585910	6.579961, 3.627529	6.580047, 3.627936	6.580100, 3.628170	—
General Appearance	Light brown soil	Light brown soil	Light brown soil	Blackish soil	Blackish soil	Blackish soil	Reddish brown soil	Reddish brown soil	Reddish brown soil	Dark brown soil	Dark brown soil	Dark brown soil	—
Moisture Content (%)	18.0	17.6	18.2	15.6	15.2	15.8	9.5	9.2	9.8	14.5	14.2	14.8	—
Total Ash (%)	79.3	78.8	79.6	80.7	80.2	81.0	85.0	84.5	85.3	83.8	83.2	84.1	—
pH	6.8	6.7	6.9	7.6	7.5	7.7	6.0	5.9	6.1	6.3	6.2	6.4	6.0 – 8.5

Total Organic Matter (%)	2.7	2.6	2.8	3.7	3.6	3.8	5.5	5.3	5.6	1.7	1.6	1.8	—
Chloride (mg/kg)	81.8	80.0	83.0	60.8	59.5	62.0	61.2	60.0	62.5	64.5	63.0	65.5	250
Sulphate (mg/kg)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	93.9	92.0	95.0	<0.01	<0.01	<0.01	1000
Phosphate (mg/kg)	39.5	38.0	40.5	59.1	58.0	60.5	61.7	60.5	63.0	89.0	87.5	90.5	—
Ammoniacal N (mg/kg)	280.8	275.0	285.0	418.8	410.0	425.0	423.9	415.0	430.0	408.4	400.0	415.0	—
Nitrate (mg/kg)	10.7	10.2	11.0	3.0	2.8	3.2	14.8	14.2	15.2	4.3	4.1	4.5	50
Oil/Grease (%)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1
Magnesium (mg/kg)	510.6	505.0	515.0	581.0	575.0	585.0	547.2	540.0	550.0	573.1	565.0	580.0	—
Sodium (mg/kg)	31.9	31.0	32.5	23.7	23.0	24.2	23.8	23.0	24.5	25.1	24.5	25.8	200

Potassium (mg/kg)	89.7	88.0	91.0	68.9	67.5	70.0	62.3	61.0	63.5	76.9	75.5	78.0	—
Total Iron (mg/kg)	5,325.5	5,200.0	5,450.0	8,623.2	8,500.0	8,700.0	11,457.4	11,300.0	11,600.0	10,934.5	10,800.0	11,100.0	50,000
Calcium (mg/kg)	4,772.4	4,650.0	4,850.0	1,597.1	1,550.0	1,620.0	6,312.6	6,200.0	6,400.0	2,086.7	2,050.0	2,120.0	—
Arsenic (mg/kg)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	20
Cadmium (mg/kg)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	3
Chromium (mg/kg)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	100
Copper (mg/kg)	2.1	2.0	2.2	24.1	23.5	25.0	13.9	13.5	14.2	9.3	9.0	9.6	100
Lead (mg/kg)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	85
Zinc (mg/kg)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	300
Coliforms (CFU/g)	<50	<55	<52	<100	<95	<105	<100	<95	<102	<100	<95	<102	0

Yeast/Mould (CFU/g)	751	740	760	532	520	540	578	565	590	480	470	490	—
Total Plate Count (CFU/g)	TNTC	TNTC	TNTC	TNTC	TNTC	TNTC	1,130	1,100	1,150	TNTC	TNTC	TNTC	≤NTC0

Physico-Chemical Characteristics

Soil Reaction (pH)

Soil pH across all sampling locations ranged from 5.9 to 7.7, indicating slightly acidic to neutral conditions. All values fall within the acceptable range of 6.0–8.5, suggesting favourable conditions for soil stability and nutrient availability. Slightly acidic conditions observed at Olorunda PHC may influence nutrient mobility but are not considered critical.

Moisture Content and Soil Composition

Moisture content varied from 9.2% to 18.2%, reflecting differences in soil texture and drainage characteristics across locations. Higher moisture levels at Omolaiye PHC suggest relatively higher water retention capacity, while lower values at Olorunda PHC indicate comparatively drier and more freely draining soils.

Total ash content (78.8%–85.3%) indicates a predominance of mineral fractions, consistent with sandy to sandy-loam soils typical of the Lagos coastal plain.

Organic Matter Content

Total organic matter ranged from 1.6% to 5.6%, with the highest values recorded at Olorunda PHC. These levels suggest moderate organic enrichment, likely influenced by vegetation cover and localized anthropogenic inputs. Overall, the organic content supports moderate soil fertility conditions.

Nutrients and Major Ions

Nitrogen Species (Ammoniacal Nitrogen and Nitrate)

Ammoniacal nitrogen concentrations ranged between 275.0 and 430.0 mg/kg, indicating moderate to elevated nitrogen levels, which may be associated with organic waste inputs or natural decomposition processes.

Nitrate concentrations (2.8–15.2 mg/kg) were well below the regulatory limit of 50 mg/kg, suggesting low risk of nitrate leaching or groundwater contamination.

Phosphates and Sulphates

Phosphate concentrations (38.0–90.5 mg/kg) were moderate, supporting nutrient availability without indicating excessive enrichment.

Sulphate levels were generally negligible (<0.01 mg/kg), except at Olorunda PHC (92.0–95.0 mg/kg), which remains within acceptable limits and does not pose environmental concern.

Chloride and Salinity Indicators

Chloride concentrations ranged from 59.5 to 83.0 mg/kg, significantly below the threshold of 250 mg/kg, indicating no evidence of saline intrusion or salt accumulation across the study locations.

Heavy Metals

All analyzed heavy metals—including arsenic, cadmium, chromium, lead, and zinc—were recorded at trace or non-detectable levels (<0.01 mg/kg) across all sampling points. Copper concentrations (2.0–25.0 mg/kg) and iron levels (5,200–11,600 mg/kg) were within permissible limits and consistent with natural background concentrations.

These results indicate no heavy metal contamination and confirm that the soils are safe from toxic metal pollution risks.

Microbiological Quality

Coliform Bacteria

Coliform counts were detected across all locations (typically <50 to <105 CFU/g), whereas regulatory standards require zero coliform presence. This indicates widespread microbial contamination, likely arising from anthropogenic activities, surface runoff, or organic waste deposition.

Total Plate Count (TPC)

Total plate counts were recorded as TNTC (Too Numerous To Count) at most locations, with measurable values exceeding 1,000 CFU/g at Olorunda PHC. These levels exceed the recommended limit (≤1000 CFU/g) and indicate high microbial activity and poor soil sanitary quality.

Yeast and Mould Counts

Yeast and mould counts ranged from 470 to 760 CFU/g, reflecting active biological processes within the soil. While not directly regulated, these values further support the presence of significant microbial proliferation.

Appendix 6 Asbestos Management Plan (AMP)

1.0 Introduction

Asbestos-Containing Materials (ACMs) were identified or suspected in roofing sheets, ceiling boards, and insulation materials across Group 3 sites (Olorunda, Erunwen, Omolaiye and Agura), with potential presence in older ancillary structures. This Asbestos Management Plan (AMP) provides procedures for safe identification, removal, handling, transport, and disposal of ACMs in compliance with:

- FMEnv National Environmental Regulations (2011)
- LASEPA Environmental Safety Guidelines
- AfDB ISS (2024) – OS1, OS4, OS5
- WHO Asbestos Guidelines (2014)
- ILO Convention C162 (Safety in the Use of Asbestos)

The AMP ensures zero exposure to workers, patients, and community members during refurbishment and demolition works.

2.0 Objectives of the AMP

- Prevent occupational and community exposure to asbestos fibers.
- Ensure safe removal, containment, and disposal of ACMs.
- Comply with FMEnv, LASEPA, and AfDB ISS requirements.
- Protect vulnerable groups (children, elderly, pregnant women).
- Establish monitoring, reporting, and emergency response procedures.
- Ensure only licensed asbestos contractors conduct removal activities.

3.0 Asbestos Identification & Survey Procedures

3.1 Pre-Removal Survey

A licensed FMEnv-accredited asbestos assessor shall conduct:

- Visual inspection of roofing sheets, ceiling boards, insulation, pipe lagging.
- Material sampling using wet-method extraction.
- Laboratory analysis using PCM/TEM methods.
- Risk classification (friable vs non-friable).
- Site-specific ACM inventory (to be included in Appendix 8.X).

3.2 Suspected ACM Locations (Group 3 Sites)

- Omolaiye**:** Suspected ACMs in older roofing sheets and ancillary storage facilities.
- Eruwen**:** Older ancillary structures and ceiling insulation materials.
- Agura**:** Old roofing sheets and ceiling boards in primary structures.
- Olorunda**:** Precautionary screening required for older roofing and partition boards.

4.0 Asbestos Removal Procedures

4.1 Contractor Requirements

Only FMEnv-licensed asbestos abatement contractors may perform removal. Contractor must submit:

- Asbestos Removal Plan (ARP)
- Worker training certificates
- PPE inventory
- Waste transport permit
- Emergency response plan

4.2 Site Preparation

- Establish 20–50 m exclusion zone around work area.
- Install warning signage ("DANGER: ASBESTOS – KEEP OUT").
- Erect temporary fencing and restrict public access.
- Shut down HVAC systems to prevent fiber spread.
- Notify LASEPA and FMEnv 72 hours before removal.

4.3 Removal Method (Wet Method – WHO Standard)

- Wet ACMs continuously with surfactant solution.
- Remove sheets intact; no breaking, cutting, drilling, or sanding.
- Use hand tools only; no power tools.
- Place ACMs in 6-mil thick double-bagged asbestos waste bags.
- Seal bags with duct tape and label: "ASBESTOS WASTE – DO NOT OPEN".

4.4 Worker Protection

Workers must use:

- Full-face P3 respirators
- Disposable coveralls
- Nitrile gloves
- Rubber boots
- Eye protection

Workers must undergo:

- Medical screening
- Fit-testing
- Asbestos safety training

5.0 Transport & Disposal Procedures

5.1 Transport

- Use FMEnv-licensed hazardous waste transporters.
- Vehicles must have sealed compartments.
- Transport directly to approved disposal sites.

5.2 Disposal

Disposal must occur at:

- LAWMA-approved hazardous waste landfill
- FMEnv-licensed asbestos burial pit

Waste manifest must include:

- Quantity of ACM removed
- Date/time of transport
- Disposal site signature
- Chain-of-custody documentation

6.0 Air Monitoring & Clearance Testing

6.1 During Removal

- Continuous air monitoring using PCM/TEM.
- Acceptable limit: ≤ 0.1 fibers/ml (WHO standard).
- Stop work if levels exceed threshold.

6.2 Post-Removal Clearance

- Conduct final air sampling.
- Perform visual inspection for debris.
- Issue Asbestos Clearance Certificate (Appendix 6.).

7.0 Emergency Response Procedures

Emergency Scenarios:

- Accidental breakage of ACM
- Bag rupture
- Worker exposure
- Unauthorized access to exclusion zone

Response Steps:

- Stop work immediately.
- Evacuate non-essential personnel.
- Wet contaminated area.
- Seal broken ACM in new bags.
- Conduct emergency air monitoring.

- Report incident to PIU, LASEPA, FMEnv within 24 hours.
- Document corrective actions.

8.0 Community Protection Measures

- Conduct community sensitization before removal across Group 3 communities (Agbowa, Ejirin, SoluAlade, Orimedu).
- Provide GBV-sensitive communication for women and elderly.
- Ensure school children are kept away from work zones.
- Install dust screens and wind barriers.
- Maintain 24-hour CLO presence during removal.

9.0 Roles & Responsibilities

Entity	**Responsibility**
PIU (LSMoH)	Oversight, approvals, reporting to AfDB/FMEnv
Contractor	Safe removal, PPE, waste transport, documentation
Licensed Asbestos Assessor	Survey, sampling, air monitoring, clearance
LASEPA	Compliance verification, environmental monitoring
FMEnv	Regulatory approval, hazardous waste oversight
CLO	Community communication, grievance handling
IESM	Independent monitoring & verification

10.0 Monitoring & Reporting

Monitoring Indicators:

- Number of ACM samples collected
- Air quality readings (fibers/ml)
- Number of workers trained
- Quantity of ACM removed
- Number of incidents reported
- Clearance certificate issued

Reporting Frequency:

- Daily contractor reports
- Weekly PIU updates
- Monthly reports to AfDB
- Final Asbestos Removal Completion Report

11.0 Budget Estimate (Indicative)

Item	**Cost (NGN)**

Asbestos Survey & Testing	2,500,000
Removal Contractor	6,000,000
PPE & Consumables	1,200,000
Air Monitoring	1,000,000
Transport & Disposal	1,500,000
Community Sensitization	300,000
Total	**12,500,000**

Appendix 7 -- Stakeholder Engagement Evidence Package

This Appendix provides full evidence of stakeholder engagement conducted between 24 February and 10 April 2026 across the four PHC sites. It includes:

- Attendance sheets (scanned copies)
- Contact lists
- Signatures
- Photographs (Plates)
- Concerns matrix with project responses
- Field sampling logs
- Laboratory certificates
- Site photographs (Plates 3.2–3.5)
- Statement of completeness

All evidence complies with FMEnv ESIA Act (1992), AfDB ISS (2024), and LASEPA requirements for free, prior, informed, and documented consultation.

STAKEHOLDERS ENGAGEMENT OF THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) OF LAGOS STATE HEALTHCARE TRANSFORMATIVE INITIATIVE PROJECT.

The Environmental Impact Assessment law requires that an Environmental Impact Assessment (EIA) be conducted to assess and evaluate the potential impact on the environment and affected communities. As part of the ESIA preparation meaningful consultation has to be carried out with all stakeholders. This engagement is an integral part of that stakeholder engagement designed to have your view on the proposed project.

Highlights of Stakeholders' Engagement

Item	Description

Place of Meeting	Eruwen PHC, Ikorodu
Date	April 1, 2026
Language of Communication	English and Yoruba
Purpose of Meeting	To inform the stakeholders on the proposed project, the timeline, the components and the need for the ESIA and seek their cooperation to ensure a smooth project execution
Opening Remarks	First was the introduction of the Representatives of the Lagos State Government the project proponents, officials of the Federal Ministry of Environment (Representative of the Federal Minister of Environment, Controller of Environment, Lagos State), officials of the Lagos State Ministry of Environment (representative of the Commissioner of Environment) and the ESIA consultants (Multiple Development Services, MDS). The stakeholders who came from the selected Primary Health Care CentersCentres (PHC) communities under the Ikorodu zone also introduced themselves. The Senior Special Assistant to the Lagos State Commissioner of Health gave insight on the proposed project. He said it was conceptualised to uplift the level of health care delivery at various local level through improved and modernised facilities for the benefit of the people of Lagos State. He added that some present facilities would be renovated and made fit for effective delivery. Others will be outright construction of new structures equipped with modern facilities for optimal healthcare delivery. The structures will be modernised with good roofing, provision of solar power to ensure round the clock power supply, ambulances and paces for rest for the medical personnel. Attention has also been given to the issue of availability of drugs in sufficient quantities to ensure maximum delivery. He added that the project is being supported by African Development Bank (AfDB). The project has been

	designed with optimum quality in mind. A timeline has been given within which the project would be delivered, adding that the goal was the completion before the end of the tenure of the administration of the State. The representative of the Federal Minister of Environment stated that it was a regulatory requirement that project of the magnitude being proposed be made to comply with the ESIA Law in the country. Appropriate standards must be applied in the project conceptualization and execution to ensure its success in terms safety and sustainability. The ESIA data collection exercise has to be monitored to ensure it complies with provided guidelines. The representative of the ESIA consultants, MDS stated the Scoping workshop was meant to inform and educate key stakeholders, the host communities including NGOs on the project design, the ESIA process and the need for stakeholders to cooperate and contribute to the project execution. He thereafter made a presentation on the project design including the various components, the ESIA process including data collection stages to ensure the document meets the required standards and the needed cooperation and contribution of stakeholders. He then appealed for maximum cooperation of the stakeholders in providing appropriate information for the success of the ESIA preparation. The stakeholders should feel free to offer their suggestions.
The Project: **The ESIA for Lagos State Health Facilities**	The ESIA process is aimed at ensuring that a project is planned, executed and operated in a sustainable manner meeting set objectives
Main Objective	This is to ensure that everyone involved in the process is informed and has opportunity to contribute to its success through the application of sustainable principles

Need for Public Involvement	The ESIA is a regulatory requirement for projects of this magnitude to comply with provisions of the EIA act 2004 and ISS safeguard standards. The engagement of stakeholders is emphasised right through the project conception, execution and operation.
Stakeholders' Queries, concerns, General perception about the Project	The stakeholders expressed the following concerns: 1. When will the project commence and what is the duration of construction? 2. Will there be safety and security measures for workers and others? 3. Will the bad roads be fixed before construction? 4. Will there be traffic control system during the project? 5. Will there be employment for youth, women and community persons? 6. Will qualified doctors and other medical personnel be engaged? 7. Can project scheduled for rehabilitation be converted to outright construction? 8. Will emergency ambulance be provided at each PHC? 9. There are canals that pose serious erosion challenges at some centres. Will they be reconstructed? 10. What will happen to old materials generated as waste at the PHCs?
Stakeholders' Specific needs from the project	The stakeholders made the following demands: 1. Fix the PHCs and equip then to function on 24 hours basis. 2. Some defects have been noticed in some of the recently renovated PHCs. Kindly fix them 3. Ensure all PHCs have standby ambulance. 4. Ensure engagement of qualified medical personnel to be around for 24 hours 5. The employment of indigenes of the communities should be a priority.

Responses to Stakeholders' Needs, concerns/How addressed by the project (Design/Operation)	1. The PHCs have been designed to operate on 24 hours basis. There will be provision of solar power to ensure all round the clock power supply. 2. The integrated Safety Standard of the AfDB will be adopted during the project execution for the safety and security of community members. 3. Qualified doctors and other medical personnel professionals will be employed. 4. Defective buildings will be repaired. 5. There is plan to fix the roads leading the PHCs, to make them motorable for easy traffic and access to them. 6. The execution of the project has been placed on the priority list of the present administration in Lagos State. It has to be completed before the tenure expires.

(Please, note as you write the table expands and use additional sheet where Necessary. Remember to include pictures that are Apt.)





Francisca Okwuosa (Mrs)	Dr. Ayodotun Bobadoye	Chidiebere Emmanuel
Rep. Of Minister, FMEnv	Special Asst. To Commissioner for Health	Head, MDS Team
Name/Sign/Date	Name/Sign/Date	Name/Sign/Date
Tel. No.	Tel. No.	Tel. No.

Appendix 7.1: Pictures of Stakeholders Engagement




















Appendix 7.2: Attendance Sheet



ATTENDANCE SHEET FOR THE LAGOS STATE HEALTHCARE TRANSFORMATIVE INITIATIVES PROJECT

CLUSTER Ikorodu SITE/VENUE Ermiyan PHC DATE 16/4/2026

EVENT Scoping Workshop

S/N	NAME	POSITION	COMMUNITY	PHONE NO	EMAIL	SIGNATURE
1	[illegible]	[illegible]	[illegible]	2703979121552		
2	Allagoa olaide	Member	Ijoloja	07070456541	Nil	
3	Ajiboye Abayomi	WAC	[illegible]	07020156674		
4	Adebola Adesegun	WAC Chairman	[illegible]	09274685956		
5	Adebanji Adelekan	OIC	[illegible]	08032616403		
6	Olowopeju Igiwo	Traditional	Imota	08124077569		
7	Dr Seid Iguare	DPRS	HQ	08023445781		
8	ADAMS - AKEEM	Chairman	AGEDE-EGUN	08027967026		
9	Angarin Adebanjo	Youth Leader	Imota	08099394252		
10	APEX CHO Abayomi	APEX CHO	Ikorodu North	08139310559	Nil	
11	MRS Grace Fasanmiyo	CMEW	Ikorodu North	08080148089		
12	Omole Ifeoluwa	CMEW	Ikorodu North	08032492987		
13	MRS Olufemi	CMEW	Ikorodu North	09051787559		
14	VINCENT AJUMOBI	CHAIRMAN	OGOLOLO AGEGE	08023461703		
15	Bamgbade Olalekan	CHEW	Ogolo	08067338011		
16	Mr. Peter Olayiwola	Member	Ogolo	08052037449		
17	ADESINA ADEKEMI	PHARM TECH	IKORODU NORTH	07068781418		

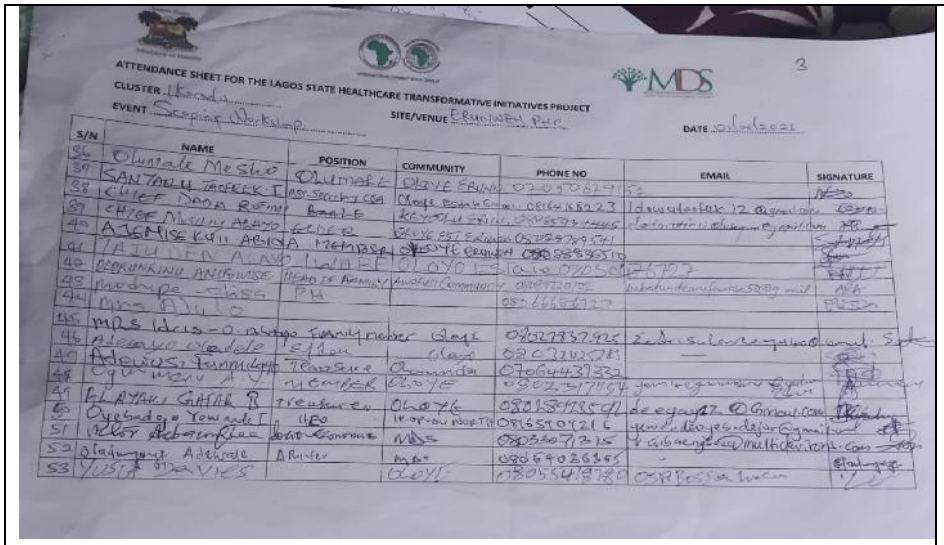


ATTENDANCE SHEET FOR THE LAGOS STATE HEALTHCARE TRANSFORMATIVE INITIATIVES PROJECT

CLUSTER Ikorodu SITE/VENUE Ebute Ayetoro PHC DATE 21/04/2026

EVENT Scoping Workshop

S/N	NAME	POSITION	COMMUNITY	PHONE NO	EMAIL	SIGNATURE
18	Richard Chidi	Pharmacy Tech	Ebute Ayetoro	08023157761		
19	Joshua [illegible]	Chairman	Ward C	07033146633		
20	Ori Emmanuel	Chairman	Ward C	08155638411		
21	OBASANYA MOSES O	CHAIRMAN	WARDC Ebute	08122787360		
22	[illegible]	[illegible]	[illegible]	08027577041		
23	ASIMI SMOKEABLE	TREASURER	Ward C	08022754944	Amoredamilola@gmail.com	
24	Kehinde Balogun	CHAIRMAN	Owode	08022214417		
25	Henry Ibhaze	WHC	[illegible]	[illegible]		
26	ELIJAH ITILOYE	CHAIRMAN	Omolaiye	08033309924		
27	LOTIMI PIEMI	CHAIRMAN	OMOLAIYE	08035544017		
28	Oshinsula Emmanuel	CHAIRMAN	OMOLAIYE	08055243793		
29	Babalola Greyemi	Youth Leader	Omolaiye	08128624701		
30	Ehinlanwo Ayangbemi	OIC	Ebute Ayetoro	08136050722		
31	Ogunbade Kheeb	Security	Ebute Ayetoro	07019436061		
32	Eyabo James	HEALTH HEAD	Ebute Ayetoro	08111521435		
33	Azeem Gbemisola	HOD PHARMACY	IKORODU NORTH	08063126740		
34	Esther Bello	Student	Ikorodu	08069181122		
35	Ishola Olawunfemi	Consultant	Consultant	08163265722		

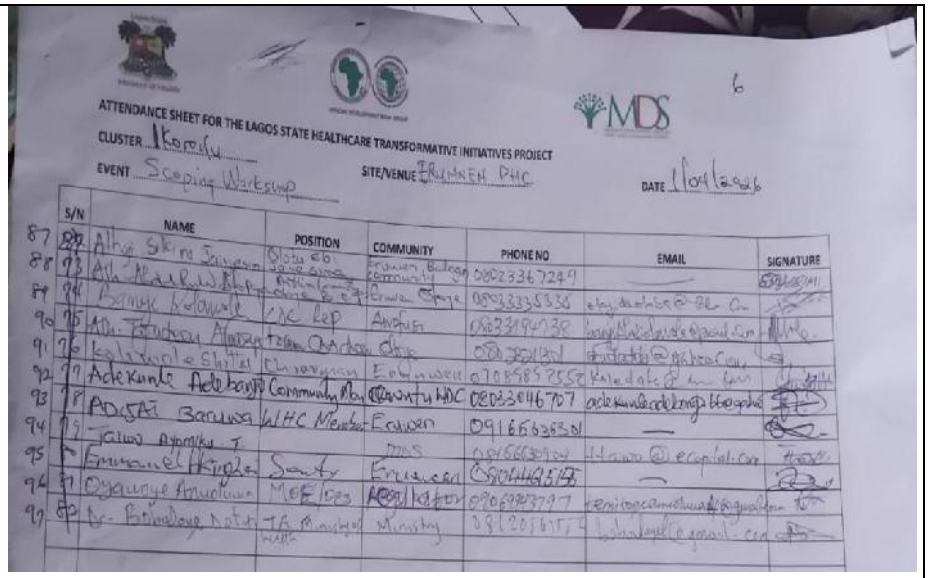


ATTENDANCE SHEET FOR THE LAGOS STATE HEALTHCARE TRANSFORMATIVE INITIATIVES PROJECT

CLUSTER Ikorodu SITE/VENUE Erunwen PHC DATE 01/04/2026

EVENT Scoping Workshop

S/N	NAME	POSITION	COMMUNITY	PHONE NO	EMAIL	SIGNATURE
86	Olumide Mesioo	Olumabe	Olove Erunwen	07059621153		
87	SANTALU TAOFEEK T	ASC Secretary CDA	Olorule Baale Erunwen	08164168223		
88	CHIEF DADA ROTIMI	BAALE	Ikeyola Erunwen			
89	CHIEF MUSIUNI ABAYO	ELDER	Olove Estate Erunwen	08023979741		
90	AJENISE KAILI ABIOLA	MEMBER	OLOVE Erunwen	08055836510		
91	TAIWO ALAO IWAPE	OLOYE	OLOVE	08055847870		
92	ODERINDE ANIKUWSE	HEAD OF FAMILY	AHOPATI COMMUNITY	08087720		
93	Inedenye - class	PH		08166657		
94	Mrs Ajuto					
95	MRS Idris-Olaleye	Family member	Oloye	09027837425		
96	Akinsoye Oyadele	Elder	Olove	08037202581		
97	Adewusi Temilola	Treasurer	Olumabe	07064431332		
98	Ogunwuyi Ayo	Member	Oloye	08023417164		
99	AL AYAKI GAFFAR B	Treasurer	Oloye	08035837804		
100	Oyebadejo Yewande T	HEO	IK-Erunwen North	08165104216		
101	Alli Abdulgafaar	Asst Secretary	MDS	08053071215		
102	Oladunjoye Adekunle	Driver	MDS	08069026365		
103	YUSUF DAVIES		OLOVE	08055478780		

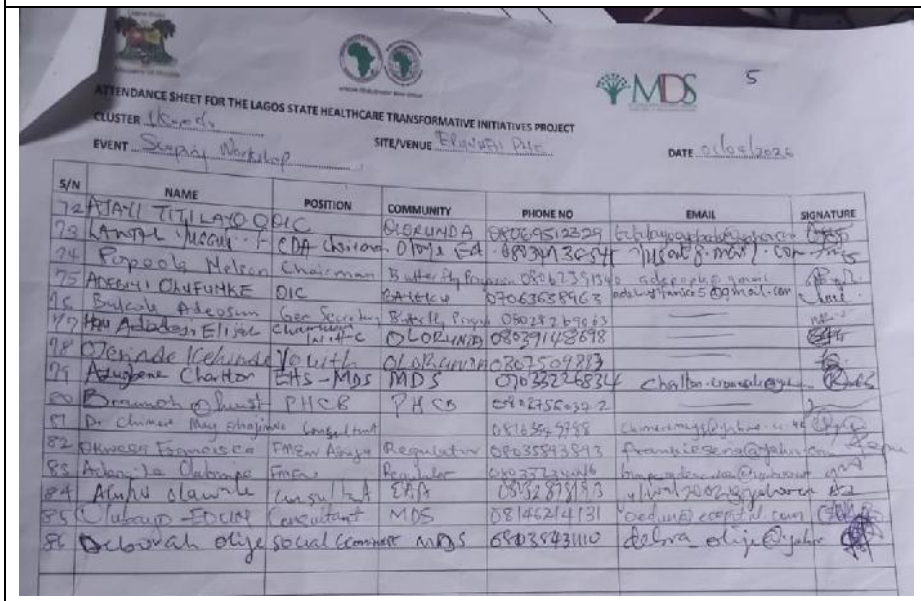


ATTENDANCE SHEET FOR THE LAGOS STATE HEALTHCARE TRANSFORMATIVE INITIATIVES PROJECT

CLUSTER Ikorodu SITE/VENUE Erunwen PHC DATE 01/04/2026

EVENT Scoping Workshop

S/N	NAME	POSITION	COMMUNITY	PHONE NO	EMAIL	SIGNATURE
87	Alhaja Sikiru Sajeeda	Olotu Eo	Erunwen Bateye Community	08023367249		
88	Ajala Akanbi Ajibola	Member	Erunwen Olove	08033335338		
89	Bamiyo Kolawole	LDC Rep	Amuloko	08033194738		
90	Mr. Tunkasiri Afonja	Member	Olukoya Olove	08033194738		
91	Kolawole Shittu	Chairperson	Erunwen	07085857558		
92	Adekunle Adebanjo	Community Rep	Erunwen WDC	08033146707		
93	ADISA Bamidele	WHC Member	Erunwen	09166636304		
94	Jalaw Ayomiku T.		DMS	08156630704		
95	Emmanuel Hippler	Santy	Erunwen	08064445475		
96	Oyekunle Anuoluwa	MOE Ikeja	Alausa Ikeja	07069737997		
97	Dr. Babalola Dotun	TA Manager	Ministry	08120161572		

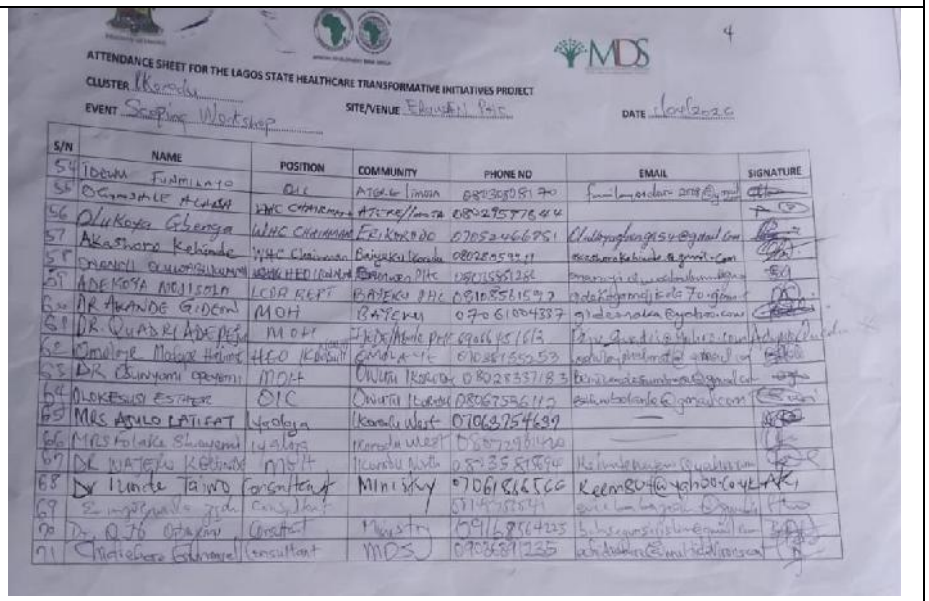


ATTENDANCE SHEET FOR THE LAGOS STATE HEALTHCARE TRANSFORMATIVE INITIATIVES PROJECT

CLUSTER Ikorodu SITE/VENUE Erunwen PHC DATE 01/04/2026

EVENT Scoping Workshop

S/N	NAME	POSITION	COMMUNITY	PHONE NO	EMAIL	SIGNATURE
72	ATAYI TITILAYO OPIC	OIC	OLORUNDA	08095123239		
73	LAWAL MUSIU F	CDA Chairman	Olorunda	08034136541		
74	Popoola Nelson	Chairman	Butterfly Pinpoint	08062391346		
75	ADEBAYO OLUFUNKE	OIC	BATEKO	07063658963		
76	Bukola Adeosun	Gen Secretary	Butterfly Pinpoint	08028276963		
77	Hon Adebayo Elijah	Chairman	OLORUNDA	08039148648		
78	OGUNADE Olukunle	Youth	OLORUNDA	08075098213		
79	Adegbenle Charles	EHS-MDS	MDS	07032246834		
80	Bramuah Olusi	PHCB	PHCB	08028556392		
81	Dr Chimere May Onyinye	Consultant		08165547788		
82	Ekwueme Francisca	FMCN Abuja	Regulator	08035893893		
83	Adeniyi Olabanjo	FMCN	Regulator	08033734446		
84	Afuye olawale	Consultant	EHS	08032875893		
85	Olatunji Idowu	Consultant	MDS	08146214131		
86	Deborah oliye	social comment	MDS	08035831110		



ATTENDANCE SHEET FOR THE LAGOS STATE HEALTHCARE TRANSFORMATIVE INITIATIVES PROJECT

CLUSTER Ikorodu SITE/VENUE Erunwen PHC DATE 01/04/2026

EVENT Scoping Workshop

S/N	NAME	POSITION	COMMUNITY	PHONE NO	EMAIL	SIGNATURE
54	IDOWU FUNMILAYO	OIC	ATOLE Timber	08030808170		
55	OGUNSANLE MICHAEL	WHC Chairman	ATOLE/Timber	08029576414		
56	Olukoya Gbenga	WHC Chairman	Erunwen PHC	07052466951		
57	Akashara Kehinde	WHC Chairman	Baiyeku Ikorodu	08028599		
58	ORANUGA OLUWASEUN	WHC Member	Erunwen PHC	08035551286		
59	ADEKOYA NOJISOLA	LCDA REP	BAYEKU IHC	08185515972		
60	DR AKANDE GIDEON	MOH	BAYEKU	07061004337		
61	DR QUADRI ADEPEJU	MOH	Ijede/Ikorodu PHC	08065451613		
62	Komolafe Motolani	HEO Ikorodu	Komolafe	07038155553		
63	DR Oluwayomi Opeyemi	MOH	Owutu Ikorodu	08028337183		
64	OLOKESUSI ESTHER	OIC	Owutu Ikorodu	08067356113		
65	MRS ADULO LATIFAT	Ujoelaga	Ikorodu West	07063754699		
66	MRS Folaka Shawemi	Ujoelaga	Ikorodu West	08077981420		
67	DR WATEJU KEHINDE	MOH	Ikorodu North	08035518894		
68	Dr Ilunde Taiwo	Consultant	Ministry	07061866566		
69	Simpson Awele Jude	Consultant		08147358541		
70	Dr. O.T. Otayemi	Consultant	Ministry	09116856423		
71	Omotosho Ebunoluwa	Consultant	MDS	09038911225		



ATTENDANCE SHEET FOR THE LAGOS STATE HEALTHCARE TRANSFORMATIVE INITIATIVES PROJECT

CLUSTER Ikorodu

EVENT Scoping Workshop SITE/VENUE Erunmen PHC DATE 01/04/2026

S/N	NAME	POSITION	COMMUNITY	PHONE NO	EMAIL	SIGNATURE
98	OSENI RACHAEL. O	OIC (Agura PHC)	Agura	08177651221	oseniracheal2019@gmail.com	
99	MRS NIKE JIBRIL	WOMAN LEADER	Agura	09166560471	—	
100	OLOYUNFOLE FATAI	W.H.C. Chairman	Agura	08055221737	—	
101	Olayinka Sunday	Community Leader	Agura	08069659867	—	
102	87 Adebayo Oladele	DPRS	Agura	09031425243	—	
103	88 Olatuye Baliqis	Womaldeni	Imota	09070456679	—	
104	89 Oduleye Mofisat	Market woman	Imota	08083506366	—	
105	90 Ajayi Ismaheel A.	Religious leader	Imota	08050834784	Olaomophoto@gmail.com	

Appendix 8: FMEnv Field Attestation Register

Project: Lagos State Health Infrastructure Project (LSHIP) – Ikorodu North (Group 3)

Dates of Field Work: 1-10 April 2026

Purpose: To document the participation and oversight of Federal Ministry of Environment (FMEnv) officials during the field data gathering and stakeholder engagement activities.

Attesting Officials: see attached below:

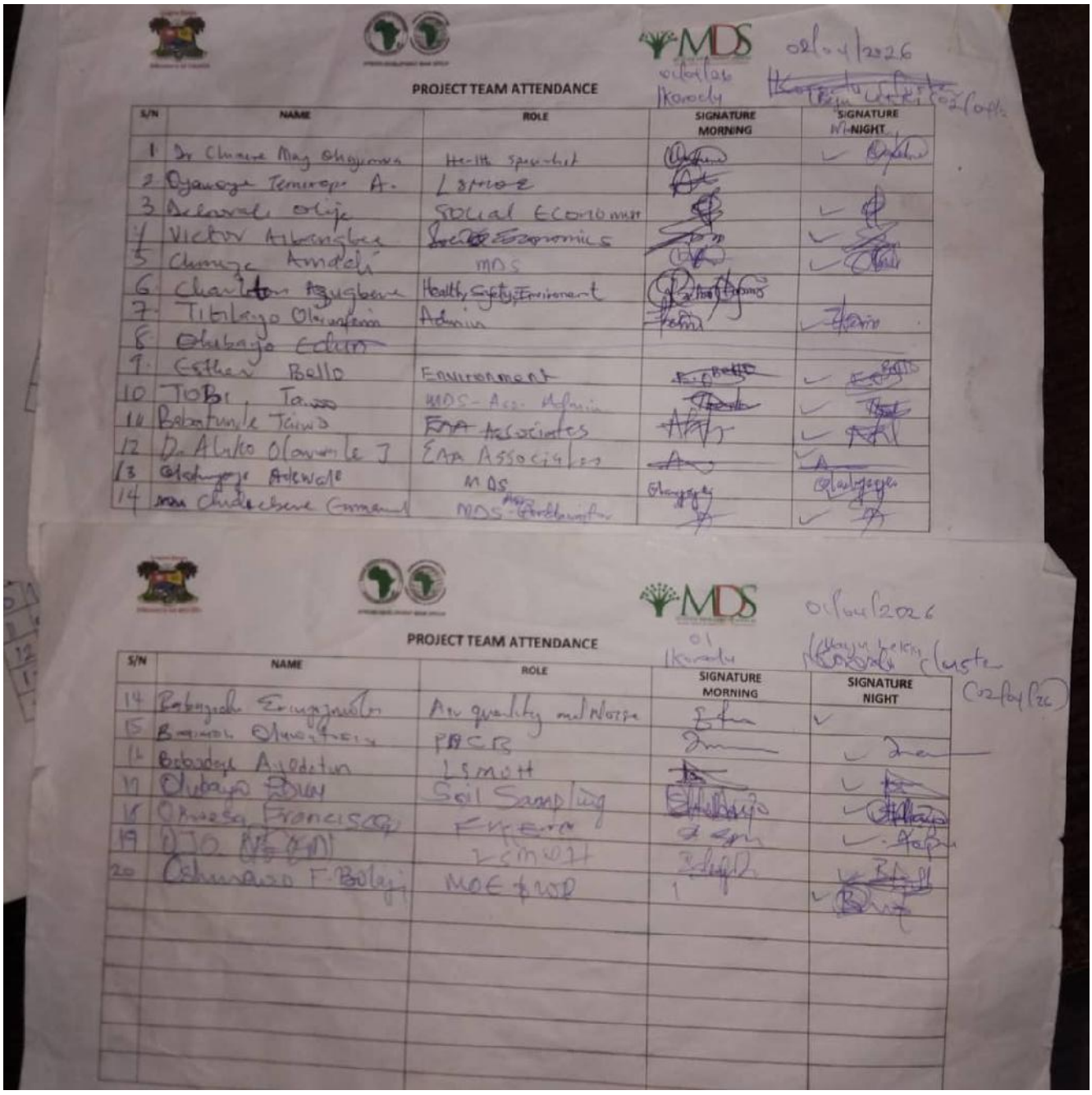
S/N	Name	Position	Signature	Date
1	Okwesa Francesca	FMEnv., Abuja		
2	Adenaike Olubunmi	FMEnv Lagos Office, (Zonal Director)		
3	Oshimowo T. Bolaji	Lagos State Ministry of Environment & Water Resources		
4	Oyawoye Anuoluwa	Lagos State Ministry of Environment & Water Resources		
5	Shittaboy Tolulope	FMEnv, Zonal Office Lagos		
6	Kehinde Biok T	FMEnv, Zonal Office Lagos		
7	Eberechukwu E.U	FMEnv, Zonal Office Lagos		
8	Engr. Braimoh	Lagos State Primary Healthcare Board		

Project Proponent / Consultant Signatories:

Name	Position	Signature	Date
[Name]	ESIA Lead Consultant, MDS		
[Name]	Project Manager, PIU		

Declaration: The undersigned confirm that the field data gathering and stakeholder engagement activities for the ESIA were conducted in accordance with FMEnv guidelines and AfDB ISS requirements.

Position	Signature	Date
ESIA Lead Consultant		
FMEnv Representative (Abuja)		
FMEnv Representative (Lagos Zonal Office)		
PIU Project Manager		



PROJECT TEAM ATTENDANCE

02/04/2026

S/N	NAME	ROLE	SIGNATURE MORNING	SIGNATURE NIGHT
1	Dr Chinere May Ohagwuwa	Health specialist		
2	Oyawoye Temitope A.	Logistics		
3	Achonwa Orije	Social Economist		
4	Victor Atbengbese	Social Economics		
5	Chinaza Amadi	MDS		
6	Charlton Agugbeme	Health, Safety, Environment		
7	Titilayo Olawunmi	Admin		
8	Olubaja Esther			
9	Esther Bello	Environment		
10	TIOBI Ta...	MDS - Acc. Admin		
11	Babatunde Taiwo	EMA Associates		
12	Dr Aluko Olawunmi J	EMA Associates		
13	Olubajo Adewale	MDS		
14	Chidiebere Emmanuel	MDS - Field Monitor		

PROJECT TEAM ATTENDANCE

01/04/2026

(02/04/26)

S/N	NAME	ROLE	SIGNATURE MORNING	SIGNATURE NIGHT
14	Babajede Emmanuel	Air quality and Noise		
15	Bamidele Oluwafemi	PACES		
16	Babadeje Ayodeton	Ismett		
17	Olubajo Bolaji	Soil Sampling		
18	Okwesa Francisca	Engineer		
19	[illegible]	Ismett		
20	Oduwaiye F. Bolaji	MOE&UD		

Appendix 9: Traffic Management Plan (TMP)

A. Purpose

This Traffic Management Plan (TMP) ensures the safe and orderly movement of vehicles, workers, and community members during the construction and refurbishment of the four PHC facilities in the **Group 3 Ikorodu Axis (Omolaiye, Eruwen, Olorunda, and Agura)**.

B. Traffic Impact by Site

Site	Baseline Traffic (AADT)	Construction Traffic (Peak)	Risk Level
Omolaiye	2,000–5,000	10–20 vehicle trips/day	Medium-High
Eruwen	500–1,000	10–20 vehicle trips/day	Medium-High
Olorunda	<500	5–10 vehicle trips/day	Low-Medium
Agura	<500	5–10 vehicle trips/day	Low-Medium

C. Mitigation Measures

1. Delivery Scheduling

- Deliver materials between **9:00 AM and 4:00 PM** (avoiding peak commuter hours: 7:00 AM – 9:00 AM and 5:00 PM – 7:00 PM).
- Schedule major concrete pours and heavy deliveries during low-traffic periods.
- Coordinate closely with local authorities regarding any temporary road restrictions or closures.

2. Signage and Communication

- Install clear warning and directional signs **200m** before construction entrances.
- Post prominent speed limit signs (**30 km/h zones**) surrounding all work sites.
- Display construction schedule notices in prominent community locations across Omolaiye, Eruwen, Olorunda, and Agura.
- Utilize variable message boards where feasible to alert motorists.

3. Traffic Control

- Deploy trained professional traffic marshals at all site entry and exit points.
- Use stop/go paddles or portable traffic control lights where single-lane operations are necessary.
- Maintain clear sightlines at all access points by eliminating visual obstructions.
- Provide safe, marked crossing points for pedestrians and school children.

4. Access Management

- Maintain unhindered access to all nearby residential homes and commercial businesses.

- Provide clear alternative routes and detour signage where roads must be temporarily narrowed or closed.
- Ensure emergency vehicle access is prioritized and maintained at all times.
- Install temporary footpaths or walkways where pedestrian pathways are disrupted.

5. Worker Transport
    - Provide designated, organized parking areas for worker vehicles off public thoroughfares.
    - Encourage carpooling and shuttle services to minimize vehicle footprint.
    - Strictly separate worker vehicle entry gates from heavy material delivery routes.
    - Enforce a **zero-parking policy** on surrounding public roads.
6. Emergency Access
    - Maintain unobstructed emergency corridors for ambulances and fire trucks.
    - Designate and clearly sign emergency access routes around each facility.
    - Provide up-to-date site layout maps to local emergency services.
    - Train all security and traffic personnel on emergency response and vehicle prioritization procedures.

D. Monitoring

Indicator	**Target**	**Frequency**	**Responsible Party**
Traffic incidents	Zero	Daily	Site Supervisor
Signage compliance	100%	Weekly	HSE Officer
Speed limit compliance	100%	Weekly	Security Lead
Community complaints	Resolved ≤ 14 days	Ongoing	CLO
Emergency access	Maintained clear	Daily	Site Supervisor

E. Contact List for Traffic Management

Role	Name	Phone Number
Site Traffic Marshal (Omolaiye)	[Name]	[Phone]
Site Traffic Marshal (Eruwen)	[Name]	[Phone]
Site Traffic Marshal (Olorunda)	[Name]	[Phone]
Site Traffic Marshal (Agura)	[Name]	[Phone]
Ikorodu LGA Traffic Department	[Name]	[Phone]
LASEMA Emergency	—	112

Appendix 10: Laboratory QA/QC Documentation

12A: Chain-of-Custody Forms (Completed forms for all samples)

12B: Laboratory Accreditation Certificate (FMEnv Certificate No. FMEnv/LAB/014)

12C: Equipment Calibration Certificates

- Aeroqual Series 500 (Calibration date: 20-22 February 2026)
- Extech 407780 Sound Level Meter (Calibration date: 22 February 2026)
- Kestrel 5500 Weather Meter (Calibration date: 20 February 2026)
- PCSTestr 35 Multi-parameter Meter (Calibration date: 22 February 2026)
- GPS Handheld Units (Calibration date: 23 February 2026)

12D: Analytical Plot-Outs and Laboratory Reports

- Air quality chromatograms and spectra
- Water quality analytical sheets
- Soil quality analytical sheets
- Microbiological culture plates (photographs)

12E: Laboratory Attestation Form (Signed by Bato Chemical Laboratories Limited)

12F: Field Attestation Register (Signed by FMEnv officials - also provided as Appendix 8)

Appendix 11 – Code of Conduct for Gender-Based Violence (Full Text)

LAGOS HEALTHCARE TRANSFORMATIVE INITIATIVE PROJECT (LHTIP) CODE OF CONDUCT FOR WORKERS BADAGRY AXIS FACILITIES

I, the undersigned, acknowledge that I am working on the LHTIP Badagry Axis facilities, which is financed by the African Development Bank (AfDB) and implemented by the Lagos State Ministry of Health (LSMoH). I understand that GBV/SEA/SH is strictly prohibited, and violations will result in serious consequences, including termination and legal prosecution.

I AGREE TO THE FOLLOWING:

1. Professional Conduct

- I will treat all community members, colleagues, and supervisors with respect and dignity.
- I will follow all safety rules and wear required PPE at all times.
- I will report any safety hazards, incidents, or GBV/SEA/SH concerns to my supervisor or the GRM.

2. Prohibited Behaviours (Zero Tolerance)

- No sexual harassment – I will not make unwelcome sexual advances, comments (jokes, whistling, catcalling), gestures, or physical contact.
- No sexual exploitation or abuse – I will not exchange money, goods, jobs, or any form of payment or favour for sex.
- No sexual activity with minors – I understand that any sexual activity with a person under 18 years of age is prohibited and is a criminal offence (statutory rape) under Nigerian law, regardless of consent.
- No forced or coerced sexual activity – I will not use force, threats, intimidation, or coercion to obtain sex.
- No intimate relationships with community members (where there is a power imbalance – e.g., supervisor with community woman seeking employment). Consensual relationships in the workplace (between peers) are permitted but must be disclosed to avoid conflict of interest.
- No fighting, intimidation, violence, or threats of violence against any person.
- No alcohol or drug use on site or during working hours (including lunch breaks). Alcohol or drug use that impairs judgment and leads to GBV is prohibited.

- No discrimination based on gender, ethnicity, religion, disability, HIV status, pregnancy, marital status, age, or political opinion.
- No bullying – I will not engage in physical, verbal, or psychological bullying.

3. Community Interaction

- I will not enter community members' homes without permission.
- I will not photograph or film community members (especially women and girls) without their explicit consent.
- I will not loiter around schools, markets, or other places where women and girls gather.
- I will respect local customs and traditions (e.g., dress modestly, avoid public displays of affection).

4. Reporting Obligations

- I will report any GBV/SEA/SH incident that I witness or become aware of (by another worker or community member) to the GRM (hotline, suggestion box, female focal point, or my supervisor).
- I understand that failure to report a known incident may result in disciplinary action.

5. Sanctions for Violations

I understand that violations of this Code of Conduct will result in sanctions, up to and including:

- Verbal warning (minor, first-time violation)
- Written warning (repeat minor violation)
- Suspension (serious violation – e.g., sexual harassment)
- Termination (gross violation – e.g., sexual exploitation or abuse, sexual activity with minor)
- Legal prosecution (criminal offences – e.g., rape, sexual activity with minor, assault)

6. Survivor-Centered Response

I understand that any survivor of GBV/SEA/SH has the right to:

- Confidentiality (their name will not be disclosed without consent)
- Safety (no retaliation)
- Respect (no victim-blaming, no judgment)
- Access to medical, psychosocial, legal, and shelter services (referral pathway)
- No requirement to report to police (if they choose not to)

7. Acknowledgment

I have read (or had read to me) and understood this Code of Conduct. I agree to abide by it. I understand that violation may result in termination and legal prosecution.

Field	Information
Full Name (print)	_____
Signature	_____
Date	_____
Position	_____
Employer (Contractor)	_____
Witness (name, signature)	_____

Distribution: Original to worker, copy to Contractor E&S Officer, copy to PIU.

Appendix 12 – General Environmental Management Conditions for Construction Contracts

General Environmental Management Conditions by Project Phase

Phase	Environmental Aspect	Management Condition / Requirement	Responsible Party	Compliance Reference
Pre-construction				
Pre-construction	Environmental Permits	Obtain all necessary permits from LASEPA, NESREA (an agency under FMEnv), and Lagos State Physical Planning Permit Authority before mobilisation.	Contractor	LASEPA Regulations 2021; FMEnv EIA Guidelines
	Environmental Impact Assessment (EIA)	For projects meeting EIA thresholds, submit an Environmental Impact Assessment report to FMEnv's EIA Department for review and approval before construction begins.	Contractor	FMEnv EIA Act Cap E12 LFN 2004

	Environmental Management Plan (EMP)	Submit a site-specific EMP for each PHC cluster or for all 29 centres, covering waste, dust, noise, water, and spills. The EMP shall be reviewed in line with FMEnv's Environmental Assessment (EA) reporting guidelines.	Contractor	Contract Clause 2.2; FMEnv EA Guidelines
	Baseline Survey	Conduct a baseline environmental survey (noise, air quality, and existing waste) at each PHC location before works begin.	Contractor / Consultant	IFC EHS Guidelines; FMEnv Standards
	Community Engagement	Notify neighbouring communities and PHC staff of construction schedule, duration, and	Contractor / Employer	Lagos State Environmental Noise Regulations

		potential nuisances.		
	Waste Management Plan	Submit a waste management plan identifying approved disposal sites for inert, non-hazardous, and hazardous waste.	Contractor	NESREA (FMEnv) Regulations
	Spill Response Plan	Submit a site-specific spill prevention and response plan, including inventory of fuel/chemicals to be stored.	Contractor	NESREA (Chemical Mgmt) Regulations
	Training Plan	Submit an environmental induction training plan for all site personnel.	Contractor	Contract Clause 2.4
	Grievance Mechanism	Establish and publicise a community grievance mechanism (phone number, logbook) before mobilisation.	Contractor	World Bank ESF / Good Practice

Construction				
Construction	Dust Control	Spray water on exposed soils and unpaved access roads at least twice daily during dry season; cover stockpiles.	Contractor	LASEPA Air Quality Guidelines; FMEnv National Air Quality Standards
	Noise Control	Restrict loud works to 7:00 AM – 6:00 PM; use silenced equipment; notify community before high-noise activities. Monitor noise levels to comply with LASEPA and FMEnv standards.	Contractor	LASEPA Noise Regulations; FMEnv Noise Standards
	Water Protection	No discharge of concrete slurry, fuel, or untreated wastewater into drains or water bodies.	Contractor	National Water Resources Regulations; FMEnv Water Quality Guidelines
	Solid Waste Management	Segregate waste at source: inert (blocks,	Contractor	NESREA (Solid Waste) Regulations;

		concrete), recyclable (metal, plastic), and general waste; dispose only at LASEPA-approved sites. FMEnv's National Plastic Waste Recycling Programme guidelines shall be followed for plastic waste.		FMEnv Plastic Waste Policy
	Hazardous Waste Management	Store used oil, paint thinners, and chemical containers in sealed, bunded, labelled containers; dispose via NESREA-licensed contractor.	Contractor	NESREA (Hazardous Waste) Regulations
	Spill Response	Maintain spill response kit on site; report any spill ≥5 litres to Engineer within 2 hours. Major spills shall also	Contractor	Contract Clause 3.5; NESREA Regulations

		be reported to FMEnv through NESREA .		
	Topsoil Management	Strip and stockpile topsoil separately for later landscaping; protect stockpiles with silt fences.	Contractor	FMEnv Land Degradation Guidelines
	Tree / Vegetation Protection	Do not clear trees ≥30 cm diameter without Engineer's approval; demarcate clearing limits.	Contractor	Lagos State Tree Preservation Regulations; FMEnv Forestry Guidelines
	Sanitation	Provide adequate toilets (1 per 15 workers) and covered bins for domestic waste from worker camps.	Contractor	Public Health Law
	Medical Waste (Refurbishment)	Do not handle existing medical waste; notify Employer for removal by authorised	Contractor / Employer	NESREA (Medical Waste) Regulations (FMEnv)

		medical waste contractor before refurbishment begins.		
	Community Safety	Fence deep excavations; lock hazardous material storage areas; maintain access to active PHC entrances.	Contractor	Contract Clause 4.3
	Traffic Management	Provide flagmen and signage at PHC access points; avoid haulage through narrow residential streets where possible.	Contractor	Lagos State Traffic Regulations
	Environmental Reporting	Submit monthly EMP implementation report, waste tracking log, and grievance log to Engineer. Copies shall be retained for potential FMEnv audit.	Contractor	Contract Clause 5; FMEnv EAR Guidelines
Operational				

Operational	Environmental Audit	Within 12 months of handover, the Employer shall conduct a post-construction Environmental Audit Report (EAR) and submit to FMEnv's EIA Department if required by permit conditions.	Employer	FMEnv Environmental Audit Guidelines
	Waste Management (PHC Operations)	After handover, the PHC operator shall segregate general waste from infectious medical waste and use NESREA-licensed medical waste disposal contractors.	Employer / PHC Operator	NESREA (Medical Waste) Regulations (FMEnv)
	Wastewater Management	Ensure that any new or refurbished PHC has functional septic tank / soakaway	Employer	Lagos State Water Regulations; FMEnv Water Quality Standards

		system or connection to public sewer.		
	Air Quality (Generator)	Standby generators shall be serviced regularly; located away from patient and community areas; exhaust directed upward. Emissions shall comply with FMEnv National Air Quality Standards.	Employer	LASEPA Air Quality Guidelines; FMEnv Air Quality Standards
	Noise (Generator / Equipment)	Generator sets shall be acoustically enclosed or placed in soundproofed rooms; noise not to exceed 55 dB(A) at night at nearest residence.	Employer	LASEPA Noise Regulations; FMEnv Noise Standards
	Hazardous / Pharmaceutical Waste	Expired drugs and pharmaceutical waste shall be stored separately	PHC Operator	NESREA (Pharmaceutical Waste) Regulations (FMEnv)

		and incinerated or disposed of by a NESREA-licensed contractor.		
	Community Relations	Maintain a grievance log for community complaints about PHC operations (noise, odour, waste).	PHC Operator	LASEPA Guidelines
Decommissioning				
Decommissioning	Decommissioning Plan	If any PHC is decommissioned in the future, a site-specific decommissioning plan shall be submitted to LASEPA and FMEnv (through NESREA) 60 days prior to works.	Future Contractor / Employer	NESREA (Decommissioning) Regulations; FMEnv Guidelines
	Hazardous Materials Inventory	Before demolition, survey for asbestos, lead paint, mercury (from old thermometers),	Future Contractor	IFC EHS Guidelines; NESREA Regulations

		and other hazardous materials.		
	Asbestos Handling	If asbestos-containing materials are found, engage a NESREA-licensed asbestos contractor for removal and disposal.	Future Contractor	NESREA (Asbestos) Regulations (FMEnv)
	Demolition Waste	Concrete, blocks, and steel shall be segregated; inert waste sent to recycling facility or LASEPA-approved landfill.	Future Contractor	NESREA (Solid Waste) Regulations
	Hazardous Waste Disposal	All hazardous waste (oils, chemicals, pharmaceuticals) shall be disposed of through a NESREA-licensed hazardous waste	Future Contractor	NESREA (Hazardous Waste) Regulations

		contractor with manifests.		
	Site Restoration	Remove all foundations, floors, and underground tanks (if any); backfill and revegetate or pave as required by land use plan.	Future Contractor	FMEnv Land Restoration Guidelines
	Final Environmental Report	Submit a closure report to LASEPA, FMEnv (through NESREA), and the Employer including waste manifests, soil test results (if contamination suspected), and confirmation of restoration.	Future Contractor	LASEPA Regulations; FMEnv Closure Reporting Guidelines

Appendix 13 – Socio-Economic Data Collection Instruments

SOCIO-ECONOMIC SURVEY QUESTIONNAIRE

Environmental and Social Impact Assessment (ESIA) – Health Facilities, Lagos State

SECTION A: IDENTIFICATION AND LOCATION (Baseline Data)

Questionnaire ID: _____ Date: _____

Enumerator Name: _____

LGA: _____

Ward/Community: _____

Street/Area Name: _____

GPS Coordinates: _____ _____

Settlement Type:

Urban Formal _____

Urban Informal (Slum) _____

Peri-Urban _____

SECTION B: RESPONDENT DEMOGRAPHICS

Gender: Male : _____ Female _____

Age: _____

Marital Status: Single [ ] Married [ ] Widowed [ ] Divorced [ ]

Education Level:

None [ ] Primary [ ] Secondary [ ] Tertiary [ ] Vocational [ ]

Occupation: _____

Length of Stay in Community: <1 year [ ] 1–5 years [ ] >5 years [ ]

SECTION C: HOUSEHOLD SOCIO-ECONOMIC PROFILE (ESS1)

Household Size: _____

Vulnerable Members (tick all that apply):

Children under 5 [ ]

Elderly (60+) [ ]

Persons with Disabilities [ ]

Pregnant/Nursing Mothers - [ ]

Chronically iIl … [ ]

Housing Type:

Permanent -- [ ]

Semi-permanent -- [ ]-

Temporary -- [ ]

Tenure Status:

Owner [ ]

Tenant - [ ]-

Informal/No Title [ ]

Monthly Household Income (₦):

<50,000 ---------- [ ]

50,000–100,000 ---------- [ ]

100,000–200,000 ---------- [ ]-

>200,000 ---------- [ ]

SECTION D: ACCESS TO BASIC SERVICES (ESS1 & ESS4)

ServiceMain Source	Reliability (Good	Fair	Poor
Drinking Water			
Electricity			
Sanitation			
Waste Disposal			

SECTION E: HEALTHCARE ACCESS & UTILIZATION (ESS1 & ESS4)

Nearest Health Facility: Distance: <1 km [ ] 1–5 km [ ] >5 km [ ]

Primary Health Facility Used:

Public ---------- [ ]

Private---------- [ ]

Pharmacy/Chemist ------[ ] -

Traditional [ ]

Average Travel Time to Facility:

<15 mins [ ] 15–30 mins: [ ] , 30–60 mins: -[ ] -, >1 hour: [ ]

Mode of Transport:

Walking……..[ ]

Okada……[ ]

Keke …….[ ]

Bus…….[ ]

Private Car……. [ ]

Key Barriers to Access (tick all):

Cost ……..[ ]

Distance……[ ]

Traffic congestion…….[ ]

Poor road condition……..[ ]

Safety concerns……..[ ]

Facility overcrowding ….[ ]

Average Monthly Health Expenditure (₦): _____

SECTION F: TRAFFIC AND ACCESS CONSTRAINTS

Community Health & Safety)

What is the road condition leading to the nearest health facility?

Good (paved, motorable year-round) [ ]

Fair ……[ ]

Poor (frequent flooding, potholes, inaccessible)….[ ]

Do you experience traffic congestion when accessing healthcare?

Yes (Severe)

Yes (Moderate)

No ( )

Average delay due to traffic:

<15 mins ----------[ ]

15–30 mins ---------[ ] -

30–60 mins ---------[ ]

>1 hour ----------[ ] ----

Are there transport safety risks?

Road accidents ----------[ ]

Reckless driving----------[ ]

Lack of pedestrian walkways --[ ]

Poor street lighting ----------[ ]

Security risks ----------[ ]

Emergency access:

Can ambulances reach your area easily?

Yes ----------[ ]

No ----------[ ]

Sometimes ------[ ]

Key access challenges (open-ended):

SECTION G: COMMUNITY HEALTH AND SAFETY RISKS

Common environmental/public health risks (Tick all that apply):

Flooding ----------[ ]

Poor drainage ----------[ ]

Waste accumulation ……[ ]

Air pollution ……[ ] .

Noise ……[ ] .

Have you experienced any of the following?

Disease outbreaks ----------[ ]

Industrial pollution ----------[ ] ----

Traffic accidents ----------

Perceived risks from proposed health facility:

Increased traffic ----------[ ]

Noise ----------[ ]

Medical waste ----------[ ]

Influx of people----------[ ]

SECTION H: STAKEHOLDER ENGAGEMENT & AWARENESS

Awareness of Project:

Yes ----------[ ]

No ----------[ ]

Source of Information:

Community leaders ----[ ]

Government -------[ ]

Media ----------[ ] -

Others (Specify) ----------

Have you been consulted?

Yes ----------[ ]

No ----------[ ]

Preferred engagement method:

Town hall meetings --------[ ]

Focus group discussions ( )

SMS/Phone ( )

Social media ( )

SECTION I: PROJECT PERCEPTION

Do you support the project?

Yes ( )

No ( )

Undecided ( )

Expected Benefits:

Improved access ( )

Employment ( )

Reduced travel time ( )

Better emergency response ( )

Key Concerns:

Land acquisition ( )

Traffic congestion ( )

Noise ( )

Waste management ( )

SECTION J: GRIEVANCE REDRESS MECHANISM

Awareness of grievance channels:

Yes ( )

No ( )

Preferred reporting channel:

Community leader ( )

Phone hotline ( )

Health facility desk ( )

Suggestion box ( )

Online ( )

Willingness to use GRM:

Yes ( )

No ( )

SECTION K: VULNERABLE GROUPS & INCLUSION

Do vulnerable groups face barriers to healthcare?

Yes ( )

No ( )

Type of barriers:

Cost ( )

Mobility constraints ( )

Discrimination ( )

Cultural factors ( )

SECTION L: SUGGESTIONS & MITIGATION MEASURES

Suggested improvements for health facility planning:……
……
……..

Measures to reduce traffic/access challenges:……
……
……..
Measures to enhance community safety:……
……
……

SECTION M: INFORMED CONSENT

Participation is voluntary and confidential

Do you consent?

Yes ( )
No ( )

Signature/Thumbprint: _____

FOCUS GROUP DISCUSSION (FGD) GUIDE

Lagos State Health Facilities Upgrade/Development Project (ESIA)

1. FGD SETTING

1.1 Venue Selection

FGDs should be conducted in:

Neutral, safe, and accessible locations within the community (e.g., community halls, health facilities, schools, religious centres)
Locations convenient to participants (markets for traders, waterfront spaces for riverine communities, etc.)
Quiet environments with minimal disruption

1.2 Group Composition

Each FGD should consist of:

- 8–12 participants (optimal for effective interaction)
- Homogeneous groups to encourage free discussion:
- Women (especially caregivers and traders)
- Youth (male/female groups where necessary)
- Elderly persons
- Persons with Disabilities (PWDs)
- Urban poor/informal settlement residents
- Riverine communities

1.3 Language

Conduct discussions in:

- English
- Yoruba
- Nigerian Pidgin
- Use interpreters where necessary

1.4 Duration

- 15–20 minutes per session

1.5 Materials

- FGD guide (this document)
- Notepads and pens
- Audio recorder (with consent)
- Attendance register
- Consent forms

1.6 Facilitation Team

- Lead facilitator (moderator)
- Note-taker/rapporteur

- Community mobilizer (where needed)

2. FGD STRUCTURE

2.1 Introduction (2–5 minutes)

Facilitator should:

- Introduce the team and purpose of the discussion
- Explain the ESIA and project in simple terms
- Assure participants of:
- Confidentiality
- Voluntary participation
- No right or wrong answers
- Obtain informed consent
- Set ground rules:
- Respect for all opinions
- One person speaks at a time
- No interruptions

2.2 Icebreaker Session (2 minutes)

- Ask participants to briefly introduce themselves:
- Name (optional)
- Occupation
- Length of stay in community

2.3 Core Discussion (10– 15 minutes)

(Organized into thematic areas aligned with ESF)

2.4 Wrap-Up and Closing (3 minutes)

- Summarize key points
- Ask if anything was missed
- Provide information on grievance channels
- Thank participants

3. TYPES OF QUESTIONS

Questions should be open-ended, probing, and participatory, grouped into thematic areas:

3.1 COMMUNITY PROFILE & LIVELIHOODS (ESS1)

- Can you describe this community and how long people have lived here?
- What are the main occupations of people here?
- Are there differences in income levels across the community?
- Are there particular groups considered vulnerable? Why?

Probes:

- Migrants?
- Slum dwellers?
- Female-headed households?

3.2 HEALTH-SEEKING BEHAVIOR

- Where do people usually go when they are sick?
- What influences your choice of health facility (public/private/traditional)?
- Are there differences in health-seeking behavior among men, women, and youth?

Probes:

- Cost
- Distance
- Waiting time
- Quality of care

3.3 ACCESS TO HEALTHCARE SERVICES (ESS4)

- What challenges do you face in accessing healthcare facilities?
- How far is the nearest health facility?
- How does traffic or transportation affect access to care?
- Are services affordable?

Lagos-Specific Probes:

- Traffic congestion
- Flooding during rainy season
- Overcrowding in hospitals
- Availability of drugs

3.4 MATERNAL AND CHILD HEALTH (for women groups)

- What challenges do women face during pregnancy and childbirth?
- Do women prefer public or private facilities? Why?
- Are there cultural or financial barriers?

3.5 YOUTH AND ADOLESCENT HEALTH

- What are the common health issues affecting young people here?
- Do youth have access to reproductive health services?
- Are there barriers (stigma, cost, lack of information)?

3.6 VULNERABILITY AND SOCIAL INCLUSION (ESS1 & ESS10)

- Which groups in this community face the most difficulty accessing healthcare?
- How do persons with disabilities access health services?
- Are migrants or informal settlers treated differently?

3.7 PERCEPTION OF EXISTING HEALTH FACILITIES

- What do you think about the current health facilities?
- What are the major problems with these facilities?

Probes:

- Staff attitude
- Waiting time
- Equipment availability
- Cleanliness
- Power/water supply

3.8 PROJECT AWARENESS AND PERCEPTION (ESS10)

- Are you aware of the proposed health facility upgrade/development project?
- What are your expectations from this project?
- What benefits do you think it will bring?

3.9 POTENTIAL IMPACTS OF THE PROJECT

- Positive Impacts
- How will improved health facilities benefit you?
- Negative Impacts
- Are there any concerns about the project?

Probes:

- Construction disturbances (noise, dust)
- Traffic disruptions
- Safety risks
- Increased cost of services

3.10 COMMUNITY HEALTH AND SAFETY (ESS4)

- What safety concerns do you have regarding health facilities?
- How can patient safety be improved?

Probes:

- Infection control
- Emergency response
- Waste disposal

3.11 GRIEVANCE REDRESS MECHANISM (GRM)

- If you have a complaint about a health facility, where do you go?
- Are you aware of any complaint systems?
- How would you prefer to report complaints?

Probes:

- Phone/SMS

- Community leaders
- Facility desks

3.12 RECOMMENDATIONS AND EXPECTATIONS

- What improvements would you like to see in health services?
- What advice do you have for the project team?

4. SPECIALIZED QUESTION ADAPTATIONS BY GROUP

- Women
- Cost of delivery services
- Availability of female health workers
- Cultural/religious considerations
- Urban Poor / Informal Settlements
- Affordability
- Informal providers (chemists, PMVs)
- Distance and transport barriers
- PWDs
- Physical access (ramps, signage)
- Staff attitudes
- Special assistance needs
- Riverine Communities
- Water transport challenges
- Emergency response delays

5. FACILITATION TECHNIQUES

- Use probing questions (“Can you explain further?”)
- Encourage quieter participants
- Avoid leading questions
- Manage dominant participants
- Use real-life examples

6. DOCUMENTATION AND OUTPUTS

- Each FGD should produce:
- Participant profile summary
- Key discussion themes
- Direct quotes (where relevant)
- Major concerns and expectations
- Gender and vulnerability insights

7. ETHICAL CONSIDERATIONS

- Obtain informed consent
- Ensure anonymity in reporting
- Avoid sensitive/personal health disclosures
- Be culturally respectful

Appendix 14: Chance Finds Procedure (CFP)

Lagos State Health Transformative Initiative Project (LHTIP)

1. Purpose and Objective

The objective of this Chance Finds Procedure is to provide clear, step-by-step instructions for project contractors, site supervisors, and workers on how to handle accidental discoveries of cultural heritage, archaeological artifacts, human remains, or structures of historical/religious significance during project excavation and construction works.

This procedure ensures compliance with national heritage laws and international safeguards (such as World Bank / AfDB standards on physical cultural resources) by preventing unauthorized damage, destruction, or removal of historical assets.

2. Scope

This procedure applies to all LHTIP construction, excavation, trenching, demolition, and site-clearing activities across all project axes and primary healthcare facility sites (including Ibereko, Gberefu, Agboyi, and other project locations).

3. Definition of "Chance Find"

A chance find refers to any physical object, structure, artifact, site, or human remains of historical, archaeological, cultural, or religious value that is uncovered unexpectedly during ground-disturbing works. Examples include:

- Pottery fragments, coins, tools, or metal implements.
- Human skeletal remains or burial sites.
- Historic building foundations, old wells, walls, or structural ruins.
- Carved stones, shrines, sacred trees, or ritual objects.

4. Step-by-Step Procedure

Step 1: Immediate Cessation of Work

- In the event of a chance find, the site worker, machine operator, or supervisor must **immediately stop all work, excavation, or heavy machinery operation** within a minimum radius of **10 to 15 meters** of the discovery point.
- Work in other unaffected areas of the site may continue, provided it does not threaten the integrity of the find.

Step 2: Securing the Area

- The Site Supervisor/Contractor's Environmental & Social (E&S) Officer must immediately secure the perimeter using temporary warning tape, fencing, or physical barriers.

- Unauthorized entry, removal, handling, or cleaning of the objects by workers or third parties is strictly prohibited.

Step 3: Notification and Reporting (Within 24 Hours)

- The Contractor's E&S Officer must notify the **Project Implementation Unit (PIU) E&S Safeguards Team** within **24 hours** of the discovery.
- The PIU will formally notify relevant statutory heritage bodies, such as the **National Commission for Museums and Monuments (NCMM)** or the **Lagos State Ministry of Tourism, Arts and Culture**, depending on the nature of the find.

Step 4: Expert Assessment and Inspection

- Qualified cultural heritage specialists, archaeologists, or designated state heritage representatives will be deployed to inspect the site and evaluate the significance of the find.
- Based on expert recommendations, the PIU will determine whether the find requires:
    - Preservation in situ (avoiding the area through minor design shifts).
    - Rescue excavation, cataloging, and controlled salvage by professionals.
    - Release of the area for continued works.

Step 5: Resumption of Work

- Construction and excavation work within the cordoned zone may only resume after:
    - The designated heritage authorities or specialists have granted formal clearance.
    - The PIU issues an official "Notice of Work Resumption" to the contractor.

5. Roles and Responsibilities

Stakeholder	Responsibilities
Site Workers & Equipment Operators	Immediately halt work upon encountering suspicious artifacts, remains, or structures; report to the Site Supervisor.
Contractor E&S Officer	Secure the discovery area, prevent unauthorized access, document the find coordinates/photos, and notify the PIU within 24 hours.
Project Implementation Unit (PIU)	Coordinate with statutory heritage authorities (NCMM/State agencies), mobilize experts for evaluation, and manage stakeholder communication.
Heritage Experts / Authorities	Inspect, authenticate, and determine the preservation, salvage, or clearance requirements for the discovered items.

6. Awareness and Training

- **Induction Training:** All construction workers, supervisors, and subcontractors must undergo brief awareness training during site inductions on how to recognize potential cultural or archaeological assets and understand this CFP.
- **Toolbox Talks:** Periodic safety and environmental toolbox talks must reinforce chance find protocols, particularly during deep excavation or trenching phases.