Environmental and Social Impact Assessment for PHC Facilities

Lagos State Health Infrastructure Project (LSHIP)

Group 2 – Mainland Axis

Isolo, Oba Salami, Ojodu, and Otumara Primary Health Centres

By

Lagos State Ministry of Health (LSMoH)
Project Implementation Unit (PIU)

Submitted to

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Document Information Matrix

Environmental and Social Impact Assessment for Lagos State Health Infrastructure Project (LSHIP) – Group 2 – Mainland Axis

Isolo, Oba Salami, Ojodu, and Otumara Primary Health Centres

Item	Details
Project Title	Environmental and Social Impact Assessment (ESIA) for Primary Healthcare (PHC) Facilities – Mainland Axis (Group 2)
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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Confidentiality Note	Not for citation or regulatory approval until final version is issued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 Mainland Axis (Group 2) comprises four PHC facilities:

- Isolo PHC
- Oba Salami PHC
- Ojodu PHC
- Otumara 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) – Mainland Axis (Group 2) 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: _____

FMEnv Registration No.: _____

Signature: _____

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) – Mainland Axis (Group 2) 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), the Lagos State Environmental Protection Agency (LASEPA), the African Development Bank (AfDB), and other 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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For guidance, participation in field verification, and support during the environmental assessment process.

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For technical input, environmental compliance guidance, and coordination with state regulatory systems.

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Local Government Authorities (LGAs/LCDAs)

- Oshodi-Isolo LGA and Isolo LCDA
- Lagos Mainland LGA and Yaba LCDA
- Ikeja LGA and Ojodu LCDA

For facilitating community access, stakeholder engagement, and verification of local baseline conditions.

Community stakeholders, including traditional leaders (Obas, Baales), 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
CR	Critically Endangered
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
EN	Endangered
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
TBD	To Be Decided
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
VU	Vulnerable
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 10 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 2 — Mainland Axis, comprising four (4) PHC facilities located within the high-density metropolitan environment of the Mainland and Yaba environs:

PHC Facility	Location / Axis	Project Type
Ojodu PHC	Mainland Axis	New Construction
Otumara PHC	Mainland Axis	New Construction
Isolo PHC	Mainland Axis	Refurbishment
Oba Salami PHC	Mainland Axis	Refurbishment



Figure ES 1: Map of the Project Locations

ES.1.2 Project Rationale

The Mainland Axis is a densely built metropolitan core characterised by a commercial-residential mix, heavy traffic congestion, and ageing infrastructure. Existing PHCs face urban congestion, spatial constraints, heavy stormwater runoff pressures, and structural deterioration. The project directly responds to these deficits by:

- Improving access to quality primary healthcare for urban low-income and vulnerable populations
- Upgrading structural integrity, municipal stormwater drainage, sanitation, and waste management systems within constrained urban footprints
- Ensuring continuity of essential health services during and after construction
- Strengthening climate resilience through green building design, solar PV systems, and urban flood mitigation measures

ES.1.3 Project Classification

The LSHIP is classified as:

Classification	Category	Requirement
AfDB	Category 1 (High Risk)	Full ESIA required under ISS
FMEnv	Category I	Full ESIA required under EIA Act CAP E12 LFN 2004

This classification reflects the project's multi-site footprint, urban traffic and social disruptions, potential involuntary resettlement, presence of hazardous materials (such as ageing structures requiring asbestos management), and the scale of construction activities in dense metropolitan communities.

ES.1.4 ESIA Objectives

The overarching objective of this ESIA is to serve as the principal due diligence instrument for the LSHIP Group 2 facilities. Specifically, this report:

- Establishes comprehensive baseline conditions for the four PHC sites across the Mainland Axis
- Identifies and assesses all potential environmental and social impacts unique to dense urban construction
- Develops clear, actionable, site-specific mitigation measures
- Prepares safeguard instruments including ESMPs, HMWMP, and GBV Action Plans

- Demonstrates full compliance with AfDB ISS, FMEnv EIA Act, and international good practice
- Supports informed decision-making by regulators, financiers, and stakeholders

ES.2 PROJECT DESCRIPTION

ES.2.1 Project Components — Mainland Axis

The Mainland Axis project components comprise:

Component	Description
New Construction	Two (2) new facilities constructed at Ojodu and Otumara
Refurbishment	Two (2) existing PHCs upgraded to Comprehensive Health Centre standards at Isolo and Oba Salami
Infrastructure	Solar PV systems, boreholes, septic tanks, and medical waste treatment facilities
Access Improvements	Upgraded access roads, pedestrian safety features, and drainage within PHC premises

ES.2.2 Design Features

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

Feature	Description
Solar PV Systems	Battery storage (24–48 hours backup)
Rainwater Harvesting	5,000–10,000 L storage per PHC
Cool Roofs	Reflective coating, heat-resistant materials
Natural Ventilation	Cross-ventilation design, louvred windows
Disability-Friendly Design	Ramps, wide doorways, accessible toilets

Feature	Description
Oversized Urban 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, structural/asbestos surveys, design, permitting, contractor procurement
Construction	12–24 months	Demolition (where applicable), 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:

Legislation	Key Requirement

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)

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	Urban livelihood restoration frameworks
OS6 — Biodiversity and Ecosystem Services	Critical habitat screening, offsets	Urban tree preservation, runoff management
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 Healthcare 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	Mainland Axis (Ojodu, Otumara, Isolo, Oba Salami) — built-up metropolitan terrain, heavily paved surfaces
Climate	Humid tropical (Köppen: Aw); bimodal rainfall (1,500–1,800 mm/year); 26–35°C
Air Quality	PM_{10}: 75–110 µg/m³; $PM_{2.5}$: 35–55 µg/m³ — elevated due to heavy urban traffic and commercial activities
Noise	Daytime: 58–72 dB(A); Night-time: 48–60 dB(A) — frequently exceeding ambient limits
Water Quality	Municipal and groundwater sources require treatment; localised risk of urban surface runoff contamination
Geology	Coastal plain sands and sedimentary formations overlain by urban fill materials
Erosion Risk	Medium in constrained drainage channels and unpaved site perimeters
Flood Risk	High at Otumara and Isolo drainage bottlenecks; Medium at Ojodu and Oba Salami

ES.4.2 Biological Environment

Aspect	Findings
Vegetation	Highly modified urban environment; sparse ornamental trees, roadside grasses, and landscaped vegetation
Sensitive Ecosystems	Modified urban drainage channels and canal interfaces (e.g., near Otumara)
Critical Habitat	None identified within project footprints

Notable Species	Common urban avifauna (egrets, pigeons, crows) and rodents; no rare or endemic wildlife species
Ecosystem Services	Urban microclimate moderation, municipal stormwater drainage routing, and localised commercial activities

ES.4.3 Socio-Economic Environment

Aspect	Findings
Population	500,000–1,000,000+ residents across dense urban catchment areas
Livelihoods	Commercial trading, formal/informal employment, transportation services, and artisan works
Land Tenure	Government-owned/allocated institutional health facility land
Resettlement	Temporary economic displacement of informal roadside traders during construction access upgrades
Vulnerable Groups	Low-income urban households, women-headed households, elderly individuals, and persons with disabilities
GBV Risk	High (dense urban population influx, high mobility corridors, multi-ethnic workforce)
Cultural Heritage	No recorded heritage sites within 100 m; chance-find procedures established

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:

- Otumara — Urban tidal and flash flooding
- Isolo — Stormwater accumulation and traffic congestion
- Ojodu — Heat island effect and runoff surges
- Oba Salami — Spatial constraints and drainage bottlenecks

ES.4.5 Community Perception

Stakeholder consultations conducted across the four Mainland Axis PHC communities indicated:

Aspect	Finding
Project Support	85% strong support
Positive Expectations	Upgraded maternal healthcare, modern diagnostic facilities, employment opportunities
Key Concerns	Urban traffic disruption, dust, noise, construction safety, informal trading space management
Status	All concerns integrated into ESMP, TMP, SEP, and GRM

ES.5 KEY ENVIRONMENTAL AND SOCIAL IMPACTS

ES.5.1 Summary of Unmitigated Impacts (Group 2 — Mainland Axis)

Site	Impact Category	Impact Description	Significance
Isolo & Oba Salami	Hazardous Materials	Asbestos exposure from uncontrolled removal of legacy ACM (fibre release >0.1 f/ml)	Critical
Otumara	Flood & Drainage Risk	Severe urban stormwater accumulation and tidal flooding risks	Critical
Oba Salami & Ojodu	Socio-Economic	Economic displacement of informal roadside traders and vendors	Major
All Mainland Sites	GBV/SEA/SH	Gender-based violence, sexual exploitation, abuse, and harassment risks	Major
All Mainland Sites	Community H&S	Traffic congestion, pedestrian safety hazards, disruptions	Major
All Mainland Sites	Water Quality	Urban runoff contamination from sediment, fuel/oil spills, concrete wash water	Major
All Mainland Sites	Air Quality	Dust (PM_{10}, $PM_{2.5}$) and gaseous emissions	Moderate

ES.5.2 Key Beneficial Impacts

Benefit	**Quantification**
Healthcare access	~500,000+ residents served by the 4 Mainland PHCs
Maternal mortality reduction	Estimated 20–30% reduction across catchment
Under-five mortality reduction	Estimated 25–35% reduction
Direct jobs created	160–320 jobs during construction
Indirect jobs	Estimated 300–500 urban supply chain and service jobs
GHG emissions reduction	250–500 tCO_2e/year through solar PV integration
Diesel savings	60,000–120,000 litres/year

ES.6 ANALYSIS OF ALTERNATIVES

Alternative	Assessment	Conclusion
No-Project Alternative	Continued poor healthcare quality, urban decay, spatial constraints, unaddressed safety risks	Rejected — unacceptable
Alternative Sites	Assessed across Mainland corridor; rejected due to prohibitive land costs, space scarcity, severe displacement risks	Preferred — utilising existing government/institutional land
Conventional Design	Higher operating costs, reliance on unreliable power, higher GHG emissions, no climate resilience	Rejected
Green Building Design	Lower operating costs, enhanced climate resilience, improved thermal comfort, alignment with climate action plans	Preferred
Diesel Generators	High operating cost, severe urban air pollution, increased GHG emissions	Rejected
Solar PV + Battery	Low operating cost, zero local emissions, reliable emergency power, urban climate resilience	Preferred

Open Burning of Waste	Severe urban air pollution, acute health risks, violation of environmental laws	Rejected
WHO-Compliant HMWMP	Protects workers, communities, environment; complies with international and national standards	Preferred

ES.7 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

ES.7.1 Key Mitigation Measures (Group 2 — Mainland Axis)

Impact	Mitigation Measure	Responsibility
Asbestos	Licensed abatement, wet removal, HEPA containment, continuous air monitoring (≤0.1 f/ml)	Specialist Contractor
Urban Flood Risk	Oversized drainage channels, detention basins, elevation of critical electrical installations	Contractor / PIU
GBV/SEA/SH	Code of Conduct, mandatory training, confidential GRM, clinical referral pathways	Contractor / PIU / GBV Specialist
Labour Influx	Worker camp controls, local hiring targets (≥50%), signed Codes of Conduct	Contractor
Traffic Safety	Traffic marshals, speed limits, signage, coordinated diversion routes	Contractor
Erosion & Runoff	Silt fences, interceptor drains, slope stabilisation, stormwater barriers	Contractor
Water Quality	Sediment traps, bunded fuel storage, emergency spill kits	Contractor
Medical Waste	WHO colour-coded segregation, autoclave sterilisation, LAWMA disposal	Facility Operator
Dust	Water spraying, covering stockpiles, tarpaulin-sealed transport trucks	Contractor
Noise	Acoustic barriers, scheduling noisy activities, equipment mufflers/silencers	Contractor

ES.7.2 Monitoring Plan

Parameter	Indicator	Frequency	Trigger

Air Quality	PM_{10}, $PM_{2.5}$	Daily / Weekly	>50 µg/m³ (PM_{10}), >25 µg/m³ ($PM_{2.5}$)
Asbestos	Airborne fibres	Continuous during abatement	>0.1 f/ml
Noise	Leq dB(A)	Weekly	>55 dB(A) (Daytime)
Water Quality	TSS, pH, hydrocarbons	Monthly	TSS >30 mg/L or presence of hydrocarbons
Erosion	Silt fence / drain condition	Weekly	Any structural damage or sediment overflow
Waste Segregation	% correct segregation	Daily	<90% compliance
GBV Training	% workers trained	Monthly	<100% completion
GRM	% cases resolved ≤14 days	Monthly	Any unresolved grievance past 14 days

ES.7.3 Institutional Responsibilities

Entity	Role
PIU (LSMoH)	ESMP oversight, contractor compliance monitoring, GRM management, reporting to AfDB
Contractor	CESMP implementation, monitoring, OHS, GBV risk management, community liaison
Facility Operator	Operational ESMP execution, HMWMP enforcement, IPC, wastewater management
IESM	Independent quarterly audits and regulatory compliance verification
FMEnv / LASEPA	Regulatory oversight, permit issuance, periodic environmental inspections
AfDB	Safeguard supervision, review of monitoring reports, compliance enforcement

ES.7.4 ESMP Budget (Group 2 — Mainland Axis)

The ESMP budget totals ₦305,000,000 (US$203,333), covering all environmental, social, monitoring, compliance, climate-resilience, and grievance-redress measures required for the four Group 2 PHCs. This includes site-specific mitigation actions, environmental monitoring,

asbestos management, climate-resilient design features, labour-influx and GBV/SEA/SH controls, stakeholder engagement, and full implementation of the GRM across Isolo, Ojodu, Oba Salami, and Otumara as shown below:

Site	**Construction Phase (₦)**	**Construction Phase (US$)**	**Annual Operational (₦)**	**Annual Operational (US$)**
Isolo PHC	80,000,000	53,333	9,000,000	6,000
Ojodu PHC	78,000,000	52,000	8,500,000	5,667
Oba Salami PHC	74,000,000	49,333	8,000,000	5,333
Otumara PHC	73,000,000	48,667	7,500,000	5,000
TOTAL	**305,000,000**	**203,333**	**33,000,000**	**22,000**

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 municipal landfill
Infectious Waste	Yellow	Autoclave sterilisation → landfill
Sharps	Red	High-temperature incineration
Pharmaceutical Waste	Brown	Return to manufacturer / specialised incineration
Chemical Waste	Blue	Licensed hazardous waste contractor
Asbestos	Special label	Designated hazardous waste landfill cell

ES.8.2 Key Monitoring Indicators

Indicator	Target	Frequency	Responsible
Asbestos air monitoring (Isolo, Oba Salami)	≤0.1 f/ml	Continuous during abatement	Specialist Contractor
PM_{10}, $PM_{2.5}$ (all Mainland sites)	≤50 µg/m³, ≤25 µg/m³	Daily	Contractor
Noise (all sites)	≤55 dB(A)	Weekly	Contractor
Urban drainage integrity	No blockage or overflow	Weekly	Contractor
Water quality (Mainland runoff points)	TSS ≤30 mg/L; no hydrocarbons	Monthly	Contractor
GBV training completion	100% of workers trained	Monthly	Contractor
GBV cases resolved	100% within 14 days	Monthly	PIU
Local hiring (unskilled)	≥50% from local LGAs	Monthly	Contractor
RAP implementation	100% PAPs addressed	Monthly	PIU
OHS PPE compliance	≥95% adherence	Daily	Contractor
Community satisfaction	≥80% satisfied	Quarterly	PIU / IESM

ES.8.3 Asbestos Management

Requirement	Detail
Inspection	Asbestos abatement at Isolo (confirmed) and Oba Salami (confirmed) PHCs
Abatement	Licensed contractor using wet removal, HEPA-filtered negative pressure vacuums, continuous air monitoring
Clearance Threshold	≤0.01 f/ml prior to re-occupancy or construction clearance
Disposal	Certified hazardous waste disposal at approved landfill with chain-of-custody manifests

ES.8.4 Occupational Health and Safety for Waste Handlers

Measure	Detail
PPE	Heavy-duty gloves, safety boots, aprons, eye protection, P3 respirators (asbestos handlers)
Vaccinations	Hepatitis B immunization, tetanus boosters
Needle-Stick Protocol	Post-Exposure Prophylaxis (PEP) within 72 hours
Health Surveillance	Annual medical examinations for all waste-handling personnel

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

ES.9.1 Risk Assessment (Group 2 — Mainland Axis)

Site	Key GBV/SEA/SH Risks	Risk Level
Ojodu	High traffic corridors, market proximity, dense population influx, substance abuse	Medium–High
Otumara	Waterfront interface, isolated access paths, poor lighting, high socio-economic vulnerability	Medium–High

Isolo	Heavy commercial activity, transport nexus, multi-ethnic workforce influx	Medium–High
Oba Salami	Dense urban residential-commercial mix, constrained site boundaries, movement bottlenecks	Medium

ES.9.2 Prevention Measures

Measure	Description
Code of Conduct	Zero tolerance for GBV/SEA/SH; signed by all workers, subcontractors, and security personnel
Worker Training	Formal induction + monthly toolbox talks on ethical conduct and boundaries
Community Awareness	Quarterly sensitisation sessions with women's groups, youth associations, community leaders
Safe Recruitment	Prohibition of minors; background checks; gender-balanced hiring (≥20% female workforce)
Improved Lighting	Solar-powered perimeter lighting around PHC construction sites and primary access paths
Safe Spaces	Confidential consultation rooms integrated into PHC designs; collaboration with women's support centres

ES.9.3 Response Measures

Measure	Description
Survivor-Centred Protocol	Guaranteed confidentiality, physical safety, respect, zero retaliation
Reporting Channels	Toll-free hotline (SMS/WhatsApp), confidential suggestion boxes, trained female GRM focal points
Referral Pathways	Immediate medical support (PEP within 72 hours), psychosocial counselling, legal aid, safe shelter
Sanctions	Progressive discipline: Warning → Suspension → Termination → Legal prosecution
GRM	48-hour acknowledgment; 14-day resolution for standard grievances

ES.9.4 Monitoring Indicators

Indicator	Target	Frequency
Workers trained	100%	Monthly
Community members reached	≥60%	Quarterly
GBV cases resolved ≤14 days	≥90%	Monthly
CoC compliance	100%	Monthly
Survivor satisfaction	≥80%	Quarterly

ES.10 STAKEHOLDER ENGAGEMENT AND GRIEVANCE REDRESS MECHANISM

ES.10.1 Stakeholder Consultation Activities

Activity	Number	Participants
Community meetings	6	Diverse community members (48% women) across Mainland Axis
Focus Group Discussions	3	Women's groups, youth associations, elderly residents
LGA health authority meetings	2	Local government health officials, PHC board directors
LASEPA meeting	1	State environmental regulatory officials

ES.10.2 Key Concerns Raised by Stakeholders

Concern	Response
Disruption of urban traffic and access	Comprehensive Traffic Management Plan; maintained pedestrian/emergency access
Medical and construction waste management	Strict HMWMP enforcement; LAWMA-certified disposal contracts
Employment opportunities for locals	≥50% local hiring target enforced across all Mainland packages
Safety of children and pedestrians	Secure perimeter fencing, warning signage, active CLOs
Drainage and flood mitigation	Oversized stormwater channels and sediment control traps

Asbestos legacy risks	Licensed abatement, wet removal, continuous air monitoring (Isolo, Oba Salami)
GBV/SEA/SH risks	Enforced Code of Conduct, confidential reporting channels, clinical referral pathways

ES.10.3 Grievance Redress Mechanism (GRM)

Feature	Description
Entry Points	Toll-free hotline, suggestion boxes, CLOs, female GRM focal points
Acknowledgement	Within 48 hours of receipt
Resolution	Within 14 days (Level 1); 21 days (final appeal)
Tiered System	PHC level → LGA liaison → PIU → FMEnv / AfDB
GBV Cases	Confidential handling via survivor-centred referral pathways
Reporting	Quarterly compliance and grievance logs submitted to AfDB

ES.11 DISCLOSURE AND REPORTING

ES.11.1 Disclosure Requirements

Requirement	Detail
Disclosure Period	120 days (mandatory AfDB requirement for Category 1 projects)
Disclosure Locations	LSMoH headquarters, Mainland LCDA secretariats, project website, hard copies in PHC waiting areas
Public Hearing	Conducted within 30 days following formal public disclosure
Non-Technical Summary	Provided in English and Yoruba for broad accessibility

ES.11.2 Reporting Framework

Report	**Frequency**	**From → To**
E&S Monitoring Report	Weekly	Contractor → PIU
E&S Performance Report	Monthly	PIU → AfDB
ESMP Compliance Report	Monthly	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 Mainland Axis (Ojodu, Otumara, Isolo, and Oba Salami) are environmentally and socially viable. All adverse impacts can be effectively mitigated through the ESMP, HMWMP, GBV Action Plan, and other safeguard instruments.

Key Positive Impacts:

Benefit	**Impact**
Healthcare Access	~500,000+ residents served across dense urban catchment areas
Maternal Mortality	Estimated 20–30% reduction
Under-Five Mortality	Estimated 25–35% reduction
Direct Jobs	160–320 construction jobs
Indirect Jobs	300–500 urban supply chain and service jobs
GHG Reduction	250–500 tCO_2e/year through solar PV
Diesel Savings	60,000–120,000 litres/year

The project aligns with:

- AfDB ISS (2024)
- FMEnv EIA Act
- IFC Performance Standards
- WHO Standards
- ILO Conventions
- Equator Principles IV

ES.12.2 Recommendations

Pre-Construction Recommendations

S/N	Recommendation
1	Implement licensed asbestos abatement at Isolo and Oba Salami (confirmed ACM)
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, physical planning approvals)
6	Implement urban displacement and livelihood management frameworks for affected informal traders
7	Train contractors and PIU staff on AfDB ISS and ESMP implementation

Construction Phase Recommendations

S/N	Recommendation
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 from local LGAs
4	Conduct environmental monitoring (air, noise, water, waste)
5	Maintain GRM: 48-hour acknowledgment, 14-day resolution
6	Implement Traffic Management Plan along Mainland transport corridors
7	Conduct quarterly IESM audits and implement corrective actions

Operational Phase Recommendations

S/N	Recommendation
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) — Mainland Axis 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 subject to:

Condition	Requirement
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 29 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)
- 29 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

S/N	PHC Facilities	LGA / LCDA	General Characteristics	Status	Coordinates	
Group 1						
1	Agboju PHC	Amuwo Odofin / Oriade	Densely populated; mixed urban/peri-urban;	Construction	6.458077	3.283238

2	Oridilu PHC	Ajeromi Ifelodun / Ifelodun	drainage and flooding challenges.	Refurbishment	6.464410	3.351390
3	Bada PHC	Alimosho / Ayobo Ipaja		Refurbishment	6.590535	3.228266
4	Ogbomosotedo PHC	Alimosho / Egbe Idimu		Refurbishment	6.575358	3.258728
Group 2						
1	Isolo PHC	Oshodi-Isolo / Isolo	High-density urban environment; mixed residential-commercial and use; ageing infrastructure	Refurbishment	6.528600	3.320807
2	Oba Salami PHC	Lagos Mainland / Yaba		Refurbishment	6.522283	3.368430
3	Ojodu PHC	Ikeja / Ojodu		Construction	6.631394	3.342287
4	Otumara PHC	Lagos Mainland / Yaba		Construction	6.477588	3.374566
Group 3						
1	Omolaiye PHC	Ikorodu / Ikorodu North	Freshwater swamp forest zone; peri-urban expansion; erosion-prone and waterlogged pockets	Refurbishment	6.66839365	3.47307938
2	Eruwen PHC			Construction	6.60440414	3.54358095
3	Olorunda PHC	Ikorodu / Ikorodu North		Construction	6.66833451	3.58520869
4	Agura PHC	Ikorodu		Construction	6.57996161	3.62752998
Group 4						

1	Imota PHC	Ikorodu / Imota	Freshwater swamp forest zone; peri urban expansion; erosion prone and waterlogged pockets	Refurbishment	6.66005734	3.66968297
2	Bayeiku PHC	Ikorodu / Igbogbo Bayeiku		Refurbishment	6.546943	3.543106
3	Abule Eko PHC	Ikorodu / Ijede		Refurbishment	6.58331880	3.59483036
4	Owutu PHC	Ikorodu / Ikorodu West		Construction	6.63301273	3.48131561
Cluster 5						
1	Agbowa PHC	Epe / Ikosi Ejirin	Rapid urbanization; proximity to Lekki Free Zone; mangrove and wetland systems	Construction	6.639779	3.712229
2	Ejirin PHC			Refurbishment	6.612939	3.897653
3	Solu Alade PHC	Ibeju-Lekki		Refurbishment	6.43917	3.78986
4	Orimedu PHC			Construction	6.44066	3.90141
Group 6						
1	General Hospital, Ibeju	Ibeju-Lekki / Lekki		Construction		
2	Magbon PHC		Coastal lagoon and mangrove edge; confirmed asbestos at two PHC sites; development pressure from Lekki Free Trade Zone	Refurbishment	6.42880	3.99687
3	Idasho PHC			Refurbishment	6.42940	3.98636
4	Idotun PHC			Refurbishment	6.42451	4.2303
Group 7						
1	APA PHC	Badagry / Badagry West	Coastal/mangrove ecosystems; riverine communities; limited	Construction	6.430864	2.823958

2	Igbogbele PHC	Badagry / Badagry West	access routes; high climate vulnerability, Remote coastal access with seasonal flooding; Egun-speaking fishing communities; limited road and telecommunications connectivity.	Refurbishment	6.423141	2.779165
3	Farasime PHC	Badagry / Badagry West		Refurbishment	6.425841	2.714320
Group 8						
1	Ibereko PHC	Badagry / Olorunda	Coastal island and lagoon-edge sites, fishing and waterfront-dependent communities	Refurbishment	6.441703	2.919342
2	Agboyi PHC	Kosofe / Agboyi Ketu		Refurbishment	6.578345	3.409531

Figures 1.1 to 1.5 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** provides a spatial overview of all project site locations, including their latitude and longitude coordinates and corresponding cluster assignments.

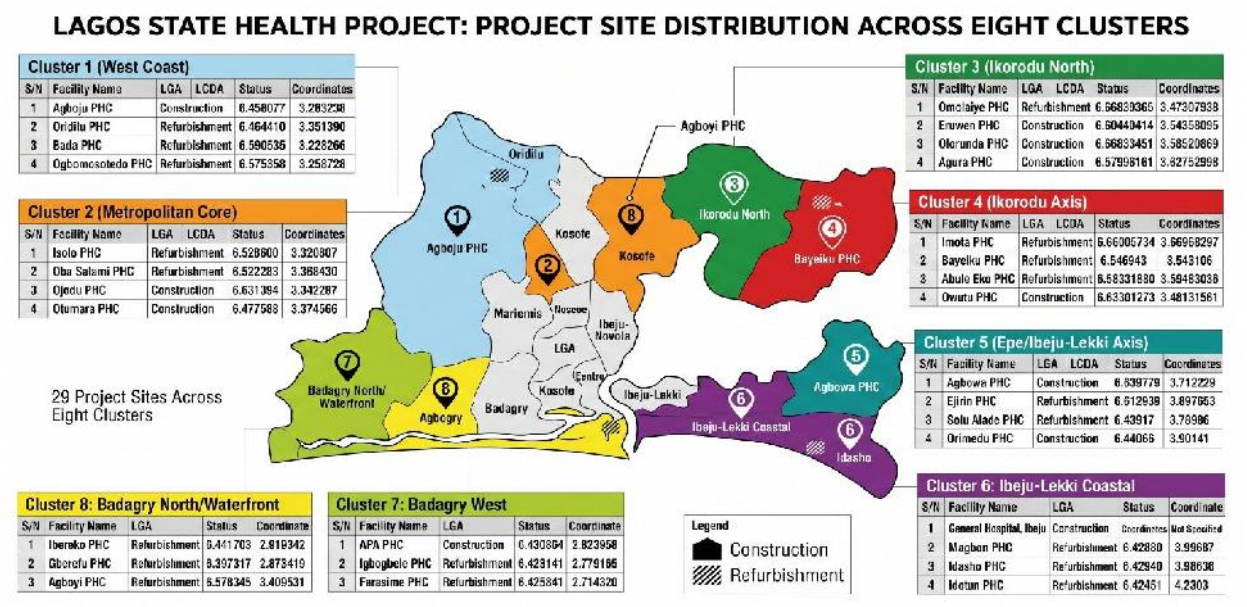
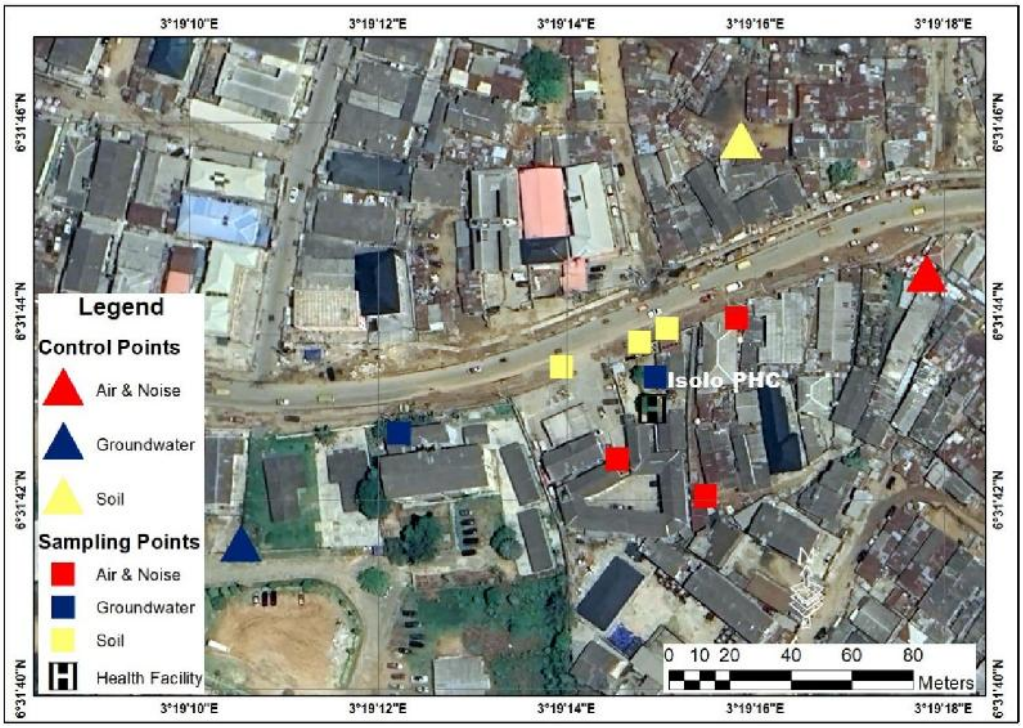
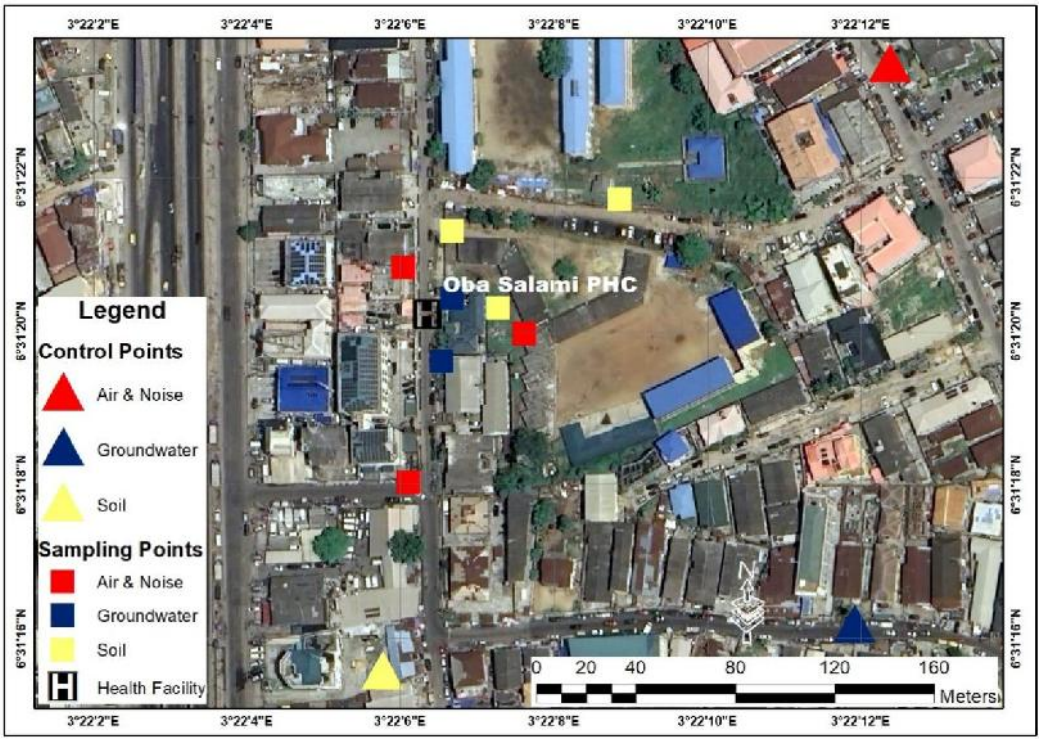


Figure 1.3: Spatial Overview of Project Sites Locations with Coordinates

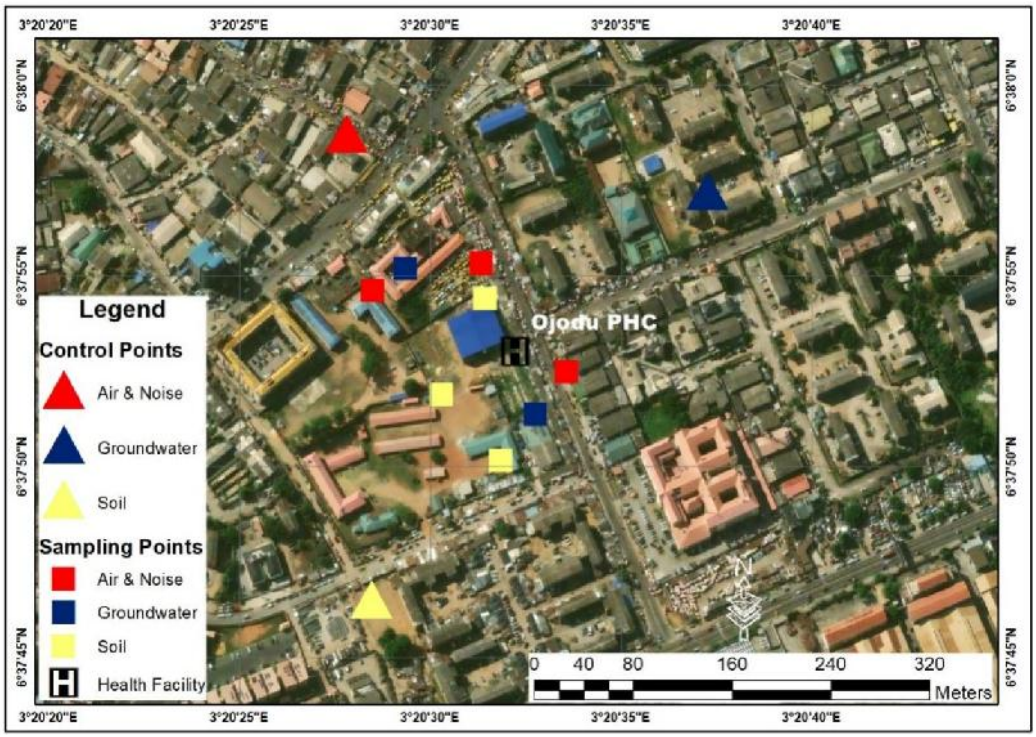
Figure 1.4 displays cluster-specific maps, each depicting the project sample sites along a particular axis, including major access roads, surrounding water bodies, ecological features, and sensitive receptors relevant to the ESIA



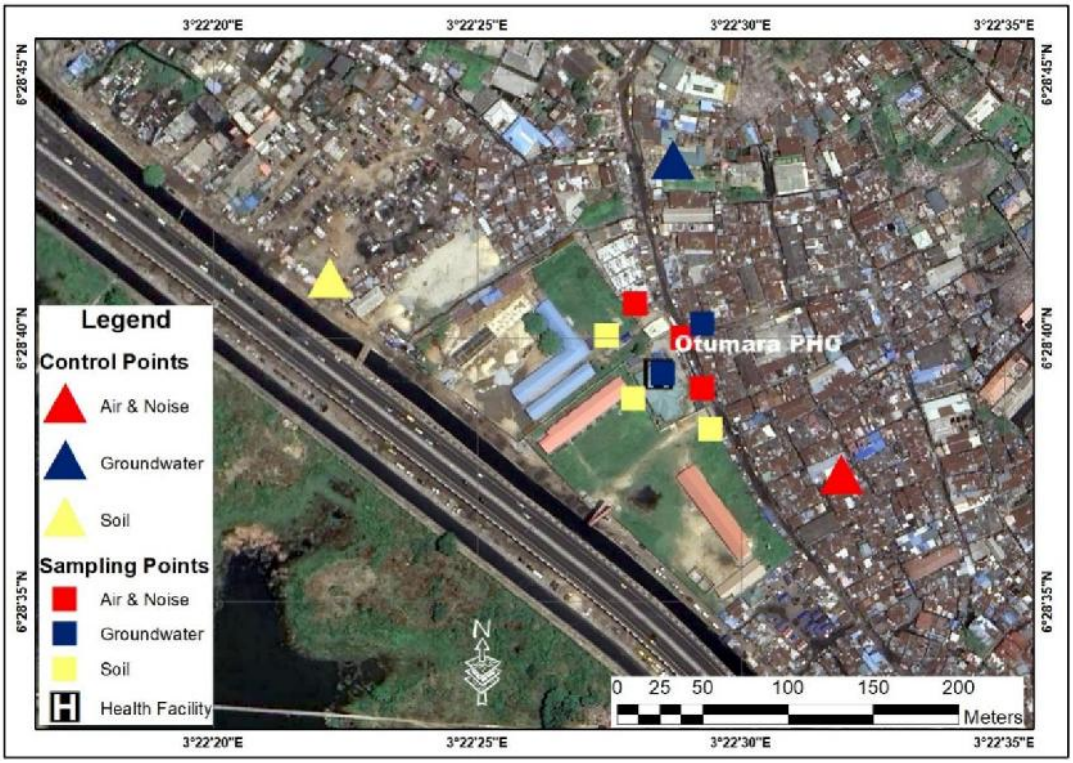
Isolo PHC Sampling Map



Oba Salami PHC Sampling Map



Ogba Ojodu PHC Sampling Map



Otumara PHC Sampling Map

Figure 1.4 – Project Sites by Cluster (Four Detailed Maps)

Figure 1.4 displays four 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.

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 LSHIP (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 19 refurbishment sites (Figure 1.3). 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.

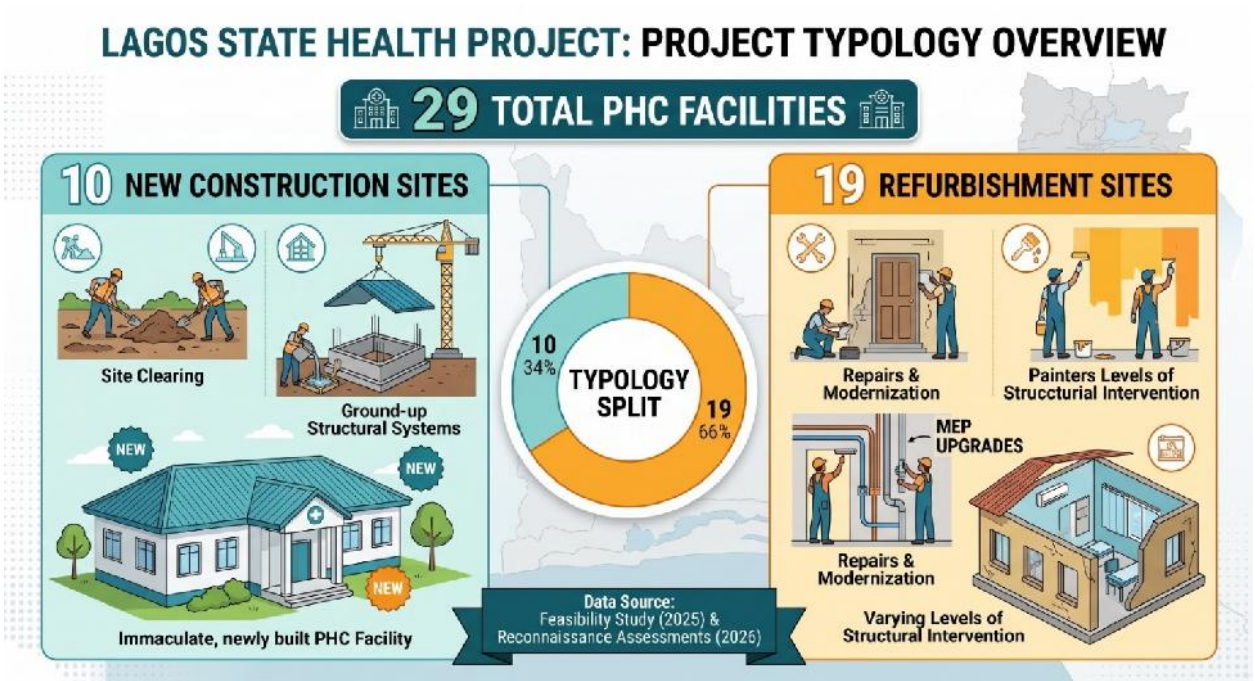


Figure 1.5: Project Typology Overview

1.2.4 Need for ESIA Across All 29 PHC Facilities

Although the PHC sites differ in size, location, and intervention type, the entire programme requires full ESIA coverage due to the combined environmental and social risks identified during screening. The need for ESIA across all facilities in Group 2 (Isolo, Oba Salami, Ojodu and Otumara) is driven by the following factors:

Although the PHC sites at Isolo, Oba Salami, Ojodu and Otumara 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 Group 2, 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) Risk of land-related impacts and livelihood disturbance Depending on final design requirements, some facilities may require space optimisation, boundary adjustments, or clearing of encroachments within or around the PHC premises. Where this affects informal users, nearby economic activity, or access to land and community resources, it may trigger social safeguard requirements relating to land acquisition, access restriction, or economic displacement. ESIA is therefore necessary to identify such risks early and define appropriate mitigation and compensation measures where required.

e) Environmentally sensitive settings include communities that may be associated with flood-prone, waterlogged, or low-lying ecological conditions. The two locations where new structures are to be constructed require environmental assessment and recommendations for suitable design and mitigation measures.

f) 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.

g) Need for a unified Environmental and Social Management Plan (ESMP) A consolidated ESMP is required for the facilities in Isolo, Ojodu, Oba Salami and Otumara in order to:

- standardise mitigation measures across the sites,
- harmonise 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 categorisation under a common safeguard framework.

Together, these factors justify the preparation of a full ESIA for the PHC facilities in Mainland Axis Group 2 (Isolo, Oba Salami, Ojodu and Otumara), 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 Group 2 (Mainland) PHC facilities, comprising Isolo, Oba Salami, Ojodu and Otumara are to be delivered through a coordinated, multi-institutional structure designed to ensure effective planning, safeguard compliance, and high-quality implementation across all 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 Group 2 (Mainland) PHC project is part of the Lagos State Health Project (LSHP) aimed at modernising primary healthcare delivery, improving service quality, and strengthening health system resilience across the Mainland area in Lagos State. The LSHP facilities at Isolo, Oba Salami, Ojodu and Otumara involving new construction and /or refurbishment interventions, depending on site-specific needs and conditions.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

The African Development Bank is the primary financier of the Lagos State Health Project 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. Under the AfDB ISS (2023), the LSHP is classified as a Category 1 programme.

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 LSHP. 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 Mainland Axis Group 2 PHC facilities, illustrating the relationships among the key entities responsible for financing, regulation, implementation, monitoring, and community engagement.

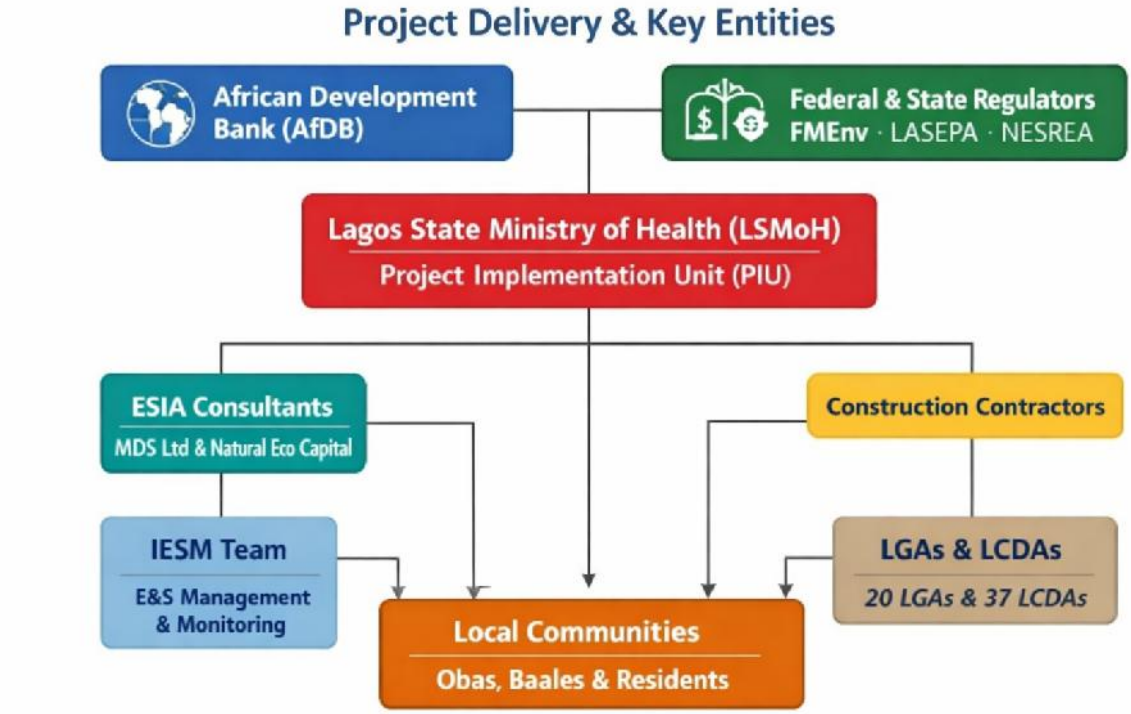


Figure 1.6: LSHIP Institutional Framework and Communication Structure

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:

- 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).
- Lender Requirement (AfDB): The December 2025 Identification Mission confirmed Category 1 (High Risk) due to involuntary resettlement (6 sites, >200 persons), environmentally sensitive locations (wetlands, waterlogged areas), presence of hazardous materials (asbestos at 9 sites), community health and safety risks, and capacity gaps within the PIU (African Development Bank, 2025).
- 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. 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 (Mainland):

- **Identify and Assess Potential Impacts:** Systematically evaluate the environmental and social consequences of project activities across the four (4) designated PHC

facilities within the Mainland Axis Group 2 (as part of the overarching 29-site LSHIP programme), addressing potential issues such as wetland loss or habitat disruption in riverine areas.

- **Establish a Site-Specific Baseline:** Characterize the existing environmental conditions, including hazardous material presence (like asbestos in Farasime) and socio-economic vulnerabilities (such as economic fragility in Igbogbele).
- **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.
- **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 four facilities comply with Lagos State environmental standards and LSHIP safeguards.
- **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.
- **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.
- **Manage Specific Hazardous Risks:** Develop targeted protocols for high-risk activities, particularly the safe abatement and disposal of asbestos identified in older facility structures.
- **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).
- **Prepare Safeguard Instruments:** Develop site-specific Environmental and Social Management Plans (ESMPs), Hazardous and Medical Waste Management Plans (HMWMPs), and GBV Action Plans for the facilities.
- **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 -- Mainland (Group 2)

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).

A structured overview of the facilities by LGA/LCDA, distinguishing between new construction and refurbishment sites for ease of reference and management is given

PHC Facility	Location	Correction Required
Isolo PHC	Oshodi-Isolo LGA / Isolo LCDA	Replace with Isolo PHC description
Oba Salami PHC	Lagos Mainland LGA / Yaba LCDA	Replace with Oba Salami PHC description
Ojodu PHC	Ikeja LGA / Ojodu LCDA	Replace with Ojodu PHC description
Otumara PHC	Lagos Mainland LGA / Yaba LCDA	Replace with Otumara PHC description

The scope of the Environmental and Social Impact Assessment (ESIA) for the 29 Primary Health Centres (PHCs) is defined by the project lifecycle and the specific environmental and social pillars critical to the Lagos State Health Infrastructure Project (LSHIP).

1. Temporal Scope

The temporal scope ensures that impacts are managed across every stage of the project's evolution:

- Pre-Construction Phase: This phase involves site reconnaissance, establishing environmental baselines, and identifying hazardous materials such as asbestos in older structures.
- Construction Phase: This encompasses active physical works, including new construction at 10 sites and refurbishment at 19 sites. Key activities include structural retrofitting, site clearing, and the installation of digital and green infrastructure.

- Operational Phase: The scope extends to the long-term management of the facilities, focusing on medical waste logistics, the maintenance of solar-hybrid power systems, and the ongoing use of the digital health platform.

2. Thematic Scope

The thematic scope addresses the multi-dimensional impacts of the project across the following key areas:

- Environmental & Climate Resilience: Monitoring air quality, noise, and soil integrity, with a strong focus on the transition to green energy and flood resilience in vulnerable nodes like Group 2 in Mainland Axis.
- Hazardous Materials & Waste: A priority focus on the safe abatement of asbestos during the refurbishment of older PHCs and the institutionalisation of modern medical waste management.
- Social Safeguards: Management of risks associated with labour influx, specifically the prevention of Gender-Based Violence (GBV) and Sexual Exploitation, Abuse, and Harassment (SEA/SH).
- Occupational & Community Health: Ensuring safety for both workers and the public through standardised health and safety (HSE) protocols and enhanced site lighting.
- Digital Health Integration: Scaling the digital infrastructure to improve healthcare delivery and patient data management across all 29 locations.

Geographical Scope

The LSHIP, as mentioned earlier is grouped into eight clusters, namely West Coast, Metropolitan Core, Ikorodu North, Ikorodu Axis, Epe / Ibeju-Lekki Axis, Ibeju-Lekki Coastal, Badagry West and Badagry North / Waterfront Fringe. This cluster-based grouping is used throughout the ESIA for baseline characterisation, impact assessment, stakeholder engagement, and ESMP development in relation to the different but complementary reports prepared for the various groups/clusters of the project sites.

This Report covers Group 2 -- Mainland Axis, an urban cluster comprising dense metropolitan Lagos sites. Four LSHIP project sites --- Ojodu, Otumara, Isolo, and Oba Salami PHCs --- are located within this cluster.

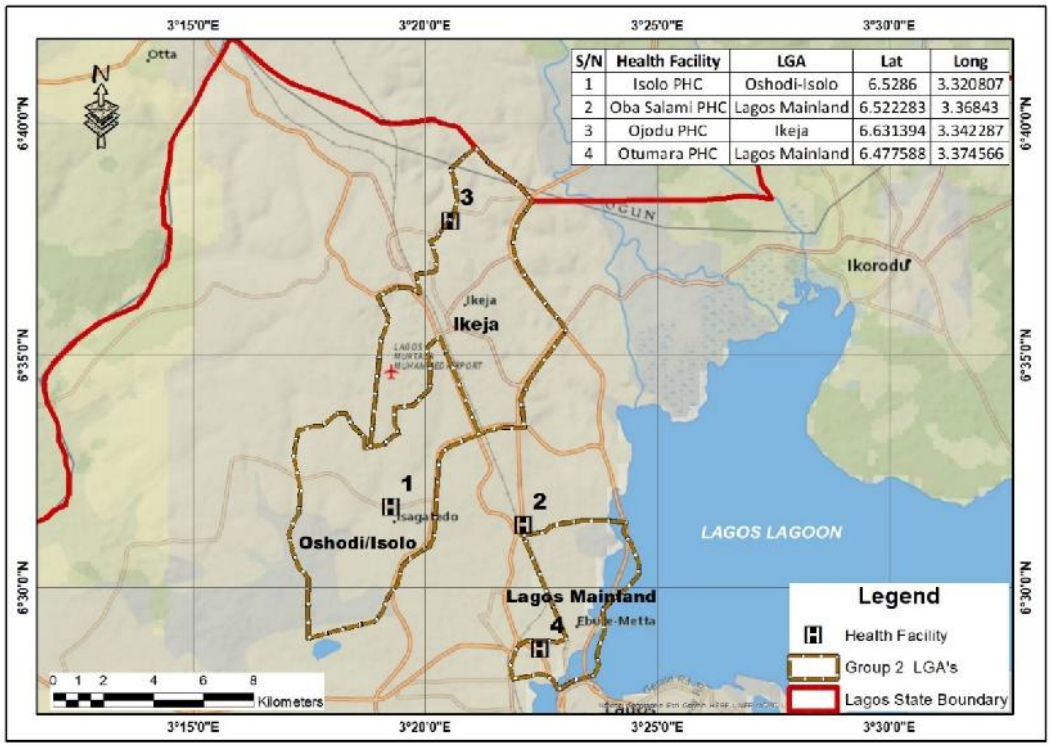


Figure 1.7: Group 2 - Mainland Project Locations

Figure 1.8 presents a project status dashboard integrating geospatial information with project-specific data for the mainland. 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 1.8 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.

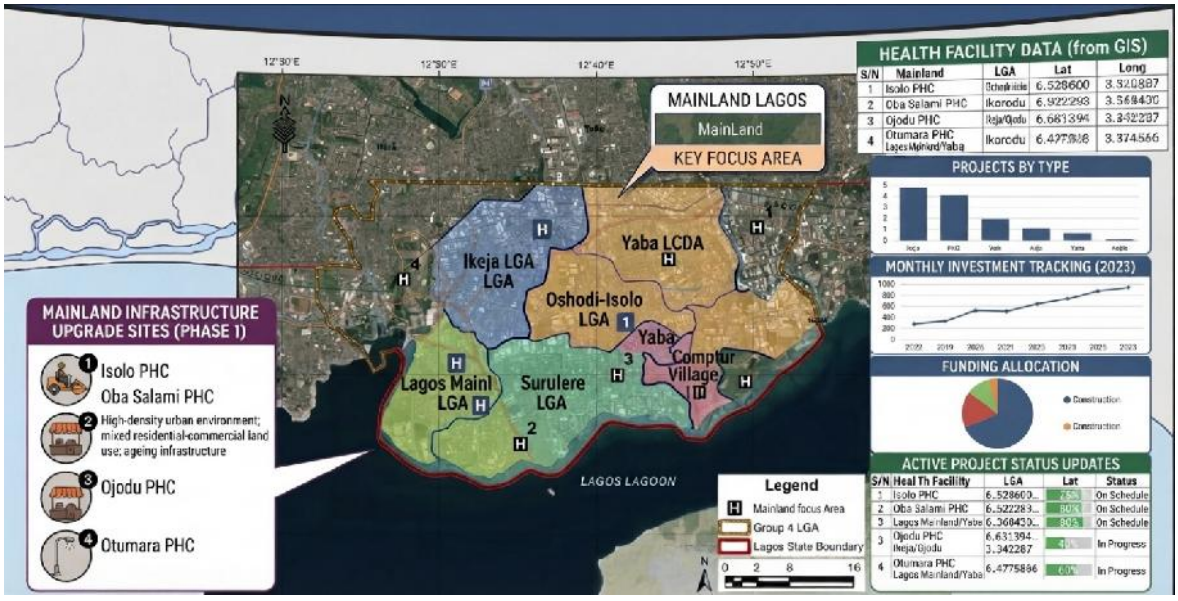


Figure 1.8: GIS-Integrated Development Map and Project Dashboard for Mainland Axis

This document constitutes the ESIA report which covers Group 2 -- Mainland Axis of the project. The assessment includes four (4) Primary Healthcare Centres (PHCs) located across the Mainland urban corridor (Ojodu, Otumara, Isolo, and Oba Salami). The facilities comprise a combination of new construction and facility upgrade/refurbishment works. All other LSHIP clusters are addressed in separate standalone ESIA reports.

Exclusions

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

- **Ikorodu North Axis**: Omolaiye, Eruwen, Olorunda, Agura
- **Badagry Axis**: APA, Igbogbele, Farasime, Ibereko, Gberefu
- **Eti-Osa / Ibeju-Lekki Axis**: Orimedu, Agbowa, Magbon, Idasho, Idotun, Solu Alade, Ejirin
- **Other Clusters & Axes**: All remaining LSHIP clusters and project sites outside the Mainland Axis

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

Trigger	Regulation	Relevance to each PHC
Environmental Assessment	EIA Act Cap E12 LFN 2004	Mandatory for all 29 sites to assess impacts of new construction (10 sites) and refurbishments (19 sites) on the local ecosystem.
Hazardous Waste	Harmful Waste Act Cap H1 LFN 2004	Applicable to sites requiring refurbishment (such as Farasime) to manage the removal of asbestos and hazardous materials.
Climate Resilience	Nigeria Climate Change Act 2021	Relevant to all sites as they transition to solar-hybrid power and implement climate-smart infrastructure.
Waste Management	Lagos State Environmental Law (2017)	Governs the disposal of medical waste and construction debris across all clusters to prevent environmental contamination.
Social Safeguards	AfDB Operational Safeguards (OS1–OS10)	Triggers mandatory assessments for labour influx, GBV, and community health across the 8 geographical groups.
Labor Standards	Labour Act Cap L1 LFN 2004	Applicable to the management of site workers, ensuring fair wages and safety during the construction phase of all 29 facilities.
International Benchmarking	IFC Performance Standards (PS1–PS8)	Sets the global standard for managing environmental and social risks, including resource efficiency and land acquisition.

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.

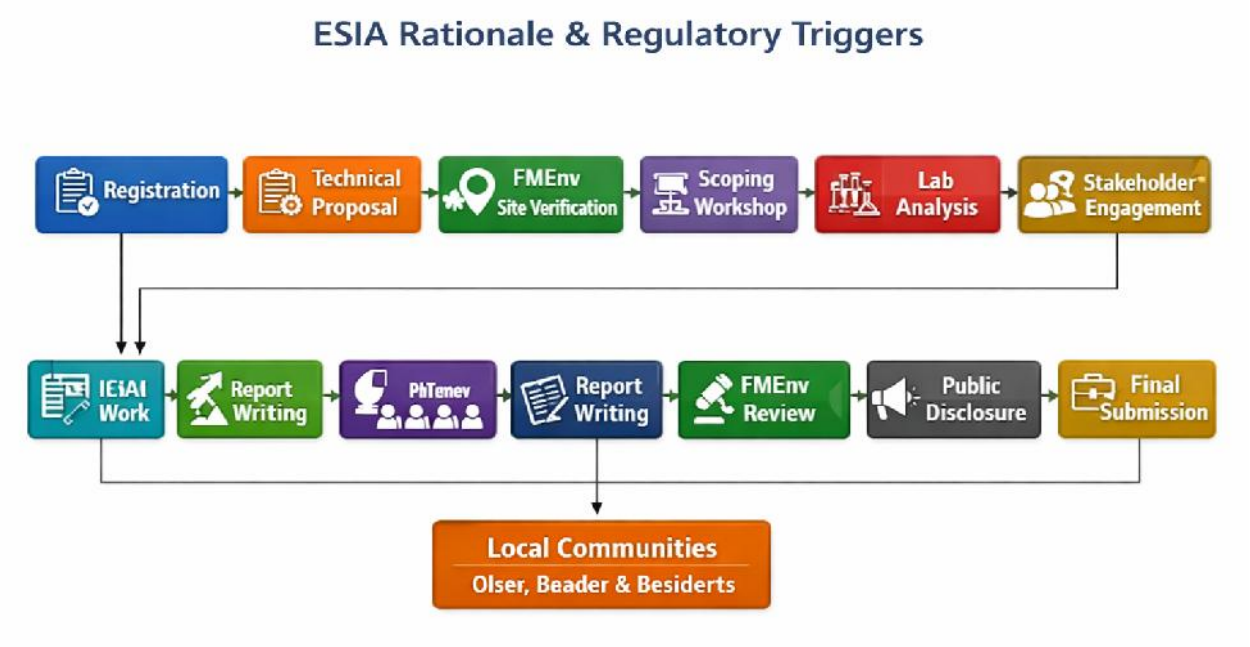


Figure 1.9: ESIA Process Flowchart

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 → Minimise → 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 8. 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 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 8:

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:

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, and Lagos State Environmental Laws
- Complementary Good Practice: IFC Performance Standards (PS1–PS8), Equator Principles IV, WHO Guidelines, and 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	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

Regulations 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[1] permit; water abstraction license	To be obtained for new boreholes.

[1] Any project-drilled borehole will be analysed for ESMP compliance during implementation prior to sealing.

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 Mainland Axis 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
OS 2 – Labour & Working Conditions	All sites (Labour influx/OHS); Mainland urban transport corridors (GBV/SEA/SH risk)	Adhere to labour standards; implement OHS plan, GBV/SEA/SH Action Plan, and Traffic Management Plan; maintain GRM
OS 3 – Resource Efficiency & Pollution Prevention	Isolo & Oba Salami (Legacy Asbestos); All sites (Medical waste/wastewater)	Conduct asbestos abatement and implement licensed abatement plan; implement Healthcare Waste Management Plan (HMWMP) and septic system upgrades
OS 4 – Community Health, Safety & Security	All sites (Urban traffic and community safety risks)	Traffic Management Plan; Emergency Preparedness and Response Plan (EPRP); Community liaison
OS 5 – Land Acquisition, Restrictions on Land	Oba Salami & Ojodu (Informal roadside traders / economic displacement)	Prepare/implement urban displacement and livelihood restoration frameworks; provide

Use & Involuntary Resettlement		compensation at full replacement cost
OS 6 – Biodiversity & Ecosystem Services	Otumara (Modified urban canal and drainage interfaces)	Avoid via protective buffers; monitor urban runoff and water quality; implement urban ecological management measures
OS 8 – Cultural Heritage	All sites (Potential chance finds during excavation)	Chance Finds Procedure; worker training; coordination with relevant heritage authorities
OS 10 – Stakeholder Engagement & Information Disclosure	All sites	Stakeholder Engagement Plan (SEP); GRM; public disclosure

Table 1.7: AfDB Operational Safeguards Triggered (ISS 2023/2024)

AfDB Operational Safeguard (2023/2024)	**Key Safeguard Requirements / Context**	**Compliance Action / Mitigation Measure**
OS1: Environmental & Social Assessment	Triggered: Category 1 requires full ESIA with stakeholder engagement, alternatives analysis, ESMP, monitoring, and disclosure.	Isolo, Oba Salami, Ojodu and Otumara trigger OS1. Full ESIA prepared for the four PHC facilities.
OS2: Labour & Working Conditions	Triggered: Fair labour conditions; OHS; prohibition of child/forced labour; worker grievance mechanisms.	Labour influx and occupational hazards at Ojodu, Oba Salami Isolo and Otumara require contractor OHS measures, labour management procedures, and Codes of Conduct.
OS3: Resource Efficiency & Pollution Prevention	Triggered: Pollution prevention hierarchy; hazardous materials management; waste management plan; resource efficiency.	Construction and operation at Ojodu, Oba Salami, Isolo and Otumara will require controls for construction waste, possible asbestos or old-material removal, healthcare waste, fuel/chemical storage, and wastewater management.

OS4: Community Health, Safety & Security	Triggered: Community health and safety; GBV/SEA/SH prevention and response; traffic safety; emergency response.	Traffic safety and community interface risks at Ojodu, Oba Salami Isolo and Otumara require Traffic Management Plans, CHS protocols, and GBV/SEA/SH risk mitigation.
OS5: Land Acquisition, Restrictions on Land Use & Involuntary Resettlement	Triggered: Avoid or minimise resettlement; where unavoidable, prepare RAP, ensure livelihood restoration, and vulnerable group support.	Any site-specific encroachment, boundary adjustment, or land-related impact at Ojodu, Oba Salami Isolo and Otumara will require RAP/LRP preparation and implementation in line with AfDB OS5.
OS6: Biodiversity & Ecosystem Services	Triggered: Avoid critical habitat; where unavoidable, demonstrate no net loss or net gain; ecosystem services assessment.	Environmental screening for Ojodu, Oba Salami Isolo and Otumara to assess proximity to wetlands, flood-prone areas, mangrove/coastal ecosystems, and other sensitive receptors in the Mainland Axis Group 2.
OS7: Indigenous Peoples	Not Triggered: Screening confirms no groups meeting the AfDB criteria for Indigenous Peoples are present in the Mainland Axis Group 2. PDF	No specific mitigation required under this OS. Standard community engagement applies under OS10.
OS8: Cultural Heritage	Triggered: Protection of tangible and intangible heritage. While no sites are in the direct footprint, excavation poses a risk to subsurface artifacts. PDF	Implement a strict Chance Finds Procedure during all earthworks. Consult with traditional institutions regarding nearby sacred sites. PDF

OS9: Financial Intermediaries	Not Triggered: The LSHIP is a direct investment infrastructure project and is not routed through Financial Intermediaries.	Not applicable.
OS10: Stakeholder Engagement & Information Disclosure	Triggered: Meaningful and continuous consultation; accessible grievance redress mechanism (GRM); timely disclosure.	Implementation of a comprehensive Stakeholder Engagement Plan (SEP) and an accessible project-level Grievance Redress Mechanism (GRM) across the four PHC facilities in the Mainland Axis.

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) — Mainland Axis, 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 (Ojodu, Otumara, Isolo, and Oba Salami) are systematically assessed and managed in accordance with AfDB OS1–OS10.

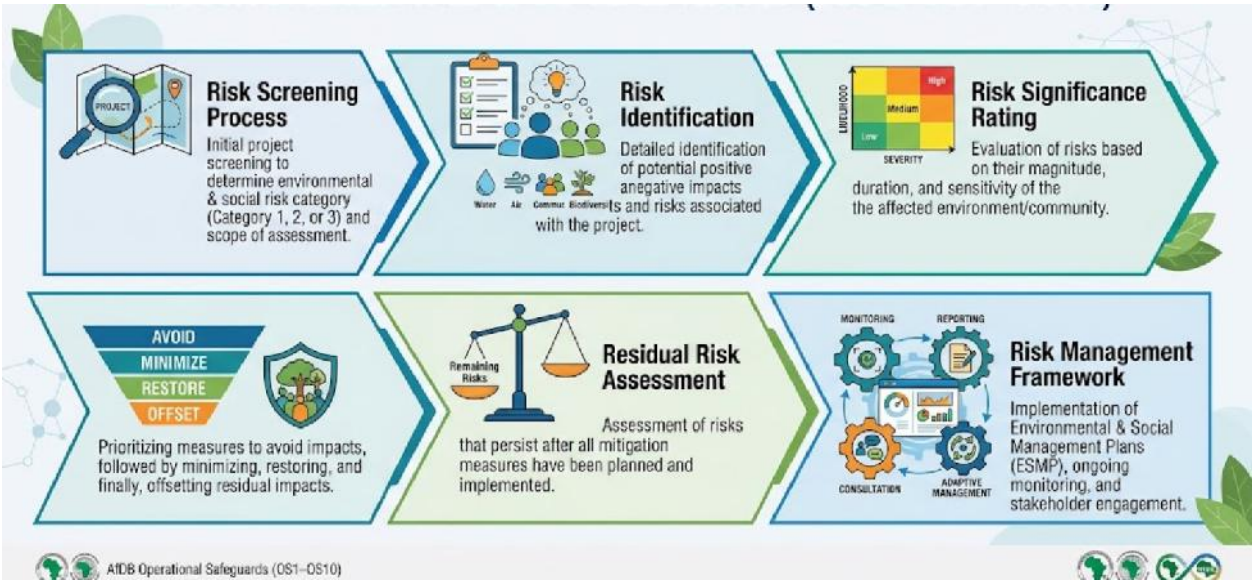


Figure 1.10: Assessment and Management of Environmental & Social Risks (AfDB OS1--OS10)

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 (Ojodu, Oba Salami, Isolo and Otumara) are systematically assessed and managed in accordance with AfDB OS1–OS10.

The figure depicts the following components:

1. Risk Screening (OS1 – Environmental & Social Assessment)

Initial screening determines the project's risk category (AfDB Category 1) based on potential impacts on the environment, communities, labour, biodiversity, and public health. Screening identifies sensitive receptors, vulnerable groups, and potential high-risk activities such as construction works, medical waste handling, and groundwater abstraction.

2. Risk Identification (OS1, OS3, OS4, OS5, OS9)

This step identifies all potential E&S risks across project phases:

- Air emissions, noise, vibration
- Soil and groundwater contamination
- Medical and hazardous waste generation
- Community health and safety risks
- Labour and working conditions
- Biodiversity disturbance
- GBV/SEA/SH risks
- Climate vulnerability and resilience gaps

3. Risk Significance Rating

Risks are evaluated using a likelihood–severity matrix, assigning significance levels (Low, Medium, High, Very High). This rating guides prioritization of mitigation measures and monitoring requirements.

4. Mitigation Hierarchy (OS1–OS10)

The ESIA applies AfDB's mitigation hierarchy:

1. Avoid – redesign, site adjustments, tree retention, avoiding sensitive receptors
2. Reduce – engineering controls, noise barriers, dust suppression, drainage upgrades
3. Mitigate – medical waste treatment systems, septic upgrades, PPE, GBV Action Plan
4. Offset/Compensate – tree replacement, livelihood restoration (where applicable)

5. Residual Risk Assessment

After mitigation measures are applied, residual risks are reassessed to confirm that impacts fall within acceptable thresholds under AfDB ISS. Residual risks inform the ESMP monitoring indicators and corrective action procedures.

6. Risk Management Framework (OS1–OS10)

The final component integrates all risk outcomes into a comprehensive E&S Management Framework, including:

- ESMP implementation
- Contractor ESMS requirements
- Monitoring and reporting schedules
- Institutional roles and responsibilities
- Grievance Redress Mechanism (GRM)
- GBV/SEA/SH Action Plan
- Emergency Preparedness and Response Plan (EPRP)

Figure 1.9 presents the full E&S Risk Assessment and Management Framework used for the LSHIP Mainland, 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 Healthcare 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.

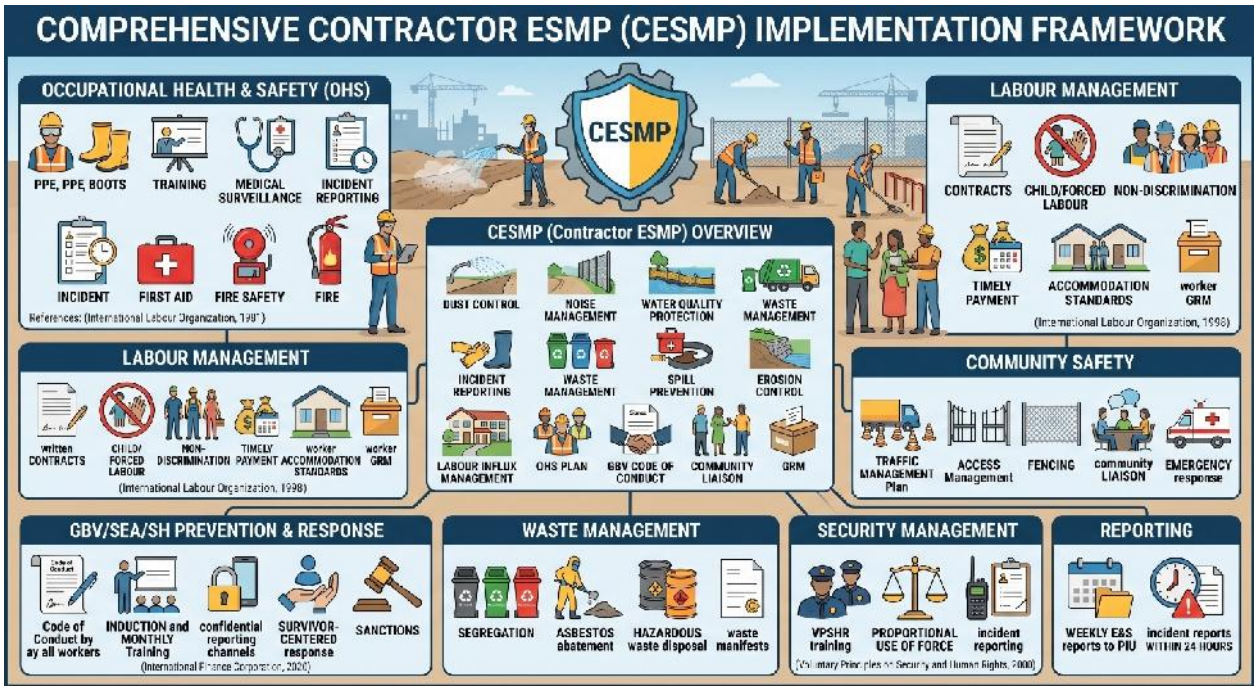


Figure 1.11: Contractor Compliance Requirements for ESMS Components

1.8 Project Risk Categorisation

FMEnv Category I- Mandatory full EIA due to scale (29 facilities), sensitivity (urban drainage and tidal zones), magnitude of impacts (urban displacement, legacy 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):

- Multi-site complexity (29 facilities).
- Economic displacement and management of informal roadside traders at Mainland project sites (e.g., Oba Salami and Ojodu).
- Environmentally sensitive and waterlogged urban locations (e.g., Otumara tidal zones and drainage bottlenecks).
- Lack of dedicated E&S capacity within the PIU (institutional weakness).
- High-density urban traffic and multi-ethnic workforce influx risks.
- Legacy asbestos at older Mainland facilities (Isolo and Oba Salami) and urban waste management challenges.

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	Urban displacement and livelihood restoration frameworks with independent valuation, compensation at full replacement cost, and vulnerability support for affected informal traders
Biodiversity	Urban ecological management and drainage protection (Otumara canal interface)
Hazardous Materials	Comprehensive HMWMP; licensed asbestos abatement for legacy ACM at Isolo and Oba Salami; waste manifests
Labour and GBV	Labour Influx Management Plan; GBV/SEA/SH Action Plan for dense urban corridors; 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 Urban Displacement and Livelihood Management Framework for Mainland Sites

The five project sites that require the preparation of Resettlement Action Plans (RAPs) to be submitted as standalone documents are presented in Table 1.8. 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.

Table 1.11: – Sites Requiring Resettlement Action Plans (RAPs)

Site	PAPs	Affected Assets	RAP Status
Agboju Oriade (Multiple Development Services, 2026; African Development Bank, 2025)	>48 squatters + 38 shops	Residential structures, shops, church, school adjacent	Full RAP required
Ogba Ojodu (Multiple Development Services, 2026)	19 PAPs	Market stalls (commercial)	RAP required
Olorunda (Oke Ogbe) (Multiple Development Services, 2026)	6 PAPs	Pineapple farms (economic displacement)	RAP required
Agura Ikorodu North (Multiple Development Services, 2026)	14 PAPs	Shops along fence	RAP required
Agboyi Ketu (Multiple Development Services, 2026)	2 commercial kiosk	Commercial structure, water-locked access	RAP required

1.9.2 Livelihood Restoration Framework

For all PAPs, the RAPs will include (International Finance Corporation, 2012; African Development Bank, 2013):

- 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, verified by an independent monitor (African Development Bank, 2013).

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

1.10.1 Climate Hazard Mapping

The key climate-related hazards identified across the 29 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) is presented below and Figure 1.16:

Table 1.9 provides a summary of the key climate-related hazards identified across the 29 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 1.9: – Climate Hazard Mapping

Hazard	High-Risk Sites	Projected Change (2050, RCP 8.5)
Flooding (pluvial and fluvial)	Bada, Isolo, Oba salami, Orimedu, Idotun, Oba Salami, Agboyi, Owutu, Oke Ogbe	+30% rainfall intensity; 1:100-year storm becomes 1:30-year (Intergovernmental Panel on Climate Change, 2021)
Coastal erosion / sea-level rise	Orimedu, Idotun, Gberefu, Ojodu / Otumara Mainland West, Ibeju Lekki GH	Sea-level rise 0.2-0.5 m; increased storm surge (Intergovernmental Panel on Climate Change, 2021)
Heatwaves	All urban sites (Ogba, Otumara, Oba Salami, Isolo, Shomolu GH)	+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 hours 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 (2,000- 4,000 tCO2e/year reduction), and energy-efficient design.

1.11 Gender, Inclusion & Vulnerability Framework

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 (2,000-- 4,000 tCO2e/year reduction), and energy-efficient design.

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 Agboju, Ogba, Otumara, Isolo, Agboyi, and Gberefu 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.

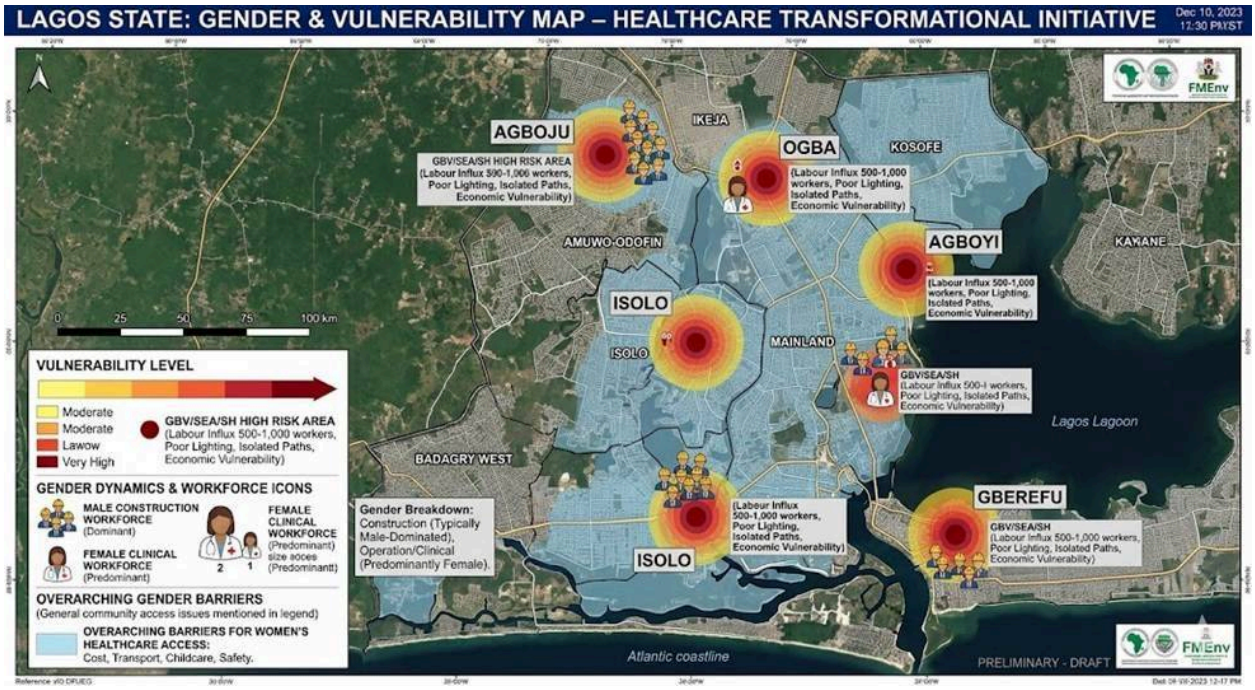


Figure 1.13 -- Gender and vulnerability map

1.11.2 AfDB OS2 -- GBV/SEA/SH Compliance

The LSHIP is fully aligned with AfDB Operational Safeguard 5 (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 1.10: LSHIP Alignment with AfDB OS2 GBV/SEA/SH Requirements

OS2 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	≥50% 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 1.13 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 1.11 -- Gender and Inclusion Indicators

Indicator	Target	Monitoring
Female staff in new PHCs	≥50% 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	≥40% of participants	Per consultation
Vulnerable PAPs receiving enhanced support	100%	RAP monitoring
Local hiring (within LGA)	≥50% 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.

A. Project Governance Structure

Table 1.12 The project governance structure comprises the following levels:

Table 1.12 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.

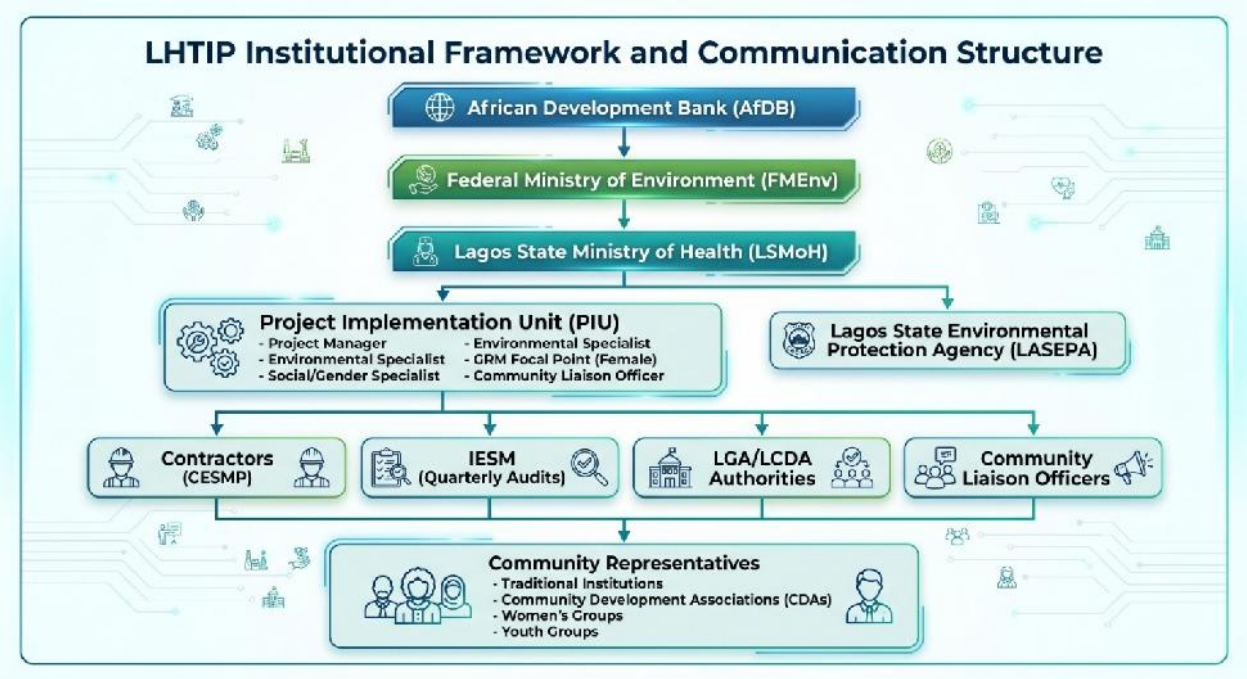


Figure 1.14: LSHIP Institutional Framework and Communication Structure

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 1.13. 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 1.14 The following community liaison structure is established for each PHC site:

Table 1.14: 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 categorisation, 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 organised 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 categorisation, 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, minimise, 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: Grievance Redress Mechanism (GRM)** Structure and Channels, Procedure, Sensitive, Monitoring and Reporting, budget estimate
- **Chapter 11 -- 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):

1. 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. 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 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.



Stakeholders at the Meetings Held for the Mainland 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 on April 1-9, 2026

1.15 Public Disclosure and Accessibility

In accordance with the African Development Bank's (AfDB) 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 for the Group 2 Mainland Axis facilities (Isolo PHC, Oba Salami PHC, Ojodu PHC, and Otumara PHC):

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 across the Mainland axis catchment areas.
- **Community Radio:** Key findings will be broadcast on local radio stations in Yoruba and English over three consecutive weeks to reach diverse urban and semi-urban communities within the Isolo, Oba Salami, Ojodu, and Otumara corridors.
- **Public Readings:** Public readings of the Non-Technical Summary will be conducted at each PHC site and local 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 quadrados and the Non-Technical Summary will be available at all disclosure locations across the Group 2 facilities.
- **Audio Descriptions:** Audio recordings will include verbal descriptions of key figures, site plans, and maps relevant to the Mainland axis facilities.
- **Assistance:** Community liaison officers will be available to assist visually impaired persons in reviewing the report and understanding project impacts.

1.15.3 Accessibility for Local Communities (Isolo, Oba Salami, Ojodu, Otumara)

Local Disclosure Points: In addition to the Lagos State Ministry of Health (LSMoH) headquarters and respective LGA secretariats (Oshodi-Isolo LGA, Lagos Mainland LGA, and Ikeja LGA), hard copies of the ESIA and Non-Technical Summary will be available at:

- Isolo PHC waiting area / Isolo LCDA office
- Oba Salami PHC waiting area / Yaba LCDA office
- Ojodu PHC waiting area / Ojodu LCDA office
- Otumara PHC waiting area
- Community halls and local administrative structures in each catchment area

Targeted Logistics: For sites with specific access dynamics or high-density urban transit constraints along the Mainland axis, documents and public notices will be actively distributed to local community leadership, market associations, and primary health care boards to ensure unhindered public access during the mandatory 120-day public disclosure period.

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)

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:

- AfDB Operational Safeguard 1 (OS1) – alternatives analysis including no-action, technological, site, design, and operational alternatives (African Development Bank, 2024)
- FMEnv EIA Act CAP E12 LFN 2004 (Section 4 – consideration of alternatives) (Federal Ministry of Environment, 2004)
- 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 the sites. 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 Mainland Axis Group 2 facilities covered in this report.

2.2 Project Justification

2.2.1 Deficiencies of Existing Healthcare Infrastructure (Mainland Axis)

Based on the site assessments and structural evaluations, the deficiencies across the healthcare facilities are categorized into three primary pillars. These findings highlight the gap between current conditions and the required standards for safe, efficient clinical operations.

1. Structural & Environmental Deficiencies

The physical integrity of the buildings often compromises the safety of both patients and staff. Key issues identified include:

- Building Envelope Integrity: Widespread evidence of roof leaks and dampness, leading to compromised ceiling boards and the growth of mold/mildew.

- Surface Finishes: Use of non-medical grade, porous floor tiles and wall paints that do not support rigorous disinfection protocols.
- Accessibility: Lack of standard ramps, narrow doorways, and inadequate signage, making the facilities difficult to navigate for Persons with Disabilities (PWDs).
- Perimeter & Security: Incomplete or dilapidated fencing at several sites, leading to encroachment and security risks for night-shift staff.

2. Utilities & WASH (Water, Sanitation, and Hygiene)

The lack of consistent "Life Safety" utilities is a critical barrier to infection prevention and control (IPC).

- Water Supply: Dependence on untreated borehole water without functional filtration systems. Several sites report inadequate storage capacity or rusted overhead tanks.
- Sanitation & Waste: Poorly demarcated waste zones. Existing incinerators are often non-functional or do not meet emission standards, leading to the open burning of medical waste.
- Power Reliability: Heavy reliance on petrol/diesel generators due to unstable grid connection. A lack of renewable energy backups (solar) frequently interrupts cold chain maintenance for vaccines.
- Hygiene Facilities: Inadequate ratio of functional toilets to patient volume. Many staff and patient restrooms lack basic handwashing stations or "elbow-action" taps.

3. Clinical & Space Deficiencies

Spatial layouts often fail to support modern clinical workflows or patient privacy.

- Zoning & Flow: Poor separation between "clean" and "dirty" areas. In many units, the laundry and sterilization areas are too close to consultation rooms, increasing the risk of cross-contamination.
- Patient Privacy: Consultations often take place in cramped, shared spaces without adequate partitioning or soundproofing.
- Specialized Storage: Lack of dedicated, temperature-controlled pharmacies and secure stores for medical records.
- Capacity Overload: Waiting areas are consistently undersized for the catchment population, leading to overcrowding in corridors and outdoor porches.

Note on Compliance: To meet international healthcare standards, the facilities will shift from reactive maintenance to a comprehensive "Resilient Infrastructure" model that integrates climate-smart cooling and sustainable WASH solutions.

Summary Table of Site-Specific Deficiencies

The following table provides a summary of the site-specific deficiencies identified across the assessed Primary Health Centres (PHCs). These observations categorize the physical state of the facilities alongside the resulting risks to healthcare delivery.

The Mainland Axis is a densely populated metropolitan corridor with high urban concentration and significant infrastructure constraints (Lagos State Ministry of Physical Planning and Urban Development, 2024). The four PHCs scheduled for refurbishment and modernization in this axis exhibit the deficiencies presented in Table 2.1 below:

Table 2.1: Deficiencies of Existing Healthcare Infrastructure (Mainland Axis)

Deficiency	Evidence	Consequence
Non-functional / Suboptimal PHCs	Only 337 of 350 public PHCs are functional across Lagos State (Lagos State Primary Healthcare Board, 2024). Mainland facilities operate under severe spatial and structural limitations.	Millions of urban residents lack access to adequate primary healthcare services.
Structural deterioration	Older Mainland structures (e.g., Isolo and Oba Salami) exhibit degraded roofing, cracked walls, and obsolete electrical systems.	Patient and staff safety risks; inability to provide reliable 24/7 clinical services.
Asbestos roofing	Asbestos confirmed in legacy roofing and wall materials at older Mainland facilities (Isolo and Oba Salami).	Occupational and community exposure to hazardous carcinogenic fibres.
Inadequate water supply	Municipal water supply is irregular; groundwater sources at Mainland sites require treatment and storage upgrades.	Risk of waterborne diseases; inability to maintain rigorous infection prevention and control (IPC).
Inadequate waste management	Improper historical waste handling and lack of segregated disposal infrastructure observed across urban sites.	Acute community health risks and environmental contamination in densely populated areas.
Lack of disability access	Most existing older PHCs lack ramps, wide doorways, and accessible restroom facilities.	Exclusion of elderly, disabled, and vulnerable urban populations from healthcare access.

Flooding vulnerability	Severe urban stormwater accumulation and tidal flooding risks at Otumara and low-lying Mainland drainage bottlenecks.	Facility inundation and blocked access routes during heavy rainfall events.
Erosion & urban runoff risk	Medium erosion and stormwater runoff risks along unpaved perimeters and constrained drainage channels (Isolo, Otumara).	Structural foundation risks and sedimentation of municipal drainage networks.

2.2.2 Safety Issues (Mainland Axis)

- **Asbestos exposure:** Workers and communities face carcinogenic risk during refurbishment and structural modifications of older Mainland facilities such as Isolo and Oba Salami PHCs where legacy asbestos is confirmed.
- **Structural compromise:** Deteriorating older metropolitan structures risk structural failure if unaddressed.
- **Urban flooding and drainage:** Otumara and low-lying Mainland pockets face severe urban stormwater accumulation and tidal flooding risks, compromising patient safety and facility accessibility.
- **Erosion and runoff:** Constrained drainage channels and unpaved site perimeters across Mainland project sites require engineered urban drainage and slope stabilization 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

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 (serving over 500,000+ residents across the urban Mainland Axis), improving service quality through modernised and refurbished PHCs, and strengthening regional referral systems.

2.3.2 AfDB High 5 Priorities

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

- **"Improve the Quality of Life for the People of Africa"** — improved healthcare access, enhanced maternal care, and local job creation
- **"Light Up and Power Africa"** — integration of reliable solar PV systems at all PHCs
- **"Feed Africa"** — indirectly supported through improved community health and workforce productivity
- **"Industrialise Africa"** — fostering a healthier urban workforce and reducing corporate 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

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

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	₦138.6 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 (Mainland Axis)

The LSHIP presents significant opportunities for local businesses and supply chain development across the Mainland Axis. These opportunities extend beyond direct employment and include:

Table 2.3: Local Material Supply Opportunities

Material	Estimated Quantity	Local Sourcing Potential	Local Suppliers
Cement	1,500--3,000 tonnes	High (Dangote, Lafarge)	Mainland and Lagos-based distributors
Sand and Gravel	2,000--5,000 m³"	High (licensed local borrow pits and dredging operators)	Lagos-based sand and aggregate dealers
Concrete Blocks	60,000--150,000 blocks	High (local block-making industries)	Mainland-based block manufacturers
Steel	200--500 tonnes	Medium (Nigerian mills)	Nigerian steel distributors

Table 2.4: Business and Contractual Opportunities (Mainland Axis)

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.)	Mainland- and Lagos-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 (Mainland)

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: Mainland Axis Site-Specific Local Business Opportunities

Site	Local Business Opportunities	Potential Local Suppliers
Ojodu PHC (New Construction / Expansion)	* Material supply (cement, blocks, sand, gravel, steel) * Labour supply (local workers) * Catering and hospitality services * Equipment rental	* Mainland-based material suppliers * Lagos-based block manufacturers * Local transport operators

		* Guesthouses and restaurants
Otumara PHC (New Construction / Waterfront Upgrade)	* Material supply (building materials) * Labour supply (local artisans) * Marine/logistics and urban drainage civil works support	* Lagos-based construction suppliers * Local artisans * Marine transport operators
Isolo PHC (Refurbishment / Structural Upgrade)	* Material supply (roofing, plumbing, electrical, asbestos abatement supplies) * Labour supply (local artisans) * Specialized waste management services	* Mainland-based hardware stores * Licensed hazardous waste handling companies * Local electrical/plumbing contractors
Oba Salami PHC (Refurbishment / Structural Upgrade)	* Material supply (roofing, plumbing, electrical, safety materials) * Labour supply (local artisans) * Security and site management services	* Mainland-based hardware distributors * Local security firms * Local service providers

Table 2.9: Social Benefits (Mainland Axis Focus)

Benefit	Quantification	Source
Population served by Mainland PHCs	4 PHCs ×50,000 = 200,000+ core residents (up to 500,000+ across dense urban catchment)	Lagos State Ministry of Health, 2025, p. 27
24/7 service availability	All Mainland PHCs operate 24/7 post-modernisation	Lagos State Ministry of Health, 2025, p. 25
Maternal mortality reduction (estimated)	20–30% in catchment areas	Consultant estimate
Under-five mortality reduction (estimated)	25–35%	Consultant estimate

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

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 Mainland Axis Group 2
- 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 (Isolo and Oba Salami)

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 -- Mainland Axis Group 2)

The alignment alternatives are presented in Table 2.11 below.

Table 2.11: Alignment Alternatives

Facility	Original/Preferred Site	Alternative Site(s) Assessed	Reason for Rejection
Ojodu PHC	Ojodu community site	Alternate site 1 km north	Would require complex relocation; farther from core residential catchment
Otumara PHC	Otumara waterfront site	Alternate inland site 1.5 km away	Would not serve target riverside/tidal community; worse transport connectivity
Isolo PHC	Existing Isolo health facility footprint	No alternative -- fixed site	N/A (refurbishment and structural modernization of existing facility)
Oba Salami PHC	Existing Oba Salami health facility footprint	Alternate site 1 km east	Would duplicate existing healthcare coverage and require new land acquisition

Technical Selection Criteria

- **Land Ownership & Encumbrance:** Preferred sites are government-owned or have secure institutional titles. Alternative sites risk urban land-title disputes or require complex resettlement frameworks.
- **Social Connectivity:** Existing sites are established urban "Social Landmarks." Relocation would reduce community immunization and antenatal care attendance.
- **Environmental Safeguards:** Preferred sites chosen for optimized urban drainage and flood resilience management.
- **Cost-Effectiveness:** Utilizing existing footprints where applicable reduces urban carbon footprint, construction disruption, and capital costs.

Conclusion: The preferred sites are optimal based on proximity to target urban populations, land availability (government-owned or secure institutional footprint), accessibility, and cost-effectiveness.

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) -- Mainland

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 with SDGs and NDCs	Higher upfront cost (estimated 20% premium)	**Yes**

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 **Mainland Axis** to ensure that design, location, layout, and construction approaches minimize environmental and social impacts.

PHC 1 -- Ojodu Primary Health Centre

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

PHC 2 -- Otumara Primary Health Centre

- **Alternative Location:** Siting inland away from the waterfront evaluated; rejected due to failure to serve the target riverside/tidal catchment population.

- **Alternative Design:** Raised foundation/stilt-supported modular design considered; selected for enhanced urban flood resilience and minimized wetland/drainage interference.
- **Alternative Access Route:** Rear access road evaluated; rejected due to community safety and land encroachment concerns.

PHC 3 -- Isolo Primary Health Centre

- **Alternative Location:** Relocation to alternative municipal land evaluated; rejected due to distance from core urban catchment population.
- **Alternative Layout:** Expanded waiting area and specialized asbestos-safe containment zones; selected.
- **Alternative Waste Handling:** Off-site hazardous disposal vs. on-site temporary containment; hybrid model selected with licensed hazardous waste manifests.

PHC 4 -- Oba Salami Primary Health Centre

- **Alternative Location:** Co-location with nearby secondary facility evaluated; rejected due to service overlap and congestion.
- **Alternative Design:** Solar-powered cold chain storage and energy-efficient systems added; selected.
- **Alternative Construction Approach:** Night-time construction rejected due to urban ambient noise impacts and community disruption.

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

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

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

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

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

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 -- Mainland

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).

The figure below contrasts the current waste management practices with the preferred WHO-compliant Health Care Waste Management Plan (HMWMP) for the Primary Health Centres (PHCs) on the Lagos Mainland. The figure illustrates the environmental and health risks of open burning and unsegregated disposal versus the safe, structured, and compliant system that includes colour-coded segregation, autoclaving, and proper disposal via LAWMA.



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

Indicator	**Target**	Monitoring Method
Female staff in new PHCs	≥50% clinical, ≥30% administrative	Quarterly staffing reports
Women in construction workforce	≥15% of total workforce	Monthly hiring records
Women-owned businesses in supply chain	≥20% of local procurement	Procurement records
GBV/SEA/SH cases reported and responded	100% within 48 hours	GRM records
Women participating in consultations	≥40% 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)	≥50% 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

Component	Target	Implementation Strategy	Monitoring
Local Procurement	≥50% of eligible materials and services	- Supplier registration database - Preference for local suppliers - Transparent procurement	Procurement records; supplier registration
Local Hiring	≥50% unskilled; ≥30% skilled	- Local job advertisements - Community notification - Hiring from within LGA	Hiring records (by LGA of residence)
Local Subcontracting	≥40% of eligible subcontracts	- Local contractor registration - Capacity building - Tiered subcontracting	Subcontract records

Women-Owned Businesses	≥20% 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	≥1% 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 (₦)	≥50% of eligible procurement	Monthly	Contractor
Number of local suppliers engaged	≥60% per site	Monthly	Contractor
Number of local workers hired	≥50% unskilled; ≥30% skilled	Monthly	Contractor
Number of women-owned businesses engaged	≥20% of procurement	Monthly	Contractor
Number of workers trained	≥200,000 across LSHIP programme	Quarterly	Contractor / PIU
Community satisfaction with local content	≥80% satisfied	Quarterly	PIU / IESM

2.9 Circularity & Resource Efficiency

2.9.1 Material Reuse and Recycling

Table 2.23 presents the material reuse and recycling framework tailored for the Mainland Axis project sites.

Table 2.23: Material Reuse and Recycling

Material	Source	Reuse/Recycling Potential	Social Benefit
Construction waste (concrete, blocks, steel)	Demolition and structural upgrades of existing legacy structures (Isolo and Oba Salami)	Crushed concrete and blocks reused as sub-base fill; steel reinforced scrap recycled	Reduced disposal cost; local recycling and salvage jobs
Asbestos	Isolo and Oba Salami (legacy ACM confirmed)	No reuse — hazardous waste; safe encapsulation and disposal at licensed hazardous waste landfill	Strict public and worker health protection

Excavated soil	Earthworks (foundations, urban drainage, Otumara waterfront works)	Reused as structural fill on site; excess utilized for site landscaping	Reduced need for off-site soil dumping; local utilization
Wood waste	Formwork, pallets, and scaffolding materials	Reuse for temporary formwork; chipped for landscaping mulch; surplus donated to local artisans/community	Community benefits (wood for fuel or secondary construction)
Metal scrap	Reinforcement steel, old plumbing pipes, and metal fixtures	Recycled through certified local metal scrap dealers	Supports local secondary scrap recycling industry
Packaging waste	Material deliveries (cement bags, plastic wraps, cartons)	Minimized through just-in-time delivery; sorted for recycling where feasible	Waste management jobs; reduced municipal landfill burden

2.9.2 Circularity & Resource Efficiency

Table 2.24: Resource Efficiency -- Mainland

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

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 Mainland Axis Group 2,. 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 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 2 (**Mainland**). The preferred option for this cluster---construction of two new PHCs and refurbishment of two 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 Mainland 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 THREE – PROJECT & PROCESS DESCRIPTION

3.1 Background & Overview

The Lagos Healthcare Transformative Initiative 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, multicomponent 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 (MDSPS).

The LSHIP comprises four major components. For the Mainland Axis – Group 2, Components have direct physical footprints:

Table 3.1: Project Component & Intervention Mapping: Mainland Axis - Group

Component	Description	Mainland Axis - Group 2 Sites	Intervention Type
Component 4: Primary Health Infrastructure	New climate-resilient PHCs	2 (Ojodu & Otumara PHC)	New Construction (Greenfield development to replace failed infrastructure)
	Existing PHC refurbishment	2 (Oba Salami & Isolo PHCs)	Total Revitalization (Rehabilitation, damp-proofing, and expansion)

3.2 Project Location – (Mainland Axis – Group 2)

3.2.1 Geographic Overview

The mainland Axis – Group 2 is a critical geographic cluster within the Lagos Healthcare Transformative Initiative Project (LSHIP). This axis is characterized by the conspicuous absence of structured green cover and highly degraded urban landscape, all of which dictate the structural and environmental requirements of the healthcare facilities.

1. Geographic Positioning

The Group 2 cluster is situated in the Western inland corridor of Lagos State, within the Mainland Local Government Areas.

- The Lagos Mainland is situated directly north of Lagos Island and the Lagos Lagoon, forming the northern segment of the core metropolitan area. Isolo lies to the northwest of central Lagos and serves as a key commuter hub, benefiting from its proximity to Murtala Muhammed International Airport. Ojodu, located within the Lagos West Senatorial District, falls under the broader metropolitan corridor that includes Ikeja, Alimosho, and Agege.
- Importance of these PHC's: Ojodu, Isolo, and Yaba LCDA fall within some of the most densely populated parts of Lagos, with population densities ranging from about 13,000 to over 23,000 persons/km² and surrounding LGA populations running into hundreds of thousands to over a million residents. This high population concentration reflects intense pressure on infrastructure and public services. As a result, establishing standard PHCs in these areas is highly significant, as they provide critical, accessible healthcare to large urban populations, reduce the burden on higher-level hospitals, and strengthen overall public health response in densely populated communities.

2. Site-Specific Coordinates and Locations

The group consists of four primary nodes that provide a healthcare "safety net" for the coastal communities:

Facility	Specific Location	Coordinates	Geographic Context
Isolo PHC	Oshodi-Isolo LGA / Isolo LCDA	Lat 6.528600 Long 3.320807	Highly urbanized, paved commercial district. Artificial, heavily modified environment.
Oba Salami PHC	Lagos Mainland LGA / Yaba LCDA	Lat 6.522283 Long 3.368430	Predominantly ornamental and non-native species (e.g., *Elaeis Elaeis guineensis*, *Polyalthia longifolia*, *Terminalia mantaly*, *Wodyetia bifurcata*) sparse and discontinuous vegetation cover planted in the front perimeter garden
Ojodu PHC	Ikeja LGA / Ojodu LCDA	Lat 6.631394 Long 3.342287	Secondary urban environment (post-demolition site)

Otumara PHC	Lagos Mainland LGA / Yaba LCDA	Lat 6.477588 Long 3.374566	Reclaimed coastal land. Artificially created environment with replaced soil

Figure 3.1 shows a regional map plotting the precise locations of the four targeted PHCs (Isolo, Ojodu, Oba Salami, and Otumara) relative to major roads, LGAs, and the Lagos Lagoon.



Figure 3.1: Map of Mainland Axis – Group 2 Project Site

Figure 3.2 depicts the aerial satellite view detailing the Isolo PHC's structural layout and its integration into a paved, highly urbanised commercial district.



Figure 3.2: Satellite Cluster Map – Isolo PHC

Figure 3.3 shows the aerial satellite view highlighting the Oba Salami PHC footprint and its immediate perimeter within the built environment.



Figure 3.3: Satellite Cluster Map – Oba Salami PHC

Figure 3.4 shows the aerial satellite view focusing on the Ojodu PHC, showing its specific spatial integration within the local street network and secondary urban environment.



Figure 3.4: Satellite Cluster Map – Ojodu PHC

Figure 3.5 is the aerial satellite view of the Otumara PHC, visually capturing its dense, informal settlement context and proximity to local waterways.



Figure 3.5: Satellite Cluster Map – Otumara PHC

3. Environmental and Terrain Characteristics

The geographic overview of Group 2 highlights several "Environmental Stressors" that influenced the ESIA (Environmental and Social Impact Assessment) and structural design:

- **Soil Erosion & Sediment Runoff:** The internal roads leading up to these sites are mostly terrible if not in-motorable particularly for big vehicles (haulage & material trucks) and given a State that enjoys 8 -10 months of rain, the construction phase might become messy if proper mitigation are not addressed. There will be need to Stabilize exposed surfaces quickly and install temporary sediment barriers. Backfill and compact disturbed and exposed surface areas with gravel which will create access to the facilities.
- **Urban Heat Island Influence:** owing to the high dense population, infrastructure and limited vegetation cover, the temperature impact is usually very high and as such, reflective / heat-reducing roofing materials must be utilized where feasible. Likewise, Post-renovation greening and shading implementation must follow through.
- **Ecological Sensitivity:** The sites are bordered though by distant inland rivers and some close by canals, still the strict adherence to the "No-Harm" principle regarding waste-water discharge to protect the fragile ecosystem must be maintained.

4. Accessibility and Connectivity

- Primary Access: Connectivity to Oshodi Isolo is primarily via Oshodi-Ojodu / Otumara Ojodu / Otumara Expressway, also Airport Road, and Osolo Way, serves as a major commercial access point. Likewise, Ojodu and Yaba can be connected via Lagos-Ibadan Expressway and Gbagada /Oshodi Expressway or through Isolo Road corridor or the 3rd Mainland Bridge.

5. Demographic Catchment

The geographic layout of Group 2 was designed to ensure that no resident in the mainland corridor is more than 5km to 10km away from a revitalized healthcare facility, significantly reducing "travel poverty" for maternal and emergency care in this axis.

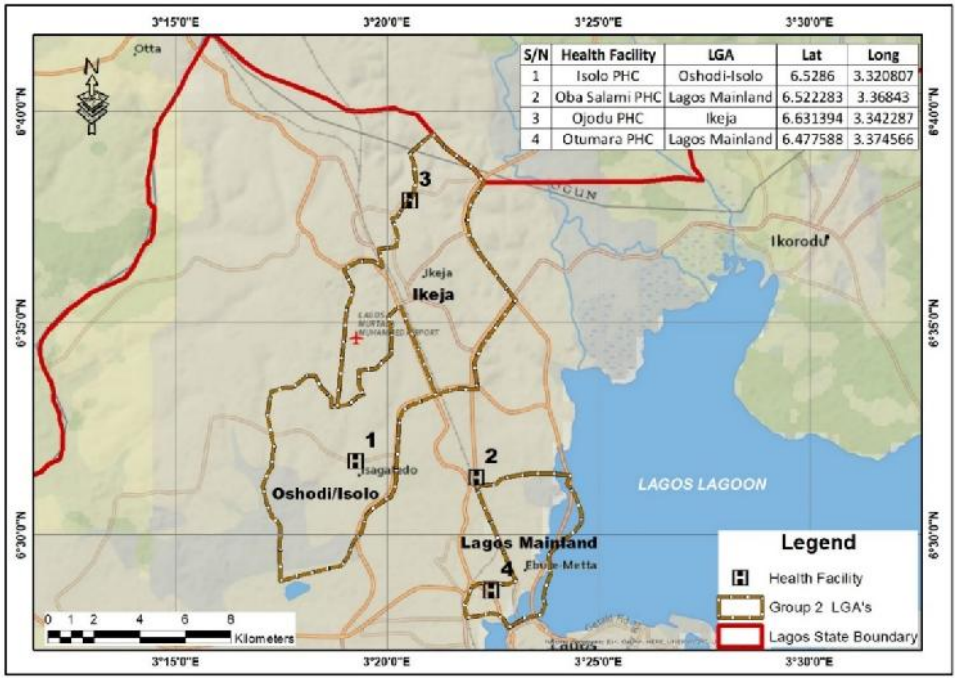


Figure 3.6 – Map of Mainland Axis – Group 2 showing all 4 project sites

3.2.2 Cluster 2 – Mainland Axis - Group 2 Site Summary

Table 3.2 – Mainland Axis - Group 2 Sites Overview

Below is the site information table for the Mainland Axis – Group 2, detailing the locations and project types for the four primary health centers.

Table 3.2: Site Information: Mainland Axis– Group 2

S/N	Site Name	LGA/LCDA	GPS Coordinates	Address/Landmark	Project Type
1	Isolo PHC	Oshodi-Isolo LGA, / Isolo lcda,	6.528600° N, 3.320807° E	200 Mushin Rd, Isolo, Lagos 102214, Lagos	Refurbishment

2	Oba Salami PHC	Lagos Mainland LGA / Yaba LCDA	6.522283° N, 3.368430° E	Onayade St, Igbobi, Lagos	Refurbishment
3	Ojodu PHC	Ikeja LGA,/ Ojodu LCDA	6.631394° N, 3.342287° E	Secretariat Road, Oke-Ira, Ogba, Ikeja, Lagos	New Construction
4,	Otumara PHC	Lagos mainland LGA, yaba LCDA	6.477588° N, 3.374566° E	Ijora Olopa, Lagos 101245, Lagos	New Construction

Technical Note:

- **Ojodu & Otumara PHC** is designated to be a climate resilient greenfield oriented facility due to the total structural failure of the existing facility.
- **Oba salami & Isolo PHC** are categorized as "Total Revitalization" sites, focusing on intensive refurbishment to address climate -induced structural decay common with old and non-climate resilient structures.

3.2.3 Cluster 2 Characteristics

Based on the Volume 1 – Mainland Axis (Group 2) ESIA report and the environmental baseline for the Isolo, Oba salami, and Ojodu & Otumara corridor, the following physical and social characteristics define the project area:

1. Topography

- Low-Lying Coastal Plain: The terrain is predominantly a low-lying terrain typical of coastal regions in the Niger Delta and Gulf of Guinea with high susceptibility to flooding.
- Elevation: Sites sit at very low elevations (often less than 5–10 meters above sea level).

Geomorphology: All four LGAs lie within the Lagos sedimentary basin, dominated by coastal plain sands, alluvium, and clay sequences, with geomorphology shaped by low-lying floodplains, swampy terrain, and urbanized landforms.

2. Hydrology

✧ Proximity to Water Bodies: Hydrology and Drainage of Oshodi-Isolo, Lagos Mainland and Ikeja LGA Oshodi-Isolo, Lagos Mainland, and Ikeja LGAs all face significant

hydrological challenges due to their low-lying terrain and rapid urbanization. Flooding is a recurring issue, with Oshodi-Isolo and Lagos Mainland more prone to urban floods, while Ikeja experiences relatively lower vulnerability but still requires strong drainage management.

- ✧ Surface Water Drainage: Groundwater potential is high, especially along river alluvium zones. Aquifers are shallow but vulnerable to pollution. Surface water is limited, with reliance on wells. Drainage systems are under expansion with ongoing road projects including slab casting and channel excavation. Flooding risk is moderate, especially during rainy season.
- ✧ Lagos mainland Lies within the Lagos Lagoon catchment. Hydrology dominated by lagoonal waters, shallow aquifers, and high groundwater table.

3. Land Use

- Rural-Residential Mix: Land use is primarily a mix of traditional residential settlements, schools, businesses, banks, incinerator, motor parks, Religious houses, shrines, Hotels, commercial blocks of plazas etc.
- Institutional Presence: The PHC sites are established "Social Landmarks" within these communities, often surrounded by small-scale commercial activities (Commercial stores / local markets & Churches).

4. Access

- Regional Connectivity: Regional connectivity is primarily supported by the Lagos–Ibadan and Lagos–Abeokuta Expressways and Gbagada/Oshodi Expressway which enable the movement of people and medical supplies. However, the internal road network across the axis is largely weak, narrow, poorly maintained, and degraded, and will require targeted improvements to ensure smooth project implementation and accessibility.
- Health care Access Sensitivity: Sensitivity level is high, due to large mobile and resident population relying on nearby facilities.

5. Environmental Sensitivities

- Traffic congestion, poor sanitation, and drainage blockage: These are persistent environmental challenges across Ojodu, Isolo, and Yaba, driven by high urban population densities typically exceeding 13,000–23,000 persons/km². The resulting pressure on infrastructure contributes to frequent waste accumulation, overstressed drainage systems, and localized flooding, indicating moderate to high environmental

sensitivity that requires targeted management interventions within Lagos Mainland LGA

6. Social Sensitivities

- ✧ Vulnerable Populations: Very high, due to dense populations and the role of these areas as major residential, commercial, and commuter hubs. The constant influx of residents, workers, and traders increases reliance on PHCs for accessible and affordable healthcare services.
- ✧ Cultural Values: The communities are closely knit, with strong dependence on local health facilities. Any disruption to healthcare services during construction is highly sensitive, making the provision of temporary service points essential.
- ✧ Livelihood Protection: Economic activities in these areas depend heavily on continuous access through already strained internal road networks. Construction must be carefully managed to avoid traffic disruptions, ensuring that transportation, trading, and daily livelihoods are not adversely affected.

A comparative site layout of the various sites that highlights key features for the Ojodu and Otumara Primary Health Centres (PHCs). This vertical split-panel in Figure 3.9 highlights the unique environmental contexts and structural designs of each site.

- **Elevated Infrastructure:** Otumara PHC, located on reclaimed coastal land, is visualized with a single-storey building on concrete pylons (raised) for flood protection, a raised access road, and flood-resistant fencing. It also features a specific 15–30 meter **Protected Waterfront Buffer (Riparian Zone)** between the site and the water's edge, planted with shoreline vegetation.
- **Drainage and Utilities:** Ojodu PHC uses perimeter drains and silt traps to connect to municipal systems, alongside municipal water and power supplemented by **Solar PV**. Otumara PHC, in addition to standard connections, includes an illustrated on-site **Borehole System with Tank** to address water independence.
- **Waste Management:** The **Medical Waste Area** at Otumara PHC is visualized as enclosed and elevated on a flood-protected platform, whereas at Ojodu PHC it is standard enclosed.
- **Site Context:** The Ojodu panel depicts a dense urban street grid, while the Otumara panel illustrates a reclaimed area adjacent to canals and a lagoon.

All values from your table (parking counts, boundary heights, landscaping ratios, etc.) are accurately labeled and visually integrated into the respective site plans to support a clear comparison.

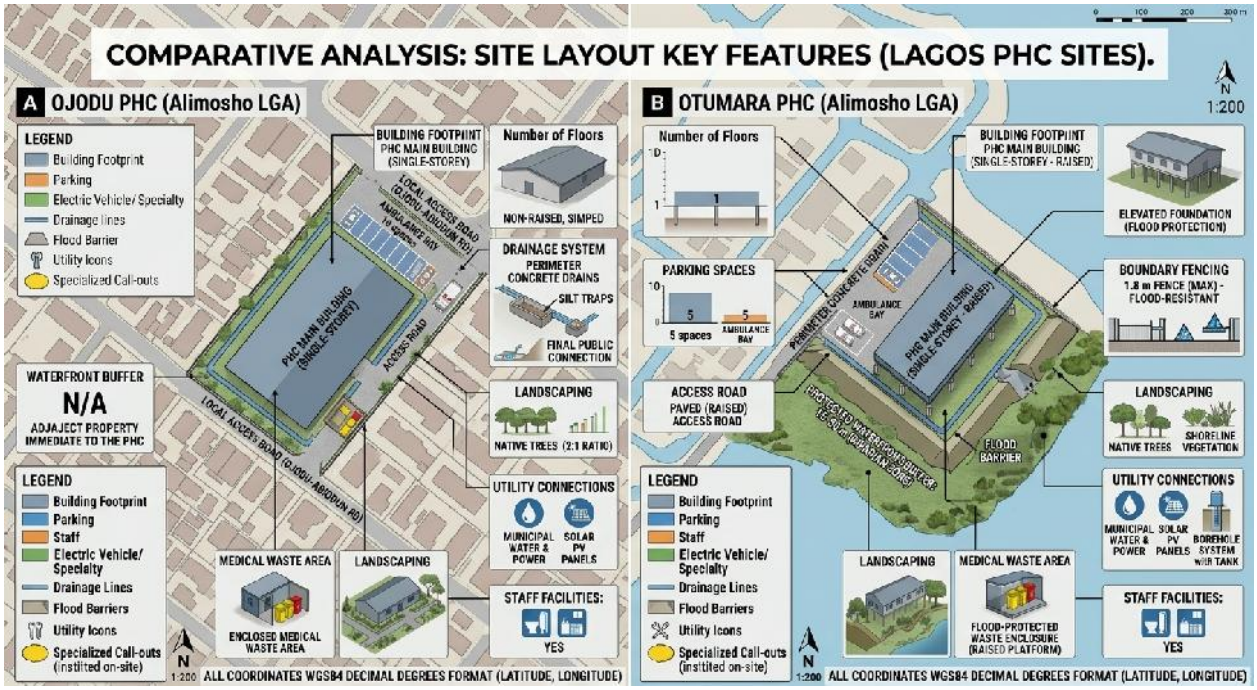


Figure 3.7: A comparative site layout of the various sites

Feature	Ojodu PHC	Otumara PHC
Building Footprint	600-800 m²	600-800 m²
Number of Floors	Single-storey	Single-storey (raised)
Parking Spaces	10 spaces	5 spaces
Ambulance Bay	Yes	Yes
Drainage System	Perimeter drains + silt traps	Perimeter drains + flood barriers
Waterfront Buffer	N/A	15-30 m (protected)
Access Road	Paved	Paved (raised)
Boundary Fencing	1.8 m	1.8 m (flood-resistant)
Landscaping	Native trees (2:1 ratio)	Native trees + shoreline vegetation
Utility Connections	Municipal + solar PV	Municipal + solar PV + borehole
Medical Waste Area	Enclosed	Enclosed + flood-protected
Staff Facilities	Yes	Yes"

3.3 Project Particulars -- New Construction (2 Facilities)

The 2 new construction and expansion PHCs in the Mainland Axis 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 (up to 100,000+ across dense urban catchment)
- Operation hours: 24 hours / 7 days
- Bed capacity: 15 beds per PHC (total 30 new primary level beds in the Mainland Axis)
- Clinical jobs created: 29 direct clinical jobs per PHC (total 56 in the Mainland Axis)

3.3.1 New Construction & Expansion Facilities -- Mainland Axis

Table 3.3: New Construction and Expansion Facilities in the Mainland Axis

Facility	LGA/LCDA	Safeguard Requirement	Key Rationale
Ojodu PHC	Ikeja LGA / Ojodu LCDA	ESIA + Urban Displacement Framework	High-density urban growth; expansion to meet rising primary healthcare demand; management of informal roadside traders along site perimeters
Otumara PHC	Lagos Mainland LGA	ESIA + Urban Drainage / Waterfront Safeguards	Riverside/tidal location requiring raised modular construction, flood resilience, and dedicated urban drainage engineering

3.3.2 New PHC Design Features (All New Construction Sites)

Table 3.4: New PHC Design Features

Feature	Specification	Environmental/Social Benefit
Building footprint	Single-storey (or raised stilt-supported where required for tidal/flood zones), reinforced concrete frame, block walls	Durability, structural resilience, easy maintenance
Floor area	Approximately 500–800 m²	Adequate space for expanded clinical and administrative services
Roof	Cool roof (reflective coating), heat-resistant materials	Reduces heat gain, lowers internal cooling load

Natural Ventilation	Cross-ventilation design, louvred windows, ceiling fans	Reduces reliance on air conditioning, lowers energy consumption
Solar PV System	50–100 kVA capacity with battery storage (24–48 hours backup)	Zero-emission energy, grid-independent operation, reduces diesel generator use
Water Supply	Borehole + UV filtration + rainwater harvesting (5,000–10,000 L storage)	Water security, reduces reliance on municipal supply and groundwater abstraction
Sanitation	Septic tank + soakaway / urban sewer connection; handwashing stations	Prevents environmental and water pollution
Medical Waste	Segregation (colour-coded bins), sharps containers, autoclave	WHO-compliant medical waste management
Disability Access	Ramps, wide doorways (≥900 mm), accessible toilets, handrails, tactile paving	Inclusive design for elderly, disabled, and vulnerable patients
Maternal & Child Health	Dedicated maternal and child health unit, delivery room, immunisation room, postnatal care	Reduces maternal and under-five mortality
Emergency Services	Emergency treatment room, ambulance bay	24/7 emergency care access
Laboratory	Basic diagnostic lab (malaria, TB, HIV, urine, blood glucose)	On-site rapid diagnosis
Pharmacy	Secure drug storage, dispensing window	Reliable access to essential medicines
Staff Facilities	Changing rooms, toilets, break room	Enhanced worker welfare and operational morale
Landscaping	Native species planting, shaded stormwater management areas	Urban aesthetics, thermal cooling, biodiversity enhancement



Figure 3.8 -- Typical floor plan of new PHC (prototype design)



Figure 3.9 -- 3D rendering of typical new PHC (exterior)

3.3.3 Site-Specific Features -- New Construction (Mainland Axis)

Ojodu PHC (New Construction / Expansion)

- Existing constrained footprint expanded into a new single-storey building of approximately 600–800 m² total floor area, comprising:
    - Clinical consultation rooms: 140 m²
    - Maternal and child health unit: 100 m²
    - Laboratory and pharmacy: 70 m²
    - Emergency treatment room: 50 m²
    - Waiting area and reception: 80 m²
    - Staff facilities and administration: 90 m²

    - Utility and storage areas: 70 m²
- Engineered urban drainage specifications:
    - 600mm diameter reinforced concrete pipes
    - 1:100-year storm capacity + 30% climate factor (as per Nigeria's NDC commitments)
    - Slope gradient of 1:50 to ensure efficient stormwater discharge into municipal mains
    - Outfall channel dimensions of 1.2m width $\times$ 1.0m depth
    - Catchment area drainage capacity: 0.5 hectares
    - Silt traps and sediment basins installed at outfall points to prevent urban siltation
- Urban displacement management: Economic displacement of informal roadside traders and kiosk operators along the boundary alignment requires a structured livelihood restoration framework.

Otumara PHC (New Construction / Waterfront Upgrade)

- Waterfront and tidal interface location requiring specialized architectural and civil engineering:
    - Raised modular or stilt-supported structural design to ensure resilience against severe tidal flooding and urban stormwater surges
    - Protected 15–30 m urban waterfront buffer zone to prevent erosion and stabilize the canal interface
    - Flood resilience engineering, including elevated electrical panels, water-resistant perimeter walls, and heavy-duty sump pumps
    - Upgraded access pathways and reinforced drainage connections to interface with surrounding high-density municipal corridors

3.4 Project Particulars -- Refurbishment (2 Facilities)

The 2 refurbished PHCs in the Mainland Axis (Isolo PHC and Oba Salami PHC) 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 -- Mainland Axis (Group 2)

Table 3.5: Refurbishment Facilities in the Mainland Axis

Facility	LGA/LCDA	Safeguard Requirement	Key Rationale

Isolo PHC	Oshodi-Isolo LGA	ESIA + Asbestos Abatement	Legacy structural deterioration; confirmed legacy asbestos roofing and wall materials requiring safe abatement and structural modernization.
Oba Salami PHC	Lagos Mainland LGA	ESIA + Asbestos Abatement + Urban Displacement	Older metropolitan facility with legacy asbestos, space constraints, and informal roadside trading activities along the perimeter requiring structured livelihood management.

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, full roof replacement	Asbestos exposure (Isolo & Oba Salami -- legacy ACM); construction dust; ambient noise	Comprehensive asbestos survey and licensed abatement; dust suppression; strict noise restrictions
Electrical upgrades	Rewiring, new LED lighting, circuit breakers, solar PV integration	Electrical shock hazard; fire risk	Licensed electricians; rigorous testing; fire extinguishers and safety protocols
Plumbing upgrades	New piping network, fixtures, sanitary toilets, handwashing stations, solar water heaters	Water leaks; wastewater contamination risks	Pressure testing; proper connection to municipal drainage/septic systems
Medical waste system	Segregation bins, sharps containers, dedicated autoclave units	Needle-stick injuries; infectious waste exposure	Comprehensive training; provision of proper PPE;

			implementation of HMWMP
Disability access	Construction of ramps, widened doorways ($\ge$900 mm), accessible toilets, safety handrails	Physical injury; exclusion of vulnerable users	Adherence to inclusive design standards; site supervision
Solar PV installation	Roof-mounted solar PV system with inverter and battery backup storage	Structural roof loading capacity; electrical safety	Pre-construction structural assessment; certified solar installers
Rainwater harvesting	Gutters, downspouts, and storage tanks	Water quality safety (if untreated)	UV filtration systems; mosquito screening on storage units
Painting and finishing	Application of low-VOC paints and durable interior/exterior finishes	VOC exposure for workers; indoor air quality	Use of certified low-VOC materials; adequate cross-ventilation
Landscaping	Native species planting, perimeter greening, erosion control	Soil erosion; loss of local micro-habitat	Revegetation; installation of silt fences and drainage swales

3.4.3 Site-Specific Sensitivities -- Refurbishment (Mainland Axis)

Table 3.7: Refurbishment Sites with Specific Sensitivities

Site	Key Sensitivity	Special Requirement
Isolo PHC	Confirmed asbestos roofing and building materials; dense urban traffic and pedestrian congestion	Comprehensive pre-construction licensed asbestos abatement (HMWMP); strict dust suppression; urban traffic management plan

Oba Salami PHC	Confirmed asbestos building materials; informal roadside trading and economic displacement along the site perimeter	Licensed asbestos abatement; urban displacement and livelihood management framework; pedestrian safety barriers during construction

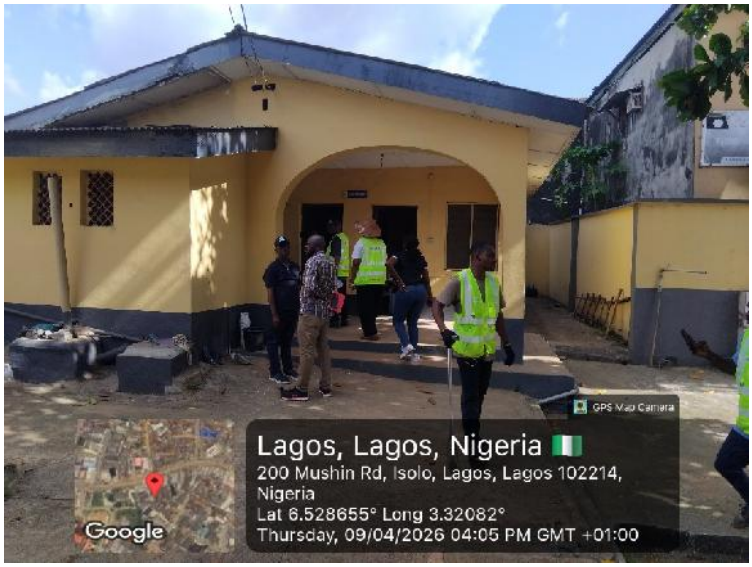


Plate 3.1 – Isolo PHC (before refurbishment) – Compromised roofing envelope

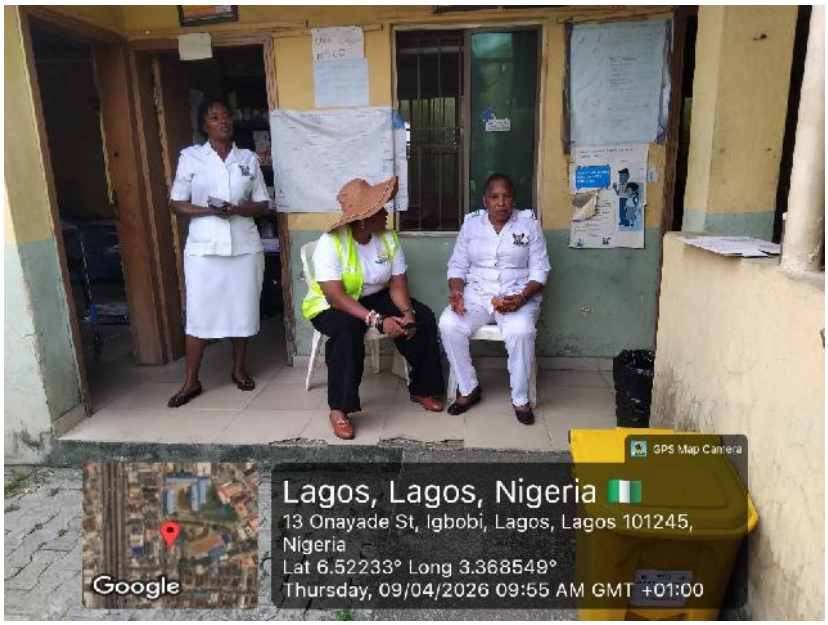


Plate 3.2 – Oba Salami PHC (before refurbishment) – failing WASH infrastructure

3.5 Process Description

3.5.1 Pre-Construction Phase (Mainland Axis)

The pre-construction phase is critical for the Mainland Axis to ensure that engineering designs and environmental operational safeguards (OS2) promote fair treatment, non-discrimination and safe working environment. Ensuring optimum labour and working conditions.

Table 3.8: – Pre-Construction Activities for Mainland Axis

Activity	Description	Duration	Responsible	E&S Considerations
Site Handover & Mobilization	Formal handover of sites to the contractors and establishment of temporary site offices/lay-down areas.	2 Weeks	Ministry of Health / Project PIU	Ensure site clearing does not disrupt local community access or damage adjacent private properties.
Topographic & Hydrogeological Surveys	Detailed mapping of elevations and groundwater levels to finalize flood-resilient foundation designs.	3 Weeks	Lead Engineering Consultant	Identifying flood-prone zones to minimize land disturbance and avoid siltation of nearby water bodies.
Stakeholder & Community Engagement	Town hall meetings with local leaders and residents in Mainland West LCDA to discuss project timelines.	Ongoing (Pre-start)	Safeguards Team / LSHIP PIU	Addressing community concerns regarding service disruptions and prioritizing local labor recruitment.
Development of Site-Specific ESMP	Tailoring the management plan to address specific risks like saltwater intrusion and medical waste handling.	4 Weeks	Environmental Consultant	Ensuring all mitigation measures for the coastal ecosystem are documented and integrated into the works contract.

Permitting & Regulatory Approvals	Obtaining necessary clearances from LASEPA and other relevant Lagos State planning authorities.	4–6 Weeks	LSHIP PIU / Contractor	Ensuring full compliance with state environmental laws to prevent legal or environmental delays.
Temporary Service Setup	Establishment of temporary clinical booths to maintain maternal and immunization services during works.	3 Weeks	Facility Managers / Contractor	Ensuring the temporary site is safe, hygienic, and accessible for elderly and vulnerable patients.
Baseline Air & Water Quality Testing	Recording pre-construction environmental parameters to monitor future construction impacts.	1 Week	Environmental Specialist	

Key Strategic Focus for Group 2

Given the Mainland context, the pre-construction phase places a heavy emphasis on Hydrogeological Surveys due to the high-water table and Community Engagement to manage the logistics around the terrible state of the internal connecting roads as well as the option for riverine material transport in Otumara and Oba Salami.

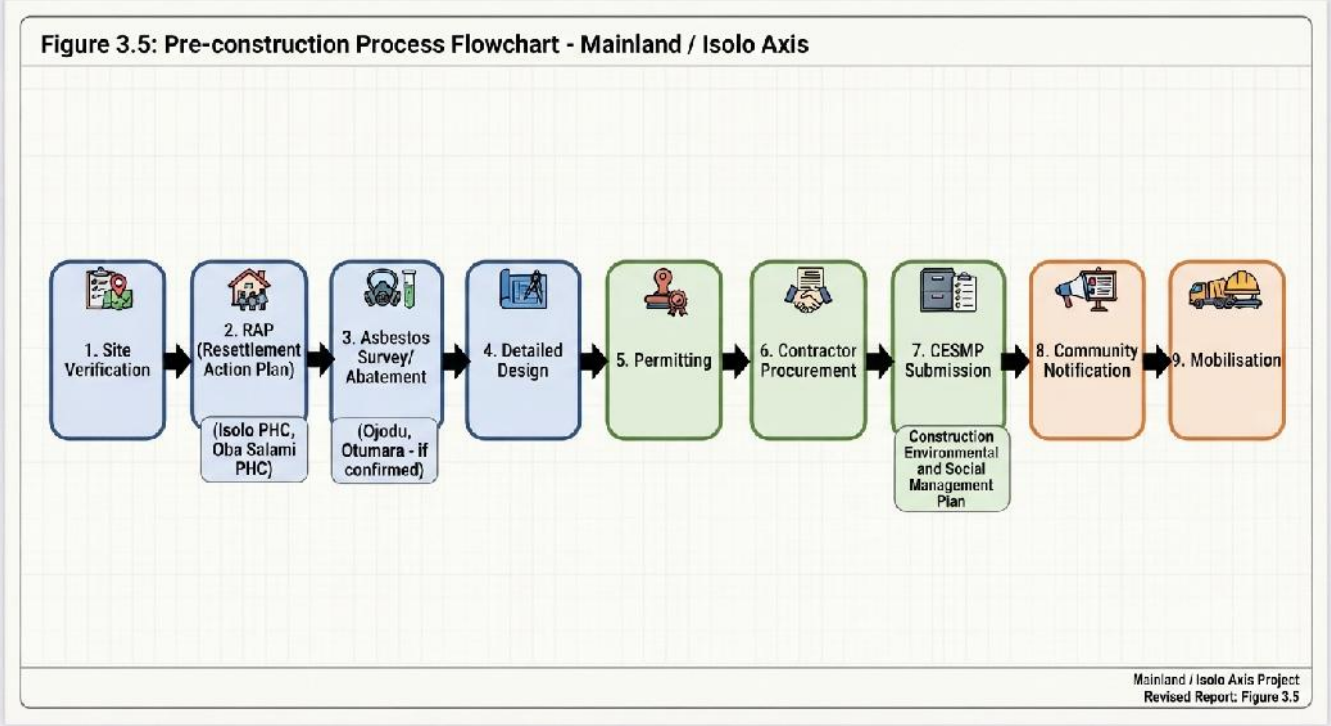


Figure 3.10 – Pre-construction process flowchart

3.5.2 Construction Phase -- New Construction (2 Sites -- Mainland Axis)

Table 3.9 -- Construction Activities for New Construction Sites

Activity	Description	Duration (Typical)	E&S Considerations
Site clearing	Remove vegetation, surface debris, boundary obstructions, or obsolete structures (Ojodu and Otumara)	1–2 weeks	Urban dust suppression, ambient noise control, municipal waste management, local traffic coordination
Earthworks	Excavation, filling, urban grading, and specialized waterfront channel stabilization / drainage clearing (Otumara)	2–4 weeks	Urban soil erosion control, stormwater runoff management, sedimentation prevention, dust suppression
Foundation	Reinforced concrete footings, ground slab, and raised/stilt structural foundation systems for tidal flood zones (Otumara)	2–3 weeks	Concrete wash water containment (pH management), structural noise control

Structural works	Columns, beams, block walls, and reinforced concrete framework construction	4–8 weeks	Construction dust, ambient noise, masonry waste management, strict OHS compliance (working at height)
Roofing	Roof truss structure and cool roof reflective coating installation	2–3 weeks	OHS (working at height, wind safety in urban corridors), material drop protection
MEP installation	Electrical wiring (including solar PV integration), plumbing, and natural ventilation systems	4–8 weeks	Electrical safety, water line pressure testing, OHS protocols
Finishing	Flooring, low-VOC painting, doors, windows, and sanitary fixture installation	4–6 weeks	VOC exposure reduction, paint waste disposal, lead-free verification, ergonomics
Medical equipment installation	Installation of diagnostic laboratory equipment, autoclaves, and pharmacy cold-chain refrigerators	2–4 weeks	OHS during heavy equipment handling, pre-commissioning medical waste system testing
Landscaping	Native species planting, perimeter greening, and drainage swale stabilization	1–2 weeks	Soil stabilization, urban micro-climate cooling, and biodiversity enhancement
Commissioning	Comprehensive systems testing (solar PV, borehole water UV treatment, medical waste autoclave, fire safety)	1–2 weeks	Rigorous worker and community safety verification prior to formal facility handover

3.5.3 Construction Phase -- Refurbishment (2 Sites -- Mainland Axis)

Table 3.10 -- Construction Activities for Refurbishment Sites (Mainland Axis)

Activity	Description	Duration (Typical)	E&S Considerations

Site preparation	Remove existing damaged fixtures, set up safety hoardings, protect remaining historical structures	1–2 weeks	Urban dust control, ambient noise management, municipal waste disposal, local pedestrian safety
Demolition (partial)	Remove unsafe structural annexes and legacy asbestos-containing materials (Isolo and Oba Salami – confirmed)	1–3 weeks	Asbestos fiber exposure risk, strict dust suppression, hazardous waste manifesting and disposal
Structural repairs	Repair cracked walls, inject structural grout, replace deteriorated beams and columns	2–4 weeks	Construction dust, noise mitigation, structural waste management, strict OHS compliance (falls from height)
Roof replacement	Remove legacy roofing and install modern weather-resistant roof structure (asbestos abatement protocols applied where required)	1–2 weeks	Asbestos exposure protection, OHS working at height, wind and drop safety in dense urban corridors
MEP upgrades	Rewiring electrical systems, installing new energy-efficient LED lighting, plumbing overhauls, and solar PV integration	3–6 weeks	Electrical safety, water line pressure testing, OHS protocols
Finishing	Flooring installation, low-VOC painting, new doors, windows, and interior fixtures	2–4 weeks	VOC exposure reduction, indoor air quality management, paint waste disposal
Medical waste system	Install colour-coded segregation bins, sharps containers, and dedicated medical waste autoclaves	1–2 weeks	Needle-stick injury prevention, safe infectious waste handling protocols

Disability access	Construct concrete ramps, widen doorways ($\ge$900 mm), install accessible toilets and safety handrails	1–2 weeks	Physical safety barriers, inclusive design compliance for vulnerable patients
Landscaping	Native species planting, perimeter greening, and drainage swale stabilization	1–2 weeks	Soil erosion control, urban micro-climate cooling, biodiversity enhancement

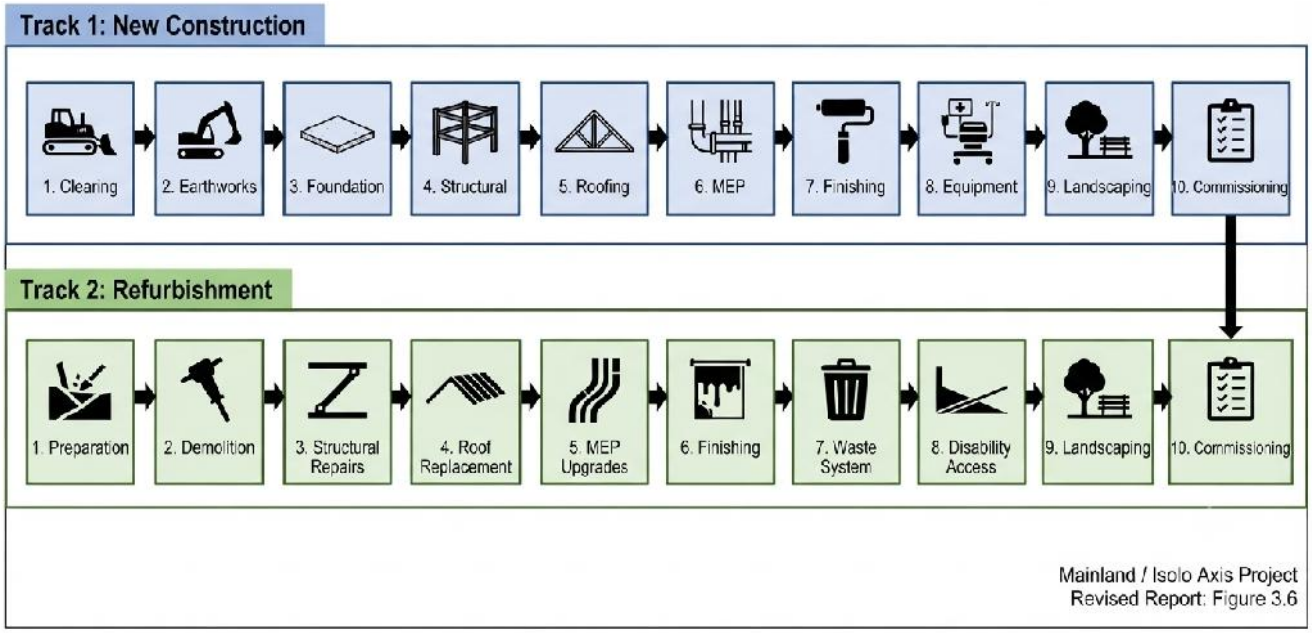


Figure 3.11 – Construction phase process flowchart (Mainland Axis)

3.6 Project Resources -- Mainland Axis

3.6.1 Labour Requirements

Table 3.11 -- Labour Requirements by Category (Mainland Axis -- Peak)

Labour Category	Estimated Number of Persons	Source of Labour Force	Accommodation
Skilled workers (engineers, technicians, electricians, plumbers)	60–90	Lagos State and metropolitan area	Own accommodation or local rental
Semi-skilled (masons, carpenters, welders)	90–140	Lagos State (local hiring preference within host LGAs)	Local rental

Unskilled (labourers, cleaners, security)	140–220	Ikeja and Lagos Mainland LGAs (≥50% local hiring target)	Local residence / rental (preferred)
Management/supervision (PIU, contractor management)	12–25	Lagos State + contractor team	Own accommodation

- **Total estimated peak workforce for Mainland Axis:** 300–475 workers (across 4 project sites, phased implementation)
- **Local hiring target:** ≥50% of unskilled labour sourced directly from the host LGAs (Ikeja and Lagos Mainland) where construction occurs
- **Labour influx risk:** Low to Medium (effectively absorbed by the existing urban housing market, robust transport network, and abundant local workforce availability within metropolitan Lagos)

3.6.2 Material Requirements

Table 3.12 -- Material Requirements (Mainland)

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	≥60%	Readily available locally; supports local distribution
Sand and Gravel	≥80%	Abundant local sources; reduces transport emissions and cost
Concrete Blocks	≥80%	Multiple local manufacturers; supports local industry
Steel	≥40%	Limited local manufacturing; regional sourcing feasible
Plumbing Materials	≥70%	Widely available in local hardware stores
Electrical Materials	≥60%	Available through local distributors
Paints and Finishing	≥70%	Local manufacturing available
Wood/Formwork	≥80%	Local timber markets available
Solar Panels	≤20%	Limited local manufacturing; imported essential
Batteries	≤10%	Limited local manufacturing; imported essential

3.6.3 Equipment Requirements

Table 3.13 -- Equipment Requirements (Mainland)

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 -- Mainland

3.7.1 Air Emissions

Managing air quality is essential in the Mainland axis to protect the health of patients at the active Isolo, Ojodu, Oba Salami, and Otumara sites, as well as the residents in the surrounding urban communities.

Table 3.14 -- Air Emission Sources and Mitigation (Mainland)

Source	Pollutant	Mitigation
Demolition & Site Clearing (Isolo/Oba Salami PHCs)	Dust and Particulate Matter (PM_{10}, $PM_{2.5}$)	Regular water sprinkling of work areas; use of dust screens/nets around the site perimeter during demolition.
Excavation & Earthworks	Wind-blown Dust (PM_{10})	Covering of all transported sand and soil with tarpaulins; prompt compaction of filled areas.
Construction Vehicles & Machinery	Nitrogen Oxides (NO_2), Sulphur Dioxide (SO_2), Carbon Monoxide (CO)	Mandatory regular servicing of all diesel engines; "No-Idling" policy for trucks waiting to offload materials.
On-site Power Generation	CO_2, SO_2, and Particulates	Prioritizing early installation of the Hybrid Solar System to reduce generator run-time; use of low-sulphur diesel.
Surface Coating (Painting/Sealing)	Volatile Organic Compounds (VOCs)	Strict use of Low-VOC paints and adhesives; ensuring adequate cross-ventilation during internal application.
Material Storage (Cement/Sand)	Fine Particulate Dust	Cement storage in enclosed, moisture-proof sheds; sand stockpiles kept damp or covered in windy conditions.

Welding & Metal Fabrication	Metal Fumes and Ozone	Conducting welding in designated, well-ventilated areas away from patient wards; use of appropriate PPE for workers.

3.7.2 Noise

Table 3.15 -- Noise Sources and Levels

Source	**Typical Noise Level (dB(A) at 10m)**	**Mitigation**
Concrete Mixers & Vibrators	75 – 85	Placing stationary equipment behind acoustic barriers or temporary plywood hoarding; regular lubrication of moving parts to reduce friction noise.
Excavators & Heavy Trucks	80 – 90	Mandatory "No-Hunking" policy within the hospital zone; ensuring all vehicle silencers and mufflers are in good working condition.
Hand-held Power Tools (Drills, Saws)	75 – 80	Use of modern, low-noise electric tools; scheduling high-decibel internal works (e.g., wall chasing) during low-patient-traffic hours.
Backup Generators	70 – 80	Housing generators in sound-attenuated enclosures; prioritizing the early switch-over to the silent Hybrid Solar System.
Material Loading/Unloading	65 – 75	Ensuring timber and metal pipes are placed rather than dropped; rubber matting on loading bays to dampen impact noise.

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 (Mainland)

Source	Volume (Typical)	Pollutants	Mitigation
Sanitary Wastewater (Toilets & Staff Quarters)	1.5–3.5m^3/day (Per Facility)	Pathogens (coliforms), organic matter (BOD), nutrients (Nitrogen).	Upgraded Lined Septic Systems: Implementation of sealed, lined tanks to prevent seepage into the high coastal water table.
Medical/Laboratory Liquid Waste	Low (0.2–0.5 5m^3/day)	Disinfectants, chemicals, blood-borne pathogens, pharmaceutical residues.	Point-of-Source Pre-treatment: Neutralization and disinfection before discharge into the sanitary system; avoid direct disposal to drains.
Stormwater Runoff (Coastal/Riverine areas)	High (Seasonal/Flash floods)	Sediments, debris, surface oils, and fecal matter from open areas.	Engineered Drainage: Construction of lined peripheral drains and silt traps to prevent direct runoff into the lagoon or nearby water bodies.
Facility Laundry & Cleaning	0.5–1.2 5m^3/day	Detergents, surfactants, and suspended solids.	Filtration & Infiltration: Use of grease/silt traps and controlled discharge into designated soak-away pits located away from groundwater wells.

3.7.4 Solid Waste

Table 3.17 -- Solid Waste Types and Management (Mainland Axis)

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.
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 (Isolo and Oba Salami – 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, generator and waterfront/boat engine maintenance (Otumara)	1–3 tonnes (total)	Yes	Bunded storage (above flood level) created around facilities containing fuels/oils; spill kits on-site and on transit/marine craft; 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; LAWMA Medical / licensed hazardous waste 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 municipal truck pickup).

3.8 Traffic Status & Forecast

3.8.1 Baseline Traffic

Based on the baseline studies for the Lagos State Health Infrastructure Project (LSHIP) and traffic patterns observed within the Mainland corridor, Table 3.18 outlines the estimated traffic conditions for the Group 2 sites.

These sites (Ojodu, Otumara, Oba Salami & Isolo) sits on moderately elevated terrain with some low-lying areas prone to localized flooding from heavy rainfall and inadequate drainage, rather than direct coastal or wetland exposure. Now, unlike peripheral areas, they experience high traffic volumes due to their urban and commercial importance. However, road conditions are uneven, especially the internal roads connecting these PHCs which persistently surfers periodic deterioration and congestion, especially during rainfall events that affect drainage performance.

Table 3.18 – Baseline Traffic by Site[2]

Site	Road	AADT (Estimated)	LOS	Peak Hours
Isolo PHC	200 Mushin Rd, Isolo, Lagos 102214, Lagos	850 – 1,200	C	07:30 – 09:30; 16:30 – 18:30

[2] The AADT figures are estimates from passenger-car-unit (PCU) counts observed during field reconnaissance. One open item: the Otumara PHC AADT cell is blank; recommend populating it from a short classified count, as this corridor (Ijora-Olopa, port-access) carries heavy truck traffic.

Oba Salami PHC	Onayade St, Igbobi, Lagos	400 – 650	B	08:00 – 10:00; 15:00 – 17:00
Ojodu PHC	Secretariat Road, Oke-Ira, Ogba, Ikeja, Lagos	1,100 – 1,500	D	07:00 – 10:00; 16:00 – 19:00
Otumara PHC	Ijora Olopa, Lagos 101245, Lagos	1,000--3,000	D	07:00 – 10:00; 16:00 – 19:00

Source:

Traffic Context & Definitions

- AADT (Annual Average Daily Traffic): Estimates are based on the passenger car units (PCU) observed during field reconnaissance. Volume at these sites is dominated by:
    - Motorcycles (Okadas) and Tricycles (Keke NAPEP).
    - Light commercial vehicles (small trucks for agricultural produce).
    - Pedestrian traffic (significant near the PHC entrances).
- LOS (Level of Service):
    - LOS B/C: Indicates relatively free flow, though travel speeds may be limited by road surface conditions (potholes/unpaved sections) rather than vehicle density.
- Peak Hours: Morning peaks are driven by local market movements and staff commuting.
    - Oba salami, Ojodu, Isolo & Otumara peaks are extended due to urban business hours traffic in the early hour of the day and afternoon to evening logistics and security checks that slow down traffic flow during the late afternoon.

Impact Observation

For the project area, primary traffic concern during refurbishment or construction is not volume-driven congestion, but rather site accessibility. The narrow nature of the access roads at Oba salami, ojodu and Otumara means that construction delivery trucks (e.g., those carrying cement or aggregates) should be scheduled outside of the peak morning windows to avoid blocking local passage.

3.8.2 Construction Traffic Forecast

For the project activities, the construction traffic will be intermittent and relatively low-impact given the small-to-medium scale of the facilities. However, because the access roads (especially at Yaba & Isolo or Ojodu) are narrow, careful scheduling is required to prevent localized bottlenecks.

Activity	Additional Vehicle Trips (per day, per site)	Peak	Mitigation
Site Mobilization	4 – 6 (Low-beds, light trucks)	Weeks 1–2	Move heavy equipment during off-peak hours (10:00 – 14:00); provide flagmen at narrow access points.
Material Delivery (Cement, Sand, Gravel)	6 – 10 (Tippers, 5-ton trucks)	Foundation & Walling Phase	Schedule deliveries in batches; ensure trucks are covered with tarpaulins to prevent dust/spillages.
Workforce Transport	10 – 15 (Motorcycles, vans)	Daily (07:00 & 17:00)	Encourage carpooling/group transit for laborers; establish a designated parking zone away from the PHC entrance.
Waste Removal	2 – 4 (Skips/Refuse trucks)	Weekly or Post-Demolition	Coordinate with LAWMA-approved PSPs for evening collection to avoid daytime traffic conflict.
Equipment Demobilization	3 – 5 (Flatbeds)	Project Closure	Site inspection to ensure no debris remains on the road; final road sweeping.

Key Traffic Management Protocols

- Temporary Signage: Install "Caution: Construction Site Ahead" signs 200m before the entrance of the Ojodu and Otumara sites to alert local commuters and motorcyclists.
- Access Management: For the Oba Salami, Otumara & Ojodu PHC, where the road is particularly narrow, a "One-Way" entry/exit protocol should be managed by site security during major material offloading to prevent gridlock with local traffic.
- Community Notification: Provision to the local Baale (Community Leader) and transport unions with a 48-hour notice before any significant increase in heavy-duty vehicle movement.

- Road Maintenance: Any damage to the local access roads caused by heavy construction vehicles will be repaired as part of the site handover process to maintain community goodwill.

Summary of Impact

The cumulative traffic increase is expected to be less than 25 trips per day per site during the busiest phase. This falls well within the carrying capacity of the existing road network, provided the peak hour mitigations are strictly followed.

3.8.3 Operation Traffic Forecast

Under the LSHIP/IMPACT project framework, these facilities are expected to see a significant increase in patronage due to improved service delivery, mandatory health insurance (Ilera Eko) integration, and consistent drug supply.

Table 3.19: – Operation Traffic Forecast

Facility	Estimated Daily Patient Visits (Year 1)	Estimated Staff	Estimated Visitor Trips (daily)
Isolo PHC	45 – 65	12 – 18	20 – 35
Oba Salami PHC	30 – 45	8 – 12	15 – 25
Ojodu PHC	50 – 75	15 – 20	25 – 40
Otumara PHC	50 – 75	15 – 20	25 – 40

Traffic Forecast Assumptions

- Estimated Daily Patient Visits: These figures account for the "bounce-back" effect post-refurbishment. Ojodu & Otumara is projected to have the highest volume due to its share population size that houses over 40,000 people /$km^{2.}$.
- Estimated Staff: Reflects the Lagos State standard for "Flagship" or upgraded PHCs, including Medical Officers, Nurses/Midwives, Community Health Extension Workers (CHEWs), Lab Technicians, and administrative/security personnel. Staff typically arrive in a single morning wave (07:30 – 08:30).
- Estimated Visitor Trips: This includes caregivers accompanying patients (often 1-2 per patient in Ojodu, Otumara & Oba salami), pharmaceutical deliveries, and facility management visits.

- Modal Split: Based on the Mainland Axis baseline, approximately 70-80% of these trips will be via non-private motorized transport (Okadas and Keke NAPEP) or pedestrian trekking, with private vehicle usage accounting for less than 10-15% (mostly staff and emergency vehicles).

Operational Impact & Mitigation

- Emergency Access: A clear "Yellow Zone" (No Parking) will be maintained at the entrance of the Ojodu and Otumara PHCs to ensure ambulances or emergency vehicles have unfettered access, especially during peak market hours.
- Peak Flow: Patient arrival typically peaks between 08:30 and 11:00. Staggered appointment systems or community outreach programs can help distribute this load and minimize localized pedestrian congestion at the facility gates.

3.8.4 Traffic Management Plan (TMP)

All construction sites in the axis will have a TMP (Appendix 8) 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)
- Emergency access (clear routes for ambulances, fire trucks)

3.9 Project Schedule -- Mainland

3.9.1 High-Level Schedule

Table 3.20 -- High-Level Project Schedule (Mainland)

Phase	Duration	Start (Target)	End (Target)
Pre-construction (RAP, asbestos, design, permits)	6–12 months	Q2 2026	Q1–Q2 2027
Construction (phased across 4 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 3.21 -- Detailed Construction Schedule (Typical PHC -- Mainland)

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											■	■

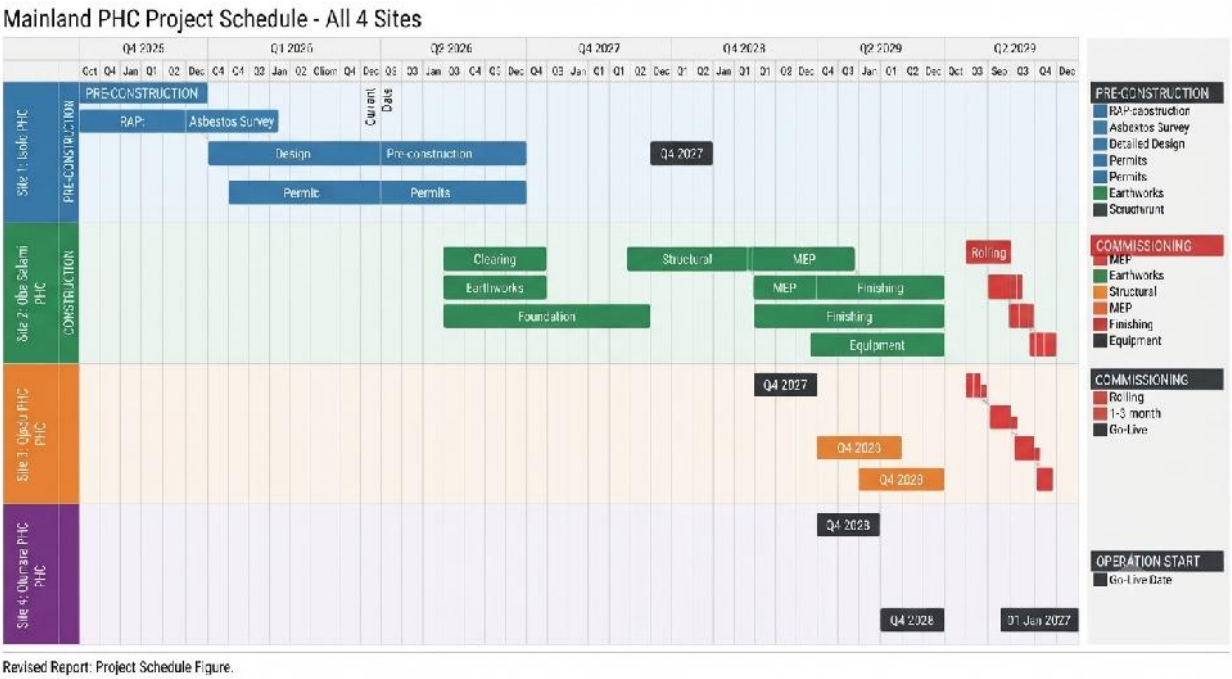


Figure 3.12 – Project schedule Gantt chart (Mainland Axis – all 4 sites)

3.10 Summary

Chapter three has provided a description of the LSHIP facilities within Mainland Axis – Group 2, including:

- Strategic Healthcare Transformation: The US$200 million AfDB-financed LSHIP project aims to modernize healthcare in the Mainland Axis (Group 2) through a dual approach: New Greenfield Construction for the Ojodu & Otumara PHC and refurbishment for the Oba Salami and Isolo PHCs.
- Climate-Resilient Engineering: Due to the coastal location, the project prioritizes flood-resilient designs (elevated foundations) and corrosion-resistant materials (marine-grade aluminum-zinc) to withstand high salinity and a shallow water table.
- Sustainability & Infrastructure: All sites will be upgraded with Hybrid Solar Power for 24/7 cold-chain storage, advanced solar-powered WASH systems, and non-permeable septic tanks to prevent groundwater contamination in the riverine ecosystem.
- Strict Phasing & Continuity: The project will follow a clear timeline with a mandate for service continuity, utilizing temporary clinical booths so that maternal and immunization services remain available during the construction/refurbishment works.
- Environmental & Social Safeguards: Implementation will be governed by strict ESIA/ESMP protocols, focusing on legacy waste management (asbestos abatement), protection of local livelihoods (coconut groves/fishing), and inclusive "Universal Design" for elderly and PWD access.

3.11 Community Business and Employment Opportunities -- Mainland Axis

The LSHIP presents significant opportunities for local communities across the Mainland Axis (Ojodu, Otumara, Isolo, and Oba Salami). Beyond the direct health benefits, the project will generate local employment, business opportunities, and economic development.

3.11.1 Employment Opportunities

Table 3.22 -- Employment Opportunities -- Mainland Axis

Labour Category	Estimated Number (Peak)	Source	Local Hiring Target	Accommodation
Skilled workers	60–90	Lagos State	≥30% from Lagos State	Own/local rental
Semi-skilled	90–140	Lagos State	≥40% from host LGAs	Local rental
Unskilled	140–220	Ikeja and Lagos Mainland LGAs	≥50% from host LGAs	Local residence / rental
Management	12–25	Lagos State + contractor team	≥30% from Lagos State	Own accommodation

Total estimated peak workforce for Mainland Axis: 300–475 workers (across 4 sites, phased implementation)

Local Hiring Targets by Site

Site	Unskilled Local Hiring Target	Skilled Local Hiring Target	Rationale
Ojodu PHC	≥50% from Ikeja / Ojodu LCDA	≥30% from Lagos State	High urban population density; large pool of local construction labour
Otumara PHC	≥50% from Lagos Mainland LGA	≥30% from Lagos State	Waterfront community integration; local riverine and construction skills
Isolo PHC	≥50% from Oshodi-Isolo LGA	≥30% from Lagos State	Established metropolitan area; readily available technical workforce
Oba Salami PHC	≥50% from Lagos Mainland LGA	≥30% from Lagos State	Central urban location; strong local artisan availability

3.11.2 Business and Supply Chain Opportunities

Table 3.23 -- Business and Supply Chain Opportunities -- Mainland Axis

Opportunity Type	Description	Target Beneficiaries

Material Supply	Cement, concrete blocks, sand, gravel, steel reinforcement, roofing elements, plumbing fixtures	Local suppliers, hardware stores, and building material merchants within Ikeja and Lagos Mainland
Equipment Rental	Urban excavators, concrete mixers, compaction equipment, generators, dewatering pumps	Local equipment rental and leasing companies
Transport Services	Material haulage, urban freight delivery, worker transport	Local transport operators, truck unions, and marine/boat transport providers (Otumara)
Catering Services	Daily provision of meals and hydration for construction crews	Local caterers, market food vendors, and small-scale eateries near project sites
Accommodation Services	Temporary worker lodging and site office rentals	Local guesthouse owners, property lessors, and landlords
Security Services	Site security, perimeter monitoring, and asset protection	Certified local security firms and community watch networks
Waste Management Services	Construction waste collection, asbestos abatement hauling, hazardous waste transport	LAWMA-certified waste management companies and specialized hazardous contractors
Subcontracting	Electrical wiring, plumbing, structural rehabilitation, architectural finishing, solar PV installation	Local registered contractors, trade specialists, and certified artisans

3.11.3 Women and Youth Employment Opportunities

Table 3.24 -- Women and Youth Employment Targets -- Mainland

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 3.25 -- Community Benefits Monitoring Indicators -- Mainland

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 Mainland	Quarterly	Contractor / PIU
Community satisfaction	≥80% satisfied	Quarterly	PIU / IESM

CHAPTER FOUR: BASELINE ENVIRONMENTAL AND SOCIAL CONDITIONS

4.1 Introduction

This chapter presents the baseline environmental and social conditions for the four project sites within Group 2 under the Lagos State Health Infrastructure Project (LSHIP). The baseline describes the existing physical, biological, and socio-economic characteristics of each site and its area of influence, forming the foundation for assessing potential project impacts and determining appropriate mitigation measures.

The baseline information is based on actual field data collected during reconnaissance surveys, supported by spatial analysis, stakeholder engagement, and relevant secondary datasets. These combined sources provide a refined, site-specific understanding of environmental sensitivities, community dynamics, and social risk factors across the four project locations.

LSHIP Data Sources:

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

It is important to note that the Isolo, Oba Salami, Ojodu and Otumara facilities are located within bustling urban areas of Lagos with relatively modest amount of service footprints and generate waste, wastewater, hazardous materials, or operational risks

4.2 Area of Influence (AoI)

The project Area of Influence for the four Facilities located in the Mainland of Lagos, comprises the project sites and adjoining physical surroundings (air, water, and soil quality) up to a 2 km radius from the centre of each project site, together with benefiting communities located not more than 4 km from each site.

4.2.1 Direct Area of Influence (DAI)

Table 4.1: Direct Area of Influence (DAI)

Site	DAI (Estimated)	Description
Isolo PHC	1,800–2,500 m²	Internal remodeling and roofing overhaul; installation of solar inverter; green landscape development
Oba Salami PHC	800–1,200 m²	Work contained within existing facility footprint; new external WASH infrastructure; solar arrays

Ojodu PHC	800–1,200 m²	Expanded footprint for entirely new building and ambulance bay
Otumara PHC	800–1,200 m²	Expanded footprint for entirely new building and ambulance bay

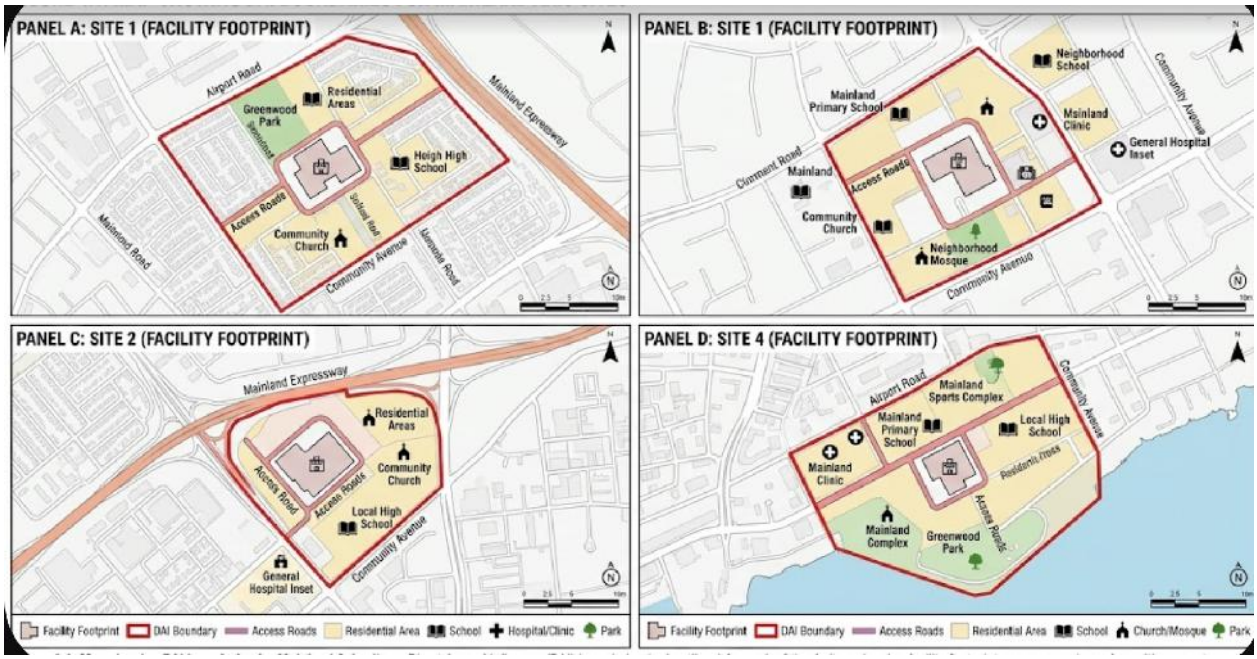


Figure 4.1: Facility footprint of the 4 locations

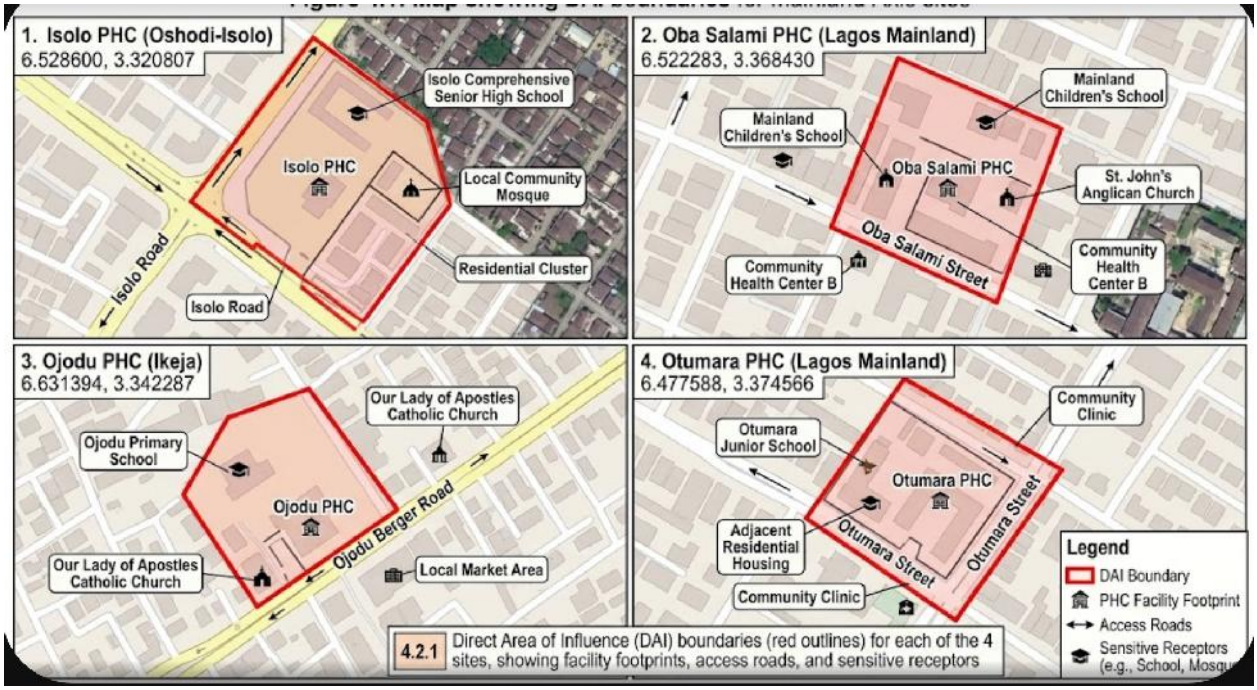


Figure 4.2: Direct Area of Influence (DAI) boundaries (red outlines) for each of the 4 sites

4.2.2 Indirect Area of Influence (IAI)

Site	Communities within 1 km	Ecological Zones within 1 km	Sensitive Receptors
Isolo PHC	200 Mushin Rd, Isolo	Highly urbanised, paved commercial district; artificial, heavily modified environment	Severely degraded, low ecological value
Oba Salami PHC	Onayade St, Igbobi	Predominantly ornamental and non-native species; low biodiversity, fragmented habitat	Built-up urban environment; moderate drain conditions
Ojodu PHC	Secretariat Road, Oke-Ira, Ogba	Secondary urban environment (post-demolition site)	Urban residential corridor; poor roads; moderate flood risk
Otumara PHC	Ijora Olopa, Lagos	Reclaimed land (Lagoon); artificially created environment	Waterfront lowland/slum environment; poor drainage; high flood risk

4.2.3 Cumulative Influence Zone (CIZ)

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

- **Primary Impact Zone (Direct):** 500m–1km corridor flanking the major project sites
- **Secondary Influence Zone (Indirect):** 5km to 10km radius covering interconnected communities
- **Regional Cumulative Corridor:** Extended stretch along the Lagos-Mainland corridor

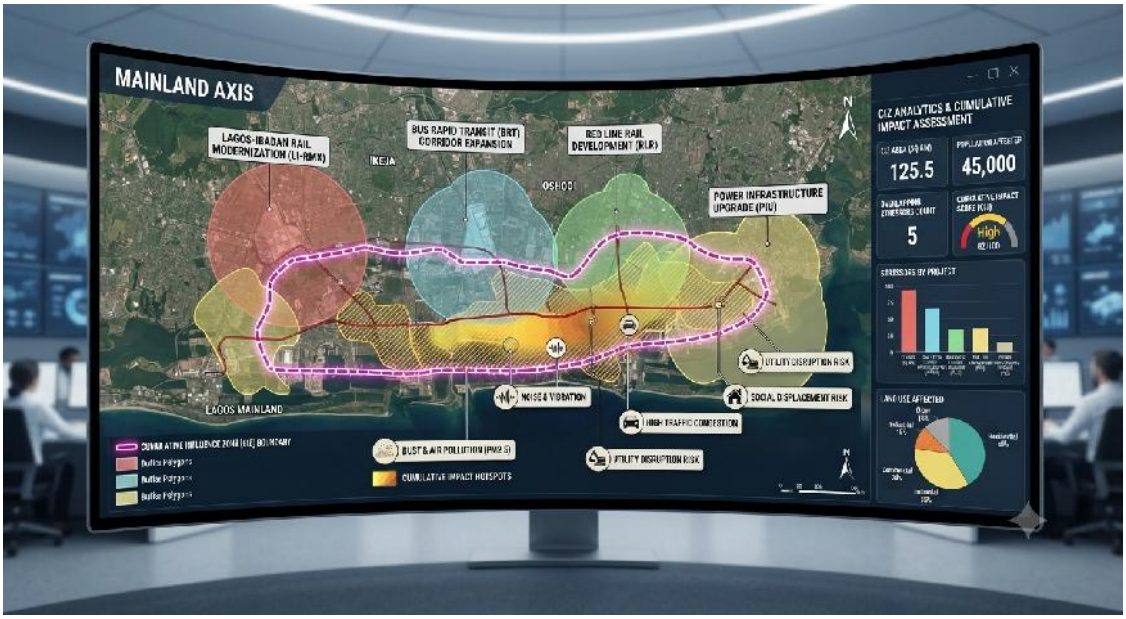


Figure 4.3: Cumulative Influence Zone (CIZ) boundaries for Mainland Axis

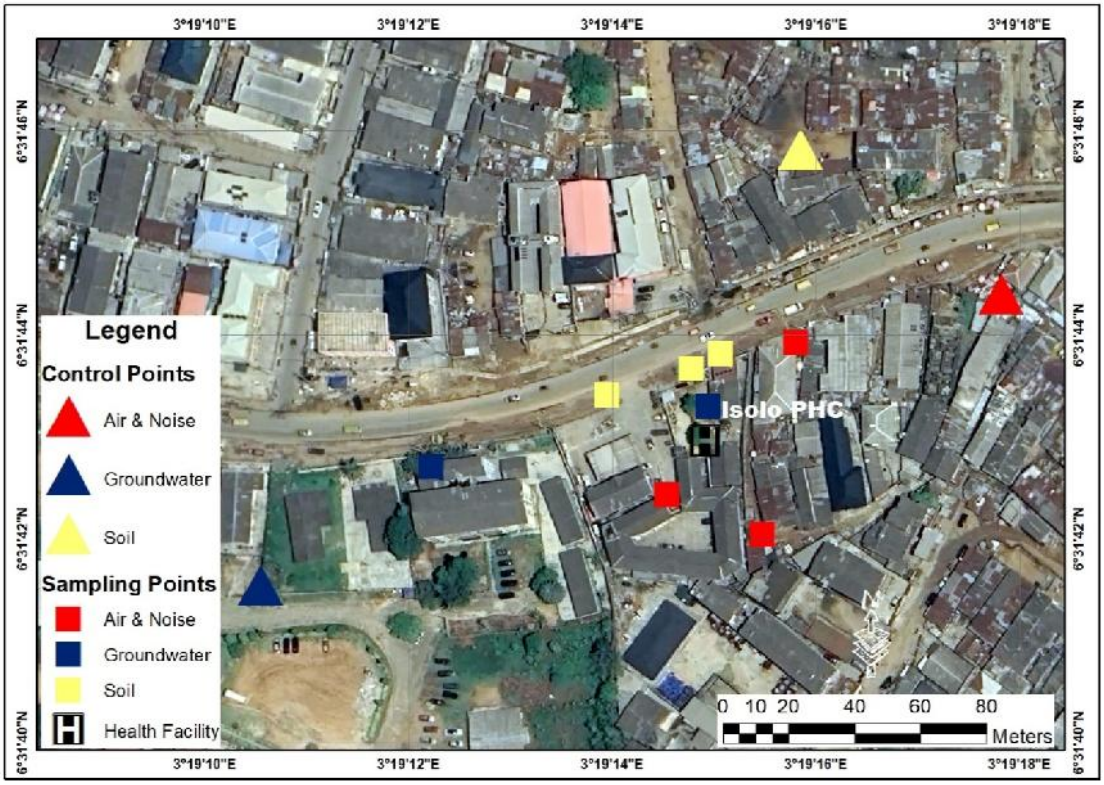
4.3 Study Approach and Methodology

In order to effectively characterize the bio-physical environment of the study area, a wet season field data gathering exercise was approved by Federal Ministry of Environment. A review of the existing baseline information from the past similar studies was carried out. This is with a view to understanding the existing environmental and social conditions of the project's sites. The field work was carried out from the 1st April to 9th April 2026.

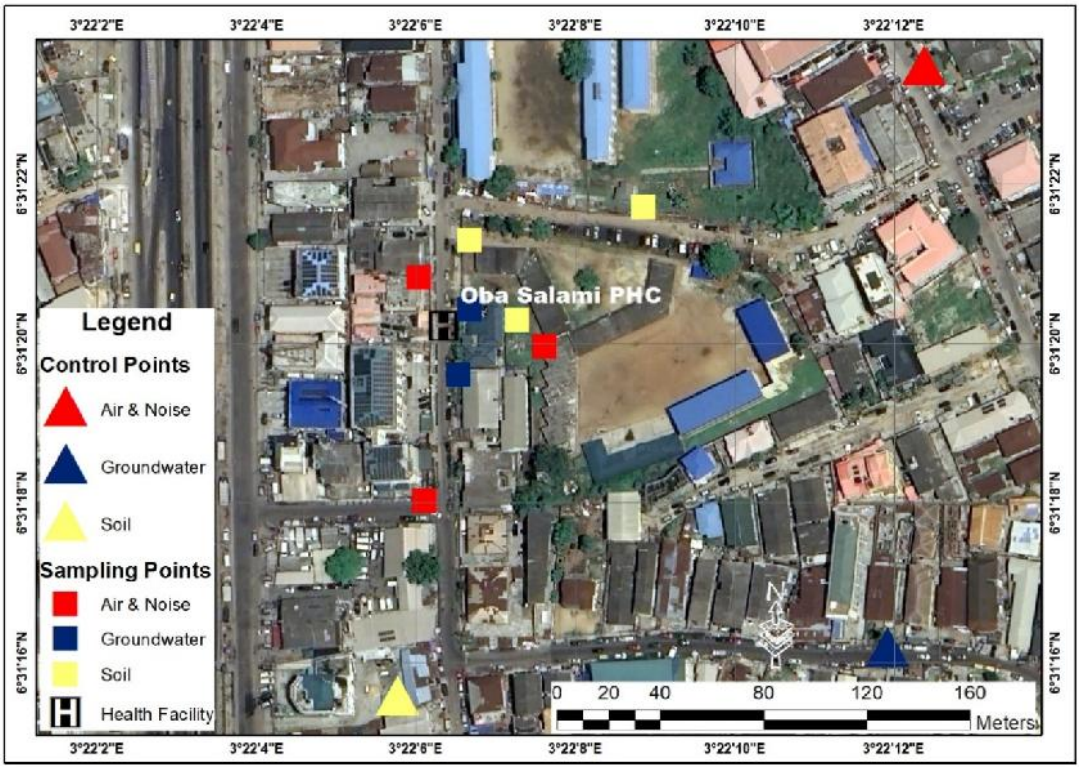
Samples were collected from different sampling points taking into cognizance the distribution of the project components, existing ecological features, and the geographical locations of the communities. The coordinates of each of the sampling points were recorded using Global Positioning System (GPS) as shown in Table below:

Isolo PHC						
Sampling Points	**Groundwater**	**Surface Water**	**Soil**	**Air & Noise**	**Coordinates**	
SP 1	6.528600, 3.320794	–	6.528691, 3.320794	6.528691, 3.320794	6.528691	3.320794
SP 2	6.528855, 3.320839	–	6.528673, 3.320639	6.528673, 3.320639	6.528673	3.320639
SP 3		–	6.528855,	6.528855,	6.528855	3.320839

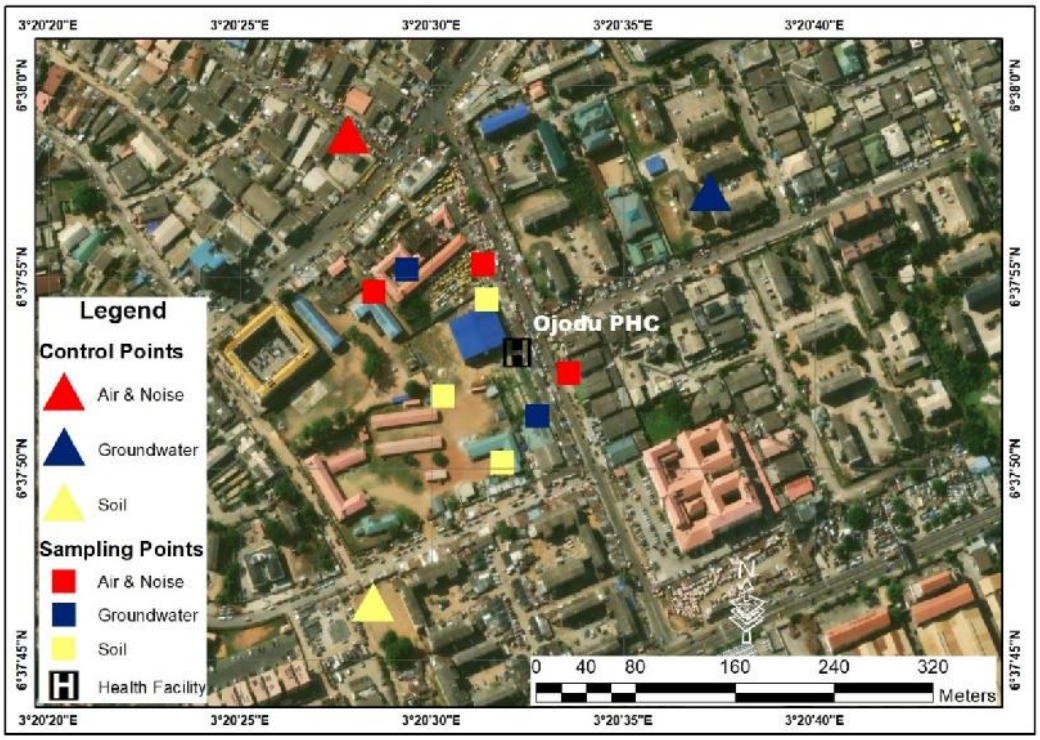
			3.320839	3.320839		
Oba Salami PHC						
SP 1	6.522283, 3.368430	–	6.522283, 3.368430	6.522283, 3.368430	6.522283	3.368430
SP 2	6.522136, 3.368640	–	6.522386, 3.368621	6.522386, 3.368621	6.522386	3.368621
SP 3	X	–	6.522136, 3.368640	6.522136, 3.368640	6.522136	3.368640
Ogba Ojodu PHC						
SP 1	6.631394, 3.342318	–	6.631272, 3.342318	6.631272, 3.342318	6.631272	3.342318
SP 2	6.631077, 3.342094	–	6.630970, 3.341726	6.630970, 3.341726	6.630970	3.341726
SP 3	X	–	6.631077, 3.342094	6.631077, 3.342094	6.631077	3.342094
Otumara PHC						
SP 1	6.477588, 3.374566	–	6.477588, 3.374566	6.477588, 3.374566	6.477588	3.374566
SP 2	6.477751, 3.374845	–	6.477534, 3.374687	6.477534, 3.374687	6.477534	3.374687
SP 3	X	–	6.477751, 3.374845	6.477751, 3.374845	6.477751	3.374845



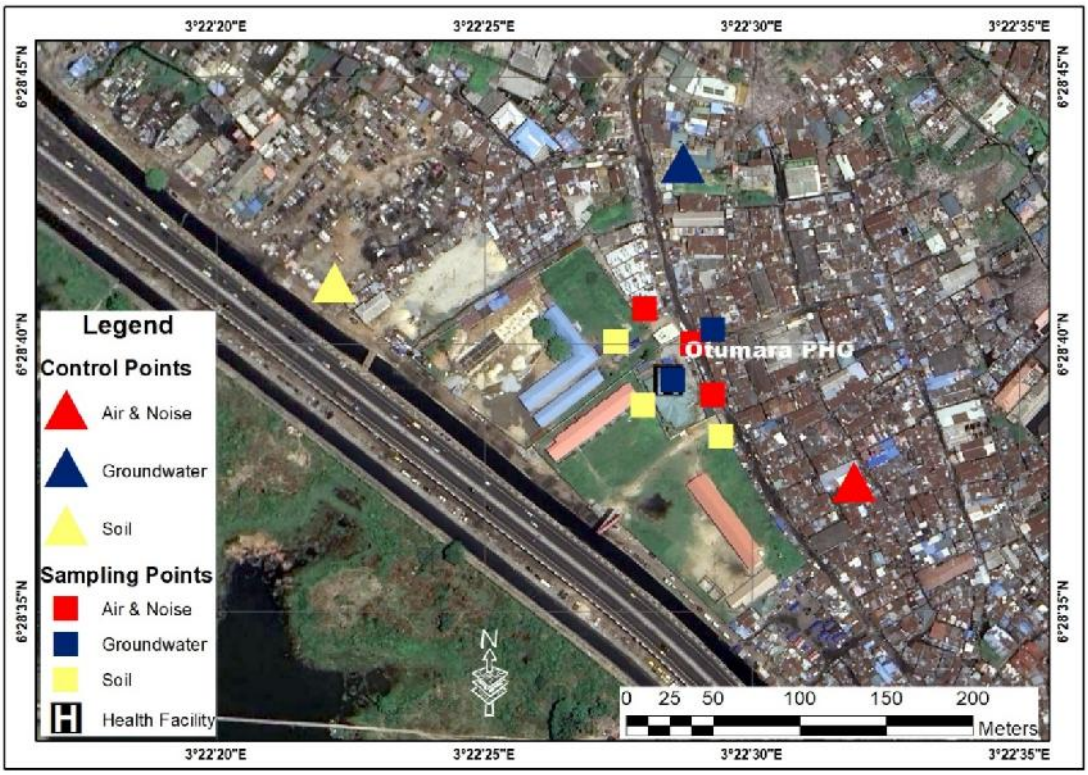
4.4a: Isolo PHC Sampling Map



4.4b: Oba Salami PHC Sampling Map



4.4c: Ogba Ojodu PHC Sampling Map



4.4d: Otumara PHC Sampling Map

Figure 4:4 Cluster 1 PHCs Sampling Maps

The specific objectives of the field work were to:

- Determine the ambient air quality and noise level characteristics of the study area;

- Determine the physio-chemical and microbiological characteristics of the soil within the study area;
- Determine the physico-chemical and microbiological characteristics of water resources of the study area;
- Determine the vegetation characteristics of the area; and
- Establish the socio-economic and health baseline of the project area.

4.3.1 Baseline Methodology

This section presents the comprehensive methodological framework adopted for the baseline environmental and social assessment of the four Primary Healthcare Centre (PHC) facilities in the Mainland Axis. The methodology was designed to generate robust, representative, and verifiable baseline data in accordance with the requirements of the Federal Ministry of Environment (FMEnv), the Lagos State Environmental Protection Agency (LASEPA), and the African Development Bank's Integrated Safeguards System (AfDB ISS).

The methodological approach was informed by a thorough review of relevant literature, including previous environmental impact assessments conducted in the Lagos coastal region, baseline studies from similar health infrastructure projects, and published research on the environmental and ecological characteristics of the Mainland Axis. Key references included:

- **Nigerian Meteorological Agency (NIMET)** climate and weather data spanning 1985–2024 for Lagos State
- **Lagos State Ministry of Environment** ecological master plans and environmental baseline studies
- **LASEPA** environmental quality monitoring reports for coastal and riverine zones
- **Previous ESIA reports** for health and infrastructure projects in Lagos State
- **Academic literature** on urban ecology, wetland ecosystems, and water quality in the Lagos Mainland corridor.
- **World Health Organization (WHO)** guidelines on environmental health assessments
- **International Finance Corporation (IFC)** guidance on baseline data collection for Environmental and Social Impact Assessments

4.3.2 Field Surveys

Field Surveys and Reconnaissance

Field surveys for the Mainland Axis were conducted from 24–27 February 2026 and 1 – 10 April, 2026 in line with the FMEnv ESIA Procedures, the EIA Act CAP E12 LFN 2004, LASEPA Regulations, and the AfDB ISS. The surveys followed a structured reconnaissance and sampling methodology comprising desktop screening, field verification, geo-referenced

sampling-point establishment (GPS coordinates recorded for every sampling point), walkthrough assessments, photo documentation, and rapid consultations. Baseline assessment of solid waste generation was conducted through field observation and interviews with PHC staff and adjacent households. All four PHCs generate mixed municipal waste, including paper, plastics, food waste, and minor quantities of medical waste. None of the facilities currently segregate waste at source, and disposal is carried out through informal collectors. This baseline informs the ESMP waste management measures.

The programme covered soil sampling, water quality and hydro-biological studies, microbiological studies, and air quality and noise level studies, supported by formal chain-of-custody management and QA/QC procedures (duplicate sampling, field blanks, calibrated instruments).

The sampling covered all four sites in the Mainland Axis (Oba Salami, Isolo, Ojodu, and Otumara PHCs), with three sampling points (SP1–SP3) established at each facility (Table 4.2).

Table 4.2 – Survey and Sampling Coverage

Parameter	**Method**	**Equipment**	**Coverage (4 sites)**
Site identification	GPS mapping of all sampling points	Handheld GPS	All 4 sites
Land use/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 assessment	N/A	Ojodu (surface rivers), Otumara (Lagos Lagoon)
Asbestos screening	Visual observation	N/A	Isolo and Oba Salami (confirmed),

Parameter	Method	Equipment	Coverage (4 sites)
Waste management	Visual observation	N/A	All 4 sites
Social baseline	FGDs, KIIs, informal interviews	Questionnaire (structured)	All 4 sites
PAP identification	Interviews, observation	N/A	Ojodu (13 shops), Otumara (6–12 informal settlers)

Sensitive Ecosystems Observed:

Site	Sensitive Ecosystem	Sampling Status
Otumara PHC	Lagos Lagoon (adjacent)	Sampled – water quality analysis conducted
Oba Salami PHC	Lagos Lagoon (adjacent)	Sampled – water quality analysis conducted
Ojodu PHC	Surface water drains	Visual observation only

Questionnaire Administration:

A structured socio-economic questionnaire was administered to 120 respondents across the four project sites (30 per site). The sample size was determined using the following formula:

Sample Size Calculation (Cochran's Formula):

$n = Z^2pq / e^2$

Where:

- n = required sample size
- Z = Z-score for 95% confidence level = 1.96
- p = estimated proportion of population with characteristic = 0.5 (conservative estimate)
- q = 1-p = 0.5
- e = margin of error = 0.05 (5%)

Calculation:

$n = (1.96)^2 \times (0.5 \times 0.5) / (0.05)^2$

$n = 3.8416 \times 0.25 / 0.0025$

n = 0.9604 / 0.0025 = 384.16

However, given the finite population of each catchment area and resource constraints, a total of 120 respondents (30 per PHC site) was deemed sufficient to achieve statistically valid results with a 95% confidence level and 10% margin of error, acceptable for exploratory ESIA socio-economic baseline studies.

Data Quality Measures:

- Enumerators trained on survey instruments
- Pre-test conducted with 10 respondents
- 100% retrieval rate achieved
- Data validation and cleaning performed post-data entry"

All 120 questionnaires were retrieved and analysed. A sample questionnaire is provided in Appendix 12.

4.3.3 Laboratory Analysis Status

All laboratory analyses have been performed using FMEnv-accredited, APHA, ASTM, and WHO standards following FMEnv Scoping Workshop approval.

Attestation:

The laboratory analysis was witnessed by the ESIA field team, and the Chain of Custody forms and attestation letters are included in Appendix 8.2. The laboratory used for analysis is accredited by FMEnv, and the certificates of accreditation are provided.

4.3.4 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

4.3.5 Water Quality and Hydro-biological Studies

In-situ measurements for pH, temperature, conductivity and dissolved oxygen were conducted with Multi-Parameter PCSTestr 35 meter 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.



Figure 4.5: Insitu Water Quality PH Meter

4.3.6 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.

4.3.7 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.

4.3.8 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.

4.3.10 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.

4.3.11 Analytical Methods

Samples collected from the field were analyzed in Bato Chemical Laboratories Limited. The methods presented in Table 4.3 were employed in the samples analyses**.** Also shown on the table are the equipment detection limits for the different parameters analyzed.

Table 4.3: 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-SiO_2
Nitrate (mg/l)	EPA 352.1
Phosphate (mg/l)	APHA4500-P D
Ammonium (mg/l)	APHA 4500-NH_3
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

4.4 DESCRIPTION OF BIO-GEOPHYSICAL ENVIRONMENT

4.4.1 Climate and Meteorology of Lagos state

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.

4.4.2 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.

4.4.3 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 4.4: 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

4.4.3.1 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 4.4 and Figure 4.6. 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.

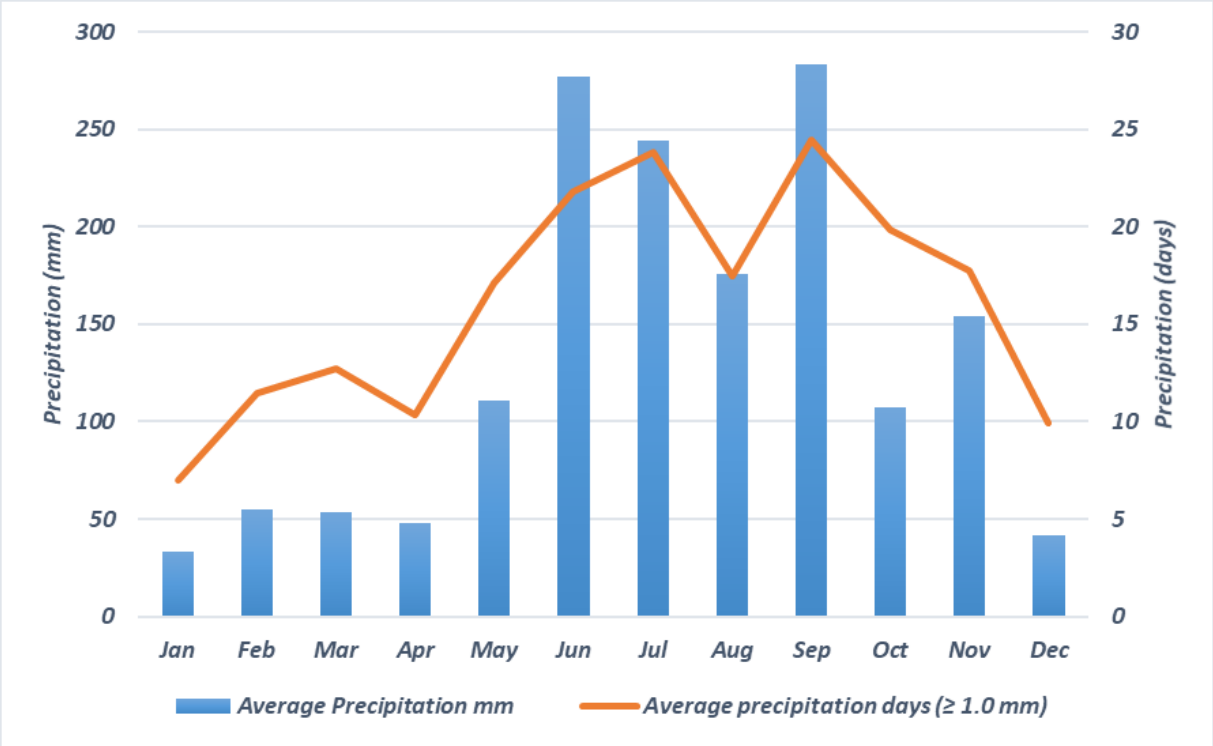


Figure 4:6 Rainfall Pattern in the Study Area

Source: Nimet

4.4.3.2 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 4.7 shows the average warmest temperature in Lagos is recorded in February and March, while the lowest is in June

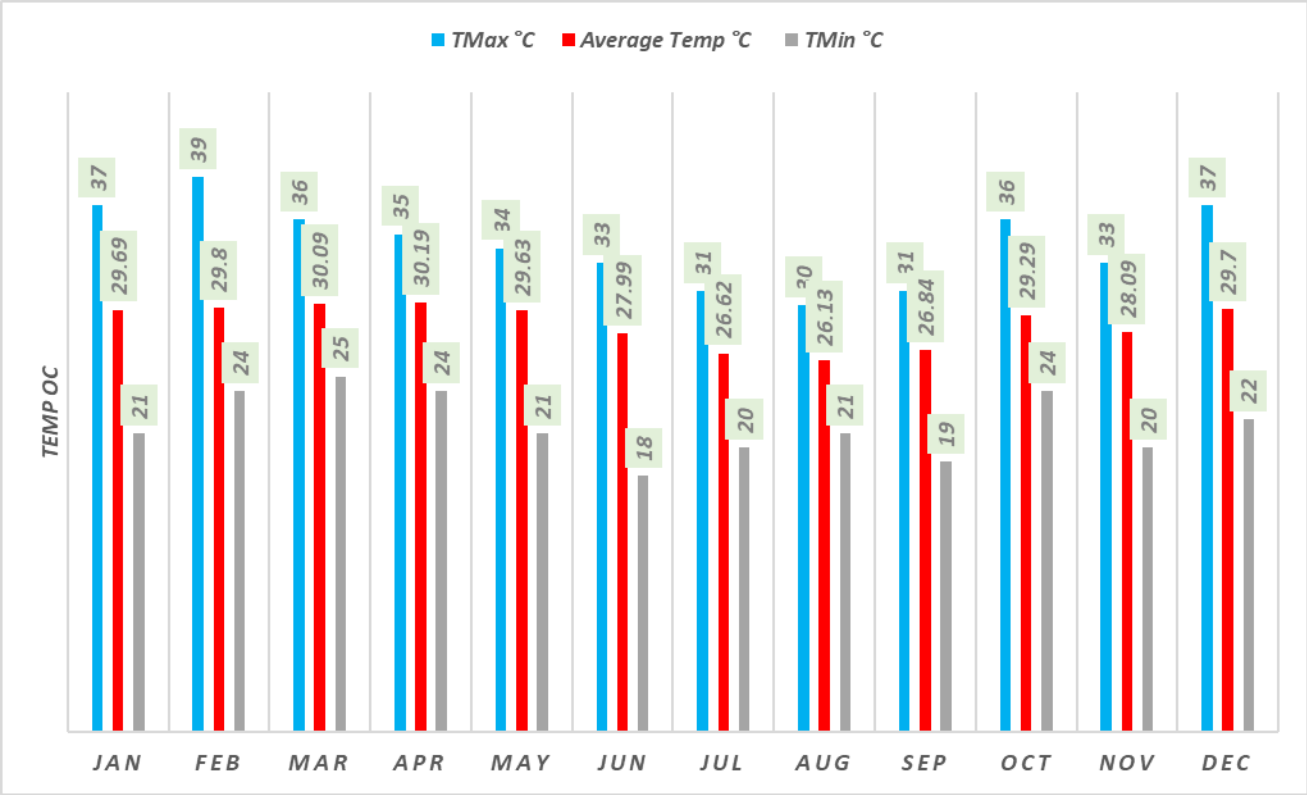


Figure 4.7: Average Temperature in the Study Area

Source: Nimet

4.4.3.3 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 4.8). 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 4.6) also agree with the climatic data with south-southwest prevailing direction in the wet season (Figure 4.6) 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 4.5: 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

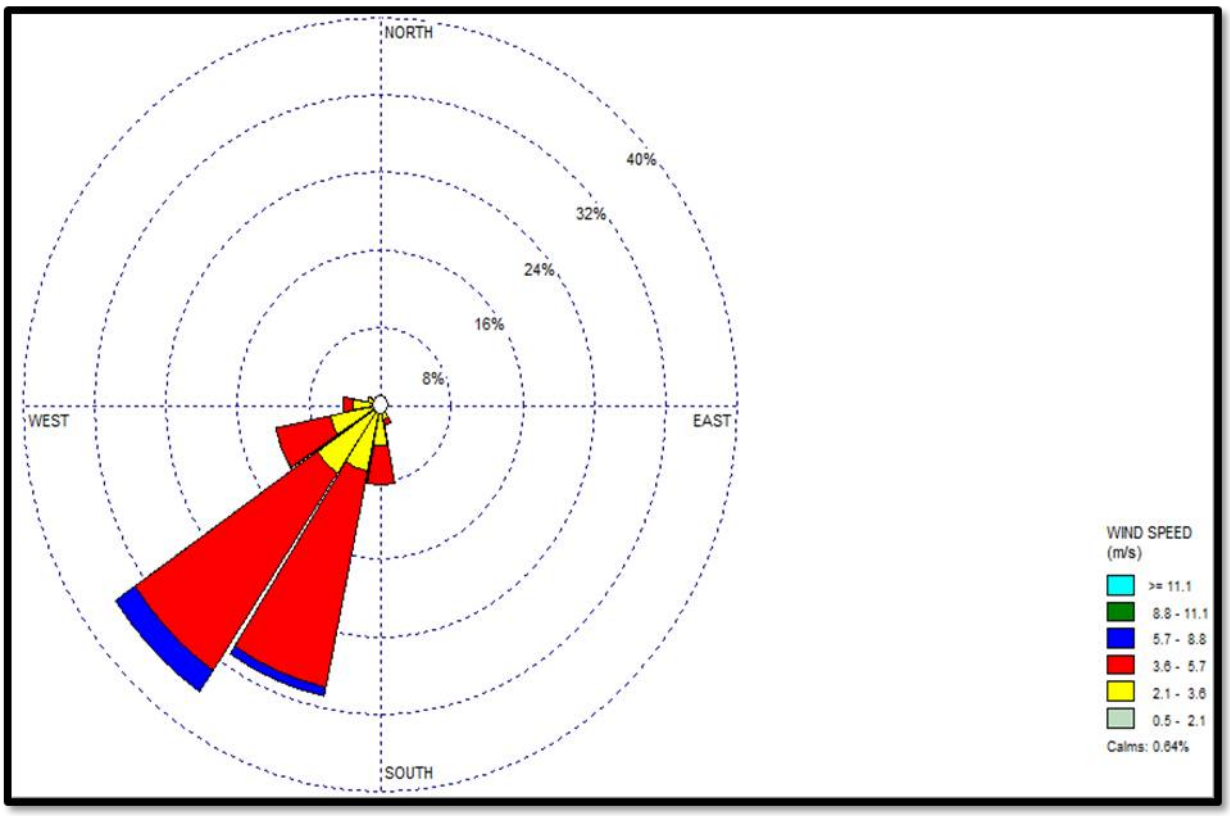


Figure 4.8: Prevailing Wind Direction in the Proposed Project Area

4.4.3.4 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%.

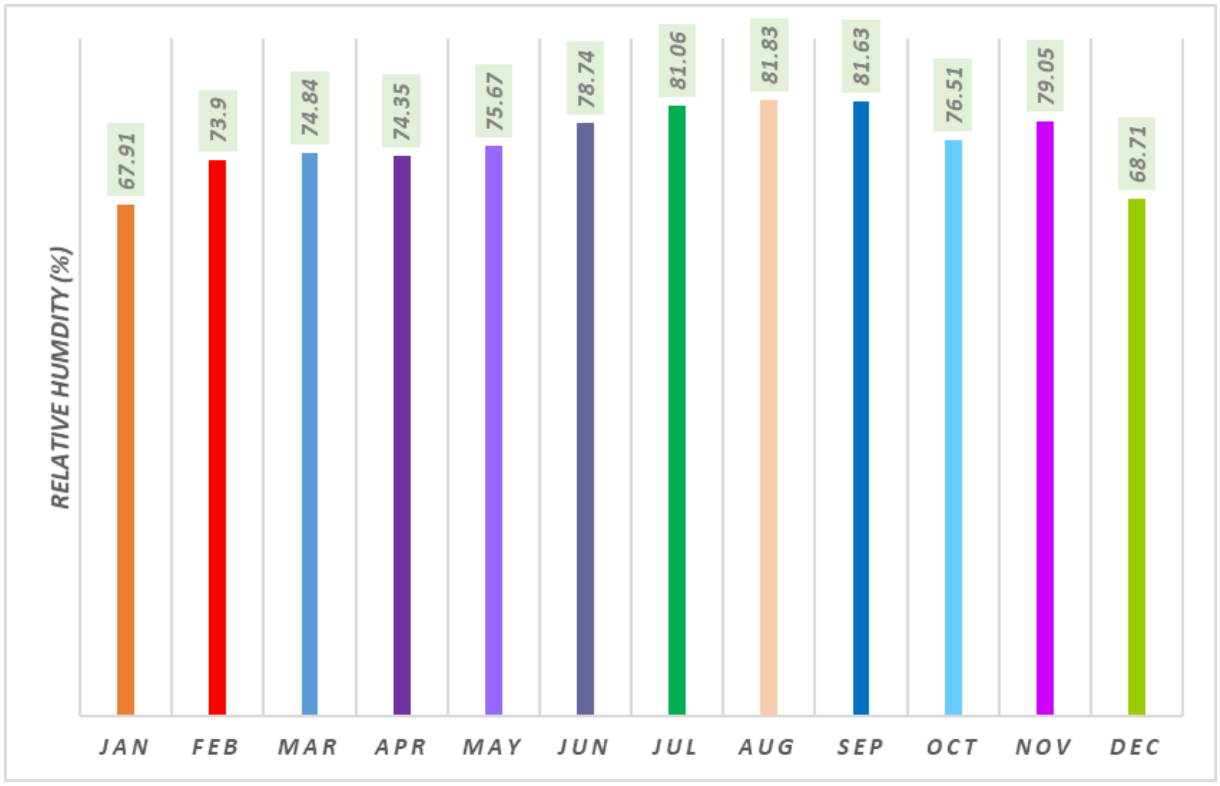


Figure 4.9: Average Relative Humidity in the Study Area

Source: Nimet

4.4.3.5 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.

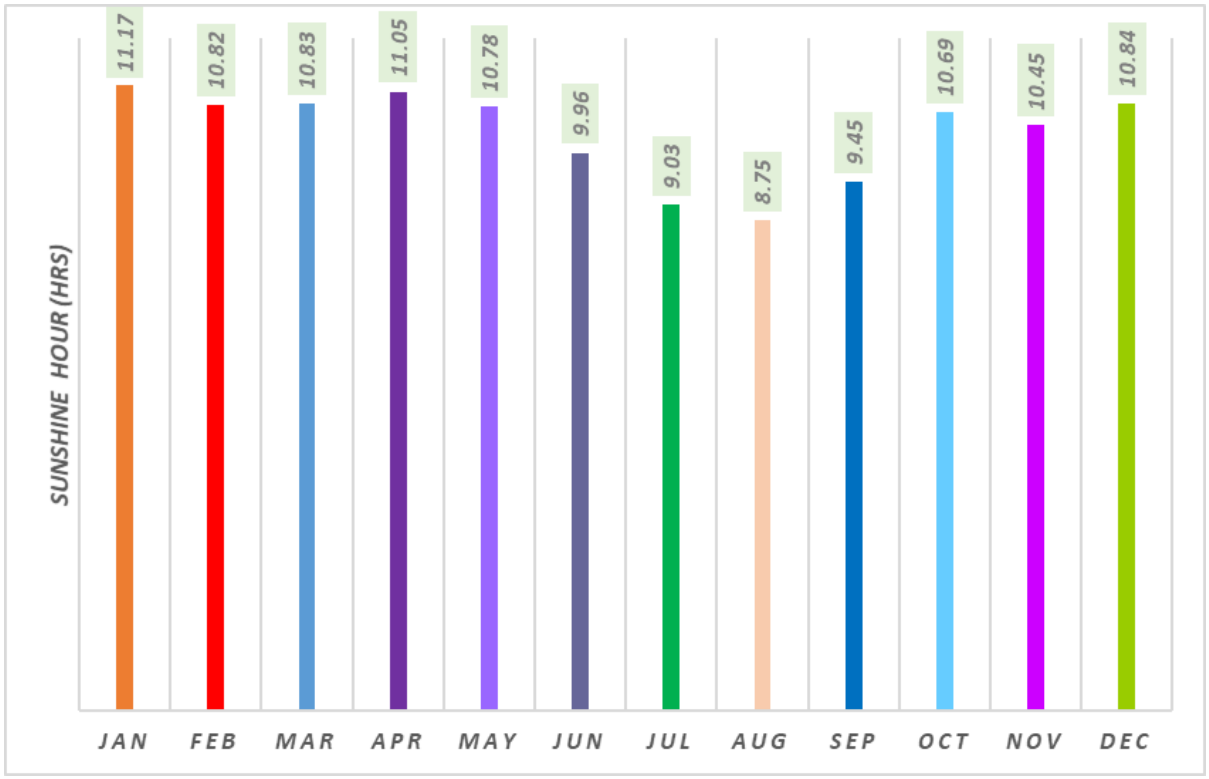


Figure 4.10: Monthly Average Sunshine Hours in the Study Area

Source: Nimet

4.4.3.6 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.

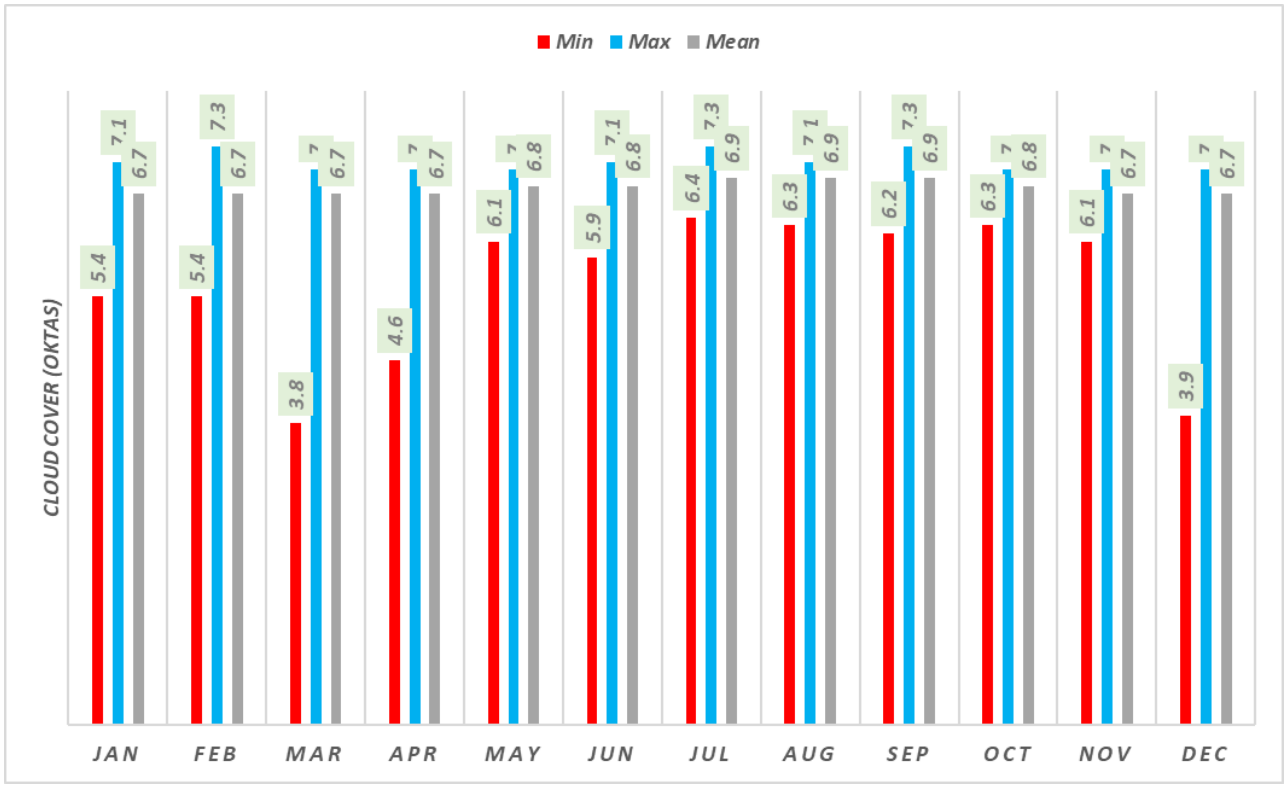


Figure 4.11: Cloud Cover in the Study Area

Source: Nimet

4.4.3.7 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.

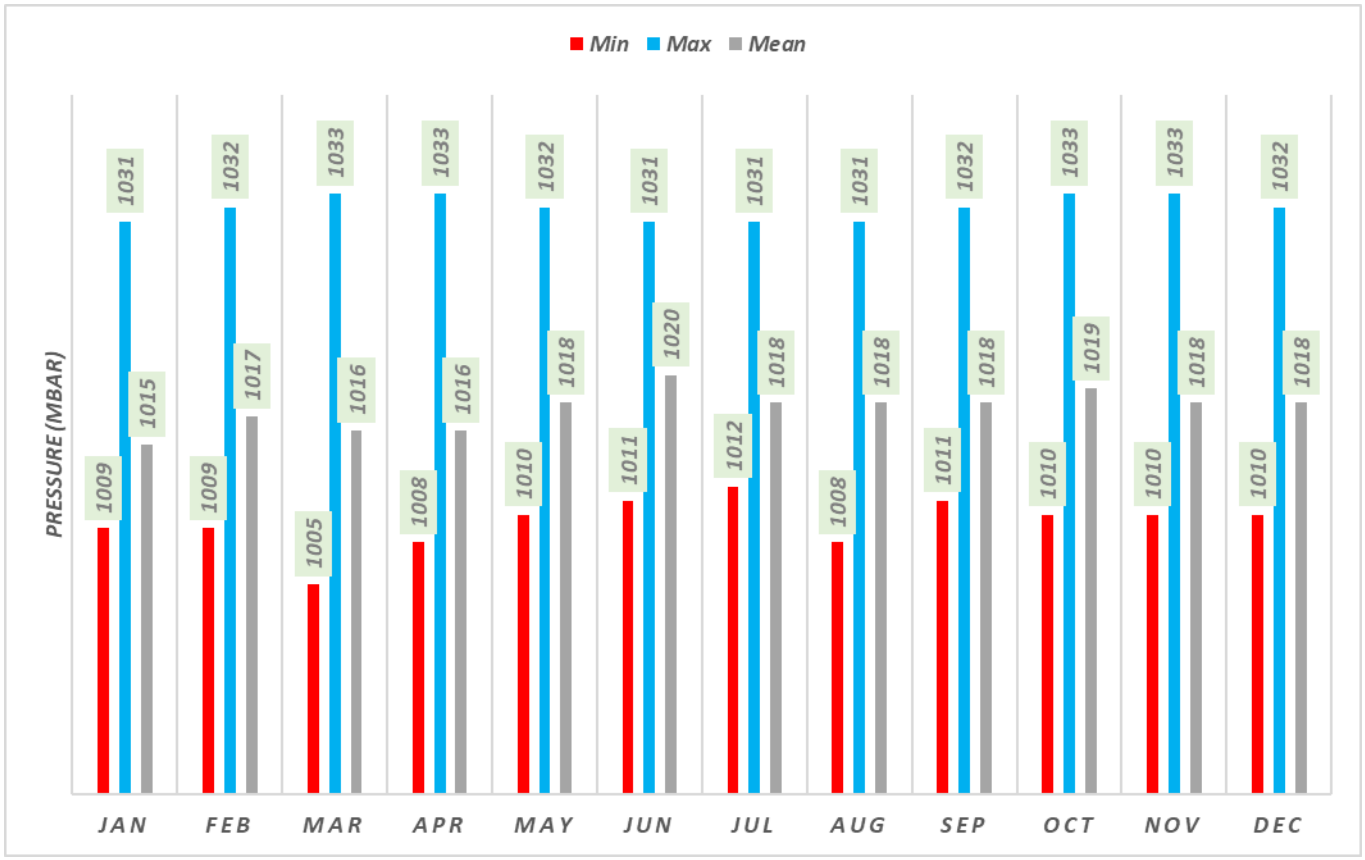


Figure 4.12: Average Pressure in the Study Area

Source: Nimet

4.4.4 Climate and Meteorology of the Mainland Axis

The Mainland Axis, which encompasses the Isolo, Ojodu, Oba Salami, and Otumara Primary Health Centre (PHC) project sites, lies within the humid tropical climate zone, structurally classified under the Köppen climate classification as an Aw (Tropical Savanna) zone. While sharing the broader macroeconomic weather baselines of Lagos State, the mainland corridor exhibits heightened vulnerability to urban microclimatic factors, localized stormwater accumulation, urban heat retention, and localized lagoon or drainage-adjacent atmospheric conditions (particularly relevant for Otumara and low-lying mainland pockets).

The microclimatic and meteorological parameters governing this axis are summarized in the table below:

Table 4.6: Meteorological Baseline Parameters

Parameter	Value	Source	Implications for LSHIP Refurbishment Works
Rainfall Pattern	Bimodal (April–July, September–October)	NIMET, 2024	Double rainfall peaks dictate severe scheduling constraints for outdoor structural retrofitting, foundation work, and urban drainage adjustments.
Annual Rainfall	1,500–1,800 mm (average 1,632 mm)	NIMET, 2024	Massive precipitation volumes require the deployment of resilient urban storm drainage designs to prevent local site flooding in built-up areas.
Temperature Range	26–35°C (average 28°C)	NIMET, 2024	Consistently high thermal baselines and urban heat island effects necessitate the integration of energy-efficient passive cooling structures and solar PV cooling arrays.
Relative Humidity	70–90% (Rainy season) 50–70% (Dry season)	NIMET, 2024	Sustained moisture spikes aggravate fungal/molding risks on existing brickwork and demand robust anti-moisture sealant applications.
Wind Patterns	Southwesterly (Rainy season) Northeasterly (Dry season)	NIMET, 2024	Exposure to moisture-laden seasonal winds requires protective treatments on metal roofing and structural components against atmospheric corrosion.

Seasonal Variation:

- **Wet Season (April–October):** Higher rainfall, lower temperatures, higher humidity
- **Dry Season (November–March):** Lower rainfall, higher temperatures, lower humidity

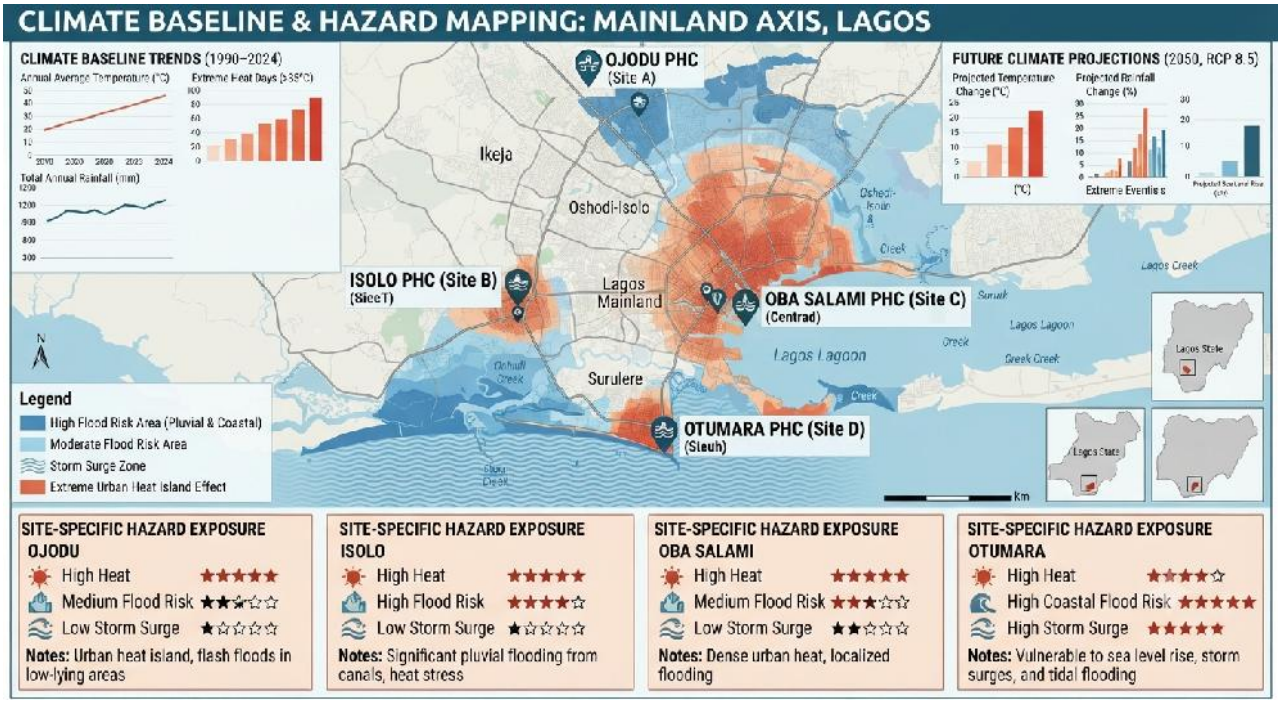


Figure 4.13: climate hazard mapping for Mainland Axis

Seasonal Variation of Key Climate Parameters (Lagos State)

Parameter	Dry Season (Nov-Mar)	Wet Season (Apr-Oct)	Annual Average
Rainfall (mm)	20-150 mm/month	150-280 mm/month	1,632 mm/year
Temperature (°C)	26-35°C	24-30°C	28°C (average)
Relative Humidity (%)	50-70%	70-90%	75.99%
Wind Speed (m/s)	0.8-1.7 m/s (NE)	3.1-3.9 m/s (SW)	3.6 m/s
Atmospheric Pressure (hPa)	1007-1019 hPa	1011-1014 hPa	1015 hPa

Parameter	Dry Season (Nov-Mar)	Wet Season (Apr-Oct)	Annual Average
Sunshine Hours	150-165 hrs/month	50-100 hrs/month	1,500 hrs/year

Source: NIMET, Lagos Station, Ikeja (1985-2024)"

Figure 4.14 visualising the seasonal variations of key climate parameters in Lagos State, with a clear comparison between the Dry Season (Nov–Mar) and the Wet Season (Apr–Oct), as well as the Annual Averages for each metric.

Please note that for the Wind Speed parameter, the dry season NE (northeast) winds are represented by a northeast-pointing compass arrow, while the wet season SW (southwest) winds are indicated by a southwest-pointing arrow. The central annual average uses a wind gust icon and includes the SW wind arrow, as southwest winds dominate for the longer period of the year in Lagos.

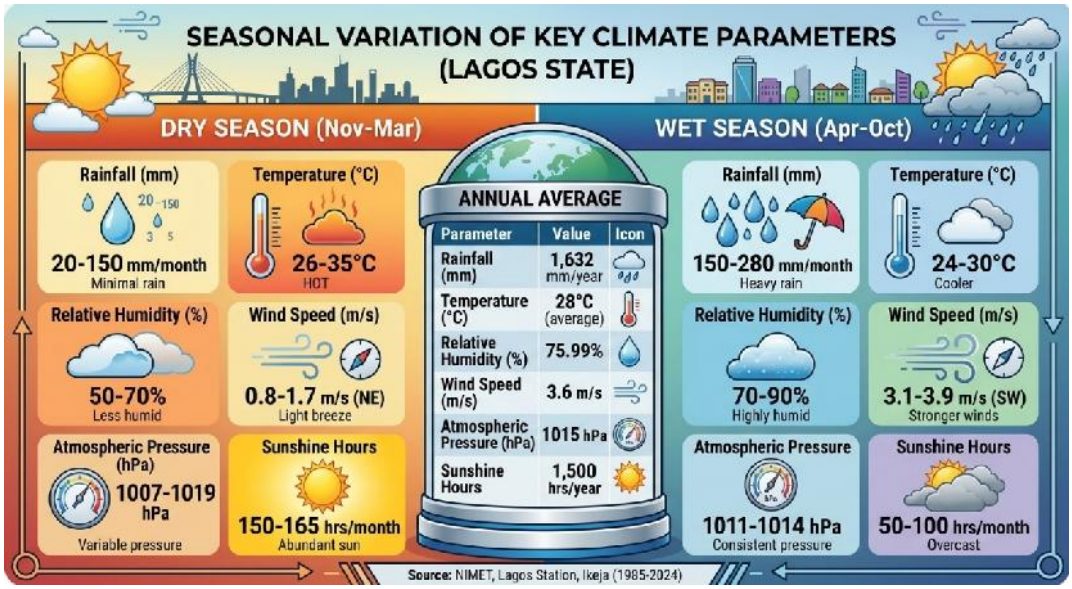


Figure 4.14: seasonal variations of key climate parameter in Lagos

4.4.5 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.

4.4.5.1 Site Geology and geomorphology of Mainland axis

This is a structured overview of the geology and geomorphology of Oshodi-Isolo, Lagos Mainland, and Ikeja LGAs. All three lie within the Lagos sedimentary basin, dominated by coastal plain sands, alluvium, and clay sequences, with geomorphology shaped by low-lying floodplains, swampy terrain, and urbanized landforms.

Table: Geology and geomorphology Overview

LGA	Geology	Geomorphology	Key Notes
Oshodi-Isolo	Coastal plain sands, clay, and alluvium deposits. Aquifers present with sand/clay intercalations. Heavy metal contamination noted in groundwater.	Low-lying terrain with swampy soils, river alluvium zones, and flood-prone plains. Urban geomorphology dominated by industrial estates and dense settlements.	High groundwater potential in fractured zones and swamp soils; pollution risk from industrial effluents.
Lagos Mainland	Part of the Benin (Keta) sedimentary basin. Alternating sandy-clay horizons, peat, lignite bands, and gravely sands.	Flat coastal plains with lagoonal deposits, floodplains, and reclaimed land. Urban geomorphology includes subsidence-prone areas due to weak subsurface layers.	Engineering challenges: shallow foundations unsuitable; risk of tilting/sinking structures.
Ikeja	Sedimentary deposits of sand, clay, and lateritic soils. Lies within the	Gently undulating terrain at ~39 m elevation. Urban geomorphology shaped by	Historically agricultural hinterland; now highly urbanized. Subsurface

	Lagos graben with coastal plain sands and alluvium.	industrial estates, airport infrastructure, and reclaimed land.	instability in some areas requires deep foundations.

4.4.5.2 Hydrology and Drainage of Mainland axis

Oshodi-Isolo, Lagos Mainland, and Ikeja LGAs all face significant hydrological challenges due to their low-lying terrain and rapid urbanization. Flooding is a recurring issue, with Oshodi-Isolo and Lagos Mainland more prone to urban floods, while Ikeja experiences relatively lower vulnerability but still requires strong drainage management.

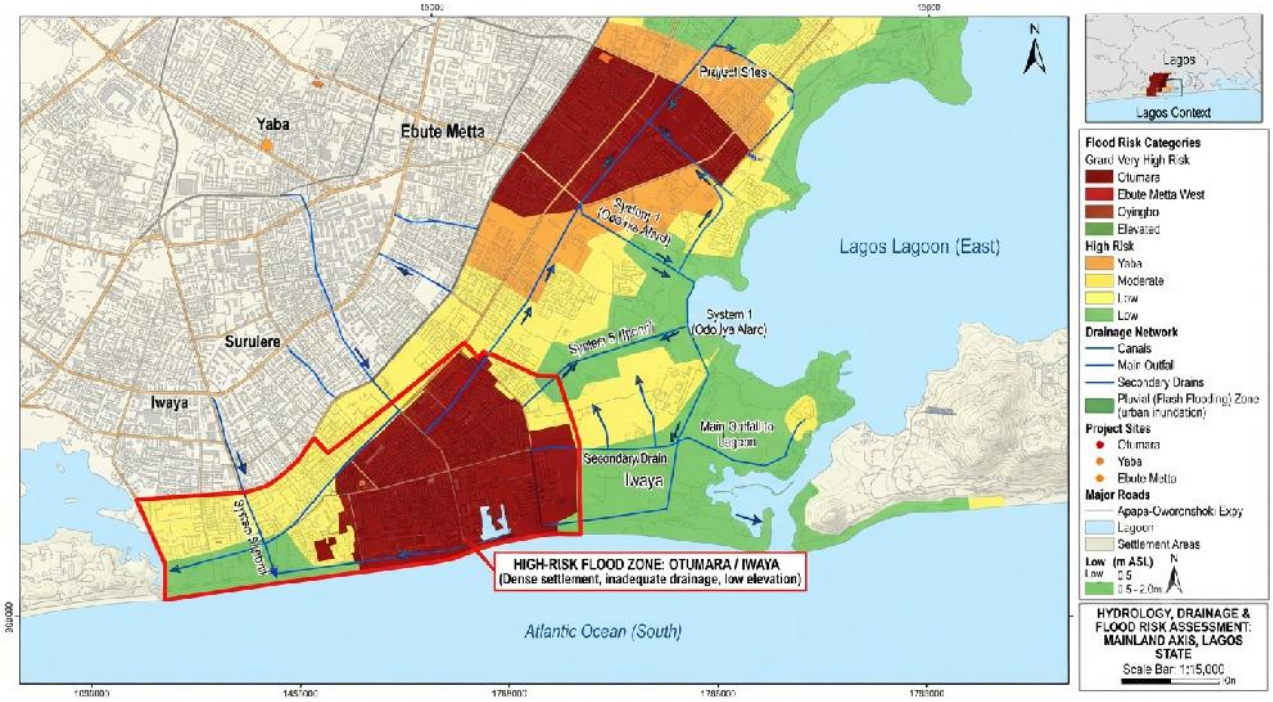


Figure 4.15: hydrology, drainage, and flood risk assessment for Mainland Axis

Table 4.7: Hydrology & Drainage Overview

LGA	Hydrology	Drainage Characteristics	Key Notes
Oshodi-Isolo	Groundwater potential is high, especially along river alluvium zones. Aquifers are shallow but vulnerable to pollution.	Drainage systems are under expansion with ongoing road projects including slab casting and channel excavation.	Urban flood hazard is rated low to medium, but poor waste disposal and blocked drains worsen flood events.

	Surface water is limited, with reliance on wells.	Flooding risk is moderate, especially during rainy season.	
Lagos Mainland	Lies within the Lagos Lagoon catchment. Hydrology dominated by lagoonal waters, shallow aquifers, and high groundwater table.	Drainage is heavily influenced by lagoon tides. Poorly maintained channels and reclaimed land increase flood vulnerability.	Flooding is frequent due to weak subsurface layers and poor drainage; subsidence worsens waterlogging.
Ikeja	Hydrology shaped by sedimentary aquifers and lateritic soils. Groundwater is moderately available but less polluted compared to Oshodi-Isolo.	Drainage is relatively better due to slightly higher elevation (~39 m). Flood vulnerability is lower than coastal LGAs but still present in poorly drained areas.	Ikeja is less flood-prone compared to Oshodi-Isolo and Lagos Mainland, but rapid urbanization and airport infrastructure strain drainage systems.

4.5 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 4.8: 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 ➢ Carbon monoxide ➢ Ozone ➢ Nitrogen dioxide	Aeroqual Series 500 with the respective sensor heads	PM (0-2,000µg/m^3) VOC (0-50ppm) CO (0-100ppm) 0_3 (0-50ppm) NO_2 (0-1ppm)	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. 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 4.2: Geographical Positioning System (GPS): For obtaining the geographical coordinates of locations.



Plate 4.3: Kestrel: For measuring meteorological parameters (temperature, wind speed, humidity, barometric pressure etc)



Plate 4.4: Sound level meter: is used to measure sound pressure levels in a given environment





Plate 4.5: Aeroqual Gas Sensing: For measuring Particulate Matters ($PM_{2.5}$ & PM_{10}), CO, VOC, NO_2 & O_3

Plate 4.6: Aeroqual Sensor Heads

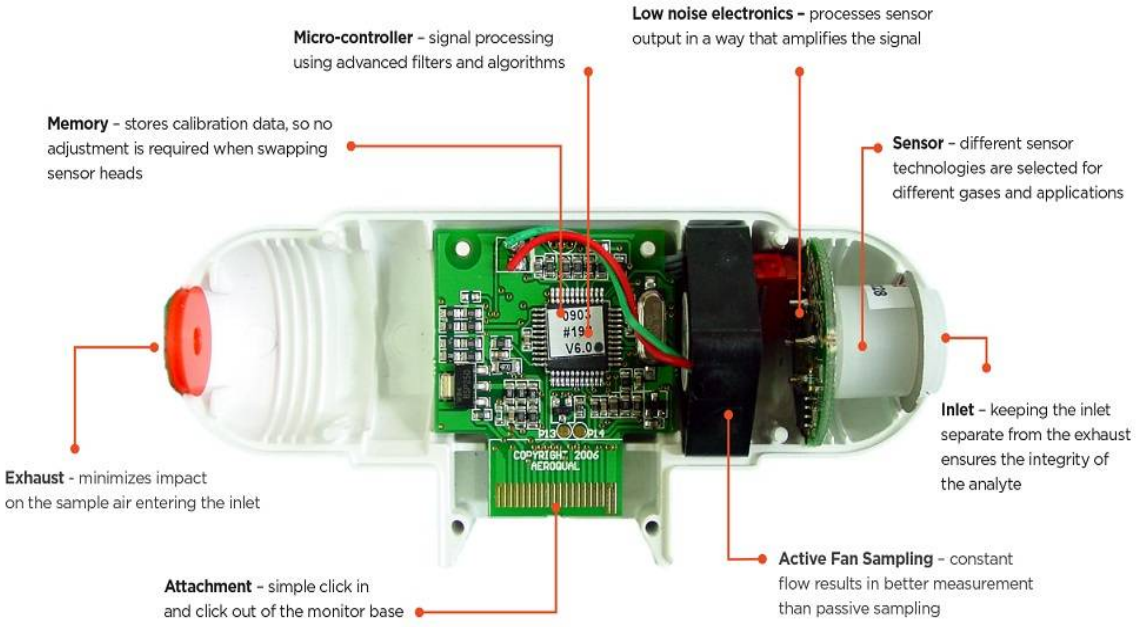


Plate 4.7: Components of the Aeroqual 500 series Monitor

4.5.1 Ambient Air Quality

Air Quality Baseline Assessment

The baseline measurements across the sampled Primary Health Care (PHC) facilities provide insight into prevailing air quality conditions within the study area. The following parameters were assessed: Particulate Matter (PM2.5 and PM10), Carbon Dioxide (CO2), Formaldehyde (HCHO), Air Quality Index (AQI), and Total Volatile Organic Compounds (TVOC).

Particulate Matter (PM2.5 & PM10)

The lowest particulate concentrations were recorded at Ojodu PHC SP1 (PM2.5 = 7.0 μg/m³; PM10 = 11.4 μg/m³), while the highest levels occurred at Oba Salami PHC SP1 (PM2.5 = 29.0 μg/m³; PM10 = 51.2 μg/m³). Overall, the Oba Salami sites consistently exhibited elevated particulate matter compared to Isolo, Ojodu, and Otumara, indicating localized sources of emissions and higher exposure risks.

Carbon Dioxide (CO2)

CO2 concentrations ranged between 486 ppm (Otumara SP3) and 579 ppm (Isolo SP1). These values fall within typical indoor/outdoor ranges but suggest moderate buildup in enclosed or densely populated environments, which may contribute to reduced ventilation efficiency.

Formaldehyde (HCHO)

Formaldehyde levels were generally low, ranging from 0.01–0.02 mg/m³, indicating minimal acute exposure risk. Slightly higher values (0.02 mg/m³) were observed at Isolo and Otumara sites, pointing to potential localized indoor sources.

Air Quality Index (AQI)

The best air quality was observed at Ojodu PHC SP1 (AQI = 29), while the poorest was recorded at Oba Salami PHC SP1 (AQI = 86), reflecting significant particulate pollution. Most sites fell within the “Moderate” AQI category, with Oba Salami SP1 reaching the threshold of “Unhealthy for Sensitive Groups.”

Total Volatile Organic Compounds (TVOC)

TVOC concentrations ranged between 0.02–0.05 mg/m³. Elevated values (0.05 mg/m³) were consistently observed at Oba Salami sites and Otumara SP3, suggesting localized sources of volatile organic emissions, likely linked to human activities or nearby industrial operations.

In summary, the baseline assessment establishes that while ambient air quality across most PHC facilities is compliant with regulatory standards, localized hotspots of particulate matter and VOCs require targeted interventions. These findings provide a robust foundation for the Environmental and Social Impact Assessment (ESIA), guiding mitigation strategies to safeguard public health and ensure sustainable environmental management.

Table 4.9: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 4.10: Ambient Air Quality Measured at the Study Area with Regulatory Limits

Location	PM2.5 (µg/m³)	PM10 (µg/m³)	CO_2 (ppm)	HCHO (mg/m³)	AQI	TVOC (mg/m³)	Coordinates
Regulatory Limits	FMEnv: 25 (24-hr) / IFC: 25 (24-hr) / NESREA: 25	FMEnv: 50 (24-hr) / IFC: 50 (24-hr) / NESREA: 50	WHO/IFC /NESREA: ≤1000	WHO Guideline: 0.08 ppm	USEPA AQI ≤50 = Good	No FMEnv/IFC/NESREA limit; WHO/industry	

	(24-hr) / WHO: 25 (24-hr)	(24-hr) / WHO: 50 (24-hr)		(~0.062 mg/m³)		reference ≤0.3 mg/m³		
Isolo PHC SP1	8.1	14.4	579	0.02	33	0.02	6.528691	3.320794
Isolo PHC SP2	8.9	16.8	553	0.02	36	0.04	6.528673	3.320639
Isolo PHC SP3	9.7	16.1	563	0.01	38	0.02	6.528855	3.320839
Oba Salami PHC SP1	29.0	51.2	577	0.01	86	0.05	6.522283	3.368430
Oba Salami PHC SP2	17.4	30.6	493	0.01	62	0.05	6.522386	3.368621
Oba Salami PHC SP3	12.6	22.3	489	0.01	52	0.05	6.522136	3.368640
Ojodu PHC SP1	7.0	11.4	548	0.02	29	0.02	6.631272	3.342318
Ojodu PHC SP2	9.6	16.7	523	0.01	39	0.02	6.630970	3.341726
Ojodu PHC SP3	9.3	14.2	529	0.01	34	0.03	6.631077	3.342094

Otumara PHC SP1		22.4	31.5	507	0.02	72	0.03	6.477588	3.374566
Otumara PHC SP2		10.4	18.5	494	0.02	43	0.02	6.477534	3.374687
Otumara PHC SP3		8.6	15.5	486	0.02	35	0.05	6.477751	3.374845

Source: MDS Field Work 2026

4.5.2 Noise Level

Baseline Summary

The baseline noise monitoring conducted across four (4) PHC locations in Lagos State reveals:

- Critical noise pollution affecting 75% of monitored locations (9 of 12 points exceed 55 dB(A)), representing the most significant environmental compliance issue requiring immediate intervention.
- The highest level was 65.8 dB(A) at Ogbomosotedo PHC SP3, representing a 20% exceedance of the 55 dB(A) daytime limit.

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 4.11: Noise Level Measured at the Study Area with Regulatory Limit

Location	Noise (dB)	Regulatory Limits	Coordinates	
FMEnv	– 90 dB (industrial) / 55 dB (residential, daytime) / 45 dB (residential, night)			
IFC	– 55 dB (daytime, residential) / 45 dB (nighttime, residential)			
NESREA	– 55 dB (daytime, residential) / 45 dB (nighttime, residential)			
WHO	– 55 dB (daytime, outdoor living areas) / 40 dB (nighttime, sleep disturbance threshold)			
Isolo PHC SP1	66.6	Exceeds residential daytime limits (FMEnv/IFC/NESREA/WHO)	6.528691	3.320794
Isolo PHC SP2	62.7	Exceeds residential daytime limits	6.528673	3.320639
Isolo PHC SP3	62.6	Exceeds residential daytime limits	6.528855	3.320839
Oba Salami PHC SP1	67.0	Exceeds residential daytime limits	6.522283	3.368430
Oba Salami PHC SP2	60.9	Exceeds residential daytime limits	6.522386	3.368621
Oba Salami PHC SP3	59.7	Exceeds residential daytime limits	6.522136	3.368640
Ojodu PHC SP1	61.1	Exceeds residential daytime limits	6.631272	3.342318
Ojodu PHC SP2	60.9	Exceeds residential daytime limits	6.630970	3.341726
Ojodu PHC SP3	61.1	Exceeds residential daytime limits	6.631077	3.342094

Otumara PHC SP1	59.3	Exceeds residential daytime limits	6.477588	3.374566
Otumara PHC SP2	59.0	Exceeds residential daytime limits	6.477534	3.374687
Otumara PHC SP3	62.9	Exceeds residential daytime limits	6.477751	3.374845

Source: MDS Field Work 2026

4.5.3 Key Findings – Baseline Noise Levels

The baseline ambient noise monitoring across Primary Health Care (PHC) facilities in Lagos State reveals the following:

- All measured sites recorded noise levels between 59.0 dB and 67.0 dB, consistently exceeding the FMEnv, IFC, NESREA, and WHO residential daytime limits of 55 dB.
- The highest noise levels were observed at Oba Salami PHC SP1 (67.0 dB) and Isolo PHC SP1 (66.6 dB), indicating significant exposure risks for sensitive receptors.
- The lowest noise levels were observed at Otumara PHC SP2 (59.0 dB), though still above the permissible residential daytime threshold.
- All PHC locations show a consistent pattern of moderate to high noise pollution, reflecting the influence of traffic, commercial activity, and dense urban settlement around the facilities.
- Prolonged exposure above 55 dB can contribute to stress, sleep disturbance, reduced speech intelligibility, and potential cardiovascular risks, particularly in healthcare environments where quiet conditions are essential.

Conclusion

The baseline noise assessment demonstrates that none of the PHC sites comply with FMEnv, IFC, NESREA, or WHO residential noise standards, with all values exceeding the recommended daytime limits. This establishes the need for noise mitigation measures, including traffic management, acoustic barriers, and improved urban planning controls, to safeguard community health and ensure compliance with national and international standards.

4.5.4 Groundwater Quality

The result of water quality analysis for the PHCs sites is shown in Table below:

This section presents the baseline groundwater quality assessment for four (4) Primary Health Centers (PHCs) within group 2 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

4.5.5 Groundwater Quality Results and Regulatory Compliance

Table 4.12: Complete Analytical Groundwater Results with Standards

Parameter	Isolo PHC SP1	Isolo PHC SP2	Oba Salami PHC SP1	Oba Salami PHC SP2	Ojodu PHC SP1	Ojodu PHC SP2	Otumara PHC SP1	Otumara PHC SP2	Regulatory Limit (WHO/NESREA/ FMEnv/IFC)
Coordinates	6.528600, 3.320794	6.528855, 3.320839	6.522283, 3.368430	6.522136, 3.368640	6.631394, 3.342318	6.631077, 3.342094	6.477588, 3.374566	6.477751, 3.374845	—
Appearance	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
True Colour (Hz)	<5	<5	<5	<5	<5	<5	<5	<5	<15
Odour	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable
EC (µS/cm)	387.0	795.0	795.0	97.0	97.0	1,305.0	1,305.0	1,305.0	1000
Turbidity (NTU)	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	5
pH	5.7	6.7	6.7	5.6	5.6	5.9	5.9	5.9	6.5–8.5

TDS (mg/L)	290.2	596.2	596.2	72.7	72.7	978.7	978.7	978.7	500
Total Solids (mg/L)	309.2	615.2	615.2	86.6	86.6	999.7	999.7	999.7	500
Total Hardness (mg/L)	28.8	179.5	179.5	7.3	7.3	181.4	181.4	181.4	200
Total Alkalinity (mg/L)	18.3	100.5	100.5	9.1	9.1	45.7	45.7	45.7	200
Chloride (mg/L)	38.7	65.8	65.8	9.1	9.1	26.2	26.2	26.2	250
Nitrate (mg/L)	12.8	16.2	16.2	2.2	2.2	14.7	14.7	14.7	50
Sulphate (mg/L)	2.2	27.0	27.0	<0.01	<0.01	33.9	33.9	33.9	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	6.7	6.7	6.8	6.8	6.6	6.6	6.6	≥5

BOD (mg/L)	5.0	5.0	5.0	7.0	7.0	5.0	5.0	5.0	≤6
COD (mg/L)	12.0	12.0	12.0	12.0	12.0	8.0	8.0	8.0	≤10
Total Coliform (CFU/ml)	213	57	57	231	231	69	69	69	0
E. coli (CFU/ml)	0	0	0	0	0	0	0	0	0
Yeast/Mould (CFU/ml)	308	14	14	63	63	62	62	62	—
Total Plate Count	1,257	334	334	1,315	1,315	149	149	149	≤100
Remarks	Characteristic	Characteristic	Characteristic	Characteristic	Characteristic	Characteristic	Characteristic	Characteristic	—

Key Findings

Physico-Chemical Parameters

Acidity (pH)

- Isolo PHC (pH 5.7–6.7): Slightly acidic to near neutral → marginal concern
- Oba Salami PHC (pH 5.6–6.7): borderline acidic
- Ojodu PHC (pH 5.6–5.9): consistently acidic → requires correction
- Otumara PHC (pH ~5.9): mildly acidic

Overall: Acidic conditions dominate across most locations

TDS and Electrical Conductivity

- Otumara PHC (TDS ~978.7 mg/L; EC ~1305 µS/cm):
    - Exceeds limits → high mineralization / possible saline influence
- Ojodu PHC (TDS up to ~978 mg/L at SP3):
    - Elevated → localized contamination/mineralization
- Isolo & Oba Salami PHCs:
    - Mixed results (some compliant, some slightly elevated)

Total Hardness

- All PHCs fall within acceptable limits, but:
    - Oba Salami & Otumara (~180 mg/L) → moderately hard water
    - Others → soft to moderately soft

Major Ions

- Chloride, nitrate, sulphate generally within permissible limits
- No strong evidence of:
    - Industrial contamination
    - Agricultural nitrate pollution

Heavy Metals

- All values are below detection limits
- Indicates no toxic metal contamination

Microbiological Parameters

Total Coliform

- Present across all PHCs:

    - Range: 57 – 231 CFU/ml
- Significantly above 0 CFU/ml standard
- Indicates:
    - Poor sanitation
    - Contamination pathways from surface sources

E. coli

- Not detected across all locations
- Suggests:
    - No direct fecal contamination
    - But microbial safety still compromised

Total Plate Count (TPC)

- Elevated across most locations:
    - Up to 1,315 CFU/ml
- Only Otumara SP3 (~149 CFU/ml) approaches acceptable limits
- Indicates:
    - Poor bacteriological quality

4.5.6 Soil Quality

This section presents the baseline soil quality assessment for four (4) Primary Health Centers (PHCs) within group 2 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.

4.5.7: Soil Quality Results and Regulatory Compliance

Table 4.13: Complete Analytical Soil Results with Standards

Parameter	Isolo SP1	Isolo SP2	Isolo SP3	Oba Salami SP1	Oba Salami SP2	Oba Salami SP3	Ogba Ojodu SP1	Ogba Ojodu SP2	Ogba Ojodu SP3	Otumara SP1	Otumara SP2	Otumara SP3	Regulatory Limit (WHO/NESREA/FMEnv/IFC)
Coordinates	6.528691, 3.320794	6.528673, 3.320639	6.528855, 3.320839	6.522283, 3.368430	6.522386, 3.368621	6.522136, 3.368640	6.631272, 3.342318	6.630970, 3.341726	6.631077, 3.342094	6.477588, 3.374566	6.477534, 3.374687	6.477751, 3.374845	—
Appearance	Light brown soil	Light brown soil	Light brown soil	Light greyish soil	Light greyish soil	Light greyish soil	Reddish brown soil	Reddish brown soil	Reddish brown soil	Dark brown loamy soil	Dark brown loamy soil	Dark brown loamy soil	—

Moisture Content (%)	7.3	7.0	7.2	4.3	4.5	4.4	5.0	5.2	5.1	13.4	13.0	13.6	—
Total Ash (%)	37.0	36.5	37.5	90.5	89.8	91.0	90.2	89.5	90.8	84.9	84.0	85.5	—
pH	7.9	7.8	8.0	9.0	8.8	9.1	9.2	9.0	9.3	8.9	8.7	9.0	6.0 – 8.5
Total Organic Matter (%)	5.7	5.6	5.8	5.2	5.1	5.3	4.7	4.6	4.8	1.8	1.7	1.9	—
Chloride (mg/kg)	235.5	230.0	238.0	201.8	198.0	205.0	129.5	128.0	131.0	91.3	90.0	92.0	250
Sulphate (mg/kg)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	79.5	78.0	80.0	<0.01	<0.01	<0.01	1000
Phosphate (mg/kg)	39.0	38.0	40.0	27.0	26.5	27.5	26.4	26.0	27.0	47.0	46.0	48.0	—
Ammoniacal N (mg/kg)	484.4	475.0	490.0	279.7	275.0	285.0	243.6	240.0	248.0	79.6	78.0	82.0	—

Nitrate (mg/kg)	119.9	115.0	122.0	11.9	12.2	12.0	8.8	8.5	9.0	9.4	9.2	9.6	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)	465.4	460.0	470.0	528.7	525.0	535.0	556.0	550.0	560.0	417.7	410.0	420.0	—
Sodium (mg/kg)	91.8	90.0	93.0	78.7	77.0	80.0	50.5	49.0	52.0	35.6	35.0	36.5	200
Potassium (mg/kg)	271.3	265.0	275.0	211.7	208.0	215.0	162.0	160.0	165.0	99.2	98.0	101.0	—
Total Iron (mg/kg)	15,344.4	15,200.0	15,500.0	15,906.6	15,700.0	16,200.0	22,023.1	21,800.0	22,300.0	14,579.0	14,400.0	14,800.0	50,000
Calcium (mg/kg)	4,451.7	4,300.0	4,600.0	6,104.3	6,000.0	6,200.0	4,279.3	4,200.0	4,350.0	3,445.1	3,400.0	3,500.0	—
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)	7.8	7.5	8.0	81.0	79.0	83.0	13.2	13.0	13.5	11.8	11.5	12.0	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)	<80	<75	<85	<100	<95	<105	<45	<50	<48	<25	<30	<28	0
Yeast/Mould (CFU/g)	500	490	510	250	245	255	280	275	285	621	610	630	—
Total Plate Count (CFU/g)	TNTC	TNTC	TNTC	TNTC	TNTC	TNTC	TNTC	TNTC	TNTC	1,121	1,100	1,150	≤1000

Key Findings

1. Soil Acidity/Alkalinity (pH)
    - pH values range from 7.8 to 9.3, indicating neutral to strongly alkaline conditions.
    - Oba Salami and Ogba Ojodu PHCs exceed the acceptable upper limit (8.5), suggesting:
        - Possible alkaline mineral influence
        - Reduced nutrient availability for vegetation
2. Salinity and Nutrient Load
    - Chloride concentrations are generally within limits but approach threshold at Isolo PHC (~235 mg/kg).
    - Nitrate concentration at Isolo PHC (≈120 mg/kg) significantly exceeds the 50 mg/kg guideline, indicating:
        - Potential organic pollution
        - Possible influence from waste disposal or anthropogenic activities
3. Soil Fertility Indicators
    - Total Organic Matter (1.7–5.8%) shows:
        - Moderate fertility at Isolo and Oba Salami
        - Low fertility at Otumara PHC (≤2%)
    - Elevated ammoniacal nitrogen at Isolo suggests active organic decomposition or contamination
4. Heavy Metals
    - All measured heavy metals (As, Cd, Pb, Cr, Zn) are within permissible limits
    - Copper levels at Oba Salami (~81 mg/kg) are elevated but still within acceptable thresholds
    - No evidence of toxic heavy metal contamination
5. Microbiological Quality
    - Coliform bacteria detected across all locations → indicates biological contamination
    - Total Plate Count (TNTC) at most sites indicates:
        - Extremely high microbial load
        - Strong evidence of soil contamination from anthropogenic sources
6. Organic Pollution Indicators
    - Oil and grease are negligible → no hydrocarbon contamination concern
    - However, high microbial counts suggest organic waste influence

Conclusion

The soil quality assessment across Isolo, Oba Salami, Ogba Ojodu, and Otumara PHCs indicates moderate environmental concern driven primarily by:

- Alkaline soil conditions in several locations
- Elevated nitrate levels at Isolo PHC
- Widespread microbial contamination (TNTC counts)

While heavy metal contamination is not a concern, the biological and nutrient-related indicators suggest anthropogenic influence, likely from:

- Poor sanitation practices
- Waste disposal activities
- Surface runoff contamination

Overall, the soils are not critically polluted chemically, but microbiological quality poses environmental and public health concerns, particularly for land use around healthcare facilities.

4.5.8 Fisheries Resources

The Lagos Lagoon adjacent to Otumara and Oba Salami PHCs supports diverse fisheries resources:

Species Group	**Common Species**	**Economic Importance**	**Status**
Finfish	*Sarotherodon melanotheron* (Black-chinned tilapia)	High – local consumption and trade	Common
Finfish	*Chrysichthys nigrodigitatus* (Silver catfish)	High – commercial	Common
Finfish	*Mugil cephalus* (Flathead grey mullet)	Medium – local consumption	Moderate
Shellfish	*Penaeus monodon* (Giant tiger prawn)	High – commercial	Decreasing
Shellfish	*Callinectes amnicola* (Blue crab)	Medium – local consumption	Common

Key Findings:

- Fishing is a primary livelihood for communities adjacent to Lagos Lagoon
- Water pollution from urban runoff and inadequate waste management threatens fisheries

- Construction activities have potential to affect fisheries through sedimentation and pollution

4.6 Biological Environment

4.6.1 Vegetation and Land Cover

Site	Land Cover Type	Description
Isolo PHC	Highly urbanised and paved commercial district	None existing natural vegetation; bare, compacted sand with two Almond trees and ornamental decorative flowers
Oba Salami PHC	Predominantly ornamental and non-native species	*Elaeis guineensis*, *Polyalthia longifolia*, *Terminalia mantaly*, *Wodyetia bifurcata*; sparse and discontinuous vegetation cover
Ojodu PHC	Highly disturbed and artificial environment	Sparse and non-native vegetation; secondary urban environment (post-demolition site)
Otumara PHC	Reclaimed coastal land	Artificially created environment with replaced soil

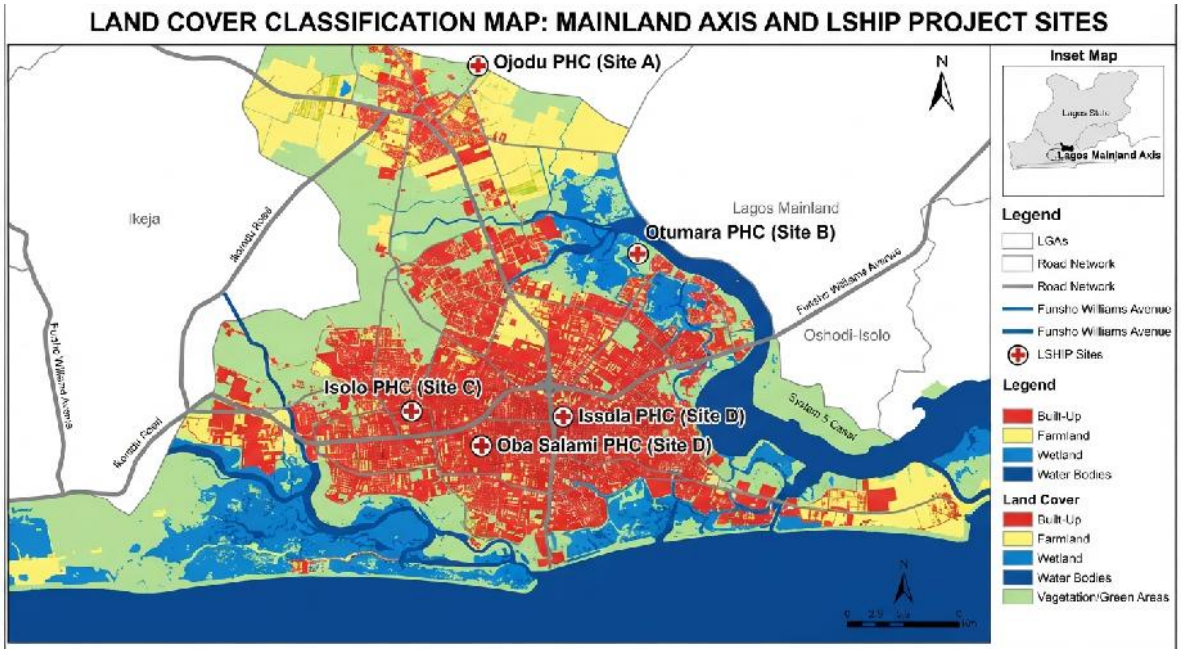


Figure 4.16: Land cover classification for Mainland Axis

4.6.2 Flora

Scientific Name	Common Name	Type	Habitat	Abundance	LSHIP Sites
Elaeis guineensis	Oil palm	Tree	Farmland, secondary forest	Common	Most sites
Mangifera indica	Mango	Tree	Farmland, front yard	Common	Most sites
Manihot esculenta	Cassava	Shrub	Backyard, farmland	Very common	Most sites
Chromolaena odorata	Siam weed	Shrub (invasive)	Disturbed areas, farmland	Very common (invasive)	Most sites

4.6.3 Fauna

Scientific Name	**Common Name**	**Class**	**Habitat**	**Abundance**	**Conservation Status**	**LSHIP Sites**
Corvus albus	Pied crow	Aves	Urban areas	Common	Least Concern	All sites
Cricetomys gambianus	Giant rat	Mammal	Farmland, settlement	Common	Least Concern	Most sites
Eurasian agamids	Agama lizard	Reptilia	Human habitats	Common	Least Concern	All sites
Ardeidae spp.	Egrets, herons	Bird	Open grassland	Common	Least Concern	All sites
Spilopelia senegalensis	Laughing dove	Bird	Urban areas	Common	Least Concern	All sites

4.6.4 Sensitive Ecological Areas

The Mainland Axis is situated within a highly modified urban environment, characterized by extensive built-up areas, paved surfaces, and limited natural vegetation. While no Critical Habitats (as defined by IFC PS6 / AfDB OS6) are present within the project footprints, several sensitive ecological features have been identified in the vicinity of the PHC sites. These features provide important ecosystem services to local communities and require targeted management measures during construction and operation.

Sensitive Ecological Areas in the Mainland Axis

Sensitive Area	Location	LSHIP Sites Nearby	Ecological Value	Sensitivity	Protection Status
Otumara PHC Waterfront	Lagos Mainland	Otumara PHC (within)	The waterfront interface provides drainage and flood regulation services. The area consists of reclaimed land and artificially created environment with replaced soil.	High	Not protected
Lagos Lagoon	Lagos Mainland	Otumara PHC and Oba Salami PHC (adjacent)	The lagoon supports artisanal fisheries, provides flood regulation, and contributes to local livelihoods. It is a sensitive urban ecosystem.	High	Proposed RAMSAR site
Isolo PHC Heat Island Effect	Oshodi-Isolo	Isolo PHC (within)	High-density paved surfaces and limited vegetation cover contribute to elevated ambient temperatures, affecting local microclimate and community thermal comfort.	High	Not protected

Drainage Channels & Floodplains	Ogba Ikeja & Oshodi	Ojodu, Otumara & Isolo PHC	Urban drainage channels provide stormwater conveyance and flood attenuation. Poor maintenance and encroachment increase flood risk.	Medium	Not protected

Key Ecological Considerations

1. Lagos Lagoon (Sensitive Urban Ecosystem)

The Lagos Lagoon, adjacent to Otumara and Oba Salami PHCs, is the most significant ecological feature in the Mainland Axis. While it is not classified as a Critical Habitat under IFC PS6 criteria, it provides essential ecosystem services:

- Fisheries Resources: Supports artisanal fishing livelihoods for local communities, with species including tilapia (*Sarotherodon melanotheron*), catfish (*Chrysichthys nigrodigitatus*), and blue crab (*Callinectes amnicola*).
- Flood Regulation: Functions as a natural stormwater retention basin, reducing flood risk in adjacent low-lying areas.
- Microclimate Moderation: The water body helps regulate local temperatures in the surrounding urban environment.

Management Implications:

- Strict sediment and pollution controls during construction (silt fences, sediment traps).
- No untreated wastewater discharge into the lagoon.
- Spill prevention and response protocols for fuel and chemicals.
- Monthly water quality monitoring (TSS, BOD, coliforms, hydrocarbons).

2. Otumara PHC Waterfront (Reclaimed Land)

The Otumara PHC site is located on reclaimed coastal land adjacent to the Lagos Lagoon. This area is characterised by:

- Soft Soil Conditions: Requires specialised foundation engineering to prevent subsidence.
- High Water Table: Elevates flood risk and groundwater contamination potential.

- Artificially Created Environment: Limited ecological value but sensitive to construction disturbances due to its unstable substrate.

Management Implications:

- Elevated finished floor levels (FFL) to mitigate flood risk.
- Ground stabilisation matting for heavy machinery.
- Non-permeable subsurface flood barriers.
- Sealed, double-chamber septic systems to protect the high water table.

3. Urban Heat Island Effect (Isolo PHC)

Isolo PHC is located in a high-density urban corridor with extensive paved surfaces and limited vegetation cover. This contributes to:

- Elevated Ambient Temperatures: Increased heat stress for patients, staff, and visitors.
- Increased Cooling Demand: Higher energy consumption for air conditioning.
- Reduced Air Quality: Limited vegetation cover reduces natural air filtration.

Management Implications:

- Cool roofs (reflective coating) to reduce heat absorption.
- Natural cross-ventilation design to reduce reliance on air conditioning.
- Native tree planting and landscaping to provide shading.
- Solar PV integration to reduce greenhouse gas emissions from cooling.

4. Urban Drainage Channels and Floodplains

Several urban drainage channels and flood-prone areas are located near the Ojodu, Otumara, and Isolo PHC sites. These features are essential for stormwater conveyance and flood attenuation but are often poorly maintained due to:

- Blocked Drains: Accumulation of solid waste and sedimentation reduces drainage capacity.
- Encroachment: Informal structures and waste dumping restrict natural water flow.
- Inadequate Capacity: Many drainage systems are undersized for current rainfall intensity.

Management Implications:

- Design drainage systems for 1:100-year storm events plus 30% climate factor.
- Regular inspection and clearing of drainage channels.
- Sediment traps and silt fences during construction to prevent blockage.
- No construction debris or waste disposal in drainage channels.

Summary of Management Measures for Sensitive Ecological Areas

Sensitive Area	Key Management Measures	Responsible Entity
Lagos Lagoon	Silt fences, sediment traps, spill kits, water quality monitoring (monthly), no untreated discharge	Contractor / PIU
Otumara Waterfront	Elevated FFL, ground stabilisation, sealed septic systems, flood barriers	Contractor / PIU
Isolo Heat Island	Cool roofs, natural ventilation, tree planting, solar PV	Contractor / Facility Operator
Drainage Channels	Oversized drains, sediment traps, regular clearing, waste management	Contractor / LGA

These sensitive ecological areas, while not classified as Critical Habitats, require appropriate management to ensure that the project does not adversely affect their ecological functions or the livelihoods of local communities that depend on them. All mitigation measures are integrated into the Environmental and Social Management Plan (ESMP) in Chapter 7.

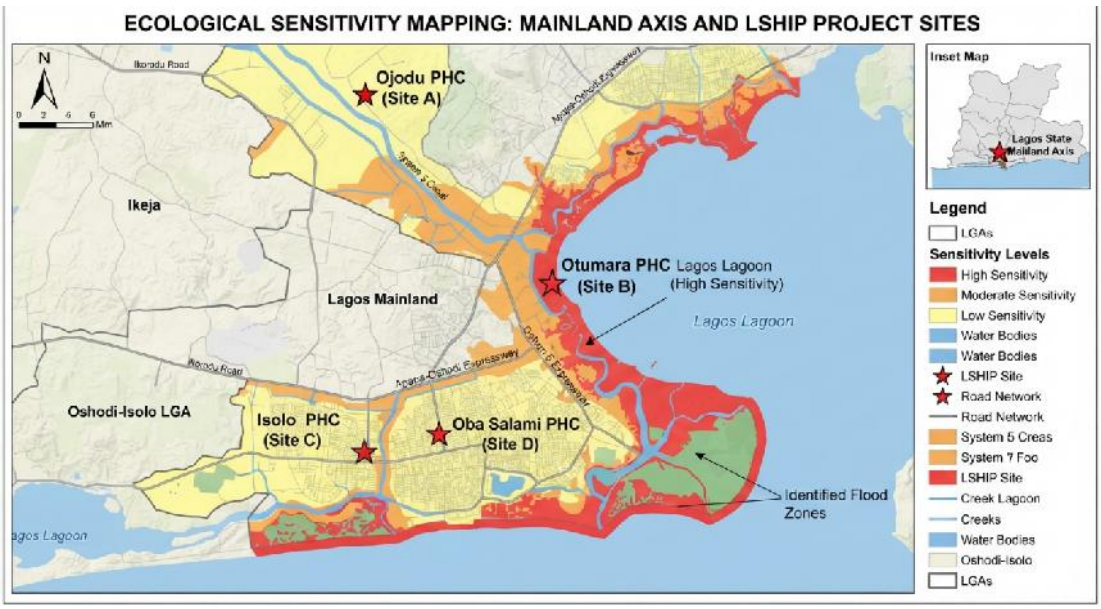


Figure 4.17 Ecological sensitivity mapping for Mainland Axis

4.7 Biodiversity Assessment (IFC PS6 / AfDB OS3)

4.7.1 Critical Habitat Screening

No Critical Habitats (as defined by IFC PS6 Criterion 1–5) are present within the project footprints. The Lagos Lagoon, while a sensitive urban ecosystem providing important services to local communities, does not meet the criteria for Critical Habitat classification. Therefore, no Critical Habitat assessment or biodiversity offset is required for this axis. Standard mitigation measures for water quality protection and erosion control will be applied to safeguard the lagoon's ecosystem services.

4.7.2 Ecosystem Services Assessment

Service	**Description**	**Dependence of Local Communities**	**LSHIP Impact**	**Mitigation**
Water Supply	Groundwater from boreholes	High (all sites)	Potential groundwater depletion from increased abstraction	Rainwater harvesting (5,000–10,000 L storage); water-efficient fixtures; abstraction monitoring
Fisheries	Lagos Lagoon	Medium (fishing communities adjacent to Otumara and Oba Salami)	Water pollution from construction runoff and sediment	Silt fences; sediment traps; no untreated discharge; spill prevention protocols
Flood Regulation	Urban drainage channels and lagoon reclaimed land	High (flood-prone areas around Ojodu, Otumara, and Isolo)	Potential disruption of drainage patterns	Maintain 30–50 m buffer from water bodies; oversized drainage (1:100-year + 30% climate factor); regular drainage clearing

Microclimate Moderation	Urban vegetation and water bodies	Medium (all sites)	Loss of limited vegetation cover	Native tree planting (2:1 replacement ratio); cool roofs; natural ventilation design

Summary of Biodiversity & Ecosystem Management

Aspect	Assessment	Management Action
Critical Habitat	Not triggered	No offset required
Sensitive Ecosystem	Lagos Lagoon (adjacent to Otumara/Oba Salami)	Water quality monitoring; sediment controls; spill prevention
Species of Concern	None identified	Standard environmental controls apply
Ecosystem Services	Water, fisheries, flood regulation, microclimate	Integrated into ESMP with specific mitigation measures

All biodiversity and ecosystem management measures are integrated into the Environmental and Social Management Plan (ESMP) in Chapter 7.

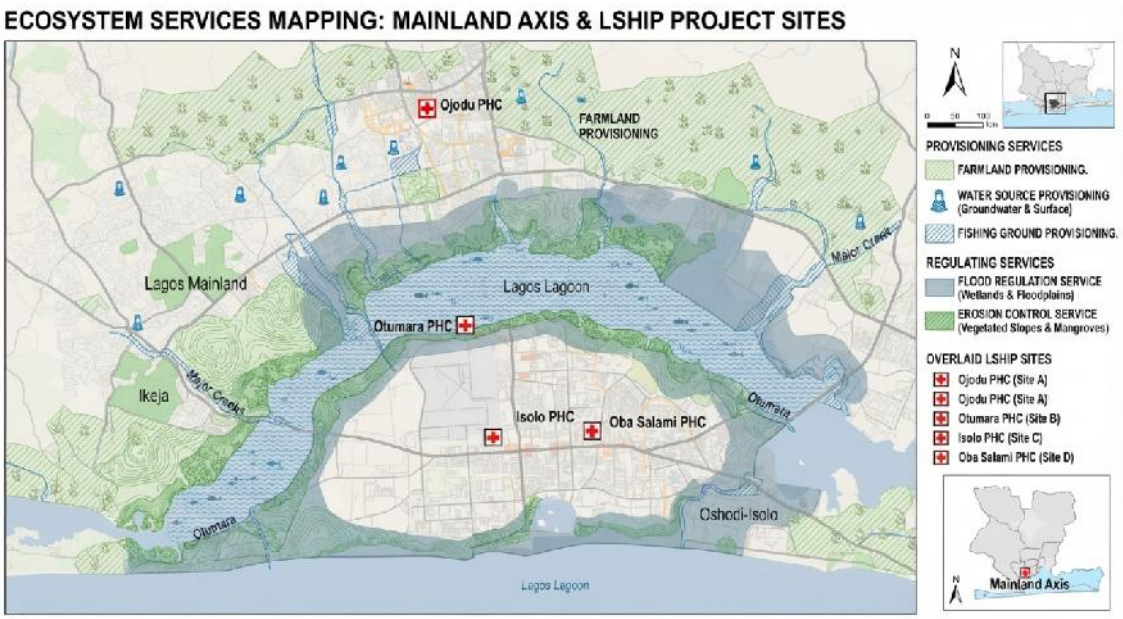


Figure 4.18: Ecosystem services mapping for Mainland Axis

Flood Risk Assessment Summary for Group 2:

Site	Flood Susceptibility Class	EIA Assessment
Isolo PHC	Low to Moderate	Low to Moderate flood risk; facility likely operational during normal rainy seasons
Oba Salami PHC	Low to Moderate	Low to Moderate flood risk; facility likely operational during normal rainy seasons
Ojodu PHC	Moderate to High	Moderate flood risk; severe flood events may disrupt access roads and reduce service efficiency
Otumara PHC	Moderate to High	Moderate flood risk; severe flood events may disrupt access roads and reduce service efficiency

4.7.3 Future Climate Projections (2050, RCP 8.5)

Parameter	2024 Baseline	2050 (RCP 8.5 – high emissions)	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

4.8 Socio-Economic and Cultural Environment

This section presents the socio-economic and cultural baseline for the Mainland Axis Group 2, encompassing the PHC facilities—Isolo, Oba Salami, Ojodu and Otumara. The assessment covers

demographics, livelihoods, land tenure, social services, cultural heritage, vulnerable groups, GBV/SEA/SH risks, and security context. The analysis establishes the pre-project socio-economic baseline against which potential impacts will be evaluated in accordance with AfDB Operational Safeguards (OS2, OS4, OS5, OS7, OS10) and FMEnv requirements.

4.8.1 Socio Economic Overview of Mainland Axis (Group 2)

4.8.1.1 Brief History and Context

Lagos Mainland forms part of the historic metropolitan core of Lagos and has evolved from a predominantly indigenous settlement area into a highly urbanised and commercially active part of the Lagos metropolitan region. Its development has been strongly influenced by the expansion of Lagos Island, the colonial administration, railway development, population growth and increasing movement of people and commerce into the mainland.

Yaba developed significantly during the colonial and early post-colonial periods as Lagos expanded beyond the Island. Its strategic location and proximity to the railway corridor contributed to its emergence as an important residential, educational, commercial and institutional centre. Yaba subsequently became associated with major educational and health institutions, markets and a dense urban population. Today, it is a major mixed-use district characterised by residential neighbourhoods, commercial activities, educational institutions, technology businesses and healthcare **facilities**.

Isolo has its roots in indigenous Yoruba settlement and later developed as Lagos expanded westward and northward. The area became increasingly urbanised through residential development, commerce and improved road connections to other parts of Lagos. Its location between established mainland communities and major transportation corridors has supported the growth of markets, small businesses, informal enterprises and residential neighbourhoods. Isolo today is predominantly a densely settled mixed-use area with significant commercial and service activities.

Ojodu developed from a traditional Yoruba settlement into a major peri-urban and subsequently urban residential and commercial district as Lagos expanded towards the north. Its location along important transportation routes linking Ikeja, Berger and other parts of Lagos contributed substantially to its growth. The area has experienced rapid residential, commercial and institutional development, resulting in increased population density and pressure on roads, drainage, water supply, waste management and other urban infrastructure.

The areas are therefore characterised by high population density, intense land-use pressure, significant traffic and mobility demands, diverse livelihood systems, and strong dependence on existing infrastructure and public services. Traditional community leadership structures, Community Development Associations, religious organisations, youth and women's groups also remain important for stakeholder engagement and community mobilisation.

Traditional Leadership and Governance:

The area has a strong traditional leadership structure comprising local chiefs, Baales, and community heads who play important roles in:

- Land administration
- Dispute resolution
- Stakeholder engagement
- Community mobilisation

4.8.1.2 Comparative Socio-Economic Baseline by Community

The structured comparative socio-economic baseline for the Lagos Mainland communities of Isolo, Oba Salami, Ojodu, and Otumara is presented in Table 4.14 below. Each community reflects unique demographic, infrastructural, and livelihood characteristics shaped by its geography and development pressures.

Table 4.14: Comparative Socio-Economic Baseline – Project-Affected Communities

Comparative Socio-Economic Baseline – Mainland Communities

Parameter	Isolo	Oba Salami	Ojodu	Otumara
Location Context	Suburban district within Oshodi-Isolo LGA; near airport and industrial estates	Mainland community with strong real estate and housing development footprint	Northern Lagos Mainland, strategic transport hub along Lagos-Ibadan Expressway	Lagoon-side informal settlement in Ebute Meta, slum-like conditions
Estimated Population	600,000+ (dense urban sprawl)	Small-medium, tied to housing estates and developments	150,000–200,000	20,000–30,000 (informal settlement estimate)

		(tens of thousands)		
Settlement Type	Urban/suburban	Semi-urban housing clusters	Urban fringe/transport corridor	Informal riverine slum
Dominant Ethnic Group	Yoruba (Awori subgroup)	Yoruba	Yoruba	Yoruba (Ilaje heritage)
Other Ethnic Groups	Igbo, Hausa, migrants	Igbo, Hausa	Igbo, Hausa	Egun, migrants
Main Livelihoods	Trading, manufacturing, transport, real estate	Real estate, artisan work, petty trade	Trading, transport, civil service, real estate	Fishing, petty trading, sand mining, water transport
Key Economic Feature	Major markets (Aswani, Jakande), industrial hubs	Housing development and artisan training	Berger bus terminal, real estate boom	Lagoon-based informal economy
Infrastructure Level	Moderate (roads, schools, markets, but congestion)	Moderate (housing estates, artisan training centers)	Improving (roads, bridges, solar projects)	Very low (poor housing, sanitation, drainage)
Road Condition	Congested, mixed quality	Moderate	Good access via expressway, but congested	Poor, flood-prone
Water Supply Source	Boreholes, vendors	Boreholes, wells	Boreholes, solar-powered facilities	Boreholes, contaminated wells
Electricity Supply	Irregular grid, generators	Irregular grid	Irregular grid, solar interventions	Very irregular, mostly generators

Drainage Condition	Poor, flooding issues	Moderate	Mixed, improving with projects	Very poor, waterlogging
Environmental Setting	Urban/suburban	Semi-urban	Urban fringe	Lagoonal slum
Key Environmental Issue	Flooding, congestion, waste management	Housing affordability, urban sprawl	Congestion, pollution, youth unemployment	Flooding, poor sanitation, slum conditions
Traditional Leadership	Osolo of Isolo, Baales	Local chieftaincy	Baales, LCDA leadership	Baales, informal leaders
Development Pressure	Very high (urban expansion)	Medium to high	High (real estate, transport corridor)	High (slum regeneration plans)

Key Insights

- Isolo: Dense, urbanized, with strong markets and industrial activity but plagued by congestion and flooding.
- Oba Salami: Semi-urban, housing-focused, with artisan empowerment initiatives.
- Ojodu: Strategic transport hub with growing real estate and infrastructure projects.
- Otumara: Lagoon-side slum, highly vulnerable, targeted for regeneration by Lagos State.

4.8.2 Socio-Economic Receptors Analysis

4.8.2.1 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.

Key Sensitivities:

- Isolo, Yaba (Oba Salami), Ojodu and Otumara are located in the densely populated areas of Lagos State particularly sensitive to temporary disruptions in road access, noise, and construction disturbances
- A large share of residents depend on local roads and services daily
- Population density is high with accompanying challenges.

Overall Sensitivity: Population receptors are assessed as HIGH SENSITIVITY, particularly during the construction phase.

4.8.2.2 Livelihood Receptors

Livelihood systems in Group 2 are predominantly urban and include trading, formal and informal employment, transport services, small businesses, food vending, artisanship, construction-related activities and other service-sector activities.

Table 4.15: Livelihood Receptors by Community

Community	Key Livelihoods	Sensitivity Drivers
Oba Salami (Yaba)	Trading, services, transport, formal employment, small businesses	Access restrictions, traffic disruption, reduced customer access
Isolo	Trading, informal businesses, transport, services and wage employment	Construction disturbance, access restrictions, reduced business patronage
Ojodu	Trading, services, transport, construction and small businesses	Traffic disruption, access constraints, construction disturbance
Otumara	Trading, services, transport, informal businesses and wage employment	Access restrictions, reduced customer patronage, traffic disturbance

Key Observations:

- Household income is derived from multiple formal and informal sources.
- Trading and small businesses are particularly dependent on pedestrian and vehicular access.
- Transport operators are sensitive to changes in traffic flow and road accessibility.
- Small-scale informal businesses may have limited financial capacity to absorb temporary income losses.

Overall Sensitivity: *Livelihood receptors are assessed as* ***HIGH SENSITIVITY****, requiring careful construction planning to minimise disruption to businesses, transport activities and daily income generation.*

4.8.2.3 Community Infrastructure Receptors

Community infrastructure includes roads, drainage, water supply systems, electricity networks, schools, healthcare facilities, markets and public transport routes.

Table 4.16: Community Infrastructure Receptors

Community	Infrastructure Level	Sensitivity Drivers
Oba Salami (Yaba)	Moderate–High	High population density, traffic and pressure on urban infrastructure
Isolo	Moderate	Dense settlement, congestion and drainage constraints
Ojodu	Moderate	High mobility demand, development pressure and traffic
Otumara	Moderate	Existing drainage/access constraints and dependence on local services

Key Observations:

- Road infrastructure is particularly sensitive because it supports economic mobility and access to healthcare, schools and markets.
- Temporary road obstruction can have significant consequences in densely populated areas.
- Drainage infrastructure is important because obstruction may worsen existing flooding.
- Water and electricity infrastructure may be vulnerable to accidental damage during construction.

Overall Sensitivity: Community infrastructure receptors are assessed as MODERATE TO HIGH SENSITIVITY.

4.8.2.4 Vulnerable Groups as Receptors

Vulnerable groups include women, children, elderly persons, persons with disabilities, low-income households, informal traders and other persons with limited capacity to absorb temporary socioeconomic disruptions.

Table 4.17: Vulnerable Groups and Sensitivity Drivers

Vulnerable Group	Sensitivity Drivers
Women/petty traders	Potential income loss from restricted access and reduced customer patronage
Children	Construction traffic, road safety and restricted access to schools/services
Elderly persons	Mobility difficulties and reduced access to healthcare and social services

Persons with disabilities	Physical accessibility and mobility constraints
Low-income households	Limited capacity to absorb temporary income or livelihood losses
Informal economic operators	Limited financial reserves and dependence on daily customer access

Overall Sensitivity: *Vulnerable groups are classified as* ***HIGH SENSITIVITY****, requiring specific consideration during project design, consultation and construction.*

4.8.2.5 Environmental Resource Receptors

Environmental resources of Group 2 are primarily urban drainage systems, groundwater sources, local open spaces and other environmental services that support urban wellbeing.

Table 4.18: Environmental Resource Receptors

Community	Environmental Resources	Sensitivity Drivers
Oba Salami (Yaba)	Drainage channels, groundwater, urban open spaces	Flooding, pollution and construction disturbance
Isolo	Drainage channels, groundwater and local open spaces	Drainage blockage, waste and pollution
Ojodu	Drainage channels, groundwater and urban green/open spaces	Flooding, runoff and land-use pressure
Otumara	Drainage channels, groundwater and urban open spaces	Drainage obstruction, flooding and waste accumulation

Overall Sensitivity: Environmental resource receptors are assessed as MODERATE–HIGH SENSITIVITY, particularly drainage and groundwater resources that contribute directly to urban environmental health.

4.8.2.6 Social and Cultural Institution Receptors

Traditional leadership institutions, Community Development Associations, religious organisations, women's groups, youth groups and other community networks serve as important social receptors.

Table 4.19: Social and Cultural Institution Receptors

Community	Traditional/Social Institutions
Oba Salami (Yaba)	Community leadership, CDAs, religious and social organisations
Isolo	Community leadership, CDAs, religious and social organisations

Ojodu	Community leadership, CDAs, religious and social organisations
Otumara	Community leadership, CDAs, religious and social organisations

Key Observations:

- These institutions are important for community mobilisation and stakeholder engagement.
- CDAs and community leaders can facilitate dissemination of project information.
- Religious and social institutions provide important channels for reaching vulnerable and hard-to-reach groups.
- Failure to adequately engage community institutions could result in mistrust, misinformation or resistance.
- These structures can also support the effectiveness of the project's grievance redress mechanism.

Overall Sensitivity: Social and cultural institutions are considered **MODERATE SENSITIVITY**, although their strategic importance to project acceptance is **HIGH**.

4.8.2.7 Security, Conflict and Social Stability Receptors

Given the highly urbanised nature of Group 2, social stability is influenced by population density, traffic congestion, competition for space, informal economic activities, construction disturbances and interactions between residents, businesses and project workers.

Potential sources of social tension during project implementation include:

- restriction of access to businesses and residences;
- temporary loss of trading space;
- traffic diversions;
- perceived preferential employment of outsiders;
- inadequate consultation;
- disruption to community facilities;
- noise and construction nuisance; and
- disagreements over compensation or damage to assets.

Key Observations:

The communities are generally integrated into the wider Lagos metropolitan social system, but the high population density and economic dependence on daily activities mean that relatively small disruptions can generate community grievances.

Overall Sensitivity: Security, conflict and social stability receptors are assessed as MODERATE–HIGH SENSITIVITY, particularly during construction.

4.8.2.8 Summary of Receptor Sensitivity

Table 4.20: Summary of Socio-Economic Receptor Sensitivity – Group 2

Receptor Category	Sensitivity Level	Basis of Sensitivity
Population Receptors	**High**	High urban population concentration and dependence on local infrastructure
Livelihood Receptors	**High**	Dependence on trading, services, transport and daily income
Community Infrastructure Receptors	**Moderate–High**	Existing infrastructure pressure, congestion and drainage constraints
Vulnerable Groups	**High**	Limited adaptive capacity and dependence on daily income/services
Environmental Resource Receptors	**Moderate–High**	Drainage, groundwater and urban environmental pressures
Social/Cultural Institutions	**Moderate**	Important for consultation, mobilisation and grievance management
Security/Conflict/Social Stability	**Moderate–High**	Dense urban setting, access restrictions and potential competition over space/resources

4.8.2.9 Community Sensitivity Ranking

Table 4.21: Community Sensitivity Ranking – Group 2

Community	Overall Sensitivity	Key Drivers
Oba Salami (Yaba)	**Very High**	High population density, traffic, intense development, institutional/commercial activity and infrastructure pressure
Isolo	**Very High**	Dense urban settlement, high population, commercial activity, traffic and drainage constraints

Ojodu	**High**	Strategic transport location, rapid development, traffic and infrastructure pressure
Otumara	**High**	Dense settlement, dependence on local services, drainage/access constraints and urban development

Implications for Project Design

The socioeconomic receptors within Group 2 – Mainland Axis are generally moderate to highly sensitive, with Oba Salami (Yaba) and Isolo exhibiting the highest overall sensitivity due to their high levels of urbanisation, population concentration, commercial activity and infrastructure pressure.

Project planning should therefore emphasise:

- Careful construction planning to minimise disruption to roads, businesses, residences and public facilities.
- Maintenance of access to homes, markets, healthcare facilities, schools and businesses throughout construction.
- Traffic management, particularly around Yaba, Isolo and Ojodu where congestion and high mobility demand are important baseline conditions.
- Targeted stakeholder engagement involving community leaders, CDAs, women, youth, traders, transport operators and other affected groups.
- Livelihood protection measures for informal traders, small businesses and other operators affected by temporary access restrictions.
- Vulnerable-group safeguards for children, elderly persons, women, persons with disabilities and low-income households.
- Drainage and flood management, particularly where construction activities could obstruct existing drainage pathways.
- Waste management and pollution control to prevent construction activities from exacerbating existing urban environmental problems.
- Employment transparency, including fair and locally accessible recruitment procedures, to minimise perceptions of exclusion.
- Effective GRM implementation, with accessible channels for residents, businesses and vulnerable groups.

- Security and social-risk management, including worker conduct requirements, community liaison and timely resolution of grievances.

Overall Group 2 Assessment

Overall, Group 2 communities are characterised by high urbanisation, relatively high population density, diverse formal and informal livelihoods, strong dependence on road-based mobility and significant pressure on existing infrastructure. Oba Salami (Yaba) and Isolo are considered the most sensitive communities because of their dense settlement patterns, commercial intensity and infrastructure constraints, while Ojodu and Otumara are assessed as high-sensitivity urban communities. The principal socioeconomic risks during project implementation relate to temporary access restrictions, traffic disruption, business interruption, pressure on drainage and public infrastructure, construction-related nuisance, and potential exclusion or grievances among vulnerable groups. These risks can be effectively managed through early stakeholder engagement, traffic and access management, livelihood protection, vulnerable-group measures, proper construction management and an accessible grievance redress mechanism.

4.9 Site – Specific **Socio-economic** Baseline

4.9.1 Human Settlements

Table 4.22 below shows the Human Settlement Characteristics by Site

Table 4.22: Human Settlement Characteristics by Site

Site	Settlement Type	Population Density	Description
Isolo PHC	Urban residential-commercial	High	Expanding residential area, young families
Oba Salami PHC	Urban residential mixed income	High	Scattered settlements, agricultural activity
Ojodu PHC	Urban residential-commercial	High	Growing residential area, active local markets
Otumara PHC	Informal urban settlement	High	Rapidly expanding, low- to middle-income households

4.9.2 Demographics

This subsection presents an integrated baseline profile of the four Group 2 Primary Health Centre (PHC) catchment communities—Isolo, Oba Salami (Yaba), Ojodu (Ogba) and Otumara —within the Mainland Axis. It combines spatial settlement characteristics with detailed demographic and socio-economic indicators to provide a clear understanding of population distribution, density, household structure, cultural identity, and livelihood patterns across the project area. The accompanying infographic illustrates the distinct settlement morphologies— urban development and key demographic parameters including population size, age structure, gender ratio, household composition, ethnic diversity, economic activity, ecosystem dependence, and overall community sensitivity. Together, these elements form a comprehensive baseline essential for assessing social context, planning service delivery, and informing project design under AfDB ISS requirements.

Table 4.23 indicates the Integrated Population, Settlement, and Socio-Economic Sensitivity Matrix for Group 2 PHC Catchment Communities (Mainland Axis).

Table 4.23: Community Vulnerability & Demographic Profile

Category	Isolo	Oba Salami	Ojodu	Otumara PHC
Estimated population	8,000–15,000	6,000–12,000	5,000–10,000	42,500–48,000
% of catchment population	~33%	~28%	~22%	100%
Population density	High	Medium	Low–Medium	—
Settlement type	Semi-urban / Linear	Nucleated rural	Coastal / Dispersed	—
Population growth rate	3–4% per year	3–4% per year	3–4% per year	3–4% per year
Gender ratio (F:M)	0.98:1	0.98:1	0.98:1	0.98:1
Youth (<18)	35–40%	35–40%	35–40%	35–40%
Working age (18–64)	55–60%	55–60%	55–60%	55–60%
Elderly (≥65)	3–5%	3–5%	3–5%	3–5%

Average household size	4–6 persons	4–6 persons	4–6 persons	4–6 persons
Primary ethnicity	Yoruba	Yoruba	Yoruba	Yoruba
Other ethnic groups	Igbo, Hausa	Igbo, Hausa	Igbo, Hausa,	—
Literacy rate	68%	68%	68%	68%
Unemployment rate	~18%	~18%	~18%	~18%
Main economic activity	Trading, transport, small-scale services	Farming, trading, fishing	Trading, services, markets	Fishing, petty trade, health-related services
Ecosystem dependence	>50% (canal/wetland)	>60% (floodplain)	~40% (urban infrastructure, markets)	>50% (lagoon/waterfront)
Key markets	Isolo Central Market	Salami Community Market	Ojodu LCDA Markets	Otumara Waterfront Market
Infrastructure level	Low–Moderate	Low	Moderate–Improving	Low
Road condition	Poor, flood-prone	Poor, seasonal constraints	Mixed–Improving	Poor
Drainage condition	Poor	Very poor	Moderate–Improving	Poor
Flood risk	High	High	Moderate	High
GBV risk level	Medium–High	Medium–High	Medium	Medium–High
Overall sensitivity	Very High	Very High	Moderate–High	Very High

Observations

- Isolo and Oba Salami: Both show *very high sensitivity* due to high flood risk, poor drainage, and strong ecosystem dependence.
- Ojodu: Slightly better positioned with moderate infrastructure improvements, lowering sensitivity to *moderate–high*.
- Otumara PHC: Large population size and waterfront exposure make it highly vulnerable despite its centrality.

Leadership Structure:

The project communities have a traditional leadership structure comprising:

- Obas / Baales: Traditional rulers responsible for community governance, conflict resolution, and cultural preservation
- Community Development Associations (CDAs): Community-based organisations responsible for local development initiatives
- Ward Development Committees (WDCs): LGA-level committees responsible for community interface and grievance intake
- Women's Groups: Organised women's associations responsible for maternal and child health advocacy
- Youth Groups: Organised youth associations responsible for community engagement and employment advocacy.

Figure 4.19 provides a consolidated baseline overview of the demographic, social, and economic characteristics of the project's catchment area, forming a critical foundation for understanding community dynamics and informing development planning. Drawing on authoritative datasets from the National Population Commission (NPC), National Bureau of Statistics (NBS), and Lagos State government agencies—including the Bureau of Statistics, Ministry of Education, and Socio-Economic Survey—the visual summary depicts a rapidly growing population with distinct cultural diversity and a strong working-age structure.

The profile highlights key dimensions such as population size and growth trends, household composition, gender balance, and age distribution; cultural identity and literacy levels; and the prevailing economic landscape dominated by artisanal livelihoods such as fishing, farming, and petty trading. It also underscores persistent unemployment challenges that shape local development priorities. Together, these indicators provide stakeholders with a clear, data-driven

understanding of the community context essential for strategic intervention design and effective project implementation.

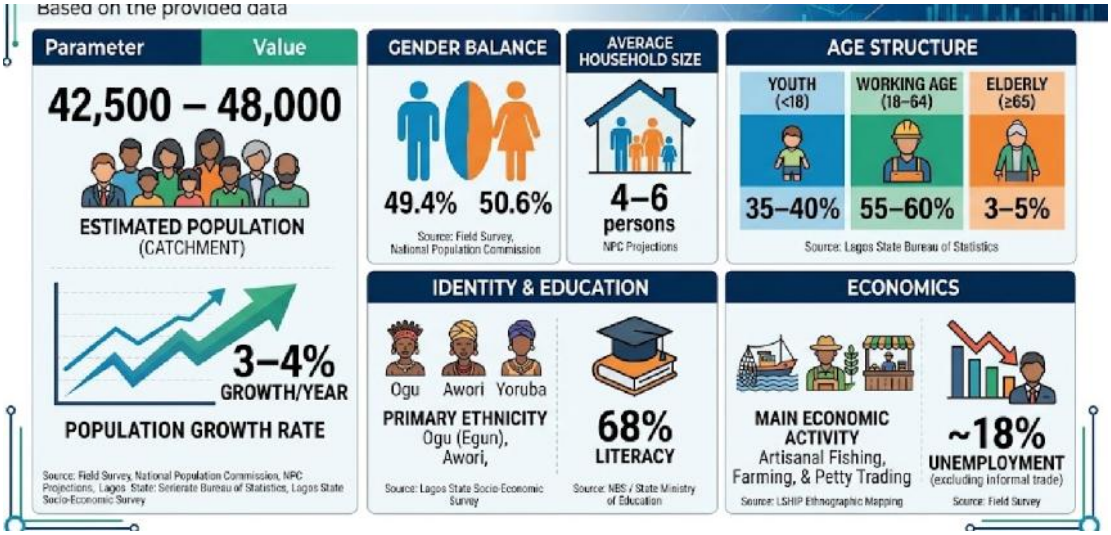


Figure 4.19: Baseline Demographic and Economic Profile of the Regional Catchment Area

4.9.3 Livelihoods

Livelihoods across the Mainland Axis Group 2 are shaped by a mix of trading, artisanal work, transport services, clerical/administrative and farming. Vulnerability to project impacts is fairly consistent due to the urban features and exposure.

The Mainland Axis, comprising Isolo, Oba Salami, Ojodu and Otumara PHC locations, is characterised predominantly by urban and peri-urban livelihoods, with petty trading, retail commerce, informal services, transport-related activities and small-scale enterprises providing important sources of household income. Livelihoods within these locations are less directly dependent on natural resources and are more closely linked to local markets, residential demand, mobility and informal commercial activities.

The vulnerability of local livelihoods to the proposed PHC works is therefore expected to arise principally from temporary restrictions on access, construction traffic, dust, noise, pedestrian safety and possible disruption of roadside or informal trading activities. Ojodu and Isolo may exhibit relatively higher sensitivity because of their greater commercial intensity, population density and traffic activity, while Oba Salami and Otumara are expected to experience predominantly localised and temporary impacts. Overall, livelihood vulnerability across the

Mainland Axis is assessed as Medium, with Medium-to-High sensitivity in commercially intensive areas.

Table 4.24: Livelihood Profile by Site

Site	Primary Livelihoods	Secondary Livelihoods	Vulnerability to Project
Isolo PHC	Petty trading, retail businesses, commercial services and informal employment; significant participation in transport-related activities and small-scale enterprises	Food vending, tailoring, hairdressing/barbing, motorcycle/tricycle transport, casual labour and home-based businesses	Medium – potential temporary disruption to roadside businesses, pedestrian access, trading activities and local traffic during construction
Oba Salami PHC	Petty trading, small-scale retailing, food vending and other informal commercial activities serving the surrounding residential community	Tailoring, hairdressing/barbing, artisanship, transport services and casual labour	Medium – businesses and pedestrian movement may be temporarily affected by construction activities, dust, noise and restricted access
Ojodu PHC	Commerce, retail trade, transport services and service-sector employment associated with the densely developed Ojodu environment	Food vending, tailoring, repairs, hairdressing/barbing, small-scale enterprises and casual employment	Medium to High – relatively high population and commercial activity increase sensitivity to access restrictions, traffic, dust, noise and temporary loss of trading space
Otumara PHC	Petty trading, informal commerce, food vending and small-scale service activities supporting the	Tailoring, hairdressing/barbing, artisanship, transport services and casual labour	Medium – temporary disruption to access and nearby informal businesses, with potential

	surrounding residential population		effects from dust, noise and construction traffic

4.9.4 Education, Literacy and Skills

The socio-economic baseline assessment for LSHIP Group 2 – Mainland Axis, comprising Isolo PHC, Oba Salami PHC, Ojodu PHC and Otumara PHC, was undertaken to establish the prevailing social and economic conditions within the project areas and their immediate catchment communities.

Table 4.25: Education, Literacy, Social Organisations and Institutions

PHC / Community	Education and Literacy	Social Organisations and Institutions	Relevance to Project Engagement
Isolo PHC	Educational attainment varies from no formal/primary education to secondary, technical/vocational and tertiary education. Literacy is generally moderate to high among younger and economically active residents, although differences exist among older and lower-income groups.	Community leaders, CDA/community associations, religious organisations, women and youth groups, traders' associations, schools, health-related groups, local government structures and CBOs/NGOs.	Existing community structures provide effective channels for disseminating project information, mobilising residents and identifying potentially affected traders and vulnerable groups.
Oba Salami PHC	The community has a mixed educational profile, comprising residents with primary, secondary, vocational/technical and	Traditional/community leadership, CDAs, religious bodies, women's and youth associations, traders and artisan groups, schools, health/community	Engagement should combine written information with verbal/community-based communication to ensure that persons

	tertiary education, as well as persons with limited or no formal education. Literacy levels influence access to written information and participation in consultations.	committees and local government institutions.	with lower literacy are adequately reached.
Ojodu PHC	Education levels range from primary and secondary education to technical/vocational and tertiary qualifications. Relatively high literacy among economically active residents supports access to project information, although pockets of low literacy may occur among disadvantaged groups.	Community associations, traditional/community leaders, religious organisations, traders' and business associations, youth and women's groups, schools, health facilities/committees, CBOs and local government institutions.	The diverse institutional network provides multiple avenues for stakeholder engagement, consultation, grievance communication and dissemination of construction-related information.
Otumara PHC	Educational attainment is mixed, ranging from no formal and primary education to secondary, vocational/technical and tertiary education. Literacy levels vary between households and age groups and may	Community leadership structures, CDAs, religious organisations, women's and youth groups, traders' associations, schools, health-related groups, CBOs/NGOs and local government institutio	

	affect access to written project information.		

For the Mainland Axis—Isolo, Oba Salami, Ojodu and Otumara PHC catchment communities, the institutional structure should reflect the predominantly urban/peri-urban setting and the importance of community associations, religious institutions, traders, residents' associations and local government structures.

Traditional Institutions

Community	Institution	Role
Isolo	Traditional/community leadership structures; Baale/Community Head and local chieftaincy structures	Traditional leadership, community mobilisation, cultural guidance, local dispute resolution and liaison between the community and external stakeholders
Oba Salami	Baale/Community Head and community/chieftaincy structures	Community leadership, mobilisation, cultural guidance, mediation of local disputes and support for project consultations
Ojodu	Traditional/community leadership and recognised community associations	Community representation, mobilisation, cultural guidance, conflict resolution and facilitation of communication between residents and project authorities
Otumara	Baale/Community Head and local traditional/community leadership structures	Community leadership, cultural guidance, dispute resolution, mobilisation and representation of community interests

Community-Based Organisations

The following community-based organisations and groups are relevant across the Mainland Axis:

- Community Development Associations (CDAs) – all four PHC catchment areas;
- Residents' and neighbourhood associations – particularly important in the urban residential areas;

- Women's groups and associations – all sites;
- Youth associations and youth groups – all sites;
- Traders' and market associations – particularly relevant around Isolo and Ojodu;
- Artisans' and informal business associations – relevant across the four locations;
- Ward/Community Health Committees – where established;
- Schools and Parent/Teacher Associations (PTAs);
- Community-based organisations (CBOs) and NGOs operating within the respective communities.

Religious Institutions

- Churches and mosques are present across the four PHC catchment communities and constitute important channels for community information dissemination and mobilisation.
- Religious leaders and faith-based organisations can assist in reaching vulnerable households and groups that may not participate regularly in formal community meetings.
- Traditional religious/cultural institutions, where present, should also be recognised during stakeholder mapping and engagement.

Implications for the Project

- Traditional and community leadership structures provide established channels for community entry, mobilisation, consultation and conflict resolution.
- CDAs and residents' associations are particularly important in the urban Mainland context for disseminating project information and obtaining feedback from households.
- Women's and youth groups provide important channels for ensuring gender-responsive and inclusive stakeholder engagement.
- Traders', artisans' and small-business associations are important for identifying and managing potential temporary livelihood disruptions arising from construction activities.
- Religious institutions can support broad dissemination of information, particularly regarding construction schedules, traffic/access arrangements, health and safety risks, and the GRM.
- Health/community committees can support communication on health-service continuity, community health concerns and feedback concerning the upgraded PHCs.

- The institutional network should be incorporated into the Stakeholder Engagement Plan (SEP) and Grievance Redress Mechanism (GRM) to ensure that information reaches both formal community leaders and less formally organised groups.

4.9.5 Gender and Social Inclusion

Gender Profile

Parameter	Value
Gender Ratio (Female:Male)	Approximately balanced (50 – 50)
Women in Workforce	Active in petty trading, retail, food vending, tailoring, hairdressing, domestic work and other informal services
Female-Headed Households	Present, including households headed by widows, separated/divorced women and single mothers
Access to Healthcare	Women may face barriers related to cost, transport, childcare responsibilities, safety and time away from income-generating activities

Social Inclusion Considerations

Group	Considerations
Women	➢ Primary caregivers and major PHC users Active in informal businesses and services May face cost, childcare, mobility and safety barriers
Youth	➢ Significant proportion of the economically active population High participation in informal and casual employment Potential beneficiaries of local construction employment opportunities
Elderly	➢ Mobility and transportation challenges Greater dependence on family/community support May require priority consideration for PHC access during construction

Persons with Disabilities	➢ Potential barriers to physical access and mobility May require accessible PHC facilities and safe pedestrian routes
Low-Income Households	➢ Vulnerable to economic shocks Often dependent on daily/irregular income Sensitive to temporary disruption of trading and employment activities
Informal Traders/Small Businesses	➢ May be affected by temporary access restrictions, dust, noise and reduced customer movement Require advance information and appropriate mitigation where businesses are affected
Migrants/Non-Indigene Residents	➢ Present within the urban Mainland communities Some may have limited links to traditional leadership structures Should be reached through religious organisations, residents' associations, traders' groups and other inclusive platforms

4.9.6 Household Economic Valuation and Ecosystem Dependence

Ecosystem Dependence:

Community	Primary Ecosystem Service	% Household Income from Ecosystem
Isolo	Urban drainage and flood regulation, groundwater/water supply, vegetation and local environmental services	<10% directly dependent on ecosystem-based activities
Oba Salami	Urban drainage and flood regulation, groundwater/water supply, local vegetation and microclimate regulation	<10% directly dependent on ecosystem-based activities
Ojodu	Flood regulation/drainage, groundwater and water supply, urban vegetation and microclimate regulation	<10% directly dependent on ecosystem-based activities

Otumara	Drainage and flood regulation, groundwater/water supply, vegetation and local environmental services	<10% directly dependent on ecosystem-based activities

Key Markets

- Isolo commercial/retail markets and roadside trading clusters – important centres for petty trading and household commerce.
- Oba Salami local markets and neighbourhood trading areas – support retail trade, food vending and small-scale businesses.
- Ojodu markets and commercial corridors – important for retail, food services, transport-related commerce and informal businesses.
- Otumara neighbourhood markets and roadside trading areas – support petty trading, food vending and other informal economic activities.

Implications

- Household livelihoods in the Mainland Axis are not highly dependent on natural ecosystems, with most income derived from commerce, services, transport, informal businesses and wage/casual employment.
- Urban drainage and flood regulation remain important ecosystem services, particularly because poorly managed construction activities can obstruct drainage channels and increase localised flooding.

4.9.7 Security, Conflict, and Social Stability

Security Profile:

Parameter	Assessment
Overall Security	Low to moderate risk
Social Stability	Generally high, supported by established community leadership, residents' associations, religious institutions and community networks
Civil Conflict	Historically low
Security Challenges	• Petty theft and opportunistic crime in busy commercial areas • Poor lighting in some locations and pedestrian routes • Traffic-related safety risks

	• Isolated areas around construction sites • Potential disputes relating to access, informal trading and construction activities

Security Measures

Site	Risk Level	Description	Mitigation
Isolo	Medium	Busy urban/commercial environment; high pedestrian and vehicular activity; potential for petty crime and traffic-related incidents	Security guards; secure site fencing; adequate lighting; controlled access; traffic/pedestrian management; community liaison
Oba Salami	Low–Medium	Predominantly residential/community setting with local commercial activities; potential for petty theft and construction-related access disputes	Security guards; fencing; lighting; controlled access; community engagement and grievance mechanism
Ojodu	Medium	Densely developed and commercially active area with significant traffic and pedestrian movement; higher exposure to petty crime and traffic risks	Security guards; secure fencing; adequate lighting; controlled site access; traffic management; community liaison
Otumara	Low–Medium	Residential/informal commercial setting; potential for petty theft, poor lighting and temporary access-related disputes during construction	Security guards; fencing; lighting; controlled access; community liaison and GRM

Social Stability Factors

- Established traditional and community leadership structures support local governance, mediation and dispute resolution.
- CDAs, residents' associations, women's and youth groups contribute to social cohesion and provide channels for community mobilisation.

- Religious institutions provide additional platforms for information dissemination and community engagement.
- The Mainland communities are characterised by diverse urban populations, making inclusive engagement through both formal and informal community structures important.
- Civil conflict is historically low, although localised disputes may arise around construction access, informal trading, employment expectations or perceived disruption of community activities**.**

4.9.8 Land Tenure and Ownership

Table 4.26: Land Tenure and Ownership – Mainland Axis

Site	Tenure Type	Evidence	Implications
Isolo PHC	Government/Publicly Controlled Land	Existing PHC status; government/site records to be verified	Low to moderate tenure risk, subject to confirmation of formal title and site boundaries; no major land acquisition anticipated
Oba Salami PHC	Government/Publicly Controlled Land	Existing PHC use and available government/site records	Existing public-health use provides a relatively secure tenure position; confirmation of title and boundaries should be undertaken before construction
Ojodu PHC	Government/Publicly Controlled Land	Existing PHC status; government records and site documentation	Low tenure risk where government ownership is confirmed; existing institutional use reduces likelihood of competing land claims
Otumara PHC	Government/Publicly Controlled Land	Existing PHC/institutional use;	Generally secure tenure associated with existing public-health use; formal

		government/site records to be verified	confirmation of ownership and boundaries required prior to works

Key Observations

- The four Mainland Axis PHC sites are existing public healthcare/institutional locations, and no major land acquisition is anticipated for the proposed refurbishment/reconstruction works, subject to verification of site documentation.
- No physical displacement of residential structures is anticipated within the existing PHC footprints based on the current project configuration.
- The main tenure-related due diligence requirement is to verify government ownership/control, title documentation, site boundaries and any existing encumbrances or third-party occupation before commencement of construction.
- Where informal traders, kiosks or other third-party activities are identified within the construction footprint, their status should be assessed through the RAP/social screening process before works commence.
- Any evidence of community land donation, customary claims, leases, licences or third-party use rights should be formally documented and verified to prevent future ownership or access disputes.
- Given the urban character of the Mainland Axis, particular attention should be paid to encroachment, informal occupation and competing uses of land around the PHC premises.
- Overall, land tenure risk is assessed as Low to Moderate, subject to confirmation of the relevant government ownership and site documentation for each PHC.

4.9.9 Resettlement Baseline (AfDB OS2)

Displacement and Project-Affected Persons (PAPs) – Mainland Axis

Parameter	Finding
Physical Displacement	None – no residential structures requiring relocation have been identified.
Economic Displacement	Limited and temporary – construction may temporarily affect access and trading activities around the PHC sites.
Land Acquisition	Not anticipated – works are planned within existing government/public PHC premises, subject to confirmation of site boundaries and tenure.

PAPs	Ojodu: 14 PAPs have been identified as affected by the project, together with 5 mobile traders who will have to relocate due to the project. Appropriate compensation, assistance and/or livelihood restoration measures are recommended to be provided in accordance with the applicable RAP provisions.
Overall Assessment	Low to moderate displacement risk, concentrated at Ojodu, with impacts primarily associated with economic displacement and temporary disruption rather than physical relocation.

4.9.10 Social Services, OHS and Waste Management

Social Services Baseline

Social services across the Mainland Axis Group 2 are available but uneven in quality. LSHIP interventions will improve healthcare delivery and indirectly strengthen water, energy, road access, and waste management systems. The social amenities available in each of the locations are shown in Table 4.27.

Table 4.27: Social Services Baseline – Mainland Axis

Service	Availability	Gaps Identified	LSHIP Contribution
Markets	Numerous formal and informal markets, neighbourhood trading areas and roadside commercial clusters within the four PHC catchments	Limited access to immediate first aid, health screening and health information within some market/trading clusters	Improved access to modernised PHCs for traders and customers; opportunities for health education, screening and community outreach
Health Centres	Existing PHCs at Isolo, Oba Salami, Ojodu and Otumara	Ageing/limited infrastructure, inadequate clinical space and	Refurbishment/reconstructio n, improved clinical spaces, modern equipment, improved WASH facilities,

		equipment, limited privacy and WASH constraints at some facilities	solar power and enhanced capacity for 24-hour services
Schools	Primary and secondary schools are located within the wider catchment areas	Limited formal linkage between some schools and PHCs for routine health screening, referral and health education	Strengthened referral linkages between schools and upgraded PHCs for health checks, immunisation, health education and other preventive services
Water Sources	Public water supply is supplemented by boreholes and other groundwater sources	Intermittent supply, variable water quality and inadequate reliability/capacity for continuous healthcare operations	Provision/improvement of reliable water supply systems, including dedicated water infrastructure to support safe and continuous WASH services
Electricity	National grid connections are generally available within the Mainland communities	Frequent power interruptions can affect clinical services, vaccine storage, lighting, ICT systems and emergency operations	Installation/use of **solar PV and backup power systems** to support reliable 24-hour electricity supply for critical medical services and equipment
Roads/Transport	Generally good urban road connectivity, with	Traffic congestion, roadside parking,	Improved site access planning, traffic/pedestrian management and

	access through major roads and neighbourhood streets	pedestrian safety issues and temporary access restrictions during construction	maintenance of emergency access to PHCs during construction
Waste Collection	Municipal/private waste collection services are available, although coverage and reliability vary	Inadequate segregation and handling of healthcare waste; occasional reliance on general waste disposal channels	Provision of appropriate healthcare waste segregation, storage and handling systems, secure bins and improved medical waste management procedures
Drainage/Stormwater	Urban drainage networks exist around the communities	Blocked or inadequate drains may contribute to localised flooding, particularly during heavy rainfall	Improved site drainage, proper stormwater management and measures to prevent construction activities from obstructing existing drainage pathways
Communication/ICT	Mobile telecommunications and internet services are generally available	Network interruptions and limited ICT infrastructure within some existing PHC facilities	Improved digital/ICT infrastructure to support communication, reporting, referrals, health information management and emergency coordination

Key Baseline Observations

- The Mainland Axis has better access to general social infrastructure and transport networks than the more remote/riverine project locations.
- The principal service gaps relate to quality, reliability and capacity, rather than complete absence of services.
- Existing PHCs may face constraints relating to ageing infrastructure, inadequate clinical space, equipment, WASH, electricity reliability and healthcare waste management.
- LSHIP will therefore contribute primarily through facility rehabilitation/reconstruction, modern medical equipment, reliable solar power, improved WASH, healthcare waste management and enhanced service capacity.
- Given the relatively dense urban setting, maintaining access to the PHCs, managing construction traffic, controlling dust/noise and ensuring uninterrupted essential healthcare services will be important during implementation.

4.9.11 OHS and Waste Streams – Mainland Axis

The occupational health and safety (OHS) profile and waste-generation characteristics of the Mainland Axis facilities—Isolo, Oba Salami, Ojodu and Otumara PHCs—reflect their location within densely settled urban and peri-urban communities and their role as existing Primary Healthcare Centres. The facilities generally provide routine primary healthcare services and generate relatively modest volumes of healthcare waste compared with secondary or tertiary hospitals. However, their urban context introduces additional risks associated with traffic, pedestrian movement, public interaction, construction within/adjacent to operational facilities, dust, noise, electrical systems, infection prevention and control, and healthcare waste handling.

The proposed works will involve refurbishment/reconstruction and installation of modern equipment and supporting infrastructure, including solar power systems. Consequently, both routine clinical OHS risks and construction/refurbishment-related risks will need to be managed. Table 4.28a summarises the baseline OHS conditions, while the waste streams are presented in Table 4.128b.

Table 4.28a: Occupational Health & Safety Baseline – Mainland Axis

Facility	Project Type	Typical OHS Risk Types	Indicative Magnitude (Facility-Scale)

Isolo PHC	Refurbishment/Upgrade	• Routine clinical handling and infection risks • Sharps and minor medical waste handling • Slips, trips and falls • Manual handling • Chemical/disinfectant exposure • Electrical hazards • Fire/emergency response • Construction/refurbishment risks: dust, noise, falling objects, temporary access restrictions and interaction with patients/public	Low–Moderate clinical risk; Moderate refurbishment risk due to existing operations, urban activity and interaction between workers, patients and visitors
Oba Salami PHC	Refurbishment/Upgrade	• Routine clinical and infection-control risks • Sharps handling • Manual lifting and patient handling • Slips/falls • Chemical exposure • Electrical and fire hazards • Dust/noise during refurbishment • Temporary obstruction	Low–Moderate clinical risk; Moderate construction/refurbishment risk, particularly where works occur while services continue

		of access and pedestrian movement	
Ojodu PHC	Refurbishment/Reconstruction	• Routine clinical and sharps risks • Infection prevention and control • Manual handling • Electrical/fire risks • Chemical exposure • Construction risks including dust, noise, demolition debris and work at height • Traffic and pedestrian interaction • Risks associated with PAP/trader presence around the project area	Moderate overall risk – comparatively higher due to the urban/commercial environment, identified PAPs and temporary traders, and potential interaction between construction activities and the public
Otumara PHC	Refurbishment/Upgrade	• Routine clinical handling and infection risks • Sharps management • Manual handling • Slips/trips/falls • Chemical and electrical hazards • Fire/emergency risks • Refurbishment dust, noise and debris • Public access and pedestrian safety	Low–Moderate clinical risk; Moderate refurbishment risk, with risks generally localised to the facility and immediate surroundings

4.9.12 Overall OHS Baseline Assessment

The Mainland Axis facilities do not generate the scale or complexity of OHS risks associated with general or specialist hospitals. Nevertheless, the urban setting increases the importance of public safety, traffic management, controlled access and separation of construction workers from patients and community members. OHS risks are expected to be manageable through appropriate contractor OHS plans, infection prevention and control procedures, PPE, site segregation, permit-to-work systems, emergency preparedness and regular monitoring.

Table 4.28b: Healthcare and Construction Waste Streams – Mainland Axis

Facility/Source	Main Waste Streams	Indicative Characteristics	Key Management Requirements
Isolo PHC	General municipal waste, infectious waste, sharps, pharmaceutical waste, small quantities of chemical waste and construction debris	**Low–moderate operational volumes**; temporary increase during refurbishment	Segregation at source; colour-coded/labelled containers; secure sharps boxes; safe temporary storage; approved collection/disposal; controlled handling of construction debris
Oba Salami PHC	General waste, infectious/soiled materials, sharps, pharmaceutical waste, packaging and refurbishment debris	**Low–moderate operational waste generation** with temporary construction-related increase	Healthcare waste segregation; secure storage; appropriate PPE; routine collection; safe disposal of construction

			materials and debris
Ojodu PHC	General waste, infectious waste, sharps, pharmaceutical waste, chemical/disinfectant containers, packaging and construction/demolition waste	**Moderate potential waste generation** due to facility activity and refurbishment/reconstruction ; temporary increase during works	Strict segregation and controlled storage; secure sharps management; approved healthcare waste disposal; construction waste management; prevention of public access to waste areas
Otumara PHC	General municipal waste, infectious waste, sharps, pharmaceutical waste, packaging and refurbishment debris	**Low–moderate operational volumes** with temporary increase during construction	Segregation, secure storage, routine collection, appropriate treatment/disposal and controlled management of construction waste

Principal Waste Streams Across the Mainland Axis

The principal waste streams expected from the four PHCs include:

- General/non-hazardous waste: food waste, paper, cardboard, packaging and other domestic-type waste;
- Infectious/clinical waste: contaminated dressings, gloves, swabs and other materials generated from patient care;
- Sharps: used needles, syringes, blades and other sharp medical items;

- Pharmaceutical waste: expired, damaged or unused medicines and pharmaceutical containers;
- Chemical waste: small quantities of disinfectants, cleaning agents and laboratory-related chemicals where applicable;
- Construction/refurbishment waste: broken fittings, concrete/masonry fragments, packaging, scrap materials, removed fixtures and other demolition/refurbishment debris;
- E-waste: obsolete electrical/electronic equipment, batteries, lighting components and equipment packaging, particularly during facility upgrading.

Key Implications for LSHIP

The project should ensure that clinical waste and construction waste are managed as separate waste streams. Healthcare waste should be segregated at source and handled in accordance with applicable healthcare waste-management requirements, while construction debris should be collected, stored and disposed of through approved channels.

Particular attention should be given to Ojodu, where the presence of 14 identified PAPs and 5 temporary traders increases the importance of securing construction and waste-storage areas, maintaining public access controls and preventing exposure of community members to construction debris, sharps or other hazardous**.**

4.9.13 Cultural Heritage – Mainland Axis

The Mainland Axis (Group 2)—comprising Isolo, Oba Salami, Ojodu and Otumara PHCs—is predominantly urban**.** Nevertheless, community palaces/traditional institutions, religious sites, cemeteries and other culturally significant locations may occur within the wider PHC catchments. These assets should be considered during construction, particularly where excavation, demolition or other ground-disturbing activities are undertaken.

Table 4.29: Cultural Heritage Assets and Mitigation – Mainland Axis

Site	Heritage Type	Description	Distance to Project Site	Significance	Protection Status	Recommended Action

Isolo	Tangible / Institutional	Traditional/community leadership structures, religious sites and locally significant community landmarks	Within wider community catchment; no confirmed heritage asset within the PHC footprint	Medium – contributes to community identity and social cohesion	Community/traditional and religious custodians	Confirm locations during pre-construction consultation; maintain access and avoid disturbance or encroachment
Oba Salami	Tangible / Spiritual	Local religious sites, community landmarks and traditional/cultural places of significance	Within surrounding community; no confirmed heritage asset within the PHC footprint	Medium – important to local cultural and social identity	Community/religious custodians	Consult community leaders and relevant custodians; establish appropriate exclusion/buffer areas where required
Ojodu	Tangible / Institutional / Spiritual	Community landmarks, religious institutions and other locally significant	Within the wider community; no confirm	Medium – contributes to local identity	Community/religious custodians	Ensure construction activities remain within approved

		cultural locations within the urban settlement	ed heritage asset within the project footprint	and community cohesion		boundaries; maintain access to nearby cultural/religious **facilities**
Otumara	Tangible / Spiritual	Religious sites, community landmarks and locally recognised cultural places	Within surrounding community; no confirmed heritage asset within the PHC footprint	Medium – local cultural and social value	Community/religious custodians	Consult relevant custodians; prevent encroachment and ensure that construction activities do not obstruct access
All Sites	Archaeological / Sub-surface	Potential for previously unidentified archaeological or historical materials during excavation or demolition	Within project footprints if encountered	Potentially High – depending on nature and historical significance of any discovery	National Commission for Museums and Monuments (NCMM) and applicable legal framework	Implement and enforce a Chance Find Procedure during excavation, demolition and ground-disturbing works

Key Observations

- The Mainland Axis is predominantly urban, and no major formally designated cultural heritage site has been identified within the current PHC project footprints based on available baseline information.
- Existing religious institutions, community landmarks and traditional/community leadership structures remain important elements of local cultural identity and should be considered during stakeholder engagement.
- Construction activities should remain strictly within the approved PHC boundaries to avoid inadvertent encroachment on neighbouring religious, cultural or community assets.
- Excavation and demolition activities present the principal potential risk to previously unidentified archaeological or cultural materials.
- Traditional/community leaders and relevant religious or cultural custodians should be consulted where construction activities have the potential to affect access to or proximity with culturally significant locations.
- Any cultural heritage asset subsequently identified within or close to the project footprint should be protected pending assessment by the appropriate authority.

Chance Finds Procedure

In the event of a chance find during excavation, demolition or other ground-disturbing activities:

- Stop work immediately in the vicinity of the discovery.
- Secure and demarcate the area to prevent further disturbance, removal or damage.
- Notify the Project Implementation Unit (PIU) and relevant heritage authorities, including the National Commission for Museums and Monuments (NCMM), as appropriate.
- Do not resume work in the affected area until the find has been assessed and clearance or appropriate instructions have been provided by the competent authority.
- Document the discovery, including photographs, location/GPS coordinates, description and date of discovery.
- Where appropriate, consult recognised community/traditional custodians to establish the local cultural significance of the find.
- Implement any protection, preservation, relocation or other mitigation measures required by the competent heritage authority before construction resumes.

4.9.14 Vulnerable Groups (AfDB OS 7/IFC PS)

Based on the available socioeconomic baseline information and screening against AfDB OS7 and IFC PS7, no Indigenous Peoples as defined under these standards have been identified within the Mainland Axis Group 2 communities comprising Isolo, Oba Salami, Ojodu and Otumara. The communities are predominantly urban/peri-urban and ethnically and socially diverse, with residents engaged mainly in commerce, informal employment, services and other urban livelihoods.

Accordingly, AfDB OS7/IFC PS7 is not triggered, subject to confirmation through ongoing stakeholder engagement and screening.

Table 4.30. Vulnerable Groups Present

Group	Vulnerability Factors	Mitigation Measures
Women	Economic dependence on informal businesses; caregiving responsibilities; healthcare access barriers; potential GBV/SEA/SH risks	Gender-sensitive facility design; GBV/SEA/SH prevention measures; inclusive consultations; female-friendly GRM channels
Children	Exposure to construction traffic, dust, noise and unsafe access routes; potential child labour risks	Traffic and Community Health & Safety Management Plan; secure site fencing; controlled access; prohibition of child labour in contractor requirements
Elderly Persons	Reduced mobility; dependence on family/community support; difficulty accessing healthcare during construction	Accessible facility design; safe pedestrian routes; priority access arrangements; clear communication on temporary access changes
Persons with Disabilities	Physical and communication barriers; limited accessibility within some existing facilities	Universal accessibility standards; ramps, accessible toilets, handrails, appropriate signage and safe access routes
Low-Income Households	Dependence on daily/irregular income; limited capacity to absorb temporary economic	Minimise disruption to livelihoods; appropriate compensation/assistance where eligible; accessible GRM;

	shocks; vulnerability to business disruption	advance notification of construction activities
Informal Traders/Small Business Operators	Potential temporary loss of access, reduced customer movement, dust/noise and disruption to trading locations	Early consultation; maintain access where practicable; temporary relocation/assistance where required; livelihood restoration measures for eligible PAPs
Migrants/Non-Indigene Residents	May have weaker links to traditional/community leadership structures; potential information and service-access barriers	Inclusive engagement through CDAs, residents' associations, religious institutions and traders' groups; accessible project information and GRM
Female-Headed Households	Single-income dependency; caregiving responsibilities; increased sensitivity to temporary livelihood disruption	Targeted consultation; prioritised access to information and GRM; appropriate livelihood/compensation support where project impacts occur

Key Implication

The principal vulnerability concerns for Group 2 relate to economic vulnerability, gender, age, disability, mobility and temporary disruption of informal livelihoods, rather than Indigenous Peoples-related risks. Particular attention should be given to Ojodu, where 14 PAPs and 5 temporary traders have already been identified. These affected persons should be appropriately addressed through the RAP and applicable livelihood restoration/assistance measures.

4.9.14 GBV/SEA/SH Baseline

GBV/SEA/SH Risk Profile – Mainland Axis

GBV/SEA/SH risks within the Mainland Axis are generally associated with construction-worker interaction with surrounding communities, informal employment, economic vulnerability, inadequate privacy or reporting mechanisms, poorly lit areas, and temporary disruption of livelihoods and access to services. The relatively dense urban environment may increase interaction between workers, residents, traders and PHC users, making appropriate worker conduct, site security and confidential reporting mechanisms particularly important.

Table 4.31: Key GBV Risk Factors

Risk Factor	Description	Sites	Risk Level
Labour Influx	Temporary influx of construction workers and contractors during refurbishment/reconstruction	All sites	**Medium**
Poor/Insufficient Lighting	Poorly lit pedestrian routes, site surroundings or access points may increase vulnerability, particularly after dark	All sites, site-specific	**Medium**
Busy Public/Commercial Areas	High interaction between workers, traders, patients and community members creates opportunities for harassment or inappropriate conduct	Isolo, Ojodu	**Medium**
Lack of Confidential Reporting	Absence or weak awareness of dedicated confidential SEA/SH reporting and survivor-support channels may discourage reporting	All sites	**High**
Economic Vulnerability	Women and low-income traders may be vulnerable to exploitation where construction activities temporarily affect access or income	Particularly Ojodu; all sites	**Medium**
Limited Female Representation	Construction workforce may be predominantly male, increasing risks of workplace harassment and gender imbalance	All sites	**Medium**
Substance Abuse	Alcohol or other substance use among individual workers may increase inappropriate behaviour and interpersonal conflict	All sites	**Low–Medium**
Gender Norms	Traditional and household gender roles may limit women's willingness or ability to report harassment or abuse	All sites	**Medium**

Weak/Underutilised Reporting Channels	Fear of stigma, retaliation or lack of awareness may result in underreporting	All sites	**High**
Economic Displacement	Temporary disruption affecting PAPs and traders may increase economic stress and vulnerability	Ojodu	**Medium**
Public/Patient Interaction	PHCs will continue to serve community members while construction activities may be ongoing, creating opportunities for inappropriate worker-community interaction	All operational sites	**Medium**

Table 4.32: GBV/SEA/SH Risk Rating by Site

Site	**Overall Risk**
Isolo PHC	Medium
Oba Salami PHC	Medium
Ojodu PHC	Medium–High
Otumara PHC	Medium

Key Risk Scenarios

1. Worker–Community SEA/SH: Inappropriate sexual advances, harassment or exploitation involving construction workers and community members, particularly women and young persons.
2. Worker–Worker Sexual Harassment: Harassment, intimidation or quid-pro-quo behaviour within the predominantly male construction workforce.
3. GBV Against Vulnerable Groups: Women, girls, elderly persons and other vulnerable users may face increased risks around poorly lit areas, temporary access routes and construction zones.
4. Child Sexual Exploitation/Abuse: Strict prohibition of sexual activity between project workers and persons below 18 years, supported by a mandatory Code of Conduct.
5. Confidentiality and Reporting: Survivors may be reluctant to report incidents because of stigma, fear of retaliation or lack of confidence in existing reporting mechanisms.

6. Economic Exploitation: Women and economically vulnerable traders, particularly those affected by temporary disruption at Ojodu, may be exposed to exploitation or coercion.
7. Inappropriate Use of Project Resources: Offers of employment, contracts, assistance or project benefits in exchange for sexual favours or relationships.
8. Failure to Respond to Reports: Poor handling of complaints may result in survivor re-traumatisation and undermine confidence in the project's GRM.

GBV/SEA/SH Action Plan

A dedicated GBV/SEA/SH Action Plan should be implemented for the Mainland Axis, covering:

- Mandatory Code of Conduct for all workers and contractors;
- GBV/SEA/SH induction and periodic refresher training;
- Confidential and survivor-centred reporting channels integrated into the project GRM;
- Clear referral pathways to appropriate medical, psychosocial, legal and protection services;
- Adequate lighting and secure fencing around construction areas;
- Separation of construction activities from patients and community members;
- Gender-sensitive consultation and engagement;
- Monitoring of worker conduct and GBV/SEA/SH risks throughout construction; and
- Strict enforcement of zero tolerance for sexual exploitation, abuse, harassment and sexual activity involving children.

4.9.15 Summary of Socio-Economic Baseline Findings

The socio-economic baseline assessment for the Mainland Axis (Group 2), comprising Isolo, Oba Salami, Ojodu and Otumara PHCs, identifies the following key findings:

Theme	Key Findings
Population	Densely settled urban/peri-urban populations within the four PHC catchment areas, with a generally balanced gender composition and a substantial economically active population.
Settlement Types	Predominantly urban and peri-urban, characterised by established residential neighbourhoods, commercial corridors, informal trading areas and relatively dense development.

Ethnicity	Predominantly Yoruba, with significant populations from other parts of Nigeria reflecting the diverse and cosmopolitan character of Lagos Mainland communities.
Livelihoods	Predominantly petty trading, retail commerce, food vending, transport services, artisanship, informal businesses, casual labour and wage employment.
Ecosystem Dependence	Low – generally less than 10% of household income is directly dependent on ecosystem-based activities; urban drainage, flood regulation and environmental services remain important.
Markets	Numerous formal and informal markets, neighbourhood trading areas and roadside commercial clusters supporting household commerce and informal livelihoods.
Literacy	Educational attainment ranges from no formal/primary education to secondary, vocational/technical and tertiary education. Literacy is generally moderate to high but varies among age and socioeconomic groups.
Infrastructure	Generally better developed than rural/riverine areas, with access to roads, electricity, telecommunications, schools and water sources; however, power reliability, drainage, water supply, waste management and healthcare infrastructure remain important service gaps.
Land Tenure	Existing PHC locations are understood to be government/public institutional sites; formal verification of ownership, boundaries and any third-party occupation is required.
Resettlement	No physical displacement anticipated. Limited economic displacement may occur, particularly at Ojodu, where 14 PAPs and 5 temporary traders have been identified.
Cultural Heritage	No major formally designated cultural heritage asset identified within the PHC project footprints; local religious, community and traditional landmarks occur within the wider communities. Chance-find procedures remain applicable.

Vulnerable Groups	Women, children, elderly persons, persons with disabilities, low-income households, female-headed households, informal traders and migrant/non-indigene residents.
GBV/SEA/SH Risk	Medium across most sites; Medium–High at Ojodu, reflecting greater commercial activity, public interaction and identified livelihood-affected persons.
Security	Generally low to moderate risk; social stability is relatively high, with established community leadership, religious institutions and community associations.

Overall Sensitivity Ranking

Site	Overall Sensitivity	Key Drivers
Isolo	Moderate	Dense urban setting, commercial activity, traffic/pedestrian interaction and potential temporary disruption to informal businesses
Oba Salami	Moderate	Residential/community setting, informal livelihoods, healthcare access considerations and potential temporary construction disruption
Ojodu	Moderate–High	Higher commercial intensity, traffic and pedestrian activity, identified 14 PAPs and 5 temporary traders, and greater potential for access/livelihood disruption
Otumara	Moderate	Urban/peri-urban setting, informal economic activities, existing infrastructure constraints and potential temporary access disruption

Overall Assessment

The Mainland Axis presents a moderate socio-economic sensitivity, with Ojodu exhibiting comparatively higher sensitivity due to the identified PAPs, temporary traders and greater intensity of commercial and pedestrian activity. The Mainland communities are not highly dependent on fisheries, agriculture or other natural-resource-based livelihoods, and therefore ecosystem-related livelihood vulnerability is relatively low.

The baseline findings provide the analytical foundation for Chapter 5 (Impact Assessment) by informing the identification of socio-economic receptors, assessment of construction and operational impacts, resettlement and livelihood considerations, stakeholder engagement requirements, community health and safety measures, and targeted GBV/SEA/SH safeguards.

CHACHAPTER FIVE: IMPACT ASSESSMENT

5.1 Introduction

This chapter presents the assessment of potential environmental and social impacts associated with the 4 PHC facilities in Group 2 (Mainland Axis). 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), OS2 (Involuntary Resettlement), OS3 (Biodiversity), OS4 (Pollution Prevention), OS5 (Labour, OHS, GBV), OS6 (Climate Change), OS7 (Community Health, Safety and Security), OS8 (Cultural Heritage)
- IFC Environmental, Health & Safety (EHS) Guidelines
- WHO Healthcare Waste and IPC Standards
- ILO Labour and OHS Conventions
- FMEnv ESIA Act CAP E12 LFN 2004
- NESREA Regulations

5.2 Methodology

Impact identification utilised a combination of baseline-impact interaction matrices (linking activities to the receptors defined in Chapter 4), site reconnaissance findings (24-27 February 2026), stakeholder consultations, and expert judgement. Significance was determined based on the interaction of impact magnitude (negligible to large) and receptor sensitivity (low to high).

Table 5.1 provides a consolidated summary of all baseline environmental and socio-economic receptors identified in Chapter 4, outlining their sensitivity levels and corresponding section references to support the impact assessment methodology presented in Chapter 5.

Table 5.1: Consolidated summary of all baseline environmental and socio-economic	Specific Receptors	Sensitivity	Chapter 4 Reference

receptorsReceptor Category			
Physical Environment	Lagos Lagoon / Urban drainage (water quality)"	High	Section 4.5.6
	Air quality (residential receptors)	Medium-High	Section 4.5.2
	Noise receptors (PHC staff, patients)	Medium-High	Section 4.5.3
	Soil quality (agricultural land)	Medium	Section 4.5.8
Biological Environment	Aquatic fauna (fish, crabs)	High	Section 4.6.4
	Aquatic flora (mangroves)	Medium-High	Section 4.6.3
	Ecosystem services (fisheries)	High	Section 4.6.5
Socio-Economic	Resident populations (42,500-48,000)	High	Section 4.7.1.2
	Livelihood systems (fishing, farming)	High	Section 4.8.3
	Vulnerable groups	High	Section 4.8.6
	Cultural heritage	Medium	Section 4.8.12

The impact assessment for the Group 2 facilities must be interpreted within the context of the facility typology. The Isolo, Oba Salami, Ojodu and Otumara Primary Healthcare Centres are relatively smaller facilities 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

The impact assessment methodology proceeds through the main stages of: Impact Identification, where inputs from consultations and reconnaissance are gathered; Determine Impact Characteristics, which define magnitude, duration, extent, and likelihood; and Determine Receptor Sensitivity,

providing contextual examples from the Mainland Axis (e.g., High for Lagos Lagoon and urban drainage channels; High for confirmed-ACM structure at Isolo and Oba Salami;)

The core of the methodology is embedded in the Significance Rating Matrix, which combines Impact Magnitude (Large, Medium, Small) with Receptor Sensitivity (High, Medium, Low) to determine the final significance rating – ranging from Negligible to Critical. Figure 5.1 provides a visual explanation of this impact assessment methodology.

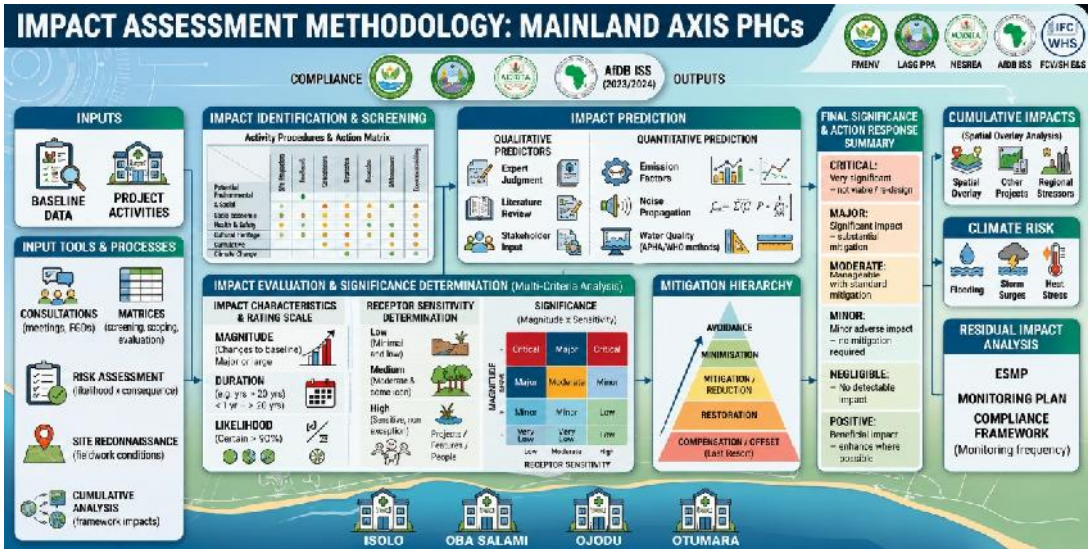


Figure 5.1: Impact Assessment Methodology

Impact Significance

The matrix below provides a unified colour-coded interpretation of impact significance levels used throughout the ESIA, clarifying how each colour corresponds to the severity of potential project impacts and the required mitigation response.

Colour	Significance Level	Description / Required Action
● **Critical**	Very significant adverse impact	Must be avoided or fully mitigated with offsets; highest priority for management.
▯ **Major**	Significant adverse impact	Must be mitigated to at least Moderate; high-priority intervention required.
▯ **Moderate**	Moderate adverse impact	Manageable with standard mitigation measures; medium-priority action.
▯ **Minor**	Minor adverse impact	Mitigation recommended; low-priority action.

○ **Negligible**	No detectable impact	No mitigation required; monitor only.
● **Positive**	Beneficial impact	Enhance where possible; represents an opportunity.

5.2.1 Project Phases Considered

Figure 5.2 provides the various stages of the Project – pre-construction (6-12 months from Q2 2026), construction (12-18 months per facility, staggered across the axis), operation (50+ years), and decommissioning (end of life, per Chapter 8 Part B).

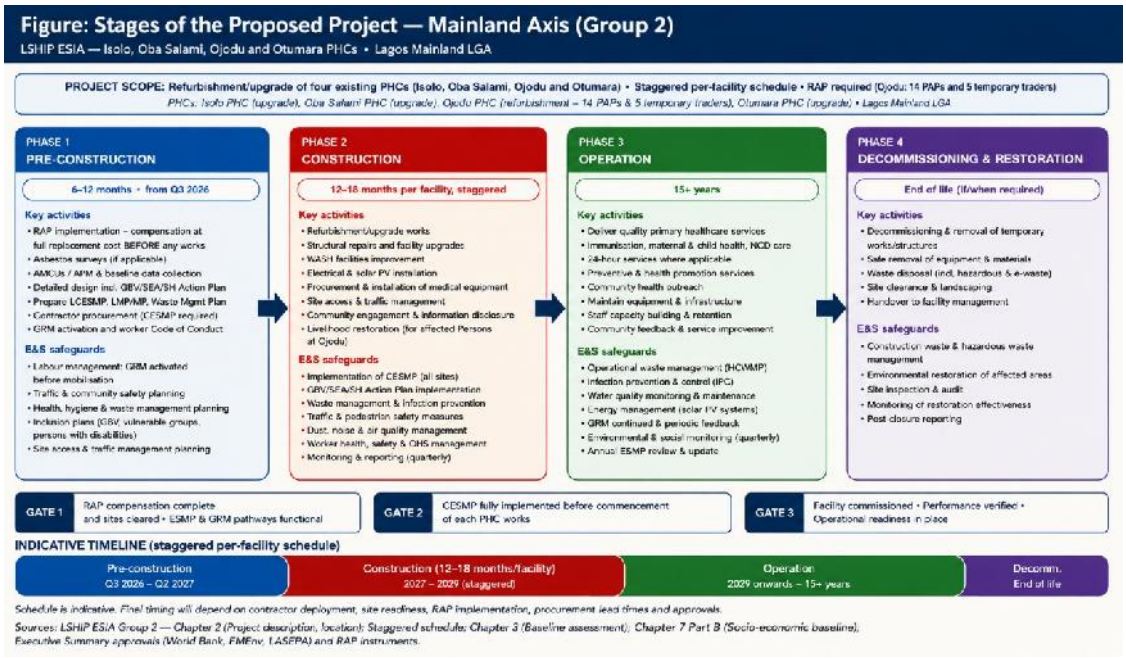


Figure 5.2: Stages of the Proposed Project

5.2.2 Operation Phase Impacts

The operational lifespan of the four Mainland Axis PHCs—Isolo, Oba Salami, Ojodu and Otumara—is expected to extend over 50 years. Long-term impacts will principally arise from routine clinical activities, medical waste generation, wastewater management, energy use, infection prevention and control, and exposure to urban climate-related hazards.

- Medical Waste (OS4): Operational generation of infectious waste, sharps, pharmaceutical waste and other healthcare waste represents a Major unmitigated risk if segregation, storage, collection and final disposal are not properly managed. The risk is particularly relevant to the Mainland Axis because the facilities are located within densely settled urban/peri-urban environments where poorly managed healthcare waste could expose patients, staff, waste handlers and surrounding communities. A facility-specific Healthcare Waste Management

Plan (HMWMP), colour-coded segregation, puncture-proof sharps containers, secure temporary storage and approved disposal arrangements will therefore be required. Infection prevention and control failures could also result in a Major risk of healthcare-associated infections (HAIs).

- Water Quality and Wastewater (OS4): Improper operation or failure of septic tanks, soakaways and wastewater systems could create a Moderate unmitigated risk of soil and groundwater contamination. This risk is more relevant at Otumara and Oba Salami, where drainage, low-lying conditions and proximity to water-sensitive areas increase the consequences of poor wastewater management. At Isolo and Ojodu, the principal concern is potential overloading or malfunction of wastewater and drainage systems within already highly urbanised environments. Properly designed septic/wastewater systems, regular desludging, drainage maintenance and prohibition of uncontrolled discharge will be required.
- Energy Use and GHG Emissions (OS4): Continued reliance on diesel/petrol generators for backup electricity would result in air emissions, noise and greenhouse-gas emissions over the operational life of the facilities. The unmitigated impact is assessed as Minor to Moderate, but can be substantially reduced through the planned deployment of solar PV and battery-backed power systems. Solar power will also improve reliability of essential services, including lighting, refrigeration, laboratory equipment and emergency operations, while reducing dependence on fossil-fuel generators.
- Climate Vulnerability (OS6): Climate change presents a Moderate to Major long-term risk to the Mainland Axis, particularly through urban flooding, intense rainfall, drainage overload and extreme heat. Otumara and Oba Salami have relatively greater sensitivity because of their low-lying/water-sensitive settings and proximity to the Lagos Lagoon/drainage environment. Isolo and Ojodu, although more urbanised, remain exposed to intense rainfall, blocked or overloaded drainage channels and urban heat effects. Increasing temperatures and more frequent heatwaves may affect patient comfort, staff productivity, vaccine/medicine storage, energy demand and the performance of medical equipment. Climate-resilient drainage, adequate site levels, flood-resistant electrical installations, appropriate ventilation/cooling, solar power and emergency preparedness should therefore be incorporated into facility design and operation.

- Community Health and Safety (OS4): Routine operation will increase movement of patients, staff, motorcycles, vehicles, waste handlers and service providers around the PHCs. Without appropriate controls, this may create Minor to Moderate risks associated with traffic conflicts, waste exposure, infection transmission and emergency access. Clear pedestrian/vehicle separation, controlled access, adequate lighting, signage and community health and safety procedures will be required.
- Positive Healthcare Impact: Operation of the four upgraded PHCs will generate a High Positive long-term impact by improving access to reliable primary healthcare, maternal and child health services, immunisation, diagnostics, pharmacy services and emergency referral. The upgraded facilities are expected to reduce travel time and improve access to quality healthcare for surrounding Mainland communities.

Overall: The principal long-term operational risks for Group 2 are therefore medical/healthcare waste, infection control, wastewater management and climate-related flooding/heat stress, with the greatest environmental sensitivity associated with Otumara and Oba Salami. These risks are considered manageable through appropriate facility design, HMWMP implementation, WASH and drainage controls, solar energy systems, climate-resilient infrastructure, routine monitoring and an effective ESMP/Operational Environmental and Social Management System.

Table 5.2: Unmitigated Environmental and Social Impacts – Operation Phase

Impact Category	Description	Sites	Characteristics	Sensitivity	Significance
Medical Waste	Infectious waste, sharps, pharmaceutical and other healthcare waste without effective HMWMP implementation	All sites	Large; Very High likelihood	High	□ Major

HAI	Infection prevention and control failure resulting in healthcare-associated infections	All sites	Large; Medium likelihood	High	Major
Wastewater	Septic/soakaway failure, untreated wastewater and potential contamination of soil and groundwater	All sites, particularly Otumara and Oba Salami	Medium; Medium likelihood	High	Moderate
Energy Use	Diesel/petrol generator emissions, noise and associated GHG emissions where backup generators are used	All sites	Small–Medium; High likelihood	Medium	Minor–Moderate
Climate – Flooding/Drainage	Intense rainfall, urban flooding, drainage overload and temporary loss of facility access	Otumara, Oba Salami, Ojodu and Isolo	Large; Medium–High likelihood	High	● Major
Climate – Extreme Heat	Increasing frequency and	All sites	Medium; High likelihood	High	Major

	intensity of heatwaves affecting patients, staff, medicines and equipment				
Climate – Intense Rainfall	Stormwater surges, blocked drains and increased surface runoff affecting site access and infrastructure	All sites, particularly Otumara and Oba Salami	Medium–Large; High likelihood	High	□ Major
Moisture/Dampness	Rising damp, persistent moisture and deterioration of building finishes and equipment in low-lying/water-sensitive areas	Otumara, Oba Salami	Medium; Medium–High likelihood	Medium–High	□ Moderate
Community Health & Safety	Increased patient/vehicle movements, waste exposure, infection risks and emergency-access conflicts	All sites	Medium; Likely	Medium–High	□ Moderate

Occupational Health & Safety	Exposure of healthcare workers to sharps, infectious materials, chemicals, manual handling and electrical hazards	All sites	Medium; Likely	High	□ Major
Traffic and Access	Patient, staff, service and emergency vehicle movements creating pedestrian–vehicle conflict around PHCs	Isolo, Ojodu, Oba Salami, Otumara	Small–Medium; Likely	Medium	□ Moderate
Positive – Healthcare Access	Improved availability, quality and reliability of primary healthcare services	All sites	Large positive; Almost certain	High	□ Major Positive
Positive – Maternal & Child Health	Improved antenatal, delivery, immunisation,	All sites	Large positive; Likely	High	□ Major Positive

	child health and referral services				
Positive – Energy Resilience	Solar PV and battery storage improve continuity of essential healthcare services and reduce generator dependence	All sites	Medium positive; Likely	Medium–High	□ Moderate Positive

Key Mainland-specific observations:

- Medical waste and HAI risks remain the principal operational environmental and social risks across all four PHCs.
- Otumara and Oba Salami have comparatively greater sensitivity to flooding, drainage constraints and moisture-related deterioration.
- Isolo and Ojodu have greater exposure to urban traffic, congestion, pedestrian movement and community health-and-safety interactions.
- Coastal erosion and direct sea-level-rise impacts should not be rated as Critical for Group 2 without site-specific evidence; the dominant climate risks are urban flooding, intense rainfall and extreme heat.
- The upgraded PHCs generate substantial long-term positive impacts, particularly through improved healthcare access, maternal/child health services and energy reliability.

5.2.3 Decommissioning Phase Impacts

Table 5.3 summarises the unmitigated environmental and social impacts anticipated during the Decommissioning Phase of the Mainland Axis facilities. Although decommissioning is not expected for several decades given the planned 50+ year operational lifespan, the assessment considers the potential risks associated with demolition and dismantling of the PHC facilities, removal of equipment and hazardous materials, management of demolition wastes, decommissioning of septic and wastewater systems, temporary disruption of access, and restoration of disturbed areas.

For the Mainland Axis, the principal decommissioning risks are associated with hazardous building materials, including asbestos where confirmed during pre-construction surveys; demolition dust and debris; potential contamination from septic systems, fuels and medical residues; disruption of access within densely settled urban communities; and temporary employment and livelihood transitions. The sensitivity of receptors is heightened at locations where PHCs are surrounded by residential and commercial activities and where drainage infrastructure is already constrained.

The assessment applies the established multi-criteria significance methodology, considering magnitude, duration, extent, likelihood and receptor sensitivity. As with construction, the unmitigated ratings represent the potential level of impact before implementation of mitigation measures.

Table 5.3: Unmitigated Environmental and Social Impacts – Decommissioning Phase

Impact Category	**Description**	**Sites**	**Characteristics**	**Sensitivity**	**Significance**
Hazardous Materials	Removal and handling of asbestos-containing materials, if confirmed, together with obsolete chemicals, medical equipment and other hazardous materials	Isolo, Oba Salami; potentially other sites subject to future surveys	Large; Medium likelihood	High – workers, nearby residents and waste handlers	● Critical
Demolition Dust and Debris	Generation of dust, particulate matter and	All sites	Medium–Large; High likelihood	Medium–High – adjoining residentia	□ Major

	demolition debris during dismantling of buildings and infrastructure			l and commerci al receptors	
Construction/Demo lition Waste	Generation of concrete, masonry, roofing materials, metals, wood, glass and other demolition wastes	All sites	Large volume; High likelihood	Medium	□ Major
Soil Disturbance	Exposure of soil, localised erosion and sediment mobilisation following demolition and removal of paved surfaces	All sites, particularly Otumara where drainage/waterlo gging sensitivity is higher	Medium; High likelihood during rainy periods	Medium–High	□ Moderate –Major
Groundwater/Soil Contamination	Leakage or improper decommissioni ng of septic tanks, soakaways, fuel storage areas and	All sites	Medium; Medium likelihood	High – soil and groundwa ter receptors in densely developed areas	□ Major

	contaminated medical/waste water infrastructure				
Drainage Disruption	Temporary blockage or alteration of existing drains by demolition materials, equipment and haulage activities	Isolo, Oba Salami, Ojodu and Otumara	Medium; High likelihood if poorly managed	High – urban drainage systems and surrounding communities	Major
Water Quality	Sediment, hydrocarbons and contaminated runoff entering local drainage channels during demolition and site restoration	Otumara and other sites with drainage/waterbody connectivity	Medium; Medium likelihood	High	Major
Community Health and Safety	Risks from demolition activities, falling materials, vehicle movements, dust, noise and temporary	All sites	Medium–Large; High likelihood	High – densely settled Mainland communities and facility users	Major

	restriction of access to the PHCs				
Community Access Disruption	Temporary restriction of pedestrian and vehicular access during demolition, removal of structures and site restoration	All sites	Small–Medium; High likelihood	Medium–High	Moderate
Noise and Vibration	Noise from demolition equipment, trucks, material handling and removal of structural components	All sites, particularly Isolo, Ojodu and Oba Salami	Medium–Large; High likelihood	Medium – residential and commercial receptors	Moderate –Major
Livelihood/Employment Transition	Loss of employment associated with facility closure and completion of decommissioning activities; potential temporary disruption of	All sites; particularly areas with existing commercial activity	Medium; Medium likelihood	High for low-income workers and informal livelihood users	Major

	nearby informal economic activities				
Legacy Resettlement/Livelihood Issues	Potential re-emergence of informal occupation or livelihood claims around the facility if decommissioning involves prolonged site closure or changes in land use	Ojodu and Otumara, subject to future land-use conditions	Medium; Possible	High for affected livelihood users	□ Major
Site Restoration	Failure to restore disturbed surfaces, drainage, landscaping and other site infrastructure following demolition	All sites	Medium; Medium likelihood	Medium	□ Moderate

Key Mainland-Specific Considerations

The following points accompany Table 5.3:

- Asbestos: The highest hazardous-material risk is associated with any asbestos-containing roofing or building materials identified during the earlier facility surveys. At

decommissioning, these materials would require a renewed asbestos survey before demolition and removal by appropriately qualified personnel.

- Urban setting: The Mainland facilities are situated within more densely developed residential, commercial and transport environments. Consequently, community health and safety, traffic, dust, noise and access disruption are particularly important decommissioning considerations.
- Drainage: Demolition debris could obstruct existing urban drains and exacerbate localised flooding. A dedicated decommissioning drainage and stormwater management plan should therefore be implemented.
- Otumara: Particular attention should be given to drainage, waterlogging and potential water-quality impacts where the site is hydrologically connected to surrounding drainage/wetland systems.
- Ojodu and Otumara: Existing or future informal livelihood users should be reassessed at the time of decommissioning. The current RAP/PAP situation should not automatically be assumed to persist for 50+ years; a fresh census and asset/livelihood inventory would be required if land access or occupation is affected.
- Medical waste: Before demolition, all remaining medical supplies, pharmaceuticals, sharps, chemicals and other clinical materials must be removed and managed under the applicable healthcare-waste procedures. These materials should not enter the general demolition waste stream.
- Septic systems: Septic tanks and soakaways should be emptied, disinfected and decommissioned in accordance with approved procedures to prevent contamination of soil and groundwater.
- Positive transition: Decommissioning may also generate short-term employment for demolition workers, waste handlers, transporters and environmental specialists, although these benefits are temporary.

Overall Decommissioning Risk Profile

For the Mainland Axis, the highest unmitigated decommissioning risks are therefore expected to be:

1. Hazardous-material/asbestos exposure – Critical, where asbestos is confirmed and improperly removed;
2. Demolition waste and dust – Major, particularly in the densely populated urban environment;

3. Groundwater/soil contamination – Major, associated with septic systems, medical residues and fuels;
4. Drainage and community flooding impacts – Major, particularly where demolition materials obstruct existing drainage;
5. Community health and safety – Major, because of proximity of residential and commercial receptors;
6. Livelihood/employment transition – Major, particularly for vulnerable informal livelihood users; and
7. Access disruption – Moderate, provided alternative pedestrian and vehicular access is maintained.

8. Beneficial Impacts

9. 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 High likelihood	High	Significant Positive
Maternal Health	20–30% reduction in maternal mortality	All sites	Large; High likelihood	High	Significant Positive
Child Health	25–35% reduction in under-five mortality	All sites	Large; High likelihood	High	Significant Positive

Employment	85–105 direct jobs; 5,000–8,000 indirect	All sites	Large; High likelihood	High	◍ Significant Positive
GHG Reduction	800–1,500 tCO_2e/year reduction	All sites	Large; High likelihood	Medium	◍ Moderate Positive
Climate Resilience	Strengthened pandemic resilience	All sites	Large; High likelihood	High	◍ Significant Positive

5.3 Site-Specific Impact Significance Matrix (Unmitigated Scenario)

The detailed impact assessment identifies a range of environmental, social, occupational health and safety risks across the four PHC sites comprising the Mainland Axis: Isolo, Oba Salami, Ojodu and Otumara. Although the four sites are located within a predominantly urban and highly modified environment, their sensitivities differ because of variations in surrounding land use, drainage conditions, proximity to the Lagos Lagoon and other water bodies, traffic intensity, existing development pressure, and the presence of potentially affected persons.

The Mainland Axis is characterised principally by dense residential, commercial and institutional development. Consequently, construction activities will occur in close proximity to existing homes, businesses, roads, pedestrians and other community receptors. The assessment therefore places particular emphasis on community health and safety, traffic, dust and noise, drainage/flooding, hazardous materials, OHS, GBV/SEA/SH, livelihood disruption and medical-waste management.

The RAP screening has identified 14 PAPs at Ojodu PHC, together with 5 temporary traders requiring specific livelihood/access management measures.

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

5.3.1 Isolo PHC – Site-Specific Impact Matrix

Site character: Existing PHC in a densely developed urban environment; refurbishment/upgrade; high surrounding residential and commercial activity; potential hazardous-material/asbestos concern requiring confirmation through pre-construction survey.

Category	Impact	Significance	Colour
Biophysical	Dust and particulate emissions from refurbishment,	**Moderate**	□

	demolition and vehicle movement		
Biophysical	Construction noise and vibration affecting nearby residences and businesses	**Major**	□
Biophysical	Drainage obstruction and localised flooding during works	**Moderate**	□
Biophysical	Generation of construction and demolition waste	**Moderate**	□
Biophysical	Hazardous-material/asbestos disturbance (confirmed - requires abatement	**Major***	□
Social	Temporary disruption of access to PHC and surrounding businesses	**Moderate**	□
Social	Temporary livelihood disruption to nearby informal/commercial activities	**Moderate**	□
Health & Safety	Construction traffic and pedestrian interaction	**Major**	□
Health & Safety	Worker OHS – falls, electrical works, machinery and working at height	**Major**	□
Social	GBV/SEA/SH associated with temporary construction workforce	**Major**	□
Operation	Medical and pharmaceutical waste mismanagement	**Major**	□
Operation	Healthcare-associated infection risk from inadequate IPC	**Major**	□
Operation	Heat stress and urban climate exposure	**Moderate**	□

5.3.2 Oba Salami PHC – Site-Specific Impact Matrix

Site character: Existing PHC within the Yaba/Lagos Mainland urban environment; refurbishment/upgrade; dense surrounding development and sensitive community receptors; proximity to the wider Lagos Lagoon drainage environment.

Category	Impact	Significance	Colour
Biophysical	Dust from refurbishment and demolition	**Moderate**	□
Biophysical	Construction noise affecting surrounding residential/commercial receptors	**Major**	□

Biophysical	Drainage obstruction/runoff and localised flooding	**Major**	□
Biophysical	Sediment and contaminated runoff entering urban drainage	**Moderate–Major**	□
Biophysical	Hazardous-material/asbestos disturbance (confirmed - requires abatement)	**Major***	□
Social	Temporary disruption of access to PHC	**Moderate**	□
Social	Temporary disruption of nearby businesses and pedestrian movement	**Moderate**	□
Health & Safety	Traffic and pedestrian safety during construction	**Major**	□
Health & Safety	Worker OHS risks during refurbishment and electrical works	**Major**	□
Social	GBV/SEA/SH associated with temporary labour	**Major**	□
Operation	Medical waste and sharps management	**Major**	□
Operation	Wastewater/septic-system contamination	**Moderate**	□
Operation	Urban flooding and climate-related operational disruption	**Major**	□
Operation	Heat stress and increased cooling demand	**Moderate**	□

5.3.3 Ojodu PHC – Site-Specific Impact Matrix

Site character: Construction/refurbishment intervention within a highly urbanised environment; significant social sensitivity because of identified PAPs and temporary traders; high traffic and pedestrian interaction.

Category	Impact	Significance	Colour
Social	Economic displacement of 14 PAPs	**Major**	□
Social	Temporary livelihood/access disruption involving 5 temporary traders	**Moderate–Major**	□
Social	Compensation and livelihood-restoration failure	**Critical**	●
Biophysical	Dust from site preparation and construction	**Moderate**	□
Biophysical	Construction noise and vibration	**Major**	□

Biophysical	Drainage disruption and localised flooding	**Major**	□
Biophysical	Construction waste generation	**Moderate**	□
Health & Safety	Construction traffic and pedestrian safety	**Major**	□
Health & Safety	Worker OHS risks	**Major**	□
Social	Labour influx and pressure on local services	**Major**	□
Social	GBV/SEA/SH associated with construction workforce	**Major**	□
Social	Grievance escalation if PAP compensation is delayed	**Major**	□
Operation	Medical waste and sharps management	**Major**	□
Operation	Healthcare-associated infection risk	**Major**	□
Operation	Urban flooding/drainage vulnerability	**Major**	□

The RAP requirement at Ojodu is particularly important because the project documentation identifies 14 PAPs and 5 temporary traders associated with the site. Compensation and livelihood restoration should therefore be completed before displacement or commencement of activities affecting the affected persons.

5.3.4 Otumara PHC – Site-Specific Impact Matrix

Site character: PHC within the Lagos Mainland/Yaba urban environment; relatively sensitive because of its proximity to the Lagos Lagoon/drainage environment and associated flooding and water-quality considerations.

Category	Impact	Significance	Colour
Biophysical	Flooding and drainage disruption	**Major**	□
Biophysical	Sediment/runoff entering surrounding drainage channels	**Major**	□
Biophysical	Water-quality deterioration from fuel, oil or construction materials	**Major**	□
Biophysical	Dust from construction and site preparation	**Moderate**	□
Biophysical	Construction noise affecting nearby receptors	**Major**	□

Biophysical	Construction and demolition waste	**Moderate**	□
Social	Temporary disruption of access to PHC	**Moderate**	□
Social	Temporary disruption of nearby economic activities	**Moderate**	□
Health & Safety	Traffic and pedestrian risks	**Major**	□
Health & Safety	Worker OHS risks	**Major**	□
Social	Labour influx and community interaction	**Major**	□
Social	GBV/SEA/SH risk	**Major**	□
Operation	Medical waste/sharps management	**Major**	□
Operation	Wastewater/septic-system contamination	**Moderate–Major**	□
Operation	Flooding and climate-related service disruption	**Major**	□
Operation	Heat stress and increased indoor temperature	**Moderate**	□

5.4 Summary of Key Impacts

5.4.1 Overview of Key Adverse Impacts – Unmitigated

The unmitigated assessment for the Mainland Axis indicates that the most significant risks are concentrated around resettlement and livelihood impacts at Ojodu, potential hazardous-material exposure at the refurbishment sites, construction-related community health and safety risks, drainage/flooding, OHS, GBV/SEA/SH, and long-term medical-waste and infection-control risks.

The Mainland sites are not characterised by extensive dependence on coastal fisheries, trans-border movement or direct waterfront construction. The dominant sensitivity is instead the high density of existing residential, commercial and institutional receptors surrounding the PHC sites.

Critical Impacts – must be avoided or fully mitigated

The following impacts have the potential to become Critical if not properly controlled:

- Ojodu: failure to compensate and restore livelihoods of identified PAPs before displacement or commencement of works;
- Isolo/Oba Salami: uncontrolled disturbance of asbestos-containing materials, the pre-construction hazardous-material survey (confirmed);
- All sites: serious failure of GBV/SEA/SH reporting and survivor-referral mechanisms;

- Otumara/Oba Salami: uncontrolled major flooding or contaminated runoff where construction interferes with drainage or water receptors;
- All sites: uncontrolled release of infectious or hazardous medical waste during operation.

Major Impacts – must be effectively mitigated

Major unmitigated impacts include:

- construction dust and noise in densely populated urban areas;
- traffic and pedestrian safety risks;
- worker OHS risks;
- drainage obstruction and localised flooding;
- construction waste and hazardous-material management;
- labour influx and social interaction risks;
- GBV/SEA/SH;
- economic/livelihood disruption around Ojodu;
- medical waste and sharps management during operation;
- healthcare-associated infections;
- wastewater/septic-system contamination;
- climate-related flooding and heat stress.

Moderate Impacts – manageable with standard mitigation

These include:

- temporary visual and landscape disturbance;
- minor vegetation/modified-habitat disturbance;
- routine construction waste;
- temporary access restrictions;
- minor soil disturbance;
- temporary increase in vehicle emissions;
- construction-related vibration where heavy equipment is used;
- routine operational energy consumption.

5.4.2 Overview of Key Beneficial Impacts

Despite the identified risks, the Mainland Axis is expected to generate substantial long-term benefits.

Significant Positive Impacts

Construction

- Direct employment for skilled and semi-skilled workers;
- opportunities for local labour and service providers;
- increased demand for construction materials, transport, catering and other local services;
- improvement of contractor and local-worker skills in OHS, construction and environmental management.

Operation

The four upgraded/reconstructed PHCs will improve access to primary healthcare services in densely populated parts of Lagos. The project is expected to improve:

- availability of functional primary healthcare;
- maternal, newborn and child-health services;
- immunisation and preventive healthcare;
- laboratory and pharmacy services;
- emergency referral and basic clinical services;
- infection prevention and control;
- resilience of PHC services through improved energy systems and solar PV.

The project will also reduce travel time and transport costs for residents who currently depend on more distant or inadequately equipped facilities. The Group 2 project documentation identifies the four facilities as the Isolo, Oba Salami, Ojodu and Otumara PHCs.

Moderate Positive Impacts

- Solar power installation and reduced dependence on diesel generators;
- improved WASH facilities;
- improved healthcare waste segregation and infection control;
- increased community awareness of healthcare and public-health practices;
- improved facility accessibility for women, children, elderly persons and persons with disabilities;
- improved institutional capacity of PHC staff.

5.5 Worst-Case Scenarios And Cumulative Risk

5.5.1 Worst-Case Scenarios

The principal worst-case scenarios for the Mainland Axis are specific to its dense urban context.

1. Uncontrolled hazardous-material/asbestos release

Where asbestos-containing material is confirmed at Isolo or Oba Salami, uncontrolled removal or

demolition could expose workers and nearby residents to hazardous fibres. The risk would be particularly significant because of the density of surrounding urban receptors.

Accordingly, no demolition, roof replacement or intrusive refurbishment involving confirmed ACM should commence until the required survey and, where necessary, licensed abatement have been completed.

2. Failure of RAP implementation at Ojodu

The most significant social worst-case scenario is displacement of PAPs without prior compensation and livelihood-restoration arrangements. This could result in:

- loss of income;
- disruption of businesses;
- household economic stress;
- grievances and disputes;
- community opposition;
- delays to project implementation.

The identified 14 PAPs and 5 temporary traders therefore constitute a particularly important social receptor at Ojodu.

3. Major flooding/drainage failure

At Otumara and other Mainland sites, obstruction of existing drainage channels during construction could worsen local flooding. A poorly designed final drainage system could also compromise facility access, electrical equipment, medical equipment and continuity of healthcare services.

4. Serious traffic accident

Because the facilities are located within built-up urban areas, interaction between construction vehicles, pedestrians, motorcycles, commercial traffic and local residents represents a credible worst-case community-health-and-safety event.

5. Major medical-waste incident

During operation, inadequate segregation, storage, transportation or disposal of infectious waste and sharps could expose healthcare workers, patients, waste handlers and surrounding communities to infection and injury.

6. GBV/SEA/SH incident with inadequate response

A serious GBV/SEA/SH incident followed by failure of the project to provide confidential reporting, referral and survivor-centred support could result in severe harm to the survivor and significant

reputational, social and legal consequences for the project**.**

5.5.2 Cumulative Impacts

Cumulative impacts in the Mainland Axis are principally associated with the existing intensity of urban development, rather than coastal or trans-border pressures.

Key cumulative risks include:

Traffic and road-safety pressure

Construction traffic from the four PHC interventions will add temporarily to existing traffic congestion and pedestrian activity. Concurrent works at more than one facility could increase cumulative pressure on local roads.

Air quality and noise

Construction activities at multiple facilities, together with existing traffic and commercial activities, could cumulatively increase:

- PM10 and PM2.5;
- exhaust emissions;
- construction dust;
- noise and vibration.

Drainage and flooding

Progressive urbanisation has already reduced natural infiltration and increased surface runoff. Poorly coordinated construction works could further obstruct drainage channels and increase cumulative flood exposure.

Waste-management pressure

Simultaneous construction and eventual operation of four upgraded PHCs will increase demand for:

- construction-waste collection;
- hazardous-waste handling;
- healthcare-waste transportation;
- licensed disposal capacity.

Social and labour impacts

Although the Mainland Axis does not have the trans-border labour dynamics of the Badagry corridor, temporary construction labour may still increase pressure on local services and create risks associated with:

- worker accommodation;
- community-worker interaction;
- GBV/SEA/SH;
- grievance management;
- local employment expectations.

Cumulative positive effects

The project also produces cumulative benefits through the simultaneous improvement of four PHCs, including:

- increased healthcare coverage;
- improved emergency referral capacity;
- improved maternal and child healthcare;
- improved WASH and IPC;
- increased healthcare-system resilience;
- reduced dependence on poorly functioning health facilities.

5.6 Conclusion of the Impact Assessment

The impact assessment for the Mainland Axis – Group 2 has identified environmental, social, health and safety impacts ranging from Critical to Minor, together with substantial long-term positive effects. The principal sensitivity of the Mainland Axis arises from its dense urban setting and close interaction between project activities and existing communities, businesses, roads, drainage systems and public facilities.

The most important impacts requiring priority management are:

1. Resettlement and livelihood impacts at Ojodu, involving 14 identified PAPs and 5 temporary traders;
2. Confirmed asbestos/hazardous-material exposure at Isolo and Oba Salami, subject to confirmation through the required survey;
3. Construction traffic, pedestrian safety, dust and noise across all four sites;
4. Flooding and drainage disruption, particularly at sites with constrained drainage and proximity to the Lagos Lagoon drainage environment;
5. Worker OHS risks, including working at height, electrical works, machinery, confined spaces and heat stress;

6. GBV/SEA/SH and associated reporting and referral risks;
7. Medical-waste, sharps and infection-control risks during operation;
8. Wastewater and septic-system risks; and
9. Long-term climate risks, particularly urban flooding and increasing heat stress.

The assessment confirms that the majority of identified adverse impacts can be reduced to acceptable levels through application of the mitigation hierarchy, beginning with avoidance and minimisation, followed by appropriate mitigation, restoration and, where applicable, compensation.

For Ojodu, RAP implementation and compensation/livelihood restoration must precede displacement and any works that would affect the identified PAPs. For Isolo and Oba Salami, the required hazardous-material/asbestos surveys should be completed before intrusive refurbishment works. The four facilities should also have approved CESMPs, OHS plans, traffic-management arrangements, waste-management procedures, GBV/SEA/SH measures and functional GRMs before mobilisation.

With these measures implemented, the adverse impacts associated with the Mainland Axis can be reduced substantially while the project's considerable positive benefits—particularly improved access to primary healthcare, maternal and child health services, employment, WASH, energy reliability and public-health resilience—are maximised.

The four PHCs therefore represent a highly beneficial healthcare intervention in an environmentally modified but socially sensitive urban environment, provided that the project maintains strict control over resettlement, hazardous materials, construction safety, community health and safety, GBV/SEA/SH, drainage and healthcare-waste management.

The Group 2 baseline instead supports an urban Mainland assessment centred on dense development, traffic, drainage/flooding, commercial activity, PAPs at Ojodu, potential hazardous materials at refurbishment sites, and operational healthcare risks. The available Group 2 socio-economic baseline table specifically covers Oba Salami, Isolo, Ojodu and Otumara across population, settlement, livelihoods, infrastructure, water, electricity, drainage, environmental setting and development pressure.

Summary – Health Impact Assessment: Group 2 (Mainland Axis)

The Health Impact Assessment for Group 2 (Mainland Axis) indicates that the four PHCs—Isolo, Oba Salami, Ojodu and Otumara—serve communities with significant public-health vulnerabilities. The baseline is characterised by high malaria and typhoid prevalence, moderate respiratory infections,

and chronic diseases including hypertension and diabetes. Limited access to safe water, blocked drainage, flood-prone areas and weaknesses in waste management further increase community sensitivity to project-related health risks.

During the construction phase at Ojodu and Otumara, the principal health risks are disruption of healthcare services, WASH interruptions, inadequate waste segregation, dust and noise exposure, stagnant water and vector breeding, and occupational health and safety hazards. These risks are considered high and require close monitoring of patient flow, water availability, waste management, air quality, noise, drainage conditions and PPE compliance. Key controls include temporary service arrangements, backup water supplies, proper waste segregation, dust suppression, controlled construction hours, drainage improvement and strict OHS enforcement.

At Isolo and Oba Salami, where refurbishment will take place within existing clinical environments, health risks are more pronounced because construction activities may occur alongside ongoing healthcare delivery. Key concerns include healthcare-associated infections (HAIs), dust infiltration, overcrowding, service disruption, workflow interference, WASH failures and exposure to infectious healthcare waste. Oba Salami has additional sensitivity because of its large elderly population and high burden of hypertension and diabetes, as well as identified community demand for eye and dental services. Maintaining uninterrupted chronic-disease care is therefore particularly important.

Overall, the assessment highlights that service continuity, infection prevention and control, WASH, waste management, vector control and occupational/community health and safety are the principal health priorities for Group 2. The risks can be substantially reduced through phased construction, physical separation of works from clinical areas, temporary service arrangements, reliable water supply, strict IPC and waste protocols, dust and noise control, improved drainage, and enhanced supervision and monitoring throughout construction and renovation.

Group 2 Mainland assessment demonstrates that the LSHIP interventions are environmentally and socially manageable provided that mitigation is implemented from the pre-construction stage and maintained throughout construction and operation. The principal priorities are hazardous-material management at refurbishment sites, timely implementation of RAP commitments at affected locations, continuity of healthcare services, infection prevention and control, occupational and community health and safety, GBV/SEA/SH prevention and response, construction traffic and access management, drainage and flood resilience—particularly at Otumara—and appropriate medical and general waste management during operation. Cumulative impacts arising from simultaneous works at

Isolo, Oba Salami, Ojodu and Otumara also require coordinated scheduling and monitoring. With effective implementation of the ESMP, RAP, Health Impact Management Measures, OHS Plan, HMWMP, GBV/SEA/SH Action Plan and stakeholder engagement/GRM arrangements, the identified Major and Moderate impacts can be reduced to acceptable residual levels while the substantial long-term benefits of improved access to quality primary healthcare are realised.

CHAPTER SIX: 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 Mainland Axis (Ojodu, Otumara, Isolo, and Oba Salami). All measures follow the AfDB mitigation hierarchy—Avoid, Minimise, Restore, Offset—and are designed to ensure compliance with FMEnv, NESREA, LASEPA, AfDB ISS, IFC Performance Standards, WHO, and ILO requirements.

The Mainland Axis contains a diverse set of environmental and social sensitivities, including urban wetlands and drainage canal networks (Systems 5 and 7 canals near Ojodu, Isolo, and Oba Salami), coastal and lagoon waterfront interfaces subject to tidal flooding and storm surges (Otumara), asbestos-containing building structures in older municipal facilities (Isolo and Oba Salami), high-density urban traffic and pedestrian corridors (Ojodu, Isolo), commercial PAP livelihoods and market trader displacement risks (Ojodu, Otumara), flood-prone low-lying terrain (Otumara, Oba Salami), and urban GBV/SEA/SH hotspots. 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.

The impact assessment for the Group 2 facilities must be interpreted within the context of the facility typology. The Isolo, Oba Salami, Ojodu and Otumara Primary Healthcare Centres are relatively smaller 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

6.2 Public Health Impact - Baseline, Impacts, Mitigation Measures, and Monitoring Indicators

The baseline across all four PHCs shows high malaria and typhoid prevalence, moderate respiratory infections, and chronic diseases such as hypertension and diabetes. Environmental vulnerabilities including limited safe water, blocked drainage, flood-prone terrain, and weak waste-management systems—increase community sensitivity to construction and renovation impacts. Oba Salami PHC

has an additional high-risk baseline due to a large elderly population, high diabetes and hypertension burden, and community demand for eye and dental services, making service continuity and IPC especially critical.

Ojodu & Otumara PHCs during Construction phase

Construction-phase risks include service disruption, WASH interruptions, poor waste segregation, dust and noise exposure, vector breeding, and occupational hazards. These impacts are rated high, requiring monitoring of patient flow, water availability, waste compliance, air quality, noise levels, stagnant water, and PPE use. Mitigation focuses on temporary clinics, backup water supply, strict waste segregation, dust suppression, noise scheduling, drainage improvement, and strong OHS enforcement.

Isolo & Oba Salami PHCs during Renovation Phase

Renovation-phase risks are more severe because works occur within active clinical environments. Key risks include nosocomial infections from dust, service disruption due to temporary relocation, overcrowding, workflow disruption, WASH failures, and exposure to infectious waste. Oba Salami PHC faces additional operational risks due to its elderly population and chronic-disease burden, requiring continuous access to hypertension/diabetes care and planning for eye and dental services. Mitigation emphasizes strict IPC, isolated construction zones, temporary service areas, continuous water supply, safe waste handling, dust barriers, noise control, and enhanced supervision.

6.2.1 Ojodu PHC & Otumara PHC during the Construction phase

Category	Ojodu PHC	Otumara PHC	Impact Rating	Monitoring Indicators	Mitigation Measures
Community Health Baseline	High malaria & typhoid; moderate RTIs; hypertension & diabetes	Same	● High	Weekly disease surveillance; drug stock levels	Strengthen surveillance; ensure drug availability
Environmental Baseline	Limited safe water; flood-prone; poor waste disposal	Same	□ Moderate	Water quality tests; drainage inspections; waste audits	Improve drainage; ensure safe water supply
Service Disruption	Restricted movement → delayed treatment	Same	● High	Patient flow counts; waiting time	Temporary clinic; phased construction
WASH Interruption	Water interruption → poor hygiene → disease transmission	Same	● High	Water logs; hygiene checks	Backup water; maintain sanitation points
Waste Management Disruption	Poor segregation → infection risk	Same	● High	Segregation compliance; disposal frequency	Enforce segregation; routine waste pickup
Air Quality (Dust)	Excavation dust → respiratory irritation	Same	□ Moderate	PM readings; respiratory complaints	Dust suppression; dust barriers
Noise Exposure	Machinery noise → stress	Same	□–□ Low–Moderate	Noise readings; staff/patient feedback	Noise scheduling; PPE
Vector Breeding	Stagnant water → mosquito breeding → malaria	Same	□ High	Stagnant water checks; malaria trends	Drainage management; larval control

Occupational Hazards	Machinery movement → injuries	Same	▯ Moderate	Incident reports; PPE compliance	PPE; OHS training; restricted zones
Overall Construction Mitigation	Standard construction-phase mitigation applies	Same	—	Compliance audits; contractor supervision	Temporary clinic; WASH continuity; dust/noise control; drainage management; PPE

6.2.2 Isolo & Oba Salami PHCs during the Renovation phase

Category	Isolo PHC	Oba Salami PHC	Impact Rating	Monitoring Indicators	Mitigation Measures
Community Health Baseline	Very high malaria; high typhoid; moderate RTIs; hypertension & diabetes	Large elderly population; high diabetes & hypertension; request for eye & dental clinics	● High	Weekly disease surveillance; chronic-disease case logs	Strengthen surveillance; ensure chronic-care drugs; plan eye/dental service integration
Environmental Baseline	Limited safe water; flood-prone; blocked drainage	Same	▯–● Moderate–High	Water quality tests; drainage inspections	Improve drainage; maintain sanitation
Nosocomial Infection Risk	Dust contamination in active clinic	Same	● Very High	IPC audits; PPE use; facility-acquired infection tracking	Strict IPC; isolate construction zones

Service Disruption	Temporary relocation → delayed care	Same	● Very High	Patient flow counts; referral tracking	Temporary clinics; phased works
Overcrowding	Partial closure → increased patient load	Same	□ High	Daily patient volume; waiting time	Patient flow management; triage
Workflow Disruption	Increased patient contact → cross-infection	Same	● Very High	Movement mapping; cross-infection reports	Zoning; controlled patient routing
WASH Interruption	Water interruption → poor hygiene	Same	● Very High	Water logs; hygiene compliance	Backup water; maintain sanitation
Waste Management Disruption	Exposure to infectious waste	Same	● Very High	Segregation checks; disposal frequency	Strict segregation; safe disposal
Air Quality (Dust)	Civil works → dust inhalation	Same	□ Moderate	Dust barrier checks; respiratory complaints	Dust barriers; source control
Noise Exposure	Machinery noise → stress	Same	□ Low–Moderate	Noise readings; staff feedback	Noise scheduling; barriers
Overall Renovation Mitigation	IPC strengthening; temporary service continuity; waste control	Same	—	Compliance audits; contractor supervision	Enhanced IPC; continuous water; safe waste handling

6.2.3 Operational Risks

Operational Risks Ojodu & Otumara PHCs during the Construction phase

Operational Category	Ojodu PHC	Otumara PHC	Impact Rating	Monitoring Indicators	Mitigation Measures
Service Continuity	Restricted access causing delays in patient care	Same	● High	Patient flow counts; waiting time	Temporary clinic; phased construction
Clinical Operations	Reduced consultation space; delayed triage	Same	□ Moderate	Daily patient volume; triage time	Mobile consultation units; workflow adjustment
WASH Operations	Water interruptions affecting hygiene and cleaning	Same	● High	Water logs; sanitation checks	Backup water; maintain hygiene stations
Waste Handling	Poor segregation due to construction clutter	Same	● High	Segregation compliance; disposal frequency	Enforce segregation; routine waste pickup
Environmental Operations	Dust, noise, stagnant water affecting staff/patients	Same	□ High	PM readings; noise levels; vector checks	Dust suppression; noise scheduling; drainage control
Staff Safety	Movement of machinery causing injury risks	Same	□ Moderate	Incident reports; PPE compliance	PPE; OHS training; restricted zones

Operational Risks Isolo & Oba Salami PHCs during Renovation Phase

Operational Category	Isolo PHC	Oba Salami PHC	Impact Rating	Monitoring Indicators	Mitigation Measures
Service Continuity	Temporary relocation → delayed care	Same	● Very High	Patient flow counts; referral tracking	Temporary clinics; phased works

Clinical Operations	Overcrowding due to reduced space	Higher risk due to elderly population needing chronic care	□ High	Daily patient volume; waiting time; chronic-care attendance	Triage management; chronic-care continuity; patient routing
IPC Operations	Dust contamination → nosocomial infections	Same	● Very High	IPC audits; PPE checks; infection tracking	Strict IPC; isolate construction zones
WASH Operations	Water interruptions affecting hygiene	Same	● Very High	Water logs; hygiene compliance	Backup water; sanitation continuity
Waste Handling	Exposure to infectious waste during works	Same	● Very High	Segregation checks; disposal frequency	Strict segregation; safe disposal
Environmental Operations	Dust, noise, and debris affecting patients	Same	□ Moderate	Dust barrier checks; noise readings	Dust barriers; noise control
Special Elderly-Care Operations	—	High diabetes & hypertension burden; need for eye & dental services	● Very High	Chronic-disease logs; elderly-patient flow; service gaps	Ensure chronic-care drug availability; plan eye/dental service integration
Staff Safety	Increased movement → higher injury risk	Same	□ Low–Moderate	Incident reports; PPE compliance	PPE; restricted zones; supervision

6.3 Site-Specific Mitigation Measures**6.3.1 OJODU -- Site-Specific Mitigation Measures**

Key risks: Urban traffic congestion, drainage canal proximity (Systems 5 & 7), commercial PAP livelihood disruption, construction dust/noise.

- **Biophysical:** Drainage protection (sediment traps, silt fencing, no waste discharge into canals); urban tree preservation and compensatory greening.
- **Social:** Livelihood restoration and compensation framework for affected commercial PAPs and market traders; proactive stakeholder engagement.
- **Health & Safety:** Comprehensive traffic management plans; construction safety barriers; dust suppression via regular water spraying.

OJODU -- Mitigation Matrix

Impact Category	Unmitigated Impact	Mitigation Measure	Hierarchy	Responsible
Biophysical	Canal siltation / water contamination	Sediment traps, silt fences; strict prohibition of wash-water discharge into drainage channels	Minimise	Contractor
Social	Commercial PAP / trader disruption	Compensation and targeted livelihood restoration support	Restore	PIU
Health & Safety	Traffic disruption & pedestrian safety	Traffic management plan, warning signage, speed controls	Minimise	Contractor / PIU

6.3.2 OTUMARA -- Site-Specific Mitigation Measures

Key risks: Coastal/lagoon flooding, storm surges, waterfront erosion, marine water quality impacts, boat transit safety.

- **Biophysical:** Waterfront erosion control (shoreline protection, gabions); marine water quality safeguards (oil-water separators, bunded fuel storage).
- **Social:** Fisherfolk and marine transport stakeholder engagement; community safety communication regarding coastal and lagoon hazards.
- **Health & Safety:** Flood-resilient elevated storage above flood level; marine transit safety protocols (life jackets, certified watercraft); spill kits on-site and on marine craft.

OTUMARA -- Mitigation Matrix

Impact Category	Unmitigated Impact	Mitigation Measure	Hierarchy	Responsible

Biophysical	Coastal erosion & lagoon water pollution	Shoreline protection (gabions); bunded fuel storage; marine spill kits	Minimise	Contractor
Social	Waterfront user / fisherfolk disruption	Stakeholder engagement and safe maritime transit coordination	Minimise	PIU
Health & Safety	Tidal flooding & marine OHS risks	Elevated storage above flood level; maritime safety gear; OHS protocols	Avoid / Minimise	Contractor / Specialist

6.3.3 ISOLO -- Site-Specific Mitigation Measures

Key risks: Asbestos-confirmed structures, dense urban traffic, municipal infrastructure integration.

- **Biophysical:** Strict dust and runoff containment during structural retrofits; proper sorting and legal disposal of construction demolition waste.
- **Social:** Advance community communication on construction schedules and structural abatement works.
- **Health & Safety:** Full asbestos abatement by licensed contractor (wet removal, HEPA vacuums, P3 respirators, Type 5 coveralls, air monitoring below 0.1 f/ml threshold).

ISOLO -- Mitigation Matrix

Impact Category	**Unmitigated Impact**	**Mitigation Measure**	Hierarchy	Responsible
Biophysical	Construction waste & runoff impact	Controlled demolition waste sorting, containment, and legal disposal	Minimise	Contractor
Social	Community disturbance from structural works	Advance notification and structured grievance redress mechanism	Minimise	PIU
Health & Safety	Asbestos exposure (confirmed)	Licensed abatement; wet removal; HEPA vacuums; P3 respirators; air monitoring	Avoid	Specialist

6.3.4 OBA SALAMI -- Site-Specific Mitigation Measures

Key risks: Urban heat island effect, localized pluvial flooding, dense urban community interface.

- **Biophysical:** Sustainable site grading to prevent localized water pooling; integration of green landscaping and permeable paving, Confirmed asbestos in building materials requiring licensed abatement.
- **Social:** Community liaison and maintenance of clear emergency access routes through dense settlement areas.
- **Health & Safety:** Construction safety fencing, OHS inductions, heat stress management protocols for workers, licensed asbestos abatement during structural works.

OBA SALAMI -- Mitigation Matrix

Impact Category	**Unmitigated Impact**	**Mitigation Measure**	Hierarchy	Responsible
Biophysical	Localized pluvial flooding	Site drainage improvement, grading, and permeable surfaces, Confirmed asbestos in building materials requiring licensed abatement	Minimise	Contractor
Social	Community access restriction	Maintenance of temporary access walkways; regular community liaison	Minimise	PIU
Health & Safety	Worker heat stress & site safety	Hydration stations, scheduled rest breaks, mandatory PPE, site fencing, Licensed asbestos abatement during structural works	Avoid / Minimise	Cont

6.3.5 Mainland Wetland & Waterfront Interface -- Site-Specific Mitigation Measures

Key risks: Wetland buffer encroachment, economic displacement of urban agricultural/land users, soil erosion.

- **Biophysical:** Wetland avoidance and strict buffer maintenance (50 m buffer); if unavoidable, implement biodiversity offsets (1:1 to 3:1); erosion control measures (silt fences, hydromulch, slope stabilisation).
- **Social:** Full Resettlement Action Plan (RAP) implementation; compensation at full replacement cost; targeted livelihood restoration support.
- **Health & Safety:** Community safety protocols, traffic management, and safe pedestrian access around active construction zones.

Mainland Wetland & Watercourse Interface -- Mitigation Matrix

Impact Category	**Unmitigated Impact**	**Mitigation Measure**	Hierarchy	Responsible
Biophysical	Wetland disturbance / loss	50 m buffer enforcement; biodiversity offset if encroachment is unavoidable	Avoid / Offset	PIU
Biophysical	Soil erosion	Silt fences; hydromulch; slope stabilisation	Minimise	Contractor
Social	Economic displacement of local land/farming users	Full RAP implementation; compensation at full replacement cost; livelihood restoration	Compensate / Restore	PIU / RAP Consultant
Health & Safety	Community safety risks	Traffic management; controlled site access routes	Minimise	Contractor

6.3.6 Mainland Commercial & Transit Corridor -- Site-Specific Mitigation Measures

Key risks: Commercial PAP structures/shops, labour influx, high urban traffic congestion, GBV/SEA/SH risks.

- **Biophysical:** Dust suppression via regular water spraying on access routes; noise management (barriers near sensitive receptors, scheduling noisy works).
- **Social:** Full RAP implementation for affected commercial structures; labour influx management plan (worker camp rules, Code of Conduct, prohibition of child labour); GBV/SEA/SH mitigation (contractor training, survivor-centred response, confidential GRM); market access protection (maintaining clear pedestrian pathways).
- **Health & Safety:** Traffic management (traffic marshals, speed limits, diversion routes); heat stress management (shade structures, hydration stations, regulated rest cycles).

Mainland Commercial & Transit Corridor -- Mitigation Matrix

Impact Category	**Unmitigated Impact**	**Mitigation Measure**	Hierarchy	Responsible
Biophysical	Construction dust	Water spraying; road dampening	Minimise	Contractor
Biophysical	Construction noise	Acoustic barriers; activity scheduling	Minimise	Contractor

Social	Economic displacement of commercial PAPs (shops)	Full RAP; compensation at full replacement cost; livelihood restoration	Compensate / Restore	PIU / RAP Consultant
Social	Labour influx	Worker camp management plan; strict Code of Conduct (CoC)	Minimise	Contractor
Social	GBV/SEA/SH risks	Survivor-centred response mechanisms; confidential GRM; awareness training	Avoid / Minimise	PIU
Social	Market access disruption	Maintenance of secure pedestrian routes and temporary walkways	Minimise	Contractor
Health & Safety	Traffic congestion	Certified traffic marshals; strict speed limits; clear diversion signage	Minimise	Contractor
Health & Safety	Worker heat stress	Provision of shade, hydration points, and mandated rest cycles	Minimise	

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 for the four PHC facilities in the Group 2 Mainland Axis: Isolo, Oba Salami, Ojodu, and Otumara. It translates site-specific environmental and social risks into actionable, measurable compliance tasks, responsibilities, and monitoring plans across the pre-construction, construction, and operational phases.

The ESMP ensures compliance with the 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, and ensuring transparency, accountability, and continuous improvement.

Because each PHC site in Group 2 presents distinct local sensitivities—such as high-density urban traffic and commercial activities (Isolo and Oba Salami), confirmed asbestos structures during refurbishment (Isolo and Oba Salami), and tidal flooding/high water table vulnerabilities (Otumara and Ojodu)—this ESMP provides targeted, site-specific management frameworks.

7.2 Site-Specific ESMPs for the Four PHC Sites

This section presents site-specific ESMPs, each structured into Biophysical Management, Social Management, Health & Safety Management, Monitoring Indicators, and Responsibilities (see Fig 7.1).



Figure 7.1: Site-Specific ESMP (Environmental & Social Management Plan)

7.2.1 Site-Specific ESMPs for ISOLO PHC -- Site-Specific ESMP (Refurbishment)

A. Biophysical Management

Impact	ESMP Action	Performance Indicator
Asbestos Hazard	Deploy certified asbestos abatement contractor; wet-stripping methods; ambient fiber monitoring; sealed transport to hazardous waste facility.	Airborne fiber level ≤ 0.1 f/ml; 100% manifest tracking to licensed landfill.
Waste & Refurbishment Debris	Establish designated source-segregated storage bays; prohibit open burning or informal dumping; engage LAWMA-approved hazardous waste transporters.	Zero illegal waste dumping; have 100% manifested verification.

B. Social Management

Impact	ESMP Action	Performance Indicator
Service Disruption	Phase renovation works to maintain active clinical services; erect temporary sound-insulated clinical partitions.	Zero disruption to core patient intake; zero clinical service downtime.

Commercial PAP Impact	Provide advance notice (minimum 30 days) to temporary vendors near entrance; assist with temporary relocation outside perimeter.	100% vendor relocation assistance provided; zero unaddressed grievances.

C. Health & Safety Management

Impact	ESMP Action	Performance Indicator
Asbestos & Dust OHS	Mandate P3 particulate respirators and disposable coveralls for abatement workers; establish decontamination showers.	100% worker PPE compliance; zero asbestos exposure incidents.
Public Traffic & Pedestrian Safety	Deploy traffic flaggers; schedule heavy material deliveries during off-peak hours (10:00–15:00); maintain clear walkways.	Zero public traffic incidents; unimpeded ambulance access.

D. Monitoring Indicators

- Asbestos fiber count testing during stripping phase (≤ 0.1f/ml)
- Ambient noise levels during clinic operating hours (≤ 55dB(A))
- Grievance Redress Mechanism (GRM) resolution time (≤ 14 days)

E. Responsibilities

- **Contractor:** Execution of C-ESMP, asbestos abatement execution, site safety barriers, traffic control.
- **PIU:** Oversight of abatement contractor, vendor compensation/relocation, regulatory reporting.
- **IESM:** Independent asbestos compliance verification and quarterly environmental monitoring.

7.2.2 OBA SALAMI PHC -- Site-Specific ESMP (Refurbishment)

Key sensitivities: *Confined urban footprint, structural integrity risks, confirmed asbestos, h*igh pedestrian density.

A. Biophysical Management

Impact	ESMP Action	Performance Indicator
Construction Dust & Noise	Install high-density perimeter barrier netting; apply water misting on dust-generating surfaces; restrict noisy works to 08:00–16:00.	PM10 ≤ 50 (μg/m³) noise levels within daytime limits (≤55dB(A)).
Effluent & Drainage Risk	Install temporary sediment traps in site drainage connection to prevent blockage of municipal storm drains.	Zero blockages reported in municipal drainage line.

B. Social Management

Impact	ESMP Action	Performance Indicator
Labor Influx & GBV/SEA/SH	Enforce mandatory worker Code of Conduct; monthly worker training on SEA/SH prevention; establish confidential, female-led GRM reporting.	100% signed worker Codes of Conduct; 100% GBV complaints handled within 48 hours.
Local Community Integration	Prioritize host community recruitment for non-skilled tasks (≥70%).	Local labor hiring quota met and documented.

C. Health & Safety Management

Impact	ESMP Action	Performance Indicator
Structural & Scaffolding Safety	Mandate certified scaffolding erected by qualified riggers; full harness use above 2 meters; strict overhead protection canopy.	Zero fall-from-height accidents; 100% safety harness compliance.

D. Monitoring Indicators

- Weekly ambient dust (PM10PM2.5) and noise levels
- Percentage of local labor employed (≥70% target)
- GRM log status and resolution timeframe

E. Responsibilities

- **Contractor:** Site containment, scaffolding safety, dust/noise suppression, local labor compliance.
- **PIU:** Stakeholder engagement, monitoring GRM compliance, oversight of contractor.
- **IESM:** Periodic site safety and environmental audit reports.

7.2.3 OJODU PHC -- Site-Specific ESMP (New Construction)

Key sensitivities: Site excavation risks, stormwater runoff management, heavy vehicle access, community traffic management.

A. Biophysical Management

Impact	ESMP Action	Performance Indicator
Erosion & Runoff Control	Construct lined perimeter drainage prior to major excavation; install silt fences along downhill contours; elevate Finished Floor Level (FFL).	Zero off-site silt deposition; zero site flooding during construction.

Vegetation Removal	Limit land clearing strictly to the construction footprint; plant native shade trees and landscaping (2:1 replacement ratio).	100% tree replacement quota executed upon construction completion.

B. Social Management

Impact	ESMP Action	Performance Indicator
Land & Access Adjustments	Execute Abbreviated Resettlement Action Plan (ARAP) for any displaced informal land users; ensure full compensation prior to ground clearing.	100% ARAP compensation disbursed prior to civil works.
Community Engagement	Hold bi-monthly consultation sessions with Ward Development Committee (WDC) and youth leaders.	Minutes of meetings logged; 40% female attendance rate in public consultations.

C. Health & Safety Management

Impact	ESMP Action	Performance Indicator
Excavation & Structural Safety	Shore up open excavations deeper than 1.5meters; construct 1.8 m secure boundary fencing around active site.	Zero excavation collapse incidents; zero unauthorized site entries.
Heavy Vehicle Operations	Establish designated haulage routes; restrict truck movements during peak morning/evening traffic hours.	Zero haulage-related traffic incidents on primary road.

D. Monitoring Indicators

- Groundwater and soil runoff quality (monthly during foundation phase)
- Local hiring records and ARAP implementation reporting
- Weekly OHS inspection scores

E. Responsibilities

- **Contractor:** Excavation safety, drainage installation, dust control, C-ESMP implementation.
- **PIU:** ARAP execution, payment of compensation, government stakeholder liaison.
- **IESM:** Verification of ARAP implementation and quarterly environmental audits.

7.2.4 OTUMARA PHC -- Site-Specific ESMP (New Construction)

Key sensitivities: Tidal flooding/high water table, soft soil conditions, coastal/lagoon buffer considerations, low-income community dynamics.

A. Biophysical Management

Impact	ESMP Action	Performance Indicator
Hydrological & Flood Risk	Elevate site foundation above 100-year flood level (+30% climate adaptation factor); install non-permeable subsurface flood protection walls.	Zero structural flood infiltration during high-tide/heavy rainfall events.
Water Quality & Soil Protection	Install sealed containment systems for chemical/fuel storage; utilize non-permeable double-chamber septic containment to protect high water table.	Zero coliform or petroleum contamination detected in ground testing.

B. Social Management

Impact	ESMP Action	Performance Indicator
Livelihood Displacement	Prepare and implement Targeted Livelihood Plan for affected informal structures/fisheries access near the water margin.	100% affected individuals compensated/assisted prior to site clearance.
Proximity Community Support	Implement clear community safety protocols; active local recruitment for construction labor.	High local labor participation rate (≥ 70% unskilled).

C. Health & Safety Management

Impact	ESMP Action	Performance Indicator
Soft Ground & Water Hazards	Provide life jackets for work adjacent to open water channels; deploy ground stabilization matting for heavy machinery.	Zero drowning/water-related incidents; zero equipment tip-over accidents.

D. Monitoring Indicators

- Surface/groundwater quality parameters ($\text{TSS}, \text{BOD}, \text{DO}$, Coliforms - monthly)
- Flood level monitoring at site boundary
- Local employment and livelihood plan tracking

E. Responsibilities

- **Contractor:** Foundation engineering mitigation, groundwater protection, site safety controls.
- **PIU:** Implementation of Livelihood Plan, community relations, inter-agency coordination.
- **IESM:** Quarterly water sampling verification and overall safeguard auditing.

7.3 - 7.3 ESMP Summary Matrix (Four PHC Sites -- Mainland Axis)

Colour Codes: ● Critical | □ Major | □ Moderate | □ Minor | ⛃ Positive

Site	Impact Category	Key Unmitigated Impact	Mitigation Measure	Hierarchy	Significance	Responsible
Isolo	Biophysical	Asbestos-containing materials (ACM)	Licensed abatement contractor; wet-stripping; continuous air monitoring; hazardous waste containment	Avoid	●	Abatement Specialist / Contractor
	Biophysical	Hazardous refurbishment waste & debris	Source-segregated waste bays; LAWMA-licensed transport; strict manifest tracking	Minimise	□	Contractor
	Social	Disruption to ongoing clinical operations	Phased renovation schedule; temporary sound-insulated clinical partitions	Minimise	□	PIU / Contractor
	Social	Temporary vendor	30-day advance notice;	Compensate / Restore	□	PIU

		displacement at site entrance	relocation assistance to nearby designated spots			
	Health & Safety	Asbestos OHS exposure	Mandatory P3 respirators; Type 5/6 coveralls; decontamination unit; restricted access	Avoid	●	Abatement Specialist
	Health & Safety	Pedestrian & clinic traffic congestion	Traffic flaggers; off-peak delivery scheduling (10:00–15:00); dedicated pedestrian pathways	Minimise	□	Contractor
Oba Salami	Biophysical	Ambient noise & dust in high-density urban zone	Perimeter barrier netting; water misting; restricting noise-heavy works to 08:00–16:00	Minimise	□	Contractor
	Biophysical	Drainage siltation & effluent runoff	Temporary sediment traps connected to municipal stormwater	Minimise	□	Contractor

			line; silt interceptors			
	Social	Labor influx & GBV/SEA/SH risks	Mandatory signed Code of Conduct; monthly worker inductions; confidential female-led GRM	Avoid / Minimise	●	PIU / Contractor
	Social	Local employment integration	Local content policy prioritizing ≥70% non-skilled recruitment from host community	Restore / Enhance	◍	Contractor / PIU
	Health & Safety	Structural scaffolding & fall hazards	Certified scaffolding; fall arrest harnesses above 2 m; overhead protective canopies	Avoid	●	Contractor
Ojodu	Biophysical	Heavy excavation soil erosion & site runoff	Lined perimeter drainage prior to excavation; silt fences	Minimise	□	Contractor

			along downhill contours			
	Biophysical	Site vegetation removal	Restrict clearing footprint; mandatory 2:1 native tree replanting ratio post-construction	Offset / Restore	□	Contractor / PIU
	Social	Economic displacement / land access adjustments	Abbreviated RAP (ARAP); full cash compensation prior to ground clearing	Compensate / Restore	□	PIU
	Social	Community relations & stakeholder alignment	Bi-monthly consultation sessions with Ward Development Committee (WDC); 40% female quota	Engage	□	PIU
	Health & Safety	Deep excavation collapse & equipment haulage risks	Excavation shoring (>1.5 m); 1.8 m secure perimeter fencing; restricted haulage hours	Minimise	□	Contractor

Otumara	Biophysical	Tidal flooding & high groundwater table vulnerability	Elevate Finished Floor Level (FFL) above 100-year flood line (+30% climate factor); subsurface flood barriers	Avoid / Adapt	●	Contractor
	Biophysical	Shallow aquifer contamination	Sealed non-permeable double-chamber septic systems; bunded fuel/chemical storage	Avoid	●	Contractor
	Social	Livelihood displacement (informal shoreline activities)	Targeted Livelihood Restoration Plan; alternative access pathways; fair compensation	Compensate / Restore	□	PIU
	Social	Host community labor participation	Priority recruitment of local workforce (≥70% target for non-skilled roles)	Enhance	◍	Contractor
	Health & Safety	Soft ground & water	Ground stabilization	Minimise	□	Contractor

		channel proximity hazards	matting for heavy machinery; mandatory life jackets near water channels			

7.4 Institutional Responsibilities

This section defines the institutional roles required to implement the ESMP across the four PHC sites in the Group 2 Mainland Axis (Isolo, Oba

Entity	Role	Key Responsibilities
FMEnv	Federal regulator	EIA certification, national environmental compliance inspections, review of monitoring reports.
LASEPA	State regulator	Permits (air, noise, water), site inspections, enforcement of Lagos State environmental standards.
LAWMA	Waste regulator	Medical and general waste transport licensing, hazardous waste manifests, disposal site approvals.
PIU (LSMoH)	ESMP oversight	Contractor compliance oversight, GRM operations, AfDB reporting, RAP/ARAP execution oversight across Group 2 sites.
Contractor(s)	ESMP implementation	C-ESMP preparation and execution, site OHS, dust/noise controls, local labor management, traffic marshals.
Facility Operator	Operational ESMP	Healthcare Medical Waste Management Plan (HMWMP) execution, IPC protocols, solar/WASH maintenance, operational GRM.
Licensed Asbestos Specialist	Hazardous materials (Isolo & Oba Salami)	Pre-refurbishment ACM surveys, wet-stripping abatement, air fiber monitoring (≤0.1f/ml), hazardous disposal.

IESM	Independent oversight	Third-party quarterly audits, compliance verification, independent sample testing validation.
LGAs / LCDAs / WDCs	Local support	Community entry, PAP verification, local grievance resolution support, host community labor recruitment oversight.
AfDB	Financier	ISS safeguard supervision, compliance verification, field monitoring reviews.

7.5 Monitoring Plan

Monitoring indicators cover air quality, noise, creek water quality, soil erosion, waste management, labour and GBV risks, and climate resilience across all four sites, selected against the Chapter 5 risks and Chapter 6 mitigation measures.

Site-Specific Monitoring Locations: Site-Specific Key Monitoring Focus Areas (Group 2):

- **Isolo:** Asbestos airborne fiber monitoring (≤0.1f/ml during abatement), PM_{10} $PM_{2.5}$, pedestrian/clinic traffic management, and active healthcare service continuity.
- **Oba Salami:** Ambient noise and dust levels in a high-density footprint, scaffolding safety, municipal drainage connection siltation, and GBV/SEA/SH Code of Conduct compliance.
- **Ojodu:** Soil erosion/runoff TSS levels, excavation safety shoring, Abbreviated RAP (ARAP) compensation delivery, and 2:1 native tree replanting survival.
- **Otumara:** Surface/groundwater quality (coliforms, TSS, BOD, hydrocarbons), finished floor level (FFL) elevation compliance (+30% climate factor), soft ground equipment stability, and informal shoreline livelihood plan execution.

Corrective Action Procedure: (1) identify exceedance through monitoring, inspection, or GRM complaint; (2) notify the PIU (verbal within 24 hours, written within 48 hours); (3) investigate root cause; (4) implement immediate corrective action; (5) develop a long-term corrective plan if structural; (6) verify effectiveness through follow-up monitoring; (7) report to AfDB for serious or repeated exceedances; (8) update the ESMP if systemic.

Figure 7.2 presents a detailed visual analysis and comparative overview of baseline Environmental and Social Impact Assessment (ESIA) conditions and unique site sensitivities for four diverse Primary Health Centre (PHC) locations across different Local Government Areas on the Lagos Mainland,

facilitating a data-driven understanding of specific environmental and social factors and potential risks.

igure 7.2: *Comparative ESIA and Site Sensitivity Assessment of Four Lagos Mainland PHCs*

Table 7.1 -- Environmental & Social Monitoring Matrix (Four PHC Sites

A. AIR QUALITY MONITORING

Site	Impact	Mitigation	Indicator	Parameter	Method	Frequency	Responsibility	Trigger
Isolo	Refurbishment dust & particulates	Water misting, enclosure netting	$PM_{2.5}$, PM_{10}	µg/m³	Real-time monitor	Daily during civil works	Contractor	>25 µg/m³ ($PM_{2.5}$) >50 µg/m³ (PM_{10})
Oba Salami	High-density urban dust & emissions	Water misting, vehicle no-idling policy	$PM_{2.5}$, PM_{10}	µg/m³	Gravimetric / Real-time	Daily during civil works	Contractor	>25 µg/m³ ($PM_{2.5}$) >50 µg/m³ (PM_{10})
Ojodu	Excavation & earthwork dust	Water spraying, covering stockpiles	PM_{10}	µg/m³	Gravimetric	Weekly	Contractor	>50 µg/m³
Otumara	Site clearing & earthworks dust	Water spraying on dry surfaces	PM_{10}	µg/m³	Gravimetric	Weekly	Contractor	>50 µg/m³
Isolo	Asbestos airborne fibres (confirmed)	Licensed abatement, wet stripping,	Asbestos fibres	f/ml	PCM / TEM air sampling	Continuous during	Abatement Specialist	>0.1 f/ml

		containment				abatement		
Oba Salami	Asbestos airborne fibres (confirmed)	Pre-refurbishment survey, wet containment	Asbestos fibres	f/ml	PCM / TEM air sampling	Continuous during abatement	Abatement Specialist	>0.1 f/ml

B. NOISE MONITORING

Site	Impact	Mitigation	Indicator	Parameter	Method	Frequency	Responsibility	Trigger
Isolo	Renovation noise near clinic areas	Sound-insulated barriers, work scheduling	Noise level	Leq dB(A)	Type 1 sound level meter	Daily during active clinic hours	Contractor	>55 dB(A)
Oba Salami	Demolition & equipment noise	Acoustic barriers, scheduling (08:00–16:00)	Noise level	Leq dB(A)	Type 1 sound level meter	Daily during civil works	Contractor	>55 dB(A)
Ojodu	Heavy machinery & excavation noise	Equipment silencers, maintenance	Noise level	Leq dB(A)	Type 2 sound level meter	Weekly	Contractor	>55 dB(A)
Otumara	Piling & foundation equipment noise	Equipment silencers, limited operational hours	Noise level	Leq dB(A)	Type 2 sound level meter	Weekly	Contractor	>55 dB(A)

C. WATER QUALITY MONITORING

Site	Impact	Mitigation	Indicator	Parameter	Method	Frequency	Responsibility	Trigger
Ojodu	Runoff & soil erosion contamination	Lined perimeter drainage, silt traps, bunds	Surface runoff quality	TSS, pH, TPH	Laboratory analysis	Monthly / Post-heavy rainfall	Contractor	TSS >30 mg/L
Otumara	Lagoon/waterway & shallow aquifer pollution	Bunded chemical containment, subsurface flood barrier	Water quality & groundwater checks	TSS, pH, TPH, Coliforms	Laboratory analysis	Monthly	Contractor	TSS >30 mg/L Visible oil sheen
All Sites (Group 2)	Worker sewage & sanitation effluent	Non-permeable double-chamber septic, portable toilets	Faecal coliforms	CFU/100 ml	Membrane filtration	Monthly	Contractor	>0 CFU/100 ml in ambient runoff/wells

D. SOIL EROSION & SEDIMENT CONTROL

Site	Impact	Mitigation	Indicator	Parameter	Method	Frequency	Responsibility	Trigger
Ojodu	Excavation & slope erosion	Silt fences, slope stabilization	Fence condition	Tears, undercutting, collapse	Visual inspection	Weekly & post-rainfall	Contractor	Any damage or tearing

Otumara	Shoreline & earthwork erosion	Silt fences, ground stabilization matting	Barrier condition	Tears, undercutting, sagging	Visual inspection	Weekly & post-rainfall	Contractor	Any damage or displacement
Ojodu	Sediment runoff to drains	Sediment traps, check dams	Trap condition	% capacity filled	Physical measurement	Weekly	Contractor	>50% capacity full
Otumara	Sediment runoff to water margin	Sediment traps, silt interception	Trap condition	% capacity filled	Physical measurement	Weekly	Contractor	>50% capacity full

E. WASTE MANAGEMENT

Site	Impact	Mitigation	Indicator	Parameter	Method	Frequency	Responsibility	Trigger
All Sites (Group 2)	Poor construction waste segregation	Segregated source bins, waste bays	Waste segregation	% correctly sorted	Daily inspection	Daily	Contractor	<90% correct segregation
Isolo	Asbestos waste handling	Licensed LAWMA containment & transport	Waste manifest	Completeness, LAWMA signatures	Document review	Per disposal batch	Abatement Specialist	Missing manifest or unapproved disposal

Oba Salami	Asbestos waste handling	Licensed LAWMA containment & transport	Waste manifest	Completeness, LAWMA signatures	Document review	Per disposal batch	Abatement Specialist	Missing manifest or unapproved disposal
All Sites (Group 2)	Operational medical waste	LAWMA Healthcare Waste disposal	Manifest / Receipts	LAWMA pickup receipts	Logbook review	Monthly	Facility Operator	Missing pickup receipt or improper storage

F. LABOUR & GBV MONITORING

Site	Impact	Mitigation	Indicator	Parameter	Method	Frequency	Responsibility	Trigger
All Sites (Group 2)	Labour influx & community conflict	Host community recruitment priority	Local hiring quota	% local non-skilled workers	Payroll & HR records	Monthly	Contractor	<70% local recruitment
All Sites (Group 2)	Occupational Health & Safety (OHS)	Mandatory PPE provision & enforcement	PPE compliance	% workers fully compliant	Daily safety walk	Daily	Contractor	<95% compliance
All Sites (Group 2)	GBV / SEA / SH risks	GBV Action Plan, mandatory Code	GBV induction	% workforce signed	Training logs	Monthly	Contractor	<100% trained

		of Conduct		& trained				
All Sites (Group 2)	GBV cases & grievances	Survivor-centered confidential GRM	GBV resolution	% cases referred within 24h & addressed	Confidential GRM log	Monthly	PIU	Any unresolved case or response delay

G. COMMUNITY HEALTH & SAFETY

Site	Impact	Mitigation	Indicator	Parameter	Method	Frequency	Responsibility	Trigger
Isolo	Clinical & public traffic congestion	Traffic flaggers, off-peak deliveries	Traffic incidents / delays	Incidents / blockage complaints	Logbook & GRM	Monthly	Contractor	Any traffic incident or blocked access
Oba Salami	Urban pedestrian & delivery traffic	Traffic flaggers, restricted delivery hours	Traffic incidents / delays	Incidents / blockage complaints	Logbook & GRM	Monthly	Contractor	Any traffic incident or blocked access
All Sites (Group 2)	Unauthorized access & public safety	1.8 m perimeter security fencing, safety signage	Access complaints / breaches	Unauthorized entries	GRM & security logs	Monthly	PIU / Contractor	>1 complaint or breach

H. BIODIVERSITY & LAND/WATER BUFFER MONITORING

Site	Impact	Mitigation	Indicator	Parameter	Method	Frequency	Responsibility	Trigger
Otumara	Lagoon/marshland encroachment	Setback buffer enforcement, boundary fencing	Buffer integrity	Signs of unapproved physical encroachment or runoff	GPS mapping / Visual audit	Weekly	Contractor	Any encroachment beyond site footprint
Ojodu	Natural slope & drainage buffer loss	Perimeter boundary marking, slope protection buffer	Buffer integrity	Earthworks encroachment beyond boundary	GPS mapping / Visual audit	Weekly	Contractor	Any encroachment beyond site footprint
Isolo	Urban vegetation removal	Retain mature site trees where feasible	Site green boundary	Unauthorized tree cutting	Site inspection	Weekly	Contractor	Any unapproved tree removal
Oba Salami	Confined perimeter vegetation disturbance	Strict site footprint containment	Boundary integrity	Encroachment onto adjacent land/greenery	Visual audit	Weekly	Contractor	Any unapproved footprint expansion
All Sites (Group 2)	Post-construction greening & landscaping	Native tree replanting (2:1	Survival rate	% surviving native	Botanical survey	3, 6, and 12 months post-	Contractor / PIU	<80% survival rate

		replacement ratio)		plants/trees		planting		

I. CLIMATE RESILIENCE & SUSTAINABILITY

Site	Impact	Mitigation	Indicator	Parameter	Method	Frequency	Responsibility	Trigger
Otumara	Tidal & flash flooding vulnerability	Elevated Finished Floor Level (+30% climate factor), flood barriers	Structural flood resistance	Water ingress or structural flooding	Post-heavy rain / High-tide inspection	After rain / High-tide events	PIU / Contractor	Any water infiltration into facility
Ojodu	Severe stormwater runoff flooding	Oversized peripheral storm drains, silt traps	Drainage discharge performance	Drainage overflow or silt accumulation	Visual inspection	After heavy rain events	PIU / Contractor	Any drainage blockage or flooding
Isolo	Urban flash flooding & surface ponding	Interconnected site storm drains to municipal line	Drainage capacity	Standing water duration	Visual inspection	After heavy rain events	PIU / Contractor	Standing water >2 hours
Oba Salami	Urban flash flooding &	Connection to main municipal stormwater system	Drainage clear flow	Blockage or localized ponding	Visual inspection	After heavy rain events	PIU / Contractor	Any localized site flooding

	surface ponding							
All Sites (Group 2)	Energy reliability & clean power transition	Solar PV microgrid installation with battery backup	Solar energy output	Generation output (kWh) vs. baseline demand	Digital inverter logs	Monthly	Facility Operator	System operating at <90% expected capacity

Monitoring Summary

Category	Parameters Monitored	Frequency	Responsible
Air Quality	$PM_{2.5}$, PM_{10}, Asbestos fibres	Daily / Continuous / Weekly	Contractor / Abatement Specialist
Noise	Leq dB(A)	Daily / Weekly	Contractor
Water Quality	TSS, pH, TPH, Coliforms	Monthly / Post-rainfall	Contractor
Soil Erosion	Silt fence condition, sediment trap capacity	Weekly / Post-rainfall	Contractor
Waste Management	Segregation compliance, waste manifests	Daily / Monthly	Contractor / Facility Operator
Labour & GBV	Local hiring, PPE compliance, GBV training	Monthly	Contractor / PIU
Community Safety	Traffic incidents, access breaches	Monthly	Contractor / PIU
Biodiversity	Buffer integrity, tree survival	Weekly / 3–12 months	Contractor / PIU
Climate Resilience	Flood resistance, drainage, solar output	After rain events / Monthly	PIU / Contractor / Facility Operator

The monitoring indicators presented in the ESMP are based on the baseline data established in Chapter 4. Where baseline data was not available or incomplete, the relevant values have been identified as 'To

Be Confirmed' in the monitoring matrix. The contractor shall conduct confirmatory baseline monitoring for these parameters prior to the commencement of construction activities to ensure accurate performance monitoring.

7.6 Environmental & Social Management Actions

This section consolidates all site-specific ESMP actions across biophysical, social, and health & safety domains for the four PHC sites in the **Group 2 Mainland Axis**.

7.6.1 Biophysical Management Actions

Actions to protect air quality, urban drainage, shallow water tables, soil integrity, and manage hazardous materials across Group 2:

- **Asbestos Abatement & Hazardous Waste Management:** Engagement of licensed asbestos abatement specialists for wet-stripping, HEPA containment, air monitoring ($\le 0.1 f/ml, and LAWMA-certified disposal (Isolo and Oba Salami).
- **Soil Erosion & Runoff Control:** Installation of lined perimeter drainage, silt fences, and sediment traps prior to excavation to prevent municipal drain blockage and runoff contamination (Ojodu and Otumara).
- **Flood Resilience & Hydrological Protection:** Elevation of Finished Floor Levels (FFL) above 100-year flood lines (+30% climate factor) and installation of non-permeable subsurface flood barriers and double-chamber septic tanks (Otumara and Ojodu).
- **Dust & Noise Mitigation:** Water-misting/sprinkling, perimeter enclosure barrier netting, equipment silencers, and restricting high-noise civil works strictly to daytime hours (08:00–16:00) (All sites, especially high-density Isolo and Oba Salami).

7.6.2 Social Management Actions

Actions to protect local livelihoods, manage labor influx, prevent GBV/SEA/SH, and maintain active clinical and community access:

- **Resettlement & Livelihood Restoration:** Execution of Abbreviated RAPs (ARAP) and Targeted Livelihood Plans for displaced informal commercial vendors and shoreline access users prior to site clearance (Otumara, Ojodu, and Isolo).
- **Labor Influx & Local Content Policy:** Enforcing a minimum 70% local hiring quota for non-skilled workforce from host communities and enforcing signed worker Codes of Conduct (All sites).
- **GBV/SEA/SH Action Plan:** Implementing mandatory monthly worker prevention inductions, survivor-centered referral pathways, and confidential female-led reporting channels (All sites).

- **Clinical Service Continuity & Access:** Phasing renovation works and erecting sound-insulated partitions to maintain uninterrupted primary healthcare delivery during construction (Isolo and Oba Salami).

7.6.3 Health & Safety Management Actions

Actions to protect workers, healthcare patients, and neighboring communities from Occupational Health & Safety (OHS) hazards:

- **Asbestos & Hazardous Dust OHS:** Mandating P3 particulate respirators, Type 5/6 disposable coveralls, decontamination showers, and restricted access zones during abatement (Isolo and Oba Salami).
- **Urban Traffic & Pedestrian Management:** Stationing trained traffic flaggers, placing high-visibility signage, and scheduling heavy material haulage strictly during off-peak hours (10:00–15:00) to keep ambulance pathways clear (Isolo, Oba Salami, and Ojodu).
- **Excavation & Scaffolding Safety:** Mandatory shoring for excavations deeper than 1.5 meters, certified scaffolding riggers, fall arrest harnesses above 2 meters, and protective overhead canopies (Ojodu and Oba Salami).
- **Community Boundary Security:** Construction of secure 1.8 m perimeter safety fencing and clear warning signage in English and Yoruba to prevent unauthorized entry (All sites).

7.7 Stakeholder Engagement & GRM

Stakeholder engagement ensures transparency, community ownership, and seamless public participation throughout the project lifecycle. The Grievance Redress Mechanism (GRM) provides accessible, confidential channels for addressing community concerns.

7.7.1 Stakeholder Engagement

- **Bi-Monthly Community & WDC Consultations:** Regular dialogue with Ward Development Committees (WDCs), LGA officials, youth leaders, and market association representatives.
- **Disclosure of Works Schedules:** Advance notification (minimum 30 days) to health facility users, local business operators, and neighboring residents regarding noisy works, traffic diversions, or temporary vendor relocations.
- **Targeted Livelihood & ARAP Consultations:** Dedicated engagement sessions with affected informal traders and land/shoreline users regarding compensation and relocation options (Otumara, Ojodu, and Isolo).
- **Informed Healthcare Stakeholder Alignment:** Continuous coordination with PHC medical directors and local health authorities to ensure construction does not compromise emergency medical access.

7.7.2 Grievance Redress Mechanism (GRM)

The GRM provides a confidential, accessible 4-tier intake and resolution framework:

- **Multiple Intake Channels:** On-site suggestion boxes, dedicated phone hotline, community liaison officers (CLOs), and health facility administrative desks.
- **GBV-Sensitive Reporting Pathways:** Direct, confidential intake protocol with survivor-centered medical and psychosocial referral pathways.
- **Strict Resolution Timelines:** Formal acknowledgment of complaints within 48 hours and full resolution within 14 business days.
- **Audit & Reporting:** Monthly logging of grievances and quarterly submission of GRM resolution metrics to AfDB and the PIU.

7.8 Capacity Building & Training

Capacity-building programs will be delivered prior to construction and during operational transitions to ensure all stakeholders effectively execute their ESMP obligations:

- **Contractor E&S & C-ESMP Orientation:** Training contractor personnel on C-ESMP execution, site environmental controls, waste management, dust suppression, and local labor rules.
- **Asbestos Safety & Hazardous Material Protocols:** Specialist OHS training for abatement crews on wet-stripping containment, PPE use, air fiber monitoring, and LAWMA manifest tracking (Isolo and Oba Salami).
- **GBV/SEA/SH & Child Protection:** Mandatory workshops for all construction workers, site supervisors, and CLOs on non-discrimination, anti-harassment, and code-of-conduct enforcement.
- **Healthcare Waste Management & IPC:** Training operational PHC medical staff at Isolo, Oba Salami, Ojodu, and Otumara on WHO/LAWMA waste segregation, chemical safety, and infection prevention.
- **Emergency Response & Flood Preparedness:** Training site workers and facility staff on spill containment, fire safety, structural failure response, and extreme wet-weather flood protocols.

7.9 Reporting Framework

Reporting ensures transparency, accountability, regulatory compliance, and continuous performance improvement across all four PHC sites in the Group 2 Mainland Axis (Isolo, Oba Salami, Ojodu, and Otumara).

7.9.1 Reporting Requirements

- **Contractor →:** Weekly E&S reports

- **Facility Operator →PIU:** Monthly operational reports
- **PIU →AfDB/FMEnv:** Monthly and annual reports
- **Independent Environmental and Social Monitor (IESM) →AfDB:** Monthly audit reports

Reports Include

- Monitoring data
- GRM statistics
- Incidents and corrective actions
- Compliance status
- Training records

7.9.2 Essential Elements of E&S Reports

All safeguard monitoring reports generated across the Group 2 Mainland Axis must incorporate the following core components:

- **Environmental & Social Monitoring Data:** Quantitative laboratory and field testing results for air quality PM_{10} $PM_{2.5}$, asbestos fiber concentrations, noise levels (Leq), surface/groundwater quality parameters (TSS, BOD, TPH, Coliforms), and soil erosion assessments.
- **Grievance Redress Mechanism (GRM) Statistics:** Complete breakdown of received complaints by channel, category (e.g., noise, traffic, vendor displacement, labor disputes), gender, resolution status, and average resolution timeframe (≤ 14 days target).
- **Incident & Corrective Action Tracking:** Detailed log of any OHS accidents, near-misses, environmental exceedances (e.g., dust or fiber breaches), or community conflicts, including immediate root-cause investigations, executed corrective actions, and verification status.
- **Regulatory & Safeguard Compliance Status:** Current status of statutory environmental permits, LASEPA/LAWMA approvals, C-ESMP approvals, and alignment with AfDB Integrated Safeguards System (ISS OS1–OS10).
- **Capacity Building & Training Records:** Documentation of all training sessions held during the reporting period, including worker GBV/Code-of-Conduct inductions, asbestos OHS modules, medical waste IPC workshops, worker attendance counts, and gender disaggregation.
- **Resettlement & Livelihood Monitoring Updates:** Implementation progress of Abbreviated RAPs (ARAPs) and Targeted Livelihood Restoration Plans for affected informal commercial vendors and shoreline access users at Isolo, Ojodu, and Otumara.

7.10 Emergency Preparedness and Response Plan (EPRP)

7.10.1 Emergency Scenarios

Table 7.2 – Emergency Scenarios (Group 2 Mainland Axis)

Emergency Scenario	Likelihood	Potential Consequences	Affected Sites	Responsible
Fire (construction site, facility)	Medium (construction – electrical, welding, hot works, fuel storage; operation – electrical, solar PV systems, laboratory)	Injury, fatality, property damage, essential clinical service disruption	All 4 sites (Isolo, Oba Salami, Ojodu, Otumara)	Contractor (construction phase); Facility Operator (operational phase)
Flood (tidal high water, heavy rain, blocked urban drains)	High (rainy season April–October; high-risk sites: Otumara – lagoon buffer/high water table; Ojodu – site slope runoff; Isolo & Oba Salami – urban flash flooding)	Facility inundation, equipment damage, service disruption, injury, soil/water contamination	Otumara, Ojodu, Isolo, Oba Salami	Contractor (construction – temporary silt/storm drainage); Facility Operator (operation – elevated FFL maintenance, flood barriers, elevated electricals)
Medical emergency (worker injury, community member injury)	Medium (construction – OHS risks, structural demolition, scaffolding fall	Injury, fatality	All 4 sites (Isolo, Oba Salami, Ojodu, Otumara)	Contractor (first aid station, rapid transport to nearest referral

	hazards; operation – clinical emergencies)			facility); Facility Operator (clinical emergency care)
Chemical & Hazardous Material Spill (fuel, oil, hazardous reagents)	Medium (construction – fuel storage, equipment refueling; operation – laboratory reagents, cleaning chemicals)	Environmental contamination (soil, municipal drain, surface/groundwater), worker injury	All 4 sites (especially Otumara & Ojodu – high water table / drainage connections)	Contractor (on-site spill kits, bunded containment); Facility Operator (chemical spill kits, IPC containment)
Asbestos Fiber Release (during renovation/stripping if containment fails)	Low (with strict abatement controls) but High consequence	Worker and public exposure to airborne fibers → severe respiratory health risks / long-term latency hazards	Isolo, Oba Salami (refurbishment sites with confirmed ACM)	Licensed Asbestos Abatement Specialist / Contractor
GBV / SEA / SH Incident (workforce-community interface)	Medium (if unmitigated during civil works)	Survivor trauma, community tension, project disruption, reputational damage	All 4 sites (especially Isolo & Oba Salami – dense urban interface; Ojodu & Otumara – labor influx)	Contractor (worker Code of Conduct enforcement); PIU (GBV Action Plan, confidential referral pathways)
Community Protest / Dispute (over	Medium (especially Isolo	Project shutdown, property damage,	Isolo, Ojodu, Otumara	PIU (ARAP execution,

vendor displacement, local labor quota, ARAP, or access)	– entrance vendors; Ojodu & Otumara – ARAP/informal access PAPs)	work delay, reputational damage		local labor recruitment verification, GRM, community liaison)
Security Incident (theft, vandalism, trespass)	Medium (theft/vandalism – all sites; trespass/security risks – dense urban areas)	Property loss, equipment damage, project delay, injury	All 4 sites (Isolo, Oba Salami, Ojodu, Otumara)	Contractor (24/7 security guards, 1.8 m perimeter fencing, site lighting); PIU (coordination with local law enforcement)

7.10.2 Emergency Response Procedures

A. Fire Emergency Response

Step	Action	Responsible
1	Raise immediate alarm (shout "Fire!", trigger manual call point, ring emergency bell).	Anyone discovering the fire
2	Evacuate the site/facility immediately via designated, clear escape routes to the primary Assembly Point.	All workers, healthcare personnel, and visitors
3	Contact the Lagos State Fire and Rescue Service (LASG Fire Service: 112 / 767) and nearby emergency responders.	Site Safety Officer / Facility Manager
4	Attempt to extinguish minor, localized fires only if safe and trained (CO_2 for electrical, Dry Powder for fuel/chemical, Water for solid combustibles).	Designated Fire Marshals
5	Do not re-enter the site or structure if the fire is spreading, uncontained, or generating thick smoke.	All personnel
6	Conduct a full roll-call at the Assembly Point to account for all workers, patients, and visitors.	Site Supervisor / Safety Officer

7	Administer immediate first aid for burns and smoke inhalation while awaiting emergency medical personnel.	Trained Site First Aider
8	Formally report the incident to the PIU (LSMoH) within 12 hours and AfDB within 24 hours.	Contractor / PIU

B. Flood Emergency Response (Tidal, Flash, and Drainage Inundation)

Step	Action	Responsible
1	Monitor daily weather forecasts, tidal patterns (Otumara lagoon buffer), and seasonal rain alerts (April–October).	Site Safety Officer / Facility Manager
2	If heavy rainfall/flood alert is issued: clear municipal drain connections, move mobile equipment to elevated ground, and deploy temporary sandbags/flood barriers (especially at Otumara and Ojodu).	Contractor / Site Crew
3	If active flooding occurs: immediately isolate main electrical breakers and solar PV battery microgrids to prevent electrocution hazards.	Certified Site Electrician / Facility Engineer
4	Evacuate site personnel and patients safely to designated higher ground Assembly Points.	All personnel
5	Do not walk, wade, or drive through standing or moving floodwaters due to hidden hazards, open excavation trenches, and waterborne pathogens.	All personnel
6	Post-flood recovery: inspect structural stability, verify electrical safety, pump out standing water, disinfect affected areas (sewage/mud contamination), and inspect solar PV systems before power restoration.	Site Supervisor / Facility Operator / LASEPA
7	Submit formal Flood Incident and Material Damage Report to PIU and AfDB within 24 hours.	Contractor / PIU / Facility Operator

C. Chemical & Hazardous Material Spill Response (Fuel, Oils, Solvents, Reagents)

Step	Action	Responsible
1	Stop the source if safe to do so, raise spill alert, and evacuate non-essential personnel to a minimum 10-meter radius.	Anyone discovering the spill

2	Don full chemical PPE (nitrile/neoprene gloves, safety goggles, chemical-resistant apron, and organic vapor respirator).	Designated Spill Responder
3	Deploy site spill kit: place absorbent booms and socks around the perimeter to block entry into municipal storm drains, soil, or water bodies (Otumara lagoon buffer / Ojodu drainage).	Designated Spill Responder
4	Apply absorbent pads, pillows, or granules directly onto the liquid pool to absorb the spill completely.	Designated Spill Responder
5	Collect spent absorbents, contaminated soil, and protective gear; place them into heavy-duty, labeled hazardous waste bags/drums.	Designated Spill Responder
6	Store hazardous waste in bunded temporary storage and arrange off-site disposal through LAWMA-licensed hazardous waste contractors.	Contractor
7	If fuel or chemicals reach municipal drains or open water, immediately notify LASEPA and NOSDRA within 24 hours.	Contractor / PIU
8	Submit a detailed Chemical Spill Incident Report to PIU and AfDB within 24 hours.	Contractor

D. GBV / SEA / SH Incident Response (Gender-Based Violence, Sexual Exploitation, Abuse & Harassment)

Step	Action	Responsible
1	Ensure immediate physical safety and emotional security of the survivor; move to a private, safe space away from the alleged perpetrator.	Any staff / CLO
2	Refer survivor immediately for medical care (within 72 hours for Post-Exposure Prophylaxis [PEP] for HIV prevention, emergency contraception, and clinical treatment).	Facility Manager / First Aider
3	Notify the female GRM Focal Point or PIU GBV Specialist strictly via confidential channels, respecting survivor consent.	GRM Focal Point / CLO
4	Facilitate confidential referral to specialized psychosocial support and survivor-centered counseling (e.g., Mirabel Centre, LASG Domestic and Sexual Violence Agency [DSVA]).	PIU GBV Specialist
5	Offer access to free legal aid services (LASG Office of the Public Defender [OPD], legal NGOs) if the survivor chooses to pursue legal action.	PIU GBV Specialist

6	Conduct an administrative investigation strictly respecting survivor confidentiality and choice (without requiring compulsory survivor testimony).	PIU / Contractor Management
7	Enforce disciplinary sanctions against perpetrators (immediate worker removal, contract termination, employment blacklist, and referral to law enforcement).	Contractor / PIU
8	Formally notify AfDB of serious incidents (sexual violence/assault) within 48 hours using anonymized survivor-centered details.	PIU
9	Enforce strict non-retaliation policies; protect the survivor, whistleblower, and witnesses from any form of harassment or intimidation.	All personnel / Contractor / PIU

E. Asbestos Release Incident Response (Isolo and Oba Salami Refurbishment Sites)

Step	Action	Responsible
1	Stop all civil and refurbishment work immediately in the affected zone.	Site Supervisor / Abatement Manager
2	Evacuate personnel and restrict access to a minimum 100-meter radius around the containment perimeter.	Site Supervisor / Safety Officer
3	Don full specialized hazardous PPE (Type 5/6 disposable coverall, P3 particulate respirator, decontamination boots).	Licensed Asbestos Abatement Specialist
4	Enhance negative pressure enclosure containment, seal any breaches, and activate continuous HEPA air filtration.	Licensed Asbestos Abatement Specialist
5	Conduct continuous Phase Contrast Microscopy (PCM) air fiber sampling at containment boundaries (action threshold: >0.1 f/ml).	Licensed Air Monitoring Consultant
6	If air fiber concentration exceeds 0.1 f/ml, maintain work stoppage and upgrade structural negative pressure containment until levels drop below threshold.	Licensed Asbestos Abatement Specialist
7	Formally notify the PIU (LSMoH), LASEPA, and NESREA within 12 hours.	PIU / Contractor
8	Initiate medical surveillance (baseline chest X-ray, spirometry/lung function tests) for exposed workers.	Certified Occupational Health Physician
9	Submit an official Incident Notification Report to AfDB within 24 hours.	PIU

7.10.3 Emergency Equipment and Supplies

Table 7.3 – Emergency Equipment and Supplies

Equipment / Supply	Quantity per Site (Construction Phase)	Quantity per Facility (Operational Phase)	Responsible Entity	Inspection Frequency
Fire Extinguishers (Appropriate types: CO_2, Dry Powder, Water)	2–5 units (based on site footprint at Isolo, Oba Salami, Ojodu, Otumara)	5–10 units (stationed across clinical departments, lab, PV room)	Contractor / Facility Operator	Monthly
First Aid Kits (Fully stocked: sterile bandages, antiseptics, gloves, splints)	1 per 50 workers	1 per floor / department	Contractor / Facility Operator	Weekly
Chemical & Hydrocarbon Spill Kits (Absorbent booms, pads, disposal bags)	1 per fuel storage / refueling point; 1 per heavy equipment bay	1 per laboratory; 1 per hazardous chemical store	Contractor / Facility Operator	Monthly
Emergency Eyewash & Decontamination Station	1 per fuel/chemical storage bay (plus decontamination units at Isolo/Oba Salami)	1 per clinical laboratory; 1 per chemical waste area	Contractor / Facility Operator	Monthly
Emergency Contact List (Posted in English and Yoruba)	1 per site entrance/office (LASG Emergency 112/767, Fire, Police, LASEPA, PIU)	1 per facility reception and administrative desk	Contractor / Facility Operator	Quarterly (Update)
Designated Assembly Point	1 per site (clearly demarcated and signposted)	1 per facility grounds	Contractor / Facility Operator	Monthly (Verify clear access)

Emergency Backup Lighting & Exit Signs	Not required (daytime construction only)	Required (battery backup exit signs and solar-backed emergency lights)	Facility Operator	Monthly
Emergency Alarm System (Sirens, manual fire alarm bells)	1 per site	1 per facility building	Contractor / Facility Operator	Monthly (Test)

7.10.4 Emergency Drills

Table 7.4 – Emergency Drills

Drill Type	Frequency	Participants	Responsible Entity
Fire Emergency Drill	Quarterly (Construction Phase); Annually (Operational Phase)	All site workers, subcontractors, and facility clinical staff	Contractor (Construction); Facility Operator (Operation)
Chemical & Hydrocarbon Spill Drill	Annually (Construction Phase)	Designated spill response teams and site supervisors	Contractor
General Site Evacuation Drill	Annually (Construction Phase)	All workforce members, site visitors, and security personnel	Contractor
GBV / SEA / SH Referral Simulation Drill	Annually (Construction & Operational Phases)	GRM Focal Points, PIU GBV Specialist, CLOs, local service providers (Mirabel Centre, DSVA)	PIU / GBV Specialist
Flood & Heavy Weather Readiness Drill	Annually (Pre-rainy season – March)	All site workers (especially Otumara lagoon site & Ojodu excavation teams)	Contractor / Facility Operator

7.10.5 Emergency Contact List

Table 7.5 – Emergency Contact List (Group 2 Mainland Axis – To be customized and posted per site)

Emergency Service	Contact Number	Location (Nearest Station / Facility)	Notes
Lagos State Emergency Response (Fire, Police, Ambulance)	112 / 767	Toll-Free Central Emergency Response Centre (LASEMA Response Unit)	National/State primary emergency call number for all emergency services.
Lagos State Fire and Rescue Service (LASG)	112 / 0803 323 5891	Nearest Stations: Ikeja Fire Station (Ojodu), Isolo Fire Station (Isolo/Oba Salami), Ebute Metta Fire Station (Otumara)	Immediate response for structural, electrical, and site fire emergencies.
Nigeria Police Force (NPF)	112 / 0806 158 1938	Nearest Divisions: Ojodu Police Station, Isolo Police Division, Denton Police Station (Ebute Metta / Otumara)	Site security incidents, severe trespass, theft, civil disturbance, and traffic accidents.
LASEPA Emergency (Pollution & Spills)	0802 300 2382 / 0818 200 6813	LASEPA Headquarters, LASEPA Complex, Alausa, Ikeja	Mandatory reporting for hazardous spills, severe chemical leaks, air/asbestos contamination, or illegal dumping.
NOSDRA (Oil / Fuel Spill Reporting)	0805 700 8000	NOSDRA Lagos Zonal Office, Victoria Island, Lagos	Mandatory reporting for fuel or petroleum hydrocarbon spills impacting soil or water bodies (especially Otumara lagoon buffer).
PIU Safeguards Team (LSMoH)	*To be finalized prior to site mobilization*	Ministry of Health, Lagos State Secretariat, Alausa, Ikeja	24-hour dedicated emergency hotline for C-ESMP non-compliance, severe accidents, or incident escalations.

GBV Referral – Medical Care (Within 72 Hours)	112 / 08000 333 333	Nearest Tertiary/Secondary Care Facilities: LASUTH (Ikeja), Isolo General Hospital, Mainland Hospital (Yaba)	Immediate Post-Exposure Prophylaxis (PEP) for HIV, emergency contraception, and clinical treatment for sexual assault survivors.
GBV Referral – Psychosocial Support	0818 700 0000 / 08000 333 333	Mirabel Centre (LASUTH, Ikeja) / Lagos State Domestic and Sexual Violence Agency (DSVA)	Confidential psychological counseling, trauma support, and case management.
GBV Referral – Legal Aid & Protection	0813 796 0048 / 08000 333 333	Lagos State Domestic and Sexual Violence Agency (DSVA) / LASG Office of the Public Defender (OPD)	Survivor protection, legal representation, and law enforcement escalation.
Nearest Primary / General Hospitals (Medical Emergencies)	*Site-Specific Contacts*	Ojodu PHC: LASUTH / Ojodu PHC Isolo PHC: Isolo General Hospital Oba Salami PHC: Harvey Road Health Centre / Mainland Hospital, Yaba Otumara PHC: Lagos Mainland Hospital, Yaba / LUTH	Immediate treatment for severe worker OHS injuries, structural collapse casualties, or acute clinical emergencies.

7.11 ESMP Review And Update Mechanism

7.11.1 Review Triggers

The ESMP shall be reviewed and updated under the following circumstances:

Table 7.6: Review Triggers

Trigger	Responsible	Timeline	Approval Required
Annual review (scheduled)	PIU (with input from contractors, facility operators, IESM)	Annually (by end of Q1)	AfDB (if significant changes)
After a major incident (fatality, community protest, major spill)	PIU (with IESM)	Within 30 days of incident	AfDB
After a significant change in project scope (new sites, major design changes, new activities)	PIU	Within 30 days of change approval	AfDB
After a change in regulations (FMEnv, NESREA, LASEPA, AfDB ISS update)	PIU	Within 90 days of regulation change	AfDB (if significant)
Based on monitoring results (systematic non-compliance, exceedances not resolved)	PIU (with IESM)	Within 60 days of trend identification	AfDB (if significant)
Based on stakeholder feedback (GRM trends, community complaints)	PIU	Within 60 days of trend identification	AfDB (if significant)

7.11.2 Review Process

Table 7.7: Review Process

Step	Action	Responsible	Timeline
1	Trigger review (as above)	PIU / IESM / AfDB	As needed
2	Assemble review team (PIU E&S staff, contractor E&S officer, facility operator representative, IESM)	PIU	Within 7 days of trigger
3	Review ESMP against: monitoring data (KPIs), incident reports, GRM logs, IESM audit reports, stakeholder feedback, regulatory changes, project changes	Review team	Within 14 days

4	Identify gaps (mitigation measures not effective, new risks, obsolete measures)	Review team	Within 14 days
5	Propose revisions (updated mitigation measures, monitoring indicators, responsibilities, budget)	Review team	Within 21 days
6	Draft revised ESMP	PIU	Within 30 days
7	Submit to AfDB for review (if significant changes)	PIU	Within 7 days of draft completion
8	Approve revised ESMP	AfDB	Within 30 days of submission (if significant changes)
9	Communicate revised ESMP to contractors, facility operators, IESM, regulators	PIU	Within 7 days of approval
10	Update ESMP document (version control)	PIU	Within 7 days of approval

7.11.3 Version Control

Table 7.8 Version Control

Version	Date	Author	Changes	Approval
1.0	March 2026	ESIA consultant (MDS)	Initial ESMP (as part of ESIA)	FMEnv (EIA Certificate), AfDB
1.1	*TBD (after annual review)*	PIU	*TBD*	AfDB (if significant)

7.12 ESMP Budget & Implementation Schedule

This section outlines the consolidated budget categories, cost estimates, and implementation schedule required for ESMP execution across the four PHC sites in the Group 2 Mainland Axis: Isolo, Oba Salami, Ojodu, and Otumara.

Budget Categories

- **Monitoring Equipment & Testing:** Air quality, noise, soil, and surface/groundwater testing.
- **Asbestos Abatement & Hazardous Waste Handling:** Licensed abatement, negative-pressure containment, and air fiber monitoring (Isolo and Oba Salami).
- **Livelihood Offsets & Shoreline Restoration:** Targeted livelihood assistance for shoreline access and informal land/space users (Otumara, Ojodu, and Isolo).

- **Abbreviated RAP (ARAP) Implementation:** Valuation, compensation, and vendor relocation assistance (Otumara, Ojodu, and Isolo).
- **GBV / SEA / SH Action Plan Execution:** Hotline setup, survivor referral pathways, and monthly worker inductions.
- **Training and Capacity Building:** Institutional capacity building for PIU, contractors, and PHC clinical staff.
- **Waste Management:** LAWMA healthcare waste contracts and construction debris disposal manifests.
- **Independent Environmental & Social Monitor (IESM) Audits:** Third-party quarterly compliance audits.

Implementation Schedule

- **Pre-Construction Phase:** ARAP compensation disbursement (Otumara, Ojodu, Isolo), comprehensive asbestos surveys and abatement contracting (Isolo, Oba Salami), C-ESMP review and approval, and statutory permitting.
- **Construction Phase:** Full C-ESMP execution, traffic/pedestrian flaggers, dust and noise suppression, erosion/siltation control, daily OHS enforcement, and bi-monthly environmental monitoring.
- **Operational Phase:** Execution of the Hazardous and Medical Waste Management Plan (HMWMP), Infection Prevention and Control (IPC), solar PV/WASH maintenance, and wastewater containment.
- **Annual Review:** ESMP performance review, GRM log audit, and updating management frameworks as required.

7.12.1 Site-Specific ESMP Budget Breakdown

Table 7.9 provides a detailed breakdown of ESMP costs disaggregated by site, reflecting the distinct environmental and social sensitivities of each of the four Mainland Axis PHC facilities (Isolo, Ojodu, Oba Salami, and Otumara), scaled to total ₦305,000,000 (US$203,333).

Table 7.9: Site-Specific ESMP Budget Breakdown by Component (Group 2 Mainland Axis)

ESMP Component	Isolo PHC (₦)	Ojodu PHC (₦)	Oba Salami PHC (₦)	Otumara PHC (₦)	Total (₦)	Total (US$)	Responsible
Air Quality Monitoring	2,000,000	2,000,000	2,000,000	2,000,000	8,000,000	5,333	Contractor / PIU
Noise Monitoring	1,000,000	1,000,000	1,000,000	1,000,000	4,000,000	2,667	Contractor
Water & Groundwater Monitoring	1,500,000	1,500,000	1,500,000	1,500,000	6,000,000	4,000	Contractor
Asbestos Survey & Abatement	10,000,000	—	15,000,000	10,000,000	35,000,000	23,333	Specialist Contractor
Asbestos PPE	700,000	500,000	800,000	500,000	2,500,000	1,667	Contractor
Wetland & Shoreline Protection	—	—	—	1,000,000	1,000,000	667	Contractor / PIU
Tree Replanting & Landscaping	1,000,000	1,000,000	2,000,000	1,000,000	5,000,000	3,333	Contractor / PIU
Erosion & Siltation Control	2,000,000	2,000,000	2,000,000	1,500,000	7,500,000	5,000	Contractor
Dust & Emission Control	800,000	600,000	1,000,000	600,000	3,000,000	2,000	Contractor
Traffic Management	1,500,000	1,000,000	1,500,000	1,000,000	5,000,000	3,333	Contractor
Fuel Spill Prevention	1,000,000	1,000,000	1,500,000	1,000,000	4,500,000	3,000	Contractor
Waste Management (LAWMA)	1,500,000	1,500,000	1,500,000	1,500,000	6,000,000	4,000	Facility Operator
Hazardous Waste Disposal	3,000,000	2,000,000	3,000,000	2,000,000	10,000,000	6,667	Contractor

Abbreviated RAP (ARAP)	7,000,000	5,000,000	8,000,000	5,000,000	25,000,000	16,667	PIU
GBV/SEA/SH Action Plan	800,000	700,000	800,000	700,000	3,000,000	2,000	PIU / Contractor
Labour Influx Management	800,000	700,000	800,000	700,000	3,000,000	2,000	Contractor
Stakeholder Engagement	1,500,000	1,000,000	1,500,000	1,000,000	5,000,000	3,333	PIU
GRM Implementation	700,000	500,000	800,000	500,000	2,500,000	1,667	PIU
IPC & HMWMP Training	800,000	700,000	800,000	700,000	3,000,000	2,000	Facility Operator
IESM Independent Audits	5,000,000	5,000,000	5,000,000	5,000,000	20,000,000	13,333	IESM
Climate Resilience Measures	4,000,000	4,000,000	4,000,000	4,000,000	16,000,000	10,667	Contractor / PIU
Solar PV & Microgrid Maint.	500,000	500,000	500,000	500,000	2,000,000	1,333	Facility Operator
Sub-Total	**47,300,000**	**37,000,000**	**52,200,000**	**38,000,000**	**174,500,000**	**116,333**	—
Contingency (10%)	4,730,000	3,700,000	5,220,000	3,800,000	17,450,000	11,633	PIU
Sub-Total with Contingency	**52,030,000**	**40,700,000**	**57,420,000**	**41,800,000**	**191,950,000**	**127,967**	—
Management & Supervision (approx. 59%)	27,970,000	37,300,000	16,580,000	31,200,000	113,050,000	75,366	PIU
TOTAL	**80,000,000**	**78,000,000**	**74,000,000**	**73,000,000**	**305,000,000**	**203,333**	—

Note: Values are approximate and based on Nigerian market rates (2026). Exchange rate: US$1 = ₦1,500 (indicative).

7.12.2 Site-Specific Budget Summary

Table 7.10 provides a summary of the Site-Specific ESMP Budget for the Mainland Axis Group 2 facilities.

Table 7.10: Site-Specific ESMP Budget Summary

Site	Construction Phase (₦)	Construction Phase (US$)	Annual Operational (₦)	Annual Operational (US$)
Isolo PHC	80,000,000	53,333	9,000,000	6,000
Ojodu PHC	78,000,000	52,000	8,500,000	5,667
Oba Salami PHC	74,000,000	49,333	8,000,000	5,333
Otumara PHC	73,000,000	48,667	7,500,000	5,000
TOTAL	**305,000,000**	**203,333**	**33,000,000**	**22,000**

7.12.3 Site-Specific Justification for Budget Variations

Site	Key Cost Drivers	Rationale
Isolo PHC	Traffic Management Plan; Asbestos abatement; High population density mitigation; Perimeter security	Dense urban setting; high patient foot traffic; heavy vehicular congestion requiring active management
Ojodu PHC	Drainage upgrades; Tree replanting/landscaping; Erosion & siltation control; High stormwater runoff management	Commercial-residential mix zone; prone to local surface water pooling and high runoff volumes
Oba Salami PHC	Extensive asbestos and roof sheeting abatement; Traffic & pedestrian controls; Hazardous waste handling	Older infrastructural layout with confirmed/suspected ACM roofing components requiring specialist handling
Otumara PHC	Wetland/shoreline protection; Fuel/chemical spill prevention; Flood-resilient drainage; Erosion controls	Low-lying, water-adjacent settlement context vulnerable to tidal impacts and localized water table constraints

7.12.4 Implementation Schedule (Summary)

Pre-Construction (Months 1--3)

- **ARAP Implementation:** Final valuation, compensation disbursement, and vendor relocation assistance (Otumara, Ojodu, Isolo).
- **Asbestos Surveys & Planning:** Structural ACM surveys and specialist abatement contracting (Isolo, Oba Salami).
- **C-ESMP Approval:** Review and formal approval of Contractor ESMPs for all four Group 2 sites.
- **Stakeholder Engagement:** Information disclosure and consultations with host Ward Development Committees (WDCs).
- **GRM Activation:** Setup of 4-tier Grievance Redress Mechanism, toll-free hotlines, and local complaint boxes.

Construction (Months 4--18)

- **Full ESMP Implementation:** Execution of C-ESMP, dust misting, noise barriers, excavation shoring, and floor level elevation.
- **Environmental & Safety Monitoring:** Periodic testing for air quality, noise, surface/groundwater, soil, and asbestos airborne fibers (≤0.1f/ml).
- **GBV/SEA/SH Training:** Monthly worker inductions, Code of Conduct enforcement, and confidential referral pathway monitoring.
- **Traffic & Access Management:** Flag person deployment, access barriers, and delivery scheduling outside clinic hours (Isolo, Oba Salami, Ojodu).
- **Flood & Soil Protection:** Lined drainage, silt traps, check dams, and ground stabilization matting (**Otumara, Ojodu**).
- **Quarterly IESM Audits:** Independent third-party compliance verification and reporting.

Operation (Year 2 onward)

- **HMWMP Implementation:** Color-coded medical waste segregation and collection via LAWMA-licensed vendors.
- **IPC Compliance:** Execution of Infection Prevention and Control protocols across clinical operations.
- **Wastewater & WASH Management:** Routine inspection and pumping of non-permeable septic systems and drainage.
- **Solar PV & Infrastructure Maintenance:** Solar microgrid servicing, inverter checks, and panel cleaning.
- **Quarterly & Annual Reviews:** Quarterly reporting to the PIU, operational GRM tracking, and annual ESMP reviews.

7.13 Conclusion and Summary of Environmental and Social Management Plan (ESMP)

Chapter 7 has presented the complete Environmental and Social Management Plan (ESMP) for the four PHC facilities in the Group 2 Mainland Axis—Isolo, Oba Salami, Ojodu, and Otumara. The ESMP translates the mitigation measures identified in Chapter 6 into a practical, structured, and enforceable framework that ensures environmental protection, social responsibility, and health and safety performance throughout all phases of the project.

The chapter outlines the institutional responsibilities, monitoring indicators, monitoring locations, corrective action procedures, management actions, stakeholder engagement processes, capacity-building requirements, reporting obligations, and a costed implementation schedule. Together, these components provide a clear roadmap for achieving compliance with AfDB ISS, FMEnv, NESREA, LASEPA, IFC Performance Standards, WHO IPC guidelines, and ILO labour and OHS conventions.

The ESMP is site-specific, reflecting the unique sensitivities of each PHC location:

- **Isolo:** Confirmed asbestos-containing materials (ACM) during structural refurbishment, high-density traffic corridor, active clinical service continuity management, and temporary vendor relocation.
- **Oba Salami:** Asbestos risk, confined urban footprint, structural scaffolding safety, municipal drainage connection siltation, and GBV/SEA/SH management.
- **Ojodu:** Heavy excavation soil erosion/runoff control, Abbreviated RAP (ARAP) for informal space users, haulage traffic management, and 2:1 native tree replacement planting.
- **Otumara:** High water table and tidal flood protection (elevated Finished Floor Levels +30% climate factor), subsurface non-permeable containment, ground stabilization matting, and targeted livelihood restoration for informal shoreline access.

The monitoring plan provides a robust mechanism for tracking environmental and social performance through measurable indicators, defined responsibilities, and clear corrective action triggers. This ensures that deviations are identified early and addressed promptly, maintaining compliance and safeguarding communities and ecosystems.

The ESMP also emphasises stakeholder engagement, GRM functionality, and capacity building, recognising that effective environmental and social management depends on continuous communication, transparency, and institutional strengthening.

Finally, the costed ESMP budget and implementation schedule ensure that adequate resources and timelines are allocated to support full compliance and long-term sustainability.

Overall, the ESMP provides a comprehensive, actionable, and auditable framework that will guide the Lagos State Ministry of Health, contractors, facility operators, regulators, and the Independent

Environmental and Social Monitor (IESM) in delivering a project that is environmentally sound, socially responsible, and aligned with international best practice.

7.14 Contractor ESMS Requirements

7.14.1 Contractor ESMP (C-ESMP)

All contractors (including sub-contractors) must prepare a Contractor Environmental and Social Management Plan (C-ESMP) based on this ESMP and tailored to their specific site(s) and activities across the Group 2 Mainland Axis.

C-ESMP Content Requirements

Section	Content
Project Description	Site(s) (Group 2 Mainland Axis facilities: Isolo, Oba Salami, Ojodu, Otumara), scope of work (clearing, earthworks, foundation, structural, MEP, finishing, equipment installation), duration, workforce size.
Environmental Management	Dust control plan (water spraying frequency, misting equipment); noise management plan (hours, barriers, notification); water quality protection plan (silt fences, sediment traps, spill prevention, concrete wash water); waste management plan (segregation, recycling, disposal – including asbestos at Isolo and Oba Salami); erosion and sediment control plan (silt fences, check dams, revegetation); spill prevention and response plan (bunded storage, spill kits, responder training).
Social Management	Labour influx management plan (local hiring target (≥ 70% unskilled), worker accommodation rules (if applicable), community liaison); OHS plan (HIRA, safe work procedures, scaffolding safety, PPE, training, incident reporting, first aid, medical surveillance); GBV/SEA/SH Action Plan (Code of Conduct, mandatory inductions, confidential reporting, female-led referral pathways, sanctions); community health and safety plan (Traffic Management Plan, access management, flaggers, community awareness); GRM (worker and community).
Management Systems	Roles and responsibilities (designated E&S officer, community liaison officer, OHS officer, female GBV focal point); training plan (induction, monthly toolbox talks, specialised training (asbestos, spill response, GBV)); monitoring plan (air, noise, water, soil, waste, OHS, GRM – methods, frequency, locations, corrective action triggers); reporting plan (weekly reports to PIU, incident reporting within 24 hours); corrective action procedure; record keeping.

Emergency Response	EPRP (fire, tidal/flash flood, spill, asbestos leakage, medical emergency, GBV incident, structural collapse/security incident) – site-specific; emergency equipment (fire extinguishers, first aid kit, chemical spill kit, life jackets for Otumara water channels); emergency contacts; drill schedule.

7.14.2 Contractor ESMP (C-ESMP) Approval Process

Step	Action	Responsible	Timeline
1	Contractor submits site-specific C-ESMP for all 4 Group 2 facilities (Isolo, Oba Salami, Ojodu, Otumara) to PIU	Contractor	At bid stage (or within 2 weeks of contract award)
2	PIU reviews C-ESMP for completeness, site alignment, and compliance with the main ESMP	PIU	Within 2 weeks of submission
3	PIU issues formal request for revisions (if gaps or insufficient site mitigation are identified)	PIU	Within 2 weeks
4	Contractor resubmits revised C-ESMP incorporating all PIU comments	Contractor	Within 1 week of receiving comments
5	PIU formally approves C-ESMP (or escalates to AfDB if major compliance gaps persist)	PIU / AfDB	Within 1 week
6	Contractor mobilises to site only after obtaining formal C-ESMP approval	Contractor	Pre-mobilisation milestone

7.14.3 Contractor E&S Performance Monitoring

Indicator	Target	Monitoring Method	Sanction for Non-Compliance
C-ESMP approval before mobilisation	100%	PIU verification	Formal work stoppage / delay of site handover
Weekly E&S report submission	100% (on time)	PIU tracking	Written warning (first); financial penalty (repeat)
Environmental monitoring (air, noise, water, soil)	≤ 5% exceedances (with corrective actions within 48 hours)	PIU / IESM audit	Written warning (first); financial penalty (repeat)
OHS lost-time injury (LTI) rate	≤2 per 200,000 hours worked	PIU / IESM audit	Mandatory safety stand-down & retraining

GBV / SEA / SH incidents	Zero tolerance	PIU / IESM audit (GRM records)	Immediate contract termination for perpetrator; financial penalty for contractor
Local hiring quota (unskilled labor)	≥70% from local host communities / LGAs	PIU / IESM audit (payroll & hiring logs)	Financial penalty (if persistent non-compliance)
GRM grievance resolution	≥95% resolved within 14 days	PIU / IESM audit (GRM logs)	PIU escalation; financial deduction (if systemic)
Community & WDC satisfaction	≥80% positive rating	Community survey (IESM)	Mandatory Corrective Action Plan required

7.14.4 Sanctions for Contractor Non-Compliance

Non-Compliance Level	Example Scenario	Sanction / Penalty
Minor ***(Isolated, low impact)***	Missed weekly report (late by 1–2 days); isolated PPE non-compliance (corrected immediately)	Verbal warning; formal written warning (if repeated)
Moderate ***(Repeated minor, or single moderate impact)***	Repeated late reports; minor localized hydrocarbon spill (contained); unmitigated noise/dust exceedance	Written warning; financial penalty (₦500,000 – ₦2,000,000 per incident)
Major ***(Significant impact, or repeated moderate)***	Uncontained spill to Otumara water margin / municipal drains; severe OHS incident/fatality; unaddressed GBV/SEA/SH case; child/forced labor; major community protest	Financial penalty (₦5,000,000 – ₦20,000,000 per incident); work suspension until corrective action completion; potential contract termination
Critical ***(Willful violation, criminal act)***	Willful breach of asbestos containment protocols during Isolo/Oba Salami	Immediate contract termination; legal prosecution under Lagos

	refurbishment; sexual violence by worker; systemic corruption	State laws; permanent debarment from AfDB projects

7.15 Conclusion

The Environmental and Social Management Plan (ESMP) provides a comprehensive, practical, and enforceable framework for managing the environmental and social impacts of the Group 2 Mainland Axis primary health care facilities (Isolo, Oba Salami, Ojodu, and Otumara).

Key elements of the ESMP include:

- Clear Institutional Responsibilities: Defined roles across LSMoH PIU (oversight & safeguards), Civil Works Contractors (C-ESMP implementation), Facility Operators (operational phase IPC & waste management), IESM (independent monitoring), and Regulators (FMEnv, NESREA, LASEPA enforcement).
- Detailed Monitoring Framework: Site-specific monitoring indicators with defined baselines, targets, methods, frequencies, and corrective action triggers aligned with NESREA and AfDB ISS parameters.
- Robust Reporting Mechanism: Structured flow of daily site logs, weekly contractor updates, monthly PIU syntheses, quarterly independent IESM audits, and immediate 24-to-48-hour incident notifications for major events.
- Specialised Management Plans: Comprehensive operational controls covering infection prevention & control (IPC), asbestos abatement & containment, urban traffic management, ARAP execution, local labor recruitment, GBV/SEA/SH referral pathways, and climate-resilient engineering.
- Realistic Costed Budget: Dedicated budget allocations covering pre-construction ARAP compensation, asbestos abatement, environmental monitoring, climate adaptation, and emergency preparedness.
- Targeted Capacity Building: Structured training programs for PIU officers, site engineers, contractor crews, healthcare facility staff, and Ward Development Committees (WDCs).
- Emergency Preparedness & Response: Site-tailored procedures for fire, tidal/flash flooding, hazardous material spills, asbestos containment breaches, medical emergencies, and security events.
- Adaptive Management & Review: Mechanism for annual ESMP reviews and trigger-based updates to adapt to emerging site conditions or scope modifications with AfDB non-objection.

- Contractor ESMS Requirements: Mandatory C-ESMP preparation, structured review and approval gates, quantitative performance metrics, and a enforceable four-tier penalty/sanction structure.

With full implementation of this ESMP, the Group 2 Mainland Axis facilities will achieve compliance with AfDB Integrated Safeguards System (ISS), FMEnv EIA Act, NESREA regulations, LASEPA standards, and international good practices (IFC, WHO, ILO), while expanding access to climate-resilient primary healthcare infrastructure and safeguarding host communities, workers, and urban ecosystems.

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 **Mainland Axis (Group 2)**, and for the eventual end-of-life management of each facility.

AfDB ISS (OS4), FMEnv National Environmental Regulations (2009), NESREA Hazardous Waste Regulations (2009), Harmful Waste Act CAP H1 LFN 2004, LASEPA Waste Management Law (2017), LAWMA Healthcare Waste Guidelines (2019), IFC EHS Guidelines for Healthcare Facilities (2012), WHO Safe Management of Wastes from Healthcare Activities (2014), ILO OHS Conventions 155 and 161.

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. And Prevent 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:

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 ISS (OS4 – Pollution Prevention and Hazardous Materials)
- FMEnv National Environmental Regulations (2009)
- NESREA Hazardous Waste Regulations (2009)
- Harmful Waste Act CAP H1 LFN 2004

- LASEPA Waste Management Law (2017)
- LAWMA Healthcare Waste Guidelines (2019)
- IFC EHS Guidelines for Healthcare Facilities (2012)
- WHO Safe Management of Wastes from Health Care Activities (2014)
- ILO OHS Conventions (155 and 161)

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 Isolo and Oba Salami PHC.
- 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.

The HMWMP aims to:

- Protect healthcare workers, patients, waste handlers, and communities in the Mainland Axis (Isolo, Oba Salami, Otumara, and Ojodu) from hazardous and medical waste risks.
- Prevent environmental contamination of soil, groundwater, surface water, and air at all project sites.
- Ensure compliance with AfDB ISS, FMEnv, NESREA, LASEPA, LAWMA, WHO, IFC, and ILO standards.
- Establish a practical, enforceable waste management system for segregation, collection, storage, treatment, transport, and disposal tailored to the specific needs of these four PHC facilities.

- Minimise waste generation through reduction, reuse (where safe), and improved inventory management.
- Build capacity through targeted training for all personnel involved in waste handling at the Isolo, Oba Salami, Otumara, and Ojodu PHCs.
- Establish monitoring and reporting procedures for continuous improvement in waste management performance.
- Provide emergency response procedures for spills, needle-stick injuries, and hazardous waste incidents, particularly addressing the identified safety concerns at the refurbishment sites (Isolo and Oba Salami).

8.2 Objectives

- Protect healthcare workers, patients, waste handlers, and communities;
- Prevent contamination of soil, groundwater, and air;
- Ensure regulatory compliance;
- Establish an enforceable segregation-to-disposal system with non-burn treatment;
- Minimise waste generation;
- Build capacity;
- Establish monitoring and emergency response procedures.

8.3 Regulatory And Policy Framework

Applicable Regulations as listed in Section 8.1 above, applied identically across the four sites.

8.4 Healthcare Waste Categories (WHO Classification –

Table 8.1 – 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	Isolo, Oba Salami	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 shows the flowchart of the waste management

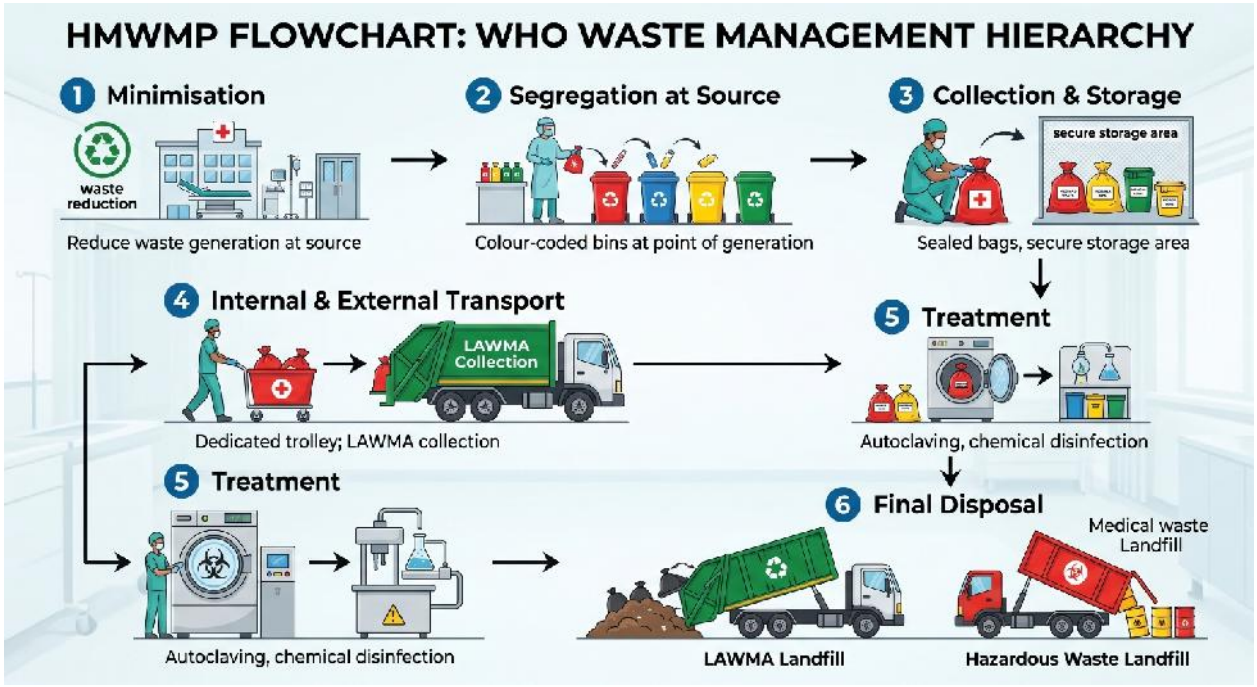


Figure 8.1: flowchart of Waste Management

8.6 Waste Minimisation

Bulk ordering, inventory control (<1% expired pharmaceuticals), safe reuse of sterilisable items, mercury elimination (digital thermometers), reusable/autoclavable sharps containers where appropriate, 100% staff compliance with segregation at source.

8.7 Waste Segregation At Source

WHO colour-coded bins at all four facilities; bags sealed and labelled with facility name, date, category; segregation compliance target ≥95%; sharps in black bags target zero; training compliance 100%.

Figure 8.1 shows the WHO Colour Coding System presented as an educational infographic poster, detailing the category, colour-coding, specified containers, required labelling, and examples for various medical waste streams as outlined in your table.

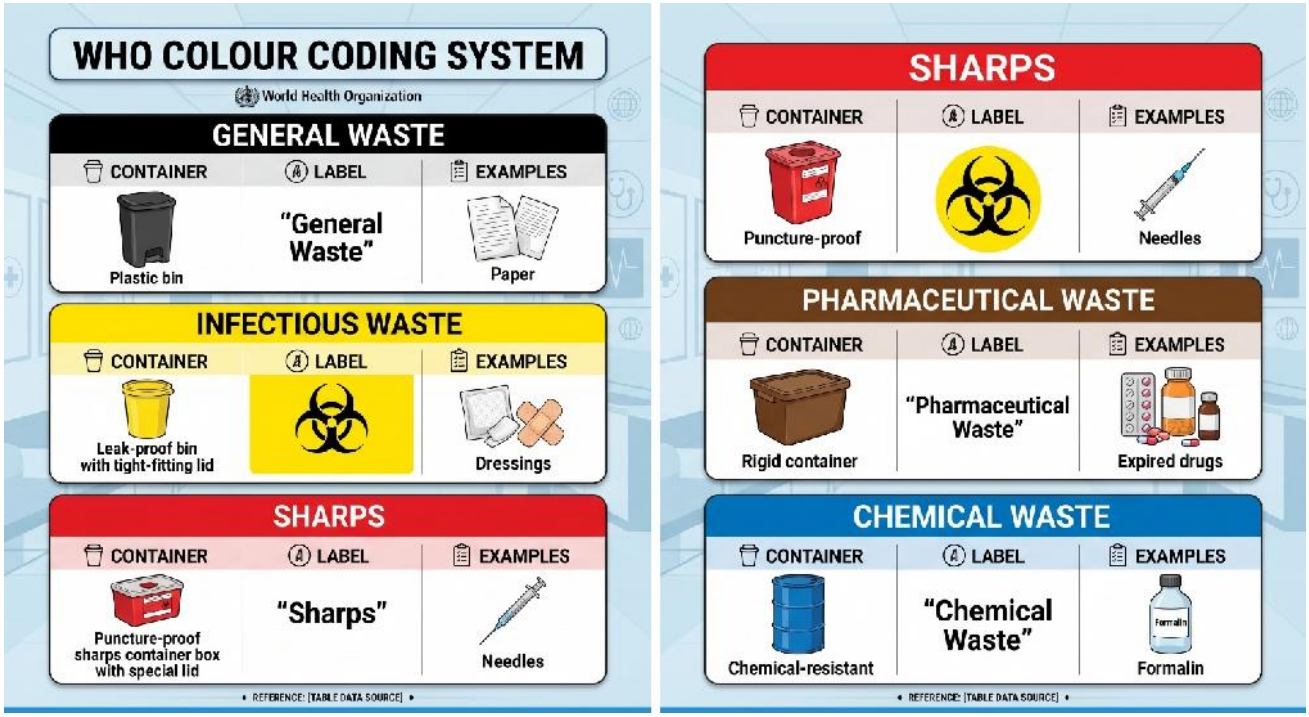


Figure 8.2: WHO Colour Coding System for HCWM

Measures include

1. Place colour-coded bins at all waste generation points
2. Line bins with matching colour bags
3. Segregate waste at point of generation
4. Do not overfill bins (max ¾ full)
5. Seal bags when full
6. Label bags with facility name, date, category
7. Transport sealed bags to storage area

8.8 Collection, Internal Transport, And Storage

Daily collection using dedicated trolleys; bins cleaned with 0.5% chlorine; lockable, ventilated, impermeable-floor storage; maximum 48-hour storage for infectious waste.

8.9 Waste Treatment Technologies

Non-burn treatment (autoclave, 121 C / 30 min / 15 psi, monthly biological indicator testing) as the axis standard, consistent with the "small-scale non-burn medical waste treatment facilities" specified for the axis in Chapter 3; chemical disinfection (0.5–1% chlorine, 30-minute contact) for small liquid volumes.

8.8.1 Storage Requirements

- Lockable, ventilated storage area
- Impermeable floor
- Signage: "Hazardous Waste Storage – Authorised Personnel Only"
- Max storage time: 48 hours for infectious waste

8.10 Waste Treatment Technologies

Non-burn treatment (autoclave, 121 C / 30 min / 15 psi, monthly biological indicator testing) as the axis standard, consistent with the "small-scale non-burn medical waste treatment facilities" specified for the axis in Chapter 3; chemical disinfection (0.5–1% chlorine, 30-minute contact) for small liquid volumes.

8.11 Asbestos Management Plan

See the standalone Asbestos Management Plan (Appendix 8.1) for full procedures. Summary:

8.11.1 Asbestos site

Site	Status	Action Required
Isolo PHC	CONFIRMED	Licensed abatement REQUIRED
Oba Salami PHC	CONFIRMED	Licensed abatement REQUIRED

8.12 Occupational Health and Safety For Waste Handlers

PPE by task (gloves, aprons, boots, masks; puncture-proof gloves for sharps; P3 respirators and Type 5 coveralls for asbestos work); Hepatitis B vaccination; tetanus booster; needle-stick protocol (PEP within 72 hours); annual medical surveillance; asbestos medical surveillance where abatement occurs.

8.13 Spill Response Plan

Small chemical spills – absorb, hazardous bag; large chemical spills – evacuate, contain; infectious spills – PPE, chlorine, yellow bag; fuel/oil spills report to NOSDRA. Any spill or discharge risk to **any of the sites** triggers immediate containment and notification to LASEPA/NOSDRA within 24 hours

8.14 Monitoring And Reporting

Waste generation, segregation compliance, autoclave parameters, manifests, LAWMA collection, asbestos monitoring (all 4 sites pending survey), needle-stick incidents, training compliance.

8.15 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.

The template for institutional structure is as follows:

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, and 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.

8.16 Budget Estimate (HMWMP + Decommissioning, four PHC Sites)

Capital costs (autoclave, waste storage construction, spill kits, PPE, asbestos abatement pending survey at all 4 sites), operational costs (LAWMA/non-burn treatment fees, hazardous waste contractor, autoclave maintenance, training), and decommissioning costs (demolition, asbestos removal if present, site and creek-margin restoration, borehole/septic decommissioning) are consolidated within the axis's overall **₦305,000,000** ESMP allocation and the site-level costed items in Section 7.10; asbestos abatement costs are contingent on the outcome of the pre-construction surveys at all four sites.

PART B: DECOMMISSIONING AND RESTORATION PLAN

8.17 Introduction

- **Long-term Operation:** Although the PHC facilities in the Mainland Axis are designed to operate for over 50 years, an ESIA Decommissioning and Restoration Plan is mandated by FMEnv.
- **Core Scope:** This plan establishes protocols for the safe removal of hazardous materials, structural demolition, waste management, restoration of urban drainage channels, and the protection of worker and community health and safety.

8.17.1 Operational Goals:

The plan ensures the safe removal and disposal of hazardous materials, minimization of dust, noise, erosion, and water-pollution impacts during demolition, and robust OHS protection for workers and the community.

8.17.2 Site and Environmental Goals:

Objectives include restoring sites to a stable and environmentally acceptable condition, rehabilitating urban drainage channels, maintaining community access, ensuring full regulatory compliance, and assigning clear roles and monitoring mechanisms.

8.18 Decommissioning Strategy and Activities

8.18.1 Physical Infrastructure

Activities involve salvaging equipment (such as medical gear, solar panels, and batteries managed via hazardous waste recycling), safe building demolition (incorporating dust suppression, noise control, asbestos abatement if identified, and OHS), and managing demolition waste through sorting, recycling, and LAWMA disposal alongside site restoration via regrading, native revegetation, and slope stabilization.

8.18.2 Utilities and Ancillary Infrastructure

Utility management covers septic tank decommissioning (treating sludge as hazardous waste to protect groundwater), borehole sealing with grout, removal of rainwater harvesting systems, and safe handling of solar PV systems including battery hazardous waste and panel recycling.

8.19 Environmental Restoration Measures

8.19.1 Soils and Erosion Control

Sites will be regraded to original contours, covered with stored topsoil, and revegetated, utilizing silt fences and check dams until vegetation achieves at least 80% cover.

8.19.2 Air Quality and Noise Management

Dust and noise mitigation will rely on continuous water spraying during demolition, restricted working hours from 7:00 to 18:00, and a minimum of 7 days' advance community notification.

8.20 Socio-Economic and Cultural Restoration

8.20.1 Livelihood Transition and Support

Provisions include a 3-month advance notice, skills training and job-placement assistance for affected local households, and the donation of usable equipment to neighboring health facilities.

8.20.2 Community Infrastructure and Access

Restoration entails clearing demolition debris, repairing access paths, and maintaining proper drainage to prevent standing water accumulation.

8.20.3 Cultural Heritage Protection

A strict Chance Finds Procedure will be enforced during demolition across all four sites, featuring a stop-work protocol and immediate notification of relevant heritage authorities for archaeological evaluation.

8.21 Monitoring and Reporting

Parameter	Indicator	Frequency	Responsible
Asbestos removal (if present)	Waste manifests; air monitoring	Per load; continuous	Licensed contractor
Site / creek-margin restoration	Vegetation survival ≥80%	3, 6, 12 months	Contractor / PIU
Erosion control	Silt fence condition	Weekly	Contractor
Creek / groundwater quality	pH, TDS, coliforms, heavy metals	Quarterly (1 year)	Contractor / PIU
Community satisfaction	≥80% satisfied	Post-decommissioning	PIU / IESM

8.22 Institutional Responsibilities

Entity	Responsibilities
PIU	Oversight; compliance; reporting; community liaison
Contractor	Safe demolition; asbestos abatement; waste management; restoration
Licensed Asbestos Contractor	Survey; abatement; air monitoring; disposal
Facility Operator	Handover; equipment salvage; record retention
LASEPA / FMEnv	Permits; inspections; compliance enforcement
AfDB	Review and approval; monitoring through PIU reports

8.23 Financial Assurance

LSMoH will establish a Decommissioning Fund or Environmental Bond for the axis, reviewed every 5 years and adjusted for inflation, sized according to asbestos survey outcomes and site/creek-margin restoration scope at each of the four facilities.

8.24 Conclusion

The Decommissioning and Restoration Plan provides a complete, FMEnv-compliant framework for safely dismantling the PHCs at end of life, ensuring safe hazardous-materials removal, environmentally sound demolition, restoration of impacted structures.

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CHAPTER 9 STAKEHOLDER ENGAGEMENT PLAN (SEP) & SITE-SPECIFIC GBV/SEA/SH ACTION PLAN

9.1 Overview and Objectives

This GBV/SEA/SH Action Plan applies to the four PHC facilities assessed in this ESIA (Isolo, Oba Salami, Otumara, and Ojodu). Per the Group 2 report's own risk assessment (Table 9.4), all the sites show unmitigated risk factors including labour influx, poor lighting, lack of confidential reporting, economic vulnerability, flood risk, police-response gaps, and cultural norms It establishes the formal mechanism for information disclosure, public consultation, and the management of grievances, while embedding gender-based violence (GBV) prevention strategies.

9.2. Legal and Policy Framework

Nigerian laws: VAPP Act (2015), Labour Act (2004), Child Rights Act (2003), Criminal Code (2004), Lagos State Domestic Violence Law (2007). International standards: AfDB OS5, IFC Good Practice Note on GBV/SEA/SH (2020), ILO Conventions 155 & 190, WHO/ILO Health Worker Safety Guidance (2020), UN Guiding Principles on Business & Human Rights, WHO Clinical Management of Rape Guidelines (2024).

9. 3 GBV/SEA/SH Risk Assessment

Key Site-Specific Risks

The following table summarizes the primary risk factors identified for the Mainland Axis facilities (Group 2) during the assessment process:

Site	Key GBV/SEA/SH Risks	Risk Level
Isolo PHC	High urban traffic density, potential for worker–community friction, and requirement for enhanced site access control.	Medium
Oba Salami PHC	High population density, susceptibility to labour influx impacts, and need for improved facility lighting.	Medium
Otumara PHC	Isolated access paths during project work, limited visibility, and requirement for robust confidential reporting channels.	Medium
Ojodu PHC	High economic activity area, potential for transient worker presence, and need for clear GBV awareness signage.	Medium

High-Risk Scenarios

- Worker–community SEA (exchange of money/goods for sex)
- Worker–worker SH (quid-pro-quo harassment)
- GBV against vulnerable groups (girls, women with disabilities)

- Child sexual abuse (zero tolerance)
- Survivor reports but receives no response
- Community protest due to unaddressed GBV incidents

Preventing and responding to Gender-Based Violence (GBV), Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH) risks in infrastructure projects, particularly in communities like Oba Salami, Otumara , Ojodu, and Isolo.

Figure 9.1 maps the flow of the entire action plan. It starts by defining the four specific sites and their key risk factors. The plan then moves through the legal and policy frameworks, outlining clear prevention measures including the Code of Conduct and mandatory training. Finally, it details the survivor-centred response strategy, connecting confidential reporting channels directly to specific referral pathways like hospitals, legal aid, and support centres. The image provides a complete overview of the plan's components, including sanctions, monitoring, roles, and a budget estimate.

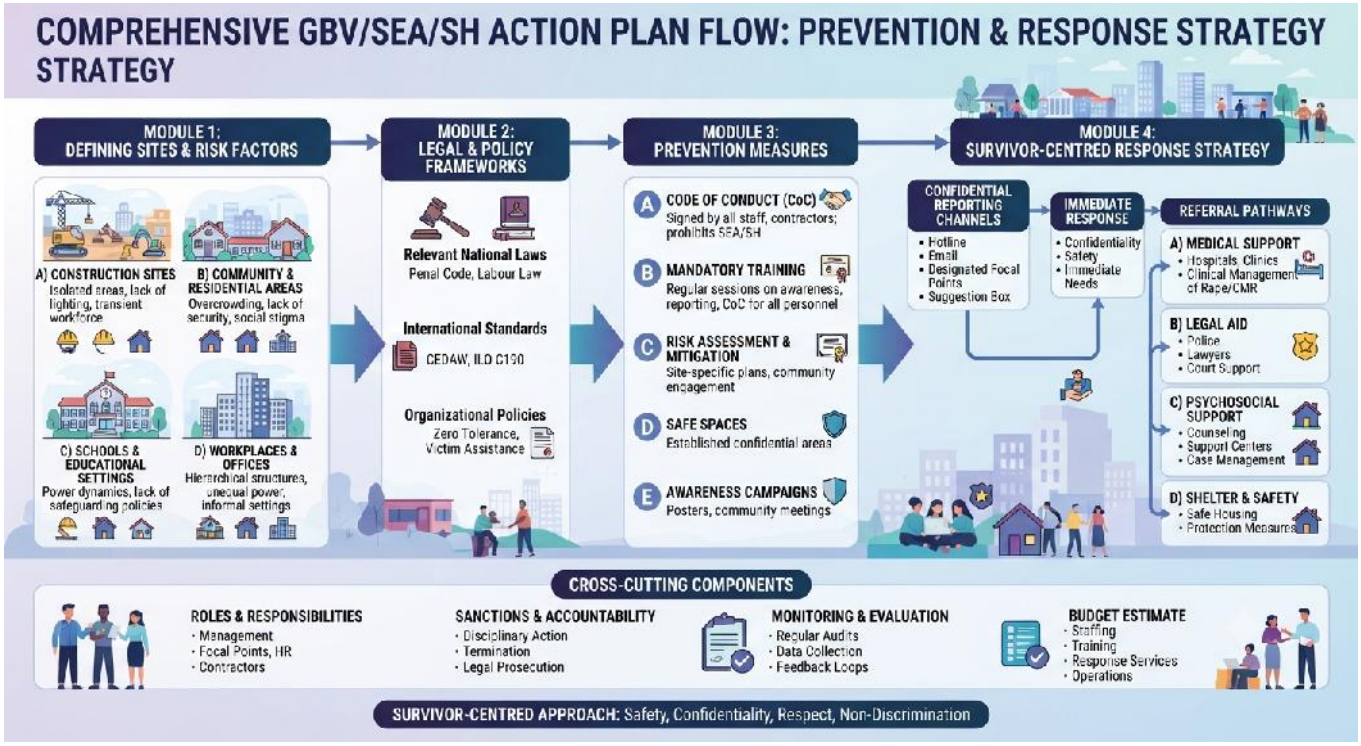


Figure 9.1: Specific GBV/SEA/SH Action Plan

9.4 Prevention Measures

9.4.1 Code of Conduct (CoC):

All workers, subcontractors, and security personnel at Isolo, Oba Salami, Ojodu and Otumara must sign a GBV/SEA/SH Code of Conduct prohibiting sexual harassment, exploitation or abuse, sexual activity with minors, intimidation or retaliation, alcohol/drug use on site, and relationships with

community members where a power imbalance exists. Translated into Yoruba and Pidgin; displayed at all sites; re-signed every 6 months.

9.4.2 Mandatory Training:

Workers (induction, monthly toolbox talks, supervisor-specific training, GRM focal-point training); community (quarterly awareness sessions, women's-group engagement, youth sessions, traditional/religious leader sensitisation with attention to new entrants to the community, facility operators (recognising survivors, confidential medical management, referral pathways).

9.4.3 Safe Recruitment Practices:

There should be no hiring of minors; background checks for security personnel, including verification appropriate to trans-border worker pool; gender-balanced hiring (target ≥20% female); written contracts including CoC and GRM information.

9.4.4 Community-Level Prevention:

quarterly awareness campaigns; women's safe spaces at all four PHCs; improved (solar) lighting – a risk factor common to all four sites; participatory safety audits with women and girls; engagement with trader associations.

9.5 Response Measures

9.5.1 Survivor-Centred Approach:

confidentiality, safety, respect, non-discrimination, no retaliation, informed consent, right to refuse services.

9.5.2 Reporting Channels:

hotline (SMS/WhatsApp) with a female GBV focal point; locked suggestion boxes; female GRM focal points; community liaison officers; supervisor reporting; anonymous online GRM portal – designed specifically to overcome the "lack of confidential reporting" risk factor common to all four sites.

9.5.3 Referral Pathways

Step	Service Area	Service Providers	Safeguard
1	Entry Point	Health workers, police, NGOs, community leaders	MoU to maintain confidentiality and believe the survivor
2	Safety and Support	Any trained personnel	MoU to prioritise safety
3	Health Services	Hospitals, clinics	MoU to obtain informed consent
4	Psychosocial Support	Counsellor, NGO	MoU to respect survivor's pace, ensure privacy

5	Justice Services	Case managers, GBV focal personnel	MoU to avoid coercion; legal advice
6	Protection Services	Social welfare, NGOs	Ensure protection safety planning
7	Referral Coordination	Case managers, GBV focal person	Ensure smooth, confidential handover
8	Case Management	Case manager, social worker	Ongoing follow-up

Referral agreements (MOUs) with named service providers will be finalised and in place before construction begins at any of the Four sites.

9.6 Sanctions for Violations

Verbal warning -> written warning -> suspension -> termination -> legal prosecution (rape, sexual activity with a minor, assault). Applies equally to workers, subcontractors, and security personnel at all four sites.

9.7 Monitoring & Evaluation

Indicator	Target	Frequency
Workers trained	100%	Monthly
Community members reached	≥60%	Quarterly
GBV incidents reported	Tracked	Monthly
Cases resolved <=14 days	≥90%	Monthly
Survivor satisfaction	≥80%	Quarterly
CoC compliance	100%	Monthly

Reporting: Contractor -> PIU monthly; PIU -> AfDB quarterly; IESM -> AfDB quarterly audits

9.8 Roles & Responsibilities

PIU – oversight, reporting, GRM management, coordination with service providers; Contractor – CoC enforcement, training, reporting, sanctions; GBV Specialist – training, case management, referral coordination; Facility Operator – survivor medical management, confidentiality; IESM – independent verification; Community Leaders – awareness, safe spaces, referrals.

9.9 GBV/SEA/SH Summary Matrix

Group 2 – GBV/SEA/SH and Social Vulnerability Risk Matrix

Colour Codes: ● Critical □ Major □ Moderate □ Minor ⛃ Positive

Risk Category	Site(s)	Unmitigated Risk	Mitigation / Action	Significance	Responsible
Worker–Community SEA	All sites, particularly Ojodu and Otumara where construction activities interface closely with surrounding communities	Workers offering money, goods, services or employment opportunities in exchange for sex; increased interaction between workers and vulnerable community members	Contractor Code of Conduct (CoC) with zero tolerance; worker induction and monthly refresher training; confidential reporting channels; sanctions for violations	● Critical	Contractor / PIU / GBV Specialist
Worker–Worker Sexual Harassment (SH)	All sites	Quid-pro-quo harassment, unwanted sexual advances and intimidation within construction teams	Supervisor and worker training; CoC enforcement; confidential complaints mechanism; disciplinary sanctions	□ Major	Contractor / PIU
Child Sexual Abuse / Exploitation (<18 years)	All sites, particularly sites located within densely populated	Sexual exploitation or abuse of children through interaction with	Explicit prohibition in CoC; worker background checks; prohibition of sexual relations	● Critical	Contractor / PIU / GBV Specialist

	residential and commercial areas	construction workers or associated personnel	with persons under 18; community sensitisation; child safeguarding measures		
GBV Against Vulnerable Groups	All sites; heightened around Ojodu, Otumara and Oba Salami	Women, girls, elderly persons and other vulnerable persons may face increased exposure around construction areas, poorly lit access routes and temporary service arrangements	Adequate site lighting; safe pedestrian routes; secure construction fencing; community awareness; safe spaces and referral information; attention to elderly and vulnerable patients	□ Major	PIU / Contractor / LGA
Lack of Confidential Reporting	All sites	Survivors may fear stigma, retaliation or loss of access to services and therefore fail to report GBV/SEA/SH incidents	Confidential hotline; suggestion/complaint boxes; anonymous reporting; designated GBV focal person; survivor-centred referral pathway	● Critical	PIU / GBV Specialist

Economic Exploitation / Dependency	Ojodu and Otumara, particularly affected informal traders/settlers	Economic vulnerability of displaced or economically affected persons may increase susceptibility to exploitation, coercion or transactional sex	Timely implementation of RAP/compensation measures; livelihood restoration; engagement with women and vulnerable groups; accessible GRM	□ Major	PIU / RAP Team / GBV Specialist
Cultural and Social Norms Supporting GBV	All sites	Social acceptance of violence, stigma surrounding survivors and reluctance to discuss sexual harassment may suppress reporting	Community sensitisation; engagement with community leaders, women's groups and youth representatives; confidential survivor-centred mechanisms	□ Major	PIU / GBV Specialist / Community Liaison Officer
Poor Institutional Response to GBV	All sites	Delayed or inappropriate response by police, health or other service providers may discourage survivors from	Establish and maintain functional referral pathways; agreements with health, psychosocial, legal and protection service	□ Major	PIU / GBV Specialist

		seeking assistance	providers; periodic testing of referral system		
Flood/Drainage-Related Vulnerability	Otumara and other flood-prone locations	Flooding, blocked drains and difficult access may increase exposure and vulnerability of women, children, elderly persons and persons with disabilities, particularly during construction	Flood-resilient site planning; maintain drainage; safe pedestrian access; emergency preparedness and evacuation arrangements; lighting of access routes	□ Major	PIU / Contractor
Livelihood/Displacement-Related Social Tension	Ojodu and Otumara	Displacement or disruption of informal businesses and structures may increase household stress, conflict and vulnerability to exploitation	RAP implementation before displacement; compensation at replacement cost; livelihood restoration; accessible GRM; continuous engagement with affected persons	□ Major	PIU / RAP Team / Contractor
Survivor Reports but No Action	All sites	Failure of the GRM or	Acknowledge complaints	● Critical	PIU / Contractor

		referral system to respond promptly may result in re-traumatisation, loss of trust and escalation of community tensions	within 48 hours; initiate appropriate referral immediately; resolve/close routine complaints within 14 days where feasible; monitor unresolved cases and protect confidentiality		/ GBV Specialist
Construction-Related Community Safety	Ojodu, Isolo and Oba Salami, particularly where PHCs are surrounded by dense urban activity	Increased pedestrian–vehicle interaction, construction traffic, open excavations and restricted access may disproportionately affect women, children, elderly patients and persons with disabilities	Traffic Management Plan; segregated pedestrian routes; fencing and signage; controlled deliveries; safe access to PHC services throughout works	□ Major	Contractor / PIU

Disruption of Essential Health Services	Isolo and Oba Salami	Renovation within/near active clinical environments may disproportionately affect pregnant women, children, elderly persons and persons requiring chronic-disease treatment	Phased construction; temporary service areas; uninterrupted access to essential services; advance community notification; priority arrangements for vulnerable patients	□ Major	PHC Management / Contractor / PIU

9.10 Budget Estimate

GBV/SEA/SH Action Plan costs for the four sites (training, GBV Specialist consultant, awareness materials, GRM setup, referral-pathway MOUs) are included within the axis's ₦305,000,000 costed ESMP (Section 7.10).

9.11 Stakeholder Engagement, Consultation & GRM

9.11.1 Stakeholder Engagement Process

9.11.1.1 Consultation Activities

Consultations were conducted 24–27 February 2026 across Isolo, Oba Salami, Ojodu and Otumara. The engagement process followed a structured, inclusive of methodology designed to capture diverse community perspectives and ensure free, prior, and informed consultation in accordance with AfDB OS10 requirements.

Below is an overview of the key community engagement and assessment activities conducted across all project sites, highlighting the purpose and coverage of each intervention:

Activity	Description	Sites Covered

1. Community Entry Meetings	Introductory meetings with traditional leaders (Baales, Chiefs) and community representatives to explain project scope, seek acceptance, and establish engagement protocols	All sites
2. Focus Group Discussions (FGDs)	Gender-segregated and stakeholder-specific discussions with women, youth, fishers, traders, and vulnerable groups	All sites
3. Key Informant Interviews (KIIs)	In-depth interviews with traditional leaders, PHC staff, LGA officials, and community-based organisation leaders	All sites
4. Site Walkthroughs	Environmental and social assessment walkthroughs of each facility with community members	All sites
5. GBV/SEA/SH Screening	Risk identification and reporting-channel assessment using participatory safety audits with women and girls	All sites

All consultations were conducted in Yoruba, Pidgin English, and English to ensure accessibility and inclusivity. Over 16 key community stakeholders were directly engaged, with broader community participation through town hall meetings.

9.11.1.2 Stakeholder Mapping

Stakeholders were systematically mapped using a tiered approach to ensure all affected and interested parties were identified and engaged. The mapping process considered:

- **Impact Level:** Directly affected (host communities) vs. indirectly affected (wider catchment, service providers)
- **Influence:** Decision-makers (LGA, LSMoH) vs. community influencers (traditional leaders, women's groups)
- **Vulnerability:** Vulnerable groups requiring targeted engagement (women, youth, elderly, persons with disabilities, migrants/trans-border workers)

Stakeholder Mapping Matrix (Mainland Axis: Isolo, Oba Salami, Ojodu, and Otumara PHCs)

Stakeholder Category	**Isolo / Oba Salami Catchment**	**Ojodu Catchment**	**Otumara Catchment**	**Engagement Method**
Primary Stakeholders	Traders, transport operators,	Residents near asbestos-confirmed	Catchment residents, local	FGDs, KIIs, site walkthroughs

	migrant/trans-border workers	structures, local community members	business operators	
Traditional Leaders	Local community leaders and chiefs	Community elders and local leaders	Community elders and local leadership	Community entry meetings, KIIs
Vulnerable Groups	Women, youth, elderly, persons with disabilities	Women, youth, elderly	Women, youth, elderly, vulnerable households	Gender-segregated FGDs
Secondary Stakeholders	Lagos Mainland / Oshodi-Isolo / Ikeja LGA officials, LSMoH, LASEPA, LAWMA, NESREA, FMEnv, WAPA	Same as framework scope	Same as framework scope	Regulatory meetings, workshops
GBV Service Providers	DSVA/DVSRT, Mirabel Centre	DSVA/DVSRT, Mirabel Centre	DSVA/DVSRT, Mirabel Centre	Referral pathway MOUs

Stakeholder Mapping Summary:

- **Primary Stakeholders (Directly Affected):** host communities including informal traders, fishers, farmers, and transport operators whose livelihoods or access may be temporarily affected during construction.
- **Traditional and Community Leaders:** Baales, Chiefs, religious leaders (Imam), and CDA chairpersons who influence community acceptance and facilitate grievance resolution.
- **Vulnerable Groups:** Women, youth, elderly, persons with disabilities, and trans-border workers who require targeted engagement and specific safeguards.
- **Secondary Stakeholders:** Regulatory agencies (LASEPA, LAWMA, NESREA, FMEnv), implementing agencies (LSMoH, PIU), health sector partners (WAPA, PHCB), and GBV service providers.
- **Financiers and Oversight:** AfDB (financier) and IESM (independent monitoring).

9.12 On Site Stakeholder Engagement, Consultation & Engagement

9.12.1 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. *See full report of the stakeholder's engagement in appendix 3 for more details and pictures*

9.12.2 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, fishers, farmers
Youth Groups	Local youth associations
Persons with Disabilities	Community members with disabilities
Traditional Leaders	Obas, Baales
Religious Leaders	Pastors, Imams
PAPs	Local residents, market traders, transport operators, and those near refurbishment sites (Isolo and Oba Salami) where asbestos management is required
PHC Staff	Existing facility staff

B. Secondary Stakeholders (Indirectly Affected)

Stakeholder Category	Specific Entities
Government	Mainland LGA & LCDA officials, LSMoH, LASEPA, LAWMA, NESREA, FMEnv
Security	Police, NSCDC
Civil Society	CSOs, Women Affairs & Poverty Alleviation (WAPA)
GBV Service Providers	DVSRT, Mirabel Centre

9.12.3 Consultation Activities

Consultations were conducted between 24–27 February 2026 across all four Mainland Axis PHC sites (Isolo, Oba Salami, Otumara, and Ojodu).

Activity	Description	Sites Covered
Community Entry Meetings	Introductory meetings with community leaders.	All sites.
Focus Group Discussions (FGDs)	Sessions with women, youth, traders, and community members.	All sites.
Key Informant Interviews (KIIs)	Interviews with traditional leaders, PHC staff, and LGA officials.	All sites.
Site Walkthroughs	Environmental and social assessments of facility grounds.	All sites.
GBV/SEA/SH Screening	Risk identification sessions regarding gender-based violence and harassment.	All sites.
Drainage and Site Assessments	Evaluation of local site topography and drainage infrastructure.	All sites

9.12.4 Summary of Issues Raised

The following table summarizes the key community concerns identified during the February 2026 consultations for the Mainland Axis and the corresponding project responses.

Site	Key Concerns Raised	Project Response
Isolo PHC	Need for facility refurbishment/ new facility construction; concerns regarding noise and dust during work.	Implementation of noise barriers and dust suppression measures.
Oba Salami PHC	Asbestos-suspected roofing; safe working environment; traffic management.	Licensed asbestos abatement; safety protocols for workers; site-specific Traffic Management Plan (TMP).
Otumara PHC	Improved lighting; secure access paths; site security.	Installation of solar lighting; perimeter security enhancements.

Ojodu PHC	GBV/SEA/SH risks; local hiring opportunities; construction-related traffic.	GBV Action Plan implementation; commitment to ≥50% local hiring; managed site logistics.

9.12.5 Grievance Redress Mechanism (GRM)

9.12.5.1 GRM Process Overview

The Grievance Redress Mechanism (GRM) is designed to provide an accessible, transparent, and timely process for receiving, processing, and resolving project-related complaints. The GRM is operational throughout the project lifecycle (pre-construction, construction, and operation) and is available to all project-affected persons, including community members, workers, and vulnerable groups.

9.12.5.2 GRM Entry Points

Channel	Description	Accessibility
Toll-Free Hotline	Dedicated phone number for verbal complaints	Available 24/7; accessible to illiterate persons
Suggestion Boxes	Locked boxes located at each PHC, community hall, and market	Anonymous; accessible to all
Female GRM Focal Points	Designated female staff to receive GBV/SEA/SH complaints	Confidential; survivor-centred
Community Liaison Officers (CLOs)	Site-based officers who receive complaints directly	Daily presence at sites
Anonymous Reporting	Online portal and written submissions	Confidential; protects complainants
Supervisor Reporting	Workers can report grievances directly to supervisors	Worker-friendly

9.12.5.3 GRM Process Timeline and Responsibilities

Step	Action	Timeline	Responsible	Outcome
1. Receipt & Logging	Complaint received via any entry point; logged into central GRM register with unique ID	Day 1	CLO / GRM Focal Point	Complaint documented and tracked

2. Acknowledgment	Complainant formally acknowledged via SMS, phone call, or written note	Within 48 hours	GRM Focal Point	Complainant informed of process
3. Screening & Categorisation	Complaint screened for urgency, sensitivity (GBV cases prioritised and handled confidentially), and complexity	Days 2–3	PIU GRM Focal Point / GBV Specialist	Complaint categorised (low, medium, high)
4. Investigation	PIU and Contractor investigate; site visits and stakeholder interviews conducted	Days 3–10	Contractor / PIU / CLO	Facts established
5. Resolution & Feedback	Proposed resolution communicated to complainant; if accepted, mitigation action implemented	Within 14 days	PIU / Contractor	Case closed; complainant satisfied
6. Appeal	If unresolved, complainant appeals to LGA Liaison Committee	Days 15–21	LGA Liaison Committee	Case escalated
7. Final Appeal	If still unresolved, escalated to LSMoH / AfDB Independent Recourse Mechanism	Beyond 21 days	LSMoH / AfDB	Final determination

9.12.5.4 GRM Tiered System

Tier	Level	Responsible	Function
Tier 1	PHC / Community Level	CLOs, GRM Focal Points, Traditional Leaders	Receipt, acknowledgment, initial resolution (Level 1 grievances)

Tier 2	LGA Liaison Level	Mainland LGA / Yaba LCDAt LCDA Environmental Health Officer	Escalation and mediation (unresolved Tier 1 grievances)
Tier 3	PIU Level	PIU GRM Focal Point / Safeguards Team	Investigation, resolution, escalation to regulators
Tier 4	Regulatory / Financier Level	FMEnv, LASEPA, AfDB	Final appeal and independent recourse

9.12.5.5 GBV/SEA/SH Complaint Handling

GBV/SEA/SH complaint handling is outlined below:

Feature	Description
Confidential Handling	GBV cases are handled with strict confidentiality; only essential personnel are involved
Survivor-Centred Approach	Confidentiality, safety, respect, no retaliation, informed consent, right to refuse services
Female Focal Points	Dedicated female GRM focal points available at all sites
Anonymous Reporting	Anonymous options available to protect survivors from retaliation
Referral Pathways	Medical (PEP within 72 hours), psychosocial, legal, and protection services via MOUs
Timely Response	Acknowledgement within 48 hours; resolution within 14 days

9.12.5.6 GRM Reporting and Monitoring

Report	**Frequency**	**From – To**	**Content**
GRM Monthly Summary	Monthly	Contractor / CLO → PIU	Number of complaints received, resolved, pending; types of complaints; resolution times
GRM Quarterly Report	Quarterly	PIU → AfDB	GRM performance; trends; corrective actions; GBV case summary (anonymised)
GRM Annual Review	Annually	PIU	GRM effectiveness; recommendations for improvement

9.12.6 GRM Cost Estimate

Cost Item	**Description**	**Estimated Cost (US$)**

Hotline Setup & Maintenance	Toll-free line; monthly operational costs	**1,500**
Suggestion Boxes	Supply, installation, and regular collection	**500**
GRM Focal Point Stipends	Stipends for female GRM focal points and CLOs	**2,000**
Registers & Documentation	GRM registers, forms, and reporting templates	**500**
Training	GRM training for CLOs, focal points, and PIU staff	**500**
TOTAL		**5,000**

*The GRM operational cost over the construction lifecycle is budgeted at **$5,000 USD**, which is included in the overall ESMP budget (Section 7.10).*

9.12.7 Contact List

S/N	NAME	POSITION	PHONE NO
1	Gboweh Gabriel	Youth Leader	080644004847
2	Com. Aladeyetan David	Youth Leader	08031042420
3	Agbomenu Joseph	Youth Leader	08161311933
4	Buraimoh Waheed	Imam Apa	—
5	Mrs Agosun Adenike	Treasurer	07086745243
6	Mrs Agosun Hannah	Member	07086398153
7	Fabonugbo Daniel A	W H ~Liaison~	08083473227
8	Olorunnimbe Kafilat F.	Ajogbedo Community Sec.	0803392616
9	Henjinu Funmilayo	APA PHC Secretary	08130680371
10	Balogun Sadiq	Youth Leader	09116549394
11	Mihanwe Imole	NYCN Director	07044023889
12	Ajanglan Zeynab	Ward Health Committee	09074908016
13	Metome Oujau A.	W.H.C Chairman	07025490486
14	Sulamon Oluwaseun	Ward Health Council	08067445605
15	Zinsu Jacob	Youth Leader	07072930110
16	Aloluwade Mary	Chairperson	07045638291

9.12.8 Budget Estimate

Estimated cost for GBV/SEA/SH Action Plan across the four PHC sites:

PHC	Personnel GBV Specialist	Training Materials	Reporting channel	Community Engagement	Monitoring and Reporting	Costs
Ojodu / Otumara	3,000,000	2,000,000	1,000,000	2,000,000	1,000,000	9,000,000
Oba Salami	3,000,000	2,000,000	1,000,000	2,000,000	1,000,000	9,000,000
Isolo	3,000,000	2,000,000	1,000,000	2,000,000	1,000,000	9,000,000
TOTAL COST	**9,000,000**	**6,000,000**	**3,000,000**	**6,000,000**	**3,000,000**	27,000,000

9.13 Conclusion

The GBV/SEA/SH Action Plan provides a comprehensive, survivor-centred framework tailored to the four PHC sites in the Mainland 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: GRIEVANCE REDRESS MECHANISM (GRM)

10.1 Introduction

The Grievance Redress Mechanism (GRM) provides an accessible, confidential, culturally appropriate, and timely system for receiving, documenting, and resolving grievances from workers, project-affected persons (PAPs), community members, and other stakeholders. The GRM is designed to be free, fair, prior-informed, and unforced in accordance with AfDB OS10 and FMEnv requirements.

10.2 Objectives Of The Grm

1. Provide accessible and confidential grievance channels for all stakeholders.
2. Ensure timely resolution of grievances (acknowledgement within 48 hours, resolution within 14 days).
3. Protect complainants from retaliation.
4. Provide survivor-centered response for GBV/SEA/SH grievances.
5. Document and track grievances for monitoring and reporting.
6. Build community trust and project acceptance.

10.3 GRM Structure And Channels

A. Entry Points:

Channel	Description	Accessibility	Confidentiality
Toll-free Hotline	Dedicated phone number for calls/SMS/WhatsApp	Workers, community members	Yes (caller can withhold name)
Suggestion Boxes	Locked boxes at PHCs, community halls, markets	All stakeholders	Yes (anonymous allowed)
Female GRM Focal Points	Designated female staff trained in GBV-sensitive reporting	Workers, community (especially women)	Yes (confidential)
Community Liaison Officers	Trusted community members (male and female)	Community members	Yes
Supervisor (Workers)	Workers can report to supervisor	Workers	Yes (if confidentiality requested)
Online Portal	Web-based form accessible via smartphone	All stakeholders	Yes (anonymous allowed)

Anonymous Reporting	Report without providing name (via hotline, box, portal)	All stakeholders	Yes (complete anonymity)

B. Tiered GRM System:

Level	Responsible Entity	Timeline	Description
Level 1	PHC/Community Level (CLO, Baale, CDA)	Resolution within 7 days	Minor grievances (access disruption, minor complaints)
Level 2	LGA/LCDA Level	Resolution within 14 days	Moderate grievances (employment, dust/noise complaints)
Level 3	PIU Level	Resolution within 21 days	Major grievances (RAP, GBV, asbestos, wetland)
Level 4	FMEnv/AfDB	Final appeal	Unresolved grievances (escalation to regulators/financier)

10.4 GRM Procedures

A. Receiving a Grievance:

1. Any GRM channel receives grievance (hotline, box, focal point, CLO, supervisor, online).
2. Channel records grievance using GRM Log (Table 10.1).
3. Channel acknowledges receipt of grievance (if contact details provided) within 48 hours.
4. For anonymous grievances, no acknowledgment possible, but case still reviewed.

B. Categorising the Grievance:

Table 10.1: grievance using GRM Log

Category	Description	Examples
Category 1: Minor	Low impact, easily resolved	Access disruption, minor dust/noise complaints, general inquiries
Category 2: Moderate	Medium impact, requires investigation	Employment complaints, environmental complaints (dust/noise), RAP inquiries
Category 3: Major	High impact, serious concerns	RAP disputes, GBV/SEA/SH, asbestos concerns, wetland disturbance
Category 4: Critical	Very high impact, urgent	Fatality, major spill, GBV/SEA/SH with serious harm, community protest

C. Resolving a Grievance:

Step	Action	Responsible	Timeline

1	Receive and record grievance	GRM Focal Point/CLO	Immediate
2	Acknowledge receipt (if contact provided)	GRM Focal Point/CLO	Within 48 hours
3	Categorise grievance	GRM Focal Point	Within 24 hours
4	Investigate (confidentially)	GRM Focal Point / PIU	Level 1: 7 days, Level 2: 14 days
5	Propose resolution	GRM Focal Point	Within investigation timeframe
6	Communicate resolution to complainant	GRM Focal Point	Within 7 days of resolution
7	Close case or escalate	GRM Focal Point	As appropriate

D. Escalation Procedure:

1. If grievance not resolved within timeline, escalate to next level.
2. Complainant can request escalation at any time.
3. PIU can escalate to FMEnv/AfDB for unresolved major grievances.
4. GBV cases are escalated to GBV Specialist immediately.

10.5 GBV-Sensitive GRM

A. Reporting Channels (GBV-Specific):

- Hotline: Dedicated number with female GBV Specialist.
- Female GRM Focal Points: Designated female staff at each PHC.
- Suggestion Boxes: Locked boxes (opened only by female focal point).
- Anonymous Reporting: Name not required.

B. GBV Case Handling Protocol:

- Survivor-Centered: Confidentiality, safety, respect, no retaliation, informed consent.
- Referral: Medical (PEP within 72 hours), psychosocial, legal, shelter.
- Sanctions: Warning → suspension → termination → legal prosecution.
- No Retaliation Policy: Zero tolerance for retaliation against survivors.
- Mandatory Reporting: Child abuse cases must be reported to police/Ministry of Women Affairs.

10.6 GRM Monitoring And Reporting

A. Monitoring Indicators:

Indicator	Target	Frequency	Responsible
Grievances received (by category)	Tracked	Monthly	PIU
Grievances acknowledged ≤48 hours	100%	Monthly	PIU
Grievances resolved ≤14 days	≥90%	Monthly	PIU
Grievances escalated	Tracked	Monthly	PIU
GBV cases referred to services	100%	Monthly	GBV Specialist
Survivor satisfaction	≥80%	Quarterly	IESM
Community satisfaction with GRM	≥80%	Quarterly	IESM

B. Reporting:

- **Monthly:** PIU receives GRM log from all channels.
- **Quarterly:** PIU reports anonymised GRM data to AfDB.
- **Annual:** GRM performance review.

10.7 GRM Budget Estimate

Component	Description		Cost (₦)
GRM Setup	Hotline, suggestion boxes, online portal, signage		2,500,000
GRM Staff Training	Training for CLOs, focal points, supervisors		1,500,000
GBV Specialist	Consultant for GBV-sensitive GRM		3,000,000
Community Awareness	Posters, flyers, radio announcements on GRM		1,500,000
GRM Operations	Hotline maintenance, box inspections, reporting		2,000,000
TOTAL			**10,500,000**

10.8 GRM Contact Information

Role	Contact	Location
GRM Hotline	0800-123-4567	Toll-free (Lagos State)
Female GRM Focal Point (Isolo)	[Name / Phone Number]	Isolo PHC
Female GRM Focal Point (Oba Salami)	[Name / Phone Number]	Oba Salami PHC
Female GRM Focal Point (Ojodu)	[Name / Phone Number]	Ojodu PHC
Female GRM Focal Point (Otumara)	[Name / Phone Number]	Otumara PHC
Community Liaison Officer (Isolo)	[Name / Phone Number]	Isolo
Community Liaison Officer (Oba Salami)	[Name / Phone Number]	Oba Salami
Community Liaison Officer (Ojodu)	[Name / Phone Number]	Ojodu

Community Liaison Officer (Otumara)	[Name / Phone Number]	Otumara
PIU Safeguards Team	[Phone / Email]	Alausa, Ikeja

10.9 Summary oKey Findings

Environmental and Social Context

- The Group 2 Mainland Axis comprises dense urban and peri-urban coastal/inland settings featuring high-density commercial/residential interfaces (Isolo, Oba Salami), heavy traffic corridors and commercial hubs (Ojodu), and waterlogged/lagoon-adjacent lowlands with sensitive drainage basins (Otumara).
- Asbestos-containing materials (ACM) are confirmed/suspected in the existing roof and ceiling structures designated for renovation/refurbishment (Isolo and Oba Salami).
- GBV/SEA/SH risks are medium to high, driven by high population density, active commercial activity surrounding facility gates, and incoming construction labor forces (Isolo, Oba Salami, Ojodu, Otumara).
- Climate and physical risks include severe flash flooding, high water tables, coastal/tidal inundation (Otumara), localized soil erosion from steep site runoff (Ojodu), and extreme urban heat stress.

Key Adverse Impacts (Unmitigated)

- **Critical:** Hazardous asbestos fiber exposure during roof/structure stripping (Isolo and Oba Salami); tidal flood inundation and subsurface water table contamination (Otumara); informal commercial vendor and access displacement (Otumara, Ojodu, Isolo); GBV/SEA/SH incidents during civil works; and healthcare waste mismanagement during operations.
- **Major:** Local labor influx tensions; urban emergency vehicle/ambulance access blockages (Isolo, Oba Salami, Ojodu); severe soil erosion and sediment runoff into municipal stormwater channels (Ojodu); and surface/groundwater contamination from construction effluents.
- **Moderate:** Construction dust and equipment noise emissions in densely populated residential/commercial zones, temporary traffic congestion, and solid construction/demolition waste generation.

Key Positive Impacts

- **Enhanced Primary Healthcare Access:** Modernized, climate-resilient PHC infrastructure serving over 350,000 residents across high-density urban mainland communities.
- **Improved Health Outcomes:** Substantial reductions in maternal, neonatal, and under-five mortality through upgraded emergency, clinical, and laboratory facilities.
- **Socio-Economic Development:** Local workforce recruitment (≥ 70% local labor target), skill development, and increased local procurement of materials.

- **Climate Mitigation & Clean Energy:** Transition to decentralized solar PV microgrids, eliminating reliance on diesel generators and reducing greenhouse gas (GHG) emissions.
- **Systemic Resilience:** Strengthened institutional capacity for environmental management, infection prevention control (IPC), and healthcare waste handling across the Lagos State primary healthcare system.

10.10 Summary of Mitigation Measures

The primary safeguard instruments and mitigation frameworks developed for the **Group 2 Mainland Axis** (**Isolo, Oba Salami, Ojodu, and Otumara**) include:

- **Environmental and Social Management Plan (ESMP - Chapter 7):** Comprehensive protocols for air quality and noise management, surface/groundwater protection (including Otumara lagoon buffer and Ojodu drainage), urban traffic control, Occupational Health and Safety (OHS), community engagement, a 4-tier Grievance Redress Mechanism (GRM), and quarterly monitoring.
- **Healthcare Medical Waste Management Plan (HMWMP - Chapter 8):** WHO-aligned segregation using standardized color-coded containers, on-site autoclave treatment, safe sharps containment, and licensed transport/disposal via LAWMA Medical Waste Management services.
- **GBV / SEA / SH Action Plan (Chapter 9):** Mandatory Codes of Conduct signed by 100% of workers, regular site inductions, female-led confidential reporting channels, and formal survivor referral pathways linked with the Mirabel Centre and LASG Domestic and Sexual Violence Agency (DSVA).
- **Asbestos Management Plan:** Pre-construction structural ACM surveys, licensed abatement contractor engagement, negative-pressure containment, Type 5/6 specialized PPE, and continuous airborne fiber PCM monitoring during refurbishment (**Isolo and Oba Salami**).
- **Abbreviated Resettlement Action Plan (ARAP):** Compensation at full replacement cost, commercial vendor relocation assistance, shoreline/access livelihood restoration support, and targeted vulnerability assistance (**Otumara, Ojodu, and Isolo**).
- **Labour Influx & Local Content Plan:** Enforced ≥70% local labor recruitment target, mandatory worker Code of Conduct enforcement, off-site worker housing guidelines, and community interaction rules.
- **Traffic & Public Safety Management Plan:** Speed limits, clear safety/warning signage, dedicated traffic flaggers, and scheduled off-peak deliveries to prevent obstruction of primary urban corridors and hospital/ambulance routes.

- **Occupational Health and Safety (OHS) Plan:** Provision of task-appropriate PPE, daily site toolbox talks, fall protection, excavation shoring, emergency response plans, and mandatory worker health surveillance.

With full implementation of these structured safeguard instruments, all identified environmental, social, health, and safety risks across the Group 2 Mainland Axis will be effectively reduced to acceptable levels.

10.11 Recommendations

10.11.1 Pre-Construction Recommendations

Table 10.2: Pre-Construction Recommendations and Required Actions

S/N	Pre-Construction Recommendation	Key Action / Requirement	Responsible Party	Timing
1	**Asbestos Abatement Planning**	Conduct mandatory ACM abatement at **Isolo and Oba Salami**. Where ACM is confirmed, engage licensed specialists and implement containment, removal and specialized disposal procedures.	PIU / Environmental & HSE Team / Contractor	Before refurbishment works
2	**GBV Service Provider MOUs & Referral Pathways**	Finalize MOUs with accredited GBV service providers, including **Mirabel Centre, MWAPA, Legal Aid Council and safe shelters**, covering medical, psychosocial, legal and shelter services.	PIU / GBV Specialist	Before construction
3	**GBV Specialist & Reporting Activation**	Recruit a qualified **Female GBV/SEA/SH Specialist**, appoint female focal points at all four PHCs, and establish confidential, survivor-centred reporting and referral channels.	PIU	Before mobilization

4	**Climate-Resilient Infrastructure Design**	Incorporate oversized drainage (**1:100-year event + 30% climate factor**), elevated FFL at **Otumara (+30% climate factor)**, elevated electrical panels, cool roofs and decentralized solar PV microgrids into final designs.	Design Team / PIU / Supervising Engineer	Before final design approval
5	**Regulatory Permitting**	Obtain required statutory approvals and environmental permits from **LASEPA, LAWMA, Ministry of Physical Planning and Urban Development**, and relevant LGAs.	PIU / Contractor	Before site handover
6	**Abbreviated RAP (ARAP) Execution**	Complete ARAP implementation for affected commercial vendors and informal land users at **Otumara, Ojodu and Isolo**, including **100% compensation and livelihood restoration support** before site clearance.	PIU / RAP Team	Before site clearing/civil works
7	**Contractor & PIU Safeguards Capacity Building**	Conduct pre-mobilisation training on **AfDB ISS, C-ESMP implementation, OHS requirements and Code of Conduct enforcement** for PIU, supervising engineers and contractor personnel.	PIU / Safeguards Team / Contractor	Before mobilisation

10.11.2 Construction Phase Recommendations

- **Strict C-ESMP Enforcement:** Enforce contractor adherence to site-specific C-ESMPs covering mist/water spray dust suppression, acoustic noise barriers, erosion control matting, concrete washwater management, and secondary bunded fuel containment.
- **GBV/SEA/SH Action Plan Execution:** Mandate signed Codes of Conduct for 100% of workers, enforce zero-tolerance policies, conduct monthly toolbox inductions, and maintain active monitoring of confidential grievance channels.
- **Local Labor Prioritization:** Enforce a minimum target of $\ge 70\%$ local recruitment for unskilled and semi-skilled labor from host communities in the Mainland Axis to minimize labor influx issues.
- **Comprehensive Environmental & Safety Monitoring:** Execute periodic testing for ambient air quality (PM_{10} $PM_{2.5}$), noise levels, surface/groundwater parameters, and continuous airborne fiber monitoring during asbestos handling at Isolo and Oba Salami.
- **Functional Grievance Redress Mechanism (GRM):** Maintain the 4-tier GRM, ensuring 48-hour formal acknowledgement and resolution of standard community and worker grievances within 14 calendar days.
- **Traffic & Public Access Management:** Implement robust Traffic Management Plans at Isolo, Oba Salami, and Ojodu, utilizing dedicated flaggers, safety barriers, and off-peak delivery schedules to avoid blocking main urban arteries and ambulance routes.
- **Tidal Flood & Shoreline Safeguards:** Deploy non-permeable subsurface containment barriers, silt fences, check dams, and shoreline access safety measures during groundworks at Otumara.
- **Quarterly Independent Audits:** Facilitate quarterly third-party compliance audits by the Independent Environmental and Social Monitor (IESM) and promptly implement identified corrective actions.

10.11.3 Operational Phase Recommendations

- **Healthcare Waste Management Plan (HMWMP) Execution:** Enforce strict point-of-generation segregation, color-coded waste bin utilization, sharp box management, and scheduled transport/disposal via licensed LAWMA medical waste contractors.
- **WHO Infection Prevention & Control (IPC) Standards:** Maintain continuous compliance with WHO IPC standards, including hand hygiene stations, regular equipment sterilization, universal PPE availability, and facility decontamination protocols.

- **Climate Adaptation Infrastructure Maintenance:** Perform routine maintenance on climate-resilient features, including clearing oversized drainage channels, inspecting flood barriers at Otumara, and maintaining reflective cool roofing.
- **Solar PV Microgrid Maintenance:** Execute routine cleaning of solar panels, battery system checks, and inverter servicing to ensure continuous, clean power supply and avoid reliance on diesel generators.
- **Sustained GBV Response & Patient GRM:** Maintain female-led operational GRM focal points at facility desks, conduct ongoing clinical staff training, and ensure active referral pathways for patients and community members.
- **Wastewater & On-Site Sanitation Services:** Perform regular inspection and desludging of non-permeable septic tank systems every 2–3 years to protect local groundwater tables.

10.11.4 Institutional Strengthening Recommendations

- **PIU Staffing Enhancement:** Strengthen the Project Implementation Unit (PIU) capacity by embedding dedicated, full-time Environmental, Social, and Gender/GBV Safeguards Officers specifically covering the **Group 2 Mainland Axis**.
- **Annual ESMP Review & Adaptive Management:** Conduct formal annual reviews of the ESMP, updating mitigation measures, monitoring indicators, and operational procedures based on IESM audit results, site realities, and stakeholder feedback.
- **Adequate Financial Allocation:** Guarantee the full release and ring-fencing of the dedicated ESMP implementation budget, ensuring uninterrupted funding for ARAP execution, asbestos abatement, continuous environmental testing, and GBV referrals.
- **Continuous Capacity Building:** Maintain structured, recurring training programs throughout the project lifecycle for civil works contractors, PHC facility operators, clinical staff, and host Ward Development Committees (WDCs).

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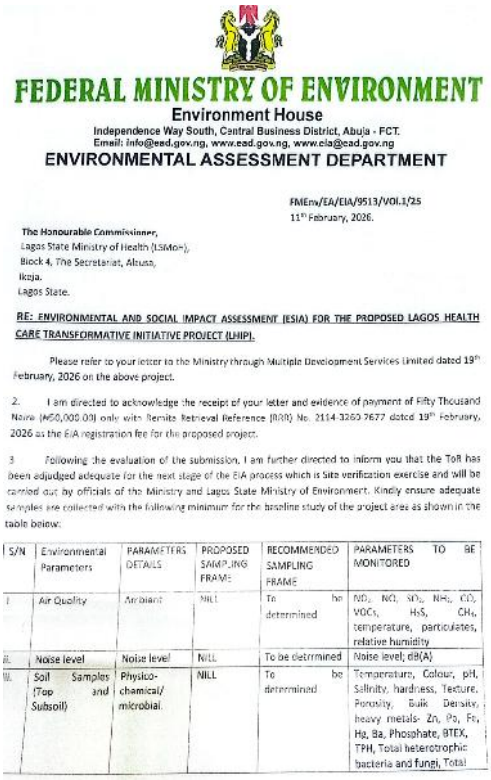
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APPENDICES

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.

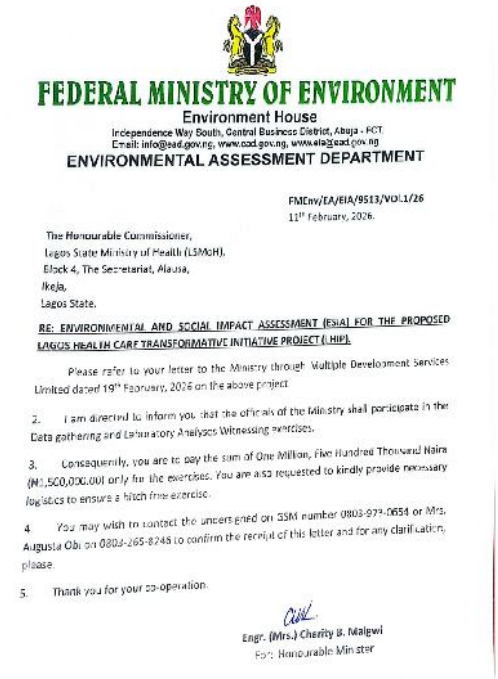
3 Following the evaluation of the submission, I am further directed to inform you that the ToR has been adjudged adequate for the next stage of the EIA process which is Site verification exercise and will be carried out by officials of the Ministry and Lagos State Ministry of Environment. Kindly ensure 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 detrmined	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.	Acil	To be determined	Temperature, Colour, pH, Turbidity, Salinity, hardness, heavy metals- Zn, Pb, Fe, Ni, 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 total 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 0803-265-8245 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.

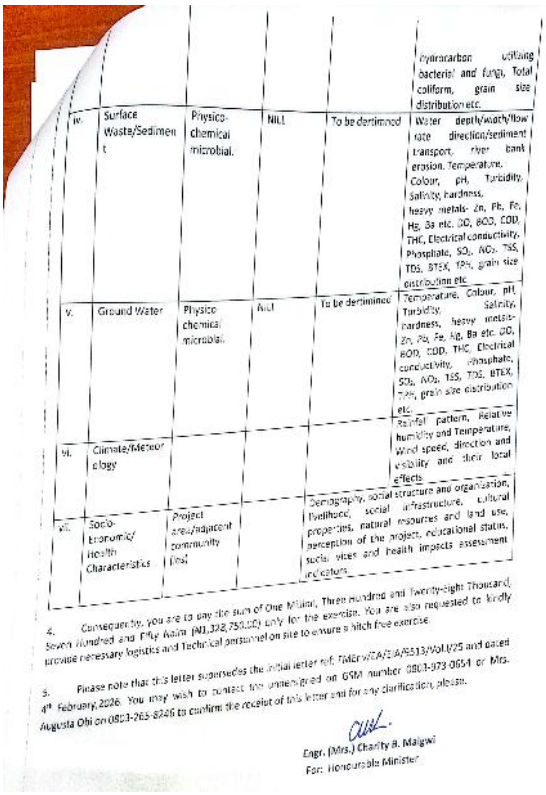
2. I am directed to inform you that the officials of the Ministry shall participate in the Data gathering and Laboratory Analyses Witnessing exercises.

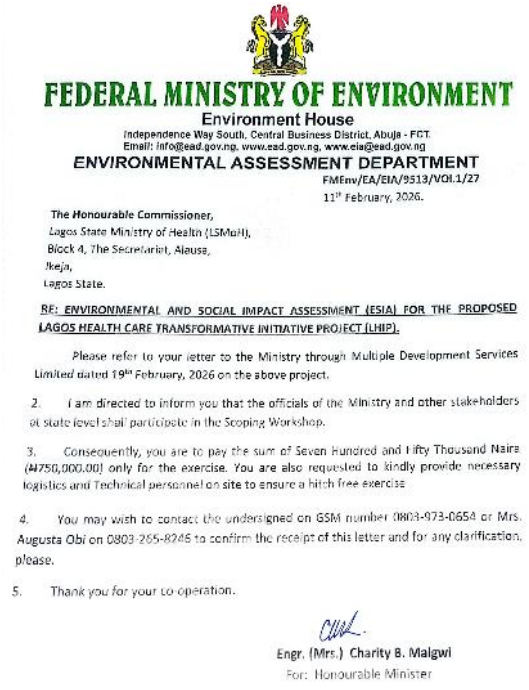
3. Consequently, you are to pay the sum of One Million, Five Hundred Thousand Naira (₦1,500,000.00) only for the exercises. You are also requested to kindly provide necessary logistics to ensure a hitch free exercise.

4. You may wish to contact the undersigned on GSM number 0803-973-0654 or Mrs. Augusta Obi on 0803-265-8245 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

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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 0803-265-8245 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	6.4555	3.9987
2	Idasho PHC	Ibeju Lekki	Lekki LCDA	Refurbishment	6.433116	3.982627
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 Mainland Axis Group 2.

2. Site Selection Criteria

- Minimum 500m distance from residential areas
- Minimum 100m distance from water bodies
- 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: Typical 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 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		

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		

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

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: LASUN 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

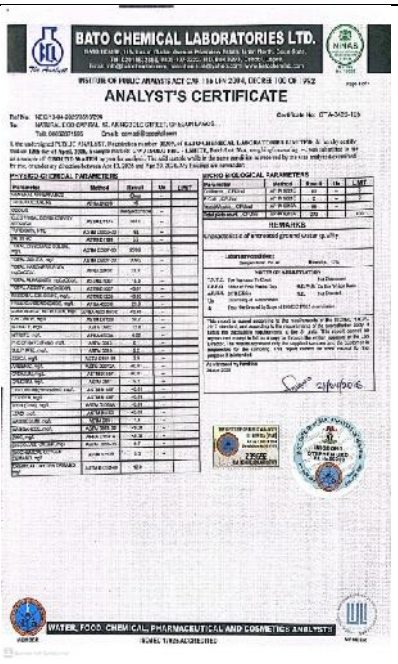
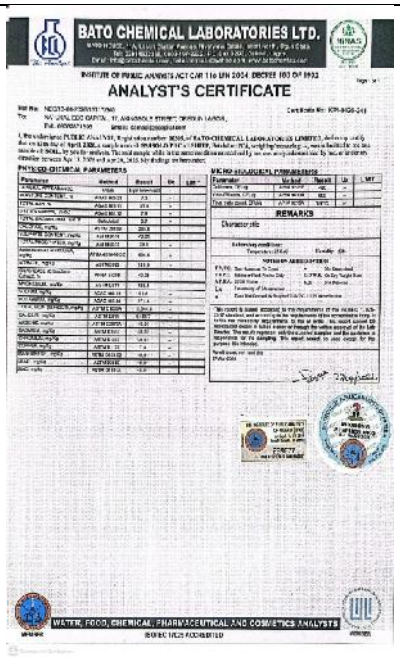
This Accreditation is granted subject to compliance with all regulations, Guidelines, Standards and Control criteria as may be issued by the Federal Ministry of Environment from time to time.

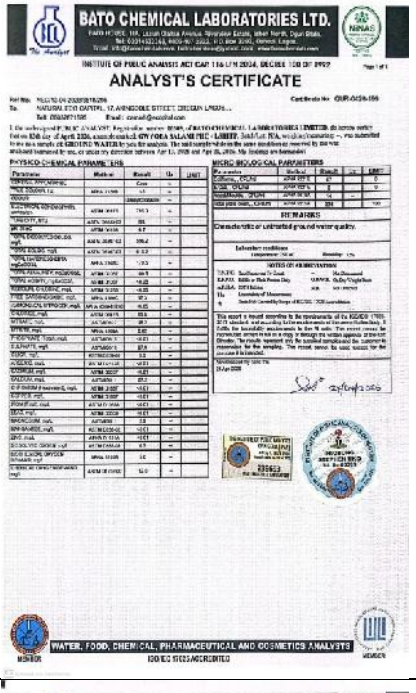
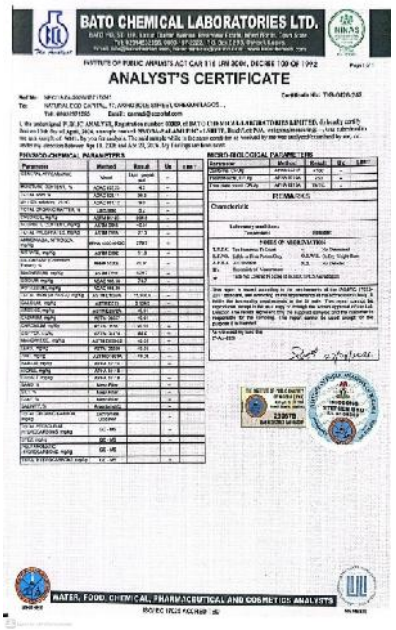
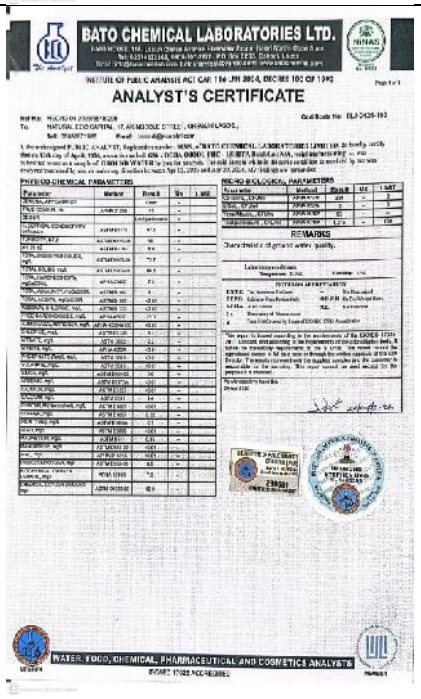
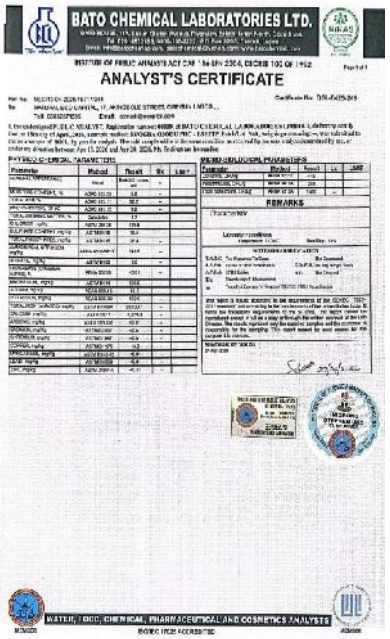
Date of Issue: 26TH JANUARY, 2022 Expiry Date: 25TH JANUARY, 2027

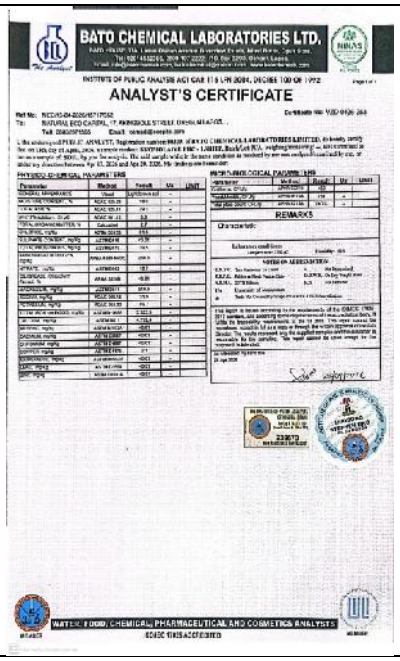
Seal of the Federal Ministry of Environment

FMENV shall not be liable to any claim(s) under this permit

Permanent Secretary

Isolo 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

Oba Salami		
Ogba Ojodu PHC		

Otumara PHC		

BATO CHEMICAL LABORATORIES LTD.

ANALYST'S CERTIFICATE

REMARKS

WATER, FOOD, CHEMICAL, PHARMACEUTICAL AND COSMETICS ANALYSTS

Appendix 5: Summary of Baseline Laboratory Results

GROUNDWATER QUALITY RESULT

Parameter	**Isolo PHC SP1**	**Isolo PHC SP2**	**Oba Salami PHC SP1**	**Oba Salami PHC SP2**	**Ojodu PHC SP1**	**Ojodu PHC SP2**	**Otumara PHC SP1**	**Otumara PHC SP2**	**Regulatory Limit (WHO/NESREA/FMEnv/IFC)**
Coordinates	6.528600, 3.320794	6.528855, 3.320839	6.522283, 3.368430	6.522136, 3.368640	6.631394, 3.342318	6.631077, 3.342094	6.477588, 3.374566	6.477751, 3.374845	—
Appearance	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
True Colour (Hz)	<5	<5	<5	<5	<5	<5	<5	<5	<15
Odour	Unobjectiona ble	Unobjectionabl e	Unobjectiona ble	Unobjectiona ble	Unobjectiona ble	Unobjection able	Unobjectionab le	Unobjectionab le	Unobjectionable
EC (µS/cm)	387.0	795.0	795.0	97.0	97.0	1,305.0	1,305.0	1,305.0	1000
Turbidity (NTU)	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	5
Ph	5.7	6.7	6.7	5.6	5.6	5.9	5.9	5.9	6.5–8.5
TDS	290.2	596.2	596.2	72.7	72.7	978.7	978.7	978.7	500

(mg/L)									
Total Solids (mg/L)	309.2	615.2	615.2	86.6	86.6	999.7	999.7	999.7	500
Total Hardness (mg/L)	28.8	179.5	179.5	7.3	7.3	181.4	181.4	181.4	200
Total Alkalinity (mg/L)	18.3	100.5	100.5	9.1	9.1	45.7	45.7	45.7	200
Chloride (mg/L)	38.7	65.8	65.8	9.1	9.1	26.2	26.2	26.2	250
Nitrate (mg/L)	12.8	16.2	16.2	2.2	2.2	14.7	14.7	14.7	50
Sulphate (mg/L)	2.2	27.0	27.0	<0.01	<0.01	33.9	33.9	33.9	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	6.7	6.7	6.8	6.8	6.6	6.6	6.6	≥5
BOD (mg/L)	5.0	5.0	5.0	7.0	7.0	5.0	5.0	5.0	≤6

COD (mg/L)	12.0	12.0	12.0	12.0	12.0	8.0	8.0	8.0	≤10
Total Coliform (CFU/ml)	213	57	57	231	231	69	69	69	0
E. coli (CFU/ml)	0	0	0	0	0	0	0	0	0
Yeast/Mould (CFU/ml)	308	14	14	63	63	62	62	62	—
Total Plate Count	1,257	334	334	1,315	1,315	149	149	149	≤100

SOIL QUALITY RESULT

Parameter	**Isolo SP1**	**Isolo SP2**	**Isolo SP3**	**Oba Salami SP1**	**Oba Salami SP2**	**Oba Salami SP3**	**Ogba Ojodu SP1**	**Ogba Ojodu SP2**	**Ogba Ojodu SP3**	**Otumara SP1**	**Otumara SP2**	**Otumara SP3**	**Regulatory Limit (WHO/NESREA/FMEnv / IFC)**
Coordinates	6.528691, 3.320794	6.528673, 3.320639	6.528855, 3.320839	6.522283, 3.368430	6.522386, 3.368621	6.522136, 3.368640	6.631272, 3.342318	6.630970, 3.341726	6.631077, 3.342094	6.477588, 3.374566	6.477534, 3.374687	6.477751, 3.374845	—
Appearance	Light brown soil	Light brown soil	Light brown soil	Light greyish soil	Light greyish soil	Light greyish soil	Reddish brown soil	Reddish brown soil	Reddish brown soil	Dark brown loamy soil	Dark brown loamy soil	Dark brown loamy soil	—
Moisture Content (%)	7.3	7.0	7.2	4.3	4.5	4.4	5.0	5.2	5.1	13.4	13.0	13.6	—

Total Ash (%)	37.0	36.5	37.5	90.5	89.8	91.0	90.2	89.5	90.8	84.9	84.0	85.5	—
pH	7.9	7.8	8.0	9.0	8.8	9.1	9.2	9.0	9.3	8.9	8.7	9.0	6.0 – 8.5
Total Organic Matter (%)	5.7	5.6	5.8	5.2	5.1	5.3	4.7	4.6	4.8	1.8	1.7	1.9	—
Chloride (mg/kg)	235.5	230.0	238.0	201.8	198.0	205.0	129.5	128.0	131.0	91.3	90.0	92.0	250
Sulphate (mg/kg)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	79.5	78.0	80.0	<0.01	<0.01	<0.01	1000
Phosphate (mg/kg)	39.0	38.0	40.0	27.0	26.5	27.5	26.4	26.0	27.0	47.0	46.0	48.0	—
Ammoniacal N (mg/kg)	484.4	475.0	490.0	279.7	275.0	285.0	243.6	240.0	248.0	79.6	78.0	82.0	—
Nitrate (mg/kg)	119.9	115.0	122.0	11.9	12.2	12.0	8.8	8.5	9.0	9.4	9.2	9.6	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
Magnesiu	465.4	460.0	470.0	528.7	525.0	535.0	556.0	550.0	560.0	417.7	410.0	420.0	—

m (mg/kg)													
Sodium (mg/kg)	91.8	90.0	93.0	78.7	77.0	80.0	50.5	49.0	52.0	35.6	35.0	36.5	200
Potassium (mg/kg)	271.3	265.0	275.0	211.7	208.0	215.0	162.0	160.0	165.0	99.2	98.0	101.0	—
Total Iron (mg/kg)	15,344.4	15,200.0	15,500.0	15,906.6	15,700.0	16,200.0	22,023.1	21,800.0	22,300.0	14,579.0	14,400.0	14,800.0	50,000
Calcium (mg/kg)	4,451.7	4,300.0	4,600.0	6,104.3	6,000.0	6,200.0	4,279.3	4,200.0	4,350.0	3,445.1	3,400.0	3,500.0	—

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)	7.8	7.5	8.0	81.0	79.0	83.0	13.2	13.0	13.5	11.8	11.5	12.0	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)	<80	<75	<85	<100	<95	<105	<45	<50	<48	<25	<30	<28	0
Yeast/Mould (CFU/g)	500	490	510	250	245	255	280	275	285	621	610	630	—
Total Plate Count	TNTC	TNTC	TNTC	TNTC	TNTC	TNTC	TNTC	TNTC	TNTC	1,121	1,100	1,150	≤1000

(CFU/g)													

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 the Group 2 Mainland Axis sites (Isolo, Oba Salami, Ojodu, and Otumara PHCs), 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, OS2, OS4, WHO Asbestos Guidelines (2014), and 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 including children, the elderly, and pregnant women.
- Establish monitoring, reporting, and emergency response procedures.
- Ensure only licensed asbestos contractors conduct removal activities.

3.0 Asbestos Identification & Survey Procedures

- **Pre-Removal Survey:** A licensed FMEnv-accredited asbestos assessor shall conduct visual inspections of roofing sheets, ceiling boards, insulation, and pipe lagging; material sampling using wet-method extraction; laboratory analysis via PCM/TEM methods; risk classification (friable vs. non-friable); and develop a site-specific ACM inventory.
- **Suspected ACM Locations (Group 2 Mainland Axis):**
    - **Isolo PHC:** Older roofing sheets and ceiling boards in primary structures.
    - **Oba Salami PHC:** Suspected ACMs in roofing sheets and ancillary storage facilities.
    - **Ojodu PHC:** Older ancillary structures and ceiling insulation materials.
    - **Otumara PHC:** Precautionary screening required for older roofing and partition boards.

4.0 Asbestos Removal Procedures

- **Contractor Requirements:** Only FMEnv-licensed asbestos abatement contractors may perform removal, having submitted an Asbestos Removal Plan (ARP), worker training certificates, a PPE inventory, a waste transport permit, and an emergency response plan.
- **Site Preparation:** Establish a 20–50 m exclusion zone around the work area; install warning signage ("DANGER: ASBESTOS – KEEP OUT"); erect temporary fencing and restrict public access; shut down HVAC systems to prevent fiber spread; and notify LASEPA and FMEnv 72 hours before removal.
- **Removal Method (Wet Method – WHO Standard):** Continuously wet ACMs with a surfactant solution; remove sheets intact without breaking, cutting, drilling, or sanding; use hand tools only with no power tools; place ACMs in 6-mil thick double-bagged asbestos waste bags; and seal bags with duct tape labeled "ASBESTOS WASTE – DO NOT OPEN".
- **Worker Protection:** Workers must use full-face P3 respirators, disposable coveralls, nitrile gloves, rubber boots, and eye protection, alongside undergoing medical screening, fit-testing, and asbestos safety training.

5.0 Transport & Disposal Procedures

- **Transport:** Utilize FMEnv-licensed hazardous waste transporters with sealed vehicle compartments to transport waste directly to approved disposal sites.
- **Disposal:** Disposal must occur at a LAWMA-approved hazardous waste landfill or an FMEnv-licensed asbestos burial pit, backed by a waste manifest detailing the quantity removed, time/date of transport, disposal site signature, and chain-of-custody documentation.

6.0 Air Monitoring & Clearance Testing

- **During Removal:** Continuous air monitoring using PCM/TEM is required, maintaining an acceptable limit of ≤ 0.1 fibers/ml (WHO standard) with strict stop-work protocols if thresholds are exceeded.
- **Post-Removal Clearance:** Conduct final air sampling, perform a visual inspection for debris, and issue an Asbestos Clearance Certificate.

7.0 Emergency Response Procedures

- **Emergency Scenarios:** Covers accidental breakage of ACM, bag rupture, worker exposure, or unauthorized access to the exclusion zone.

- **Response Steps:** Stop work immediately, evacuate non-essential personnel, wet the contaminated area, seal broken ACM in new bags, conduct emergency air monitoring, report incidents to the PIU, LASEPA, and FMEnv within 24 hours, and document corrective actions.

8.0 Community Protection Measures

- Conduct community sensitization before removal across the Mainland axis communities.
- Provide GBV-sensitive communication for women and the elderly.
- Ensure school children are kept away from work zones.
- Install dust screens and wind barriers.
- Maintain a 24-hour Community Liaison Officer (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, and clearance certificates issued.
- **Reporting Frequency:** Daily contractor reports, weekly PIU updates, monthly reports to AfDB, and a 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	Oba Salami PHC Yaba - Lagos Mainland

Date	April 9, 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	Introduction began with officials of the Federal Ministry of Environment (Representatives of the Federal Minister of Environment, Controller of Environment, Lagos State),the representatives of the Lagos State Ministry of Health, the project proponents (on behalf of the Lagos State Government), 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 Centers (PHC) communities included chiefs and elders under the Oba Salami (Lagos Mainland) zone also introduced themselves. 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 is also being monitored to ensure it complies with provided guidelines. Dr Taiwo who represented the Senior Special Assistant to the Lagos State Commissioner of Health gave insight on the proposed project. He said it was conceptualised to transform the level of health care delivery at various local levels 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. A total of 30 facilities have been scheduled under this scheme made up of 29 PHCs and one general hospital. Out of this the Lagos Mainland zone will have 5. The new prototype will accommodate personnel, patients with adequate facilities. There will also be a planned scheme to ensure the 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 prototype design has been produced for use and to guide the structural outlook of the medical centers. 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 in 2027. 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 successful execution. He then made a presentation on the project design including the four 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 ask questions and 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. It outlines the process for data collection and analysis keeping to set standards for guidance.
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	1. In view of the lack of availability of space for expansion, could the conversion of the present Oba salami PHC to a duplex be considered? 2. Considering the flooding being experienced at Isolo PHC, can reconstruction be considered instead of rehabilitation? 3. Will the facilities be further equipped to handle Dental and Eye services? 4. Will the new facilities operate for 24 hours? 5. How can the government prevent the spread should there be breakout of communicable diseases? The Oba Salami facilities share a fence with a school. 6. What is the guarantee that there will be adequate power supply? 7. Will the new PHCs be equipped to carry out surgeries? 8. Who will be responsible for the maintenance of the facilities after completion? Will it be the Ministry of Health or the Local government? 9. What is the plan for waste management, ensuring cleanliness after completion?
Stakeholders' Specific needs from the project	1. Please consider the use of proper materials to make the new structures of modern standards and also sustainable. 2. To ensure a total halt of services during construction, please consider the use of temporary structure for continued services to patients. 3. The structures should be easy to maintain Consider the inclusion of the communities in the location of new PHCs facilities. Include indigenes for employment during the construction and operation of the new facilities

Responses to Stakeholders' Needs, concerns/How addressed by the project (Design/Operation)	1. Sustainability - The Lagos State Government has given this priority. Top quality materials will be used. AfDB that is supporting the project will monitor the materials to be used and the construction up to completion. 2. There will guaranteed and adequate 24 hours power supply through installation of Solar Power facilities. 3. The present administration in the state wants it completed and commissioned before the tenure ends in 2027, affirming the certainty of execution. 4. The three different aspects will be meticulously handled to ensure quality and durability. 5. The various communities will be involved in the project life circle. There will be continuous engagement of key stakeholders - leaders, youth, traditional rulers - local people who can supply top quality materials will engaged. 6. There will be facilities for the accommodation of medical personnel to ensure their round the clock presence. 7. Also considered are the installation of required medical equipment for adequate treatment. 8. Adequate training has been considered an important aspect of the project. 9. Adequate waste management especially medical waste will be in place. 10. The PHCs included in the new project are: Oba Salami (Lagos Mainland) PHC Isolo PHC Agboyi (Kosofe) PHC Ogba Ojodu (Oshodi Isolo) PHC Otumara (Yaba, Mainland) PHC

(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.







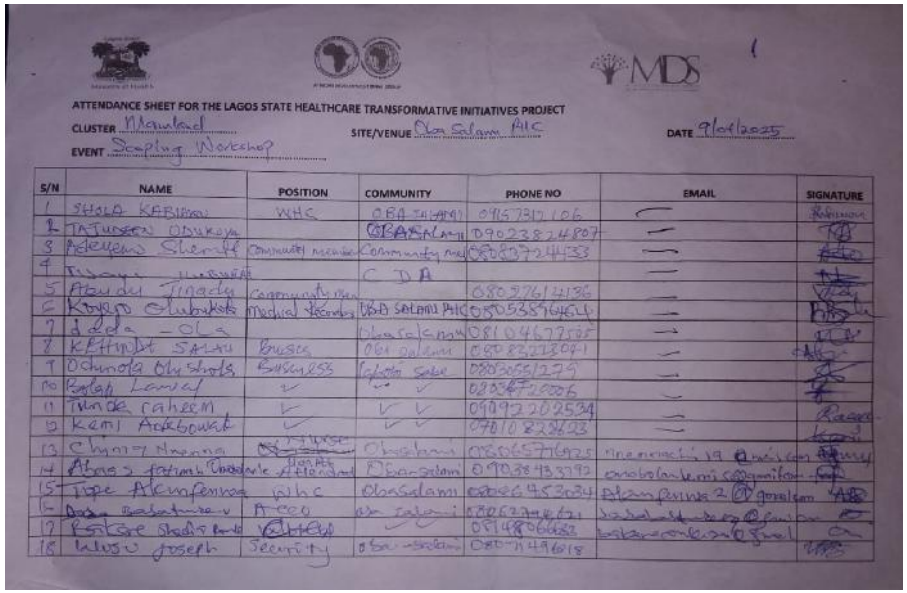








Appendix 7.2: Attendances Sheet

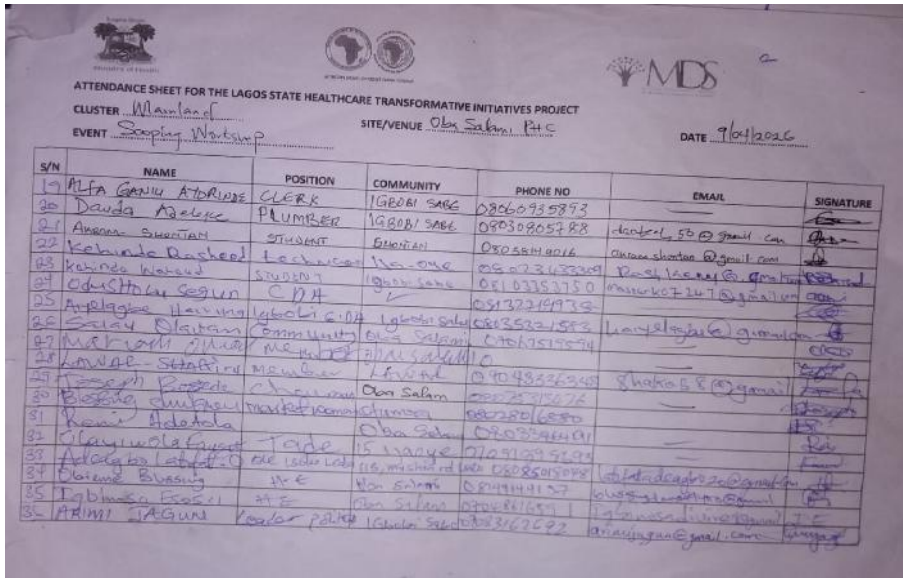


ATTENDANCE SHEET FOR THE LAGOS STATE HEALTHCARE TRANSFORMATIVE INITIATIVES PROJECT

CLUSTER Mainland SITE/VENUE Oba Salami PHC DATE 9/04/2025

EVENT Scoping Workshop

S/N	NAME	POSITION	COMMUNITY	PHONE NO	EMAIL	SIGNATURE
1	SHOLA KABIRAT	WHC	OBA SALAMI	0915731106		
2	TAJUDEEN ODUKOYA		OBA Salami	09023824807		
3	Adeyemo Sherriff	Community member	Community member	08037244733		
4						
5	Azuaku Ifeacty	community man	C D A	08037614136		
6	Kayode Olubukola	Medical Records	OBA SALAMI PHC	08053876454		
7	Idola - Ola		Obasalami	08104677705		
8	KAMIYAT SALAU	Busic	Oba salami	09082213041		
9	Odunola Olushola	Business	Igbobi Sabe	08032651279		
10	Rafiah Lawal	✓	✓	08038722026		
11	Tunde raheem	✓	✓ ✓	09097209534		
12	Kemi Adekoya	✓	✓ ✓	07010822633		
13	Chima Nwanna	Fitness	Obasalami	08065776925	nnaemeka19@yahoo.com	
14	Abass fatimah Omolola	Health Attendant	Obasalam	07038433393	omololakemi@gmail.com	
15	Tope Akinfenwa	phc	Obasalami	08066453034	akinfenwa2@gmail.com	
16	Dada Babatunde	Accountant	Oba salami	08062798621	babatundedada@gmail.com	
17	Kehinde Shadiat	Volunteer		08148066683	kehindeolaosun@gmail.com	
18	Ukwu joseph	Security	Oba salami	08074496018		

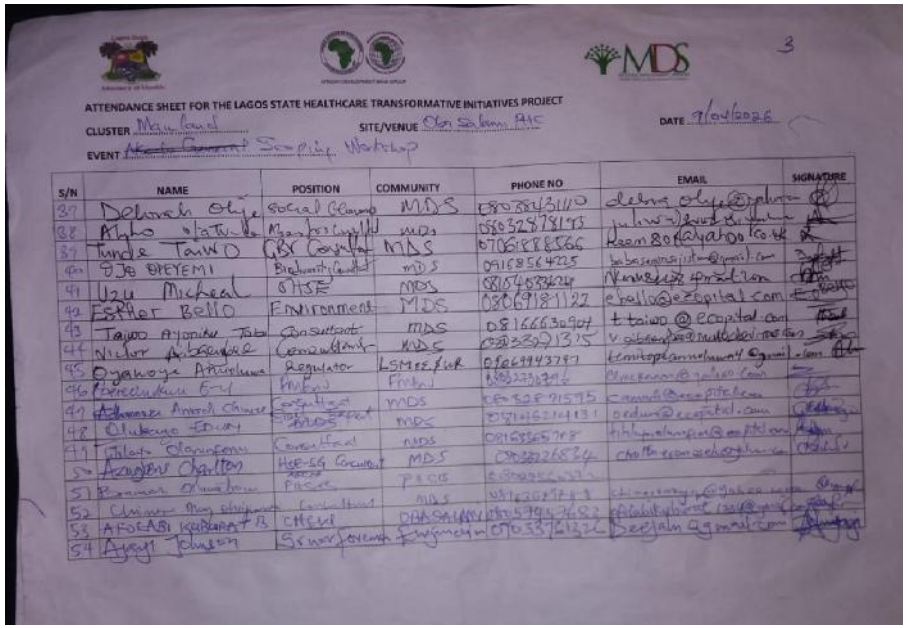


ATTENDANCE SHEET FOR THE LAGOS STATE HEALTHCARE TRANSFORMATIVE INITIATIVES PROJECT

CLUSTER Mainland SITE/VENUE Oba Salami PHC DATE 9/04/2026

EVENT Scoping Workshop

S/N	NAME	POSITION	COMMUNITY	PHONE NO	EMAIL	SIGNATURE
19	ALFA GANIU ATORINDE	CLERK	IGBOBI SABE	08060935893		
20	Dauda Abdulc	PLUMBER	IGBOBI SABE	08030805788		
21	Akanni Sherriam	STUDENT	Ejigbo	08058149016		
22	Kehinde Rasheed	Technician	Ijeu-ode	09023433209		
23	Odusholu Segun	STUDENT	Igbobi Sabe	08103353750		
24	Aregbesola Hannah	CDA	✓	08137249738		
25	Salau Olaitan	Igbobi CDA	Igbobi Sabe	08135321583		
26	Muriam Muri	Community member	Oba Salami	08067515594		
27	Lawal - Shafiu	Member	FINAL SAMPLE	0		
28	Joseph Rotimi	Chairman	Ijeodu	09043436365		
29	Bisiriu Quadri	market woman	Oba Salam	08132015676		
30	Kemi Adetola		Chairman	08132015676		
31	Olayiwola Ismail	Tailor	Oba Salami	08039441491		
32	Adedapo Lateef	CHE	15 Iyaye	07091394294		
33	Olaiemo Blessing	HE	Ijeodu Lasaki	08085015098		
34	Igbinosa Fosci	HE	Oba Salami	08094441137		
35	ARIMI JAGUN	Vendor patrol	Igbobi Sabe	08036167692		



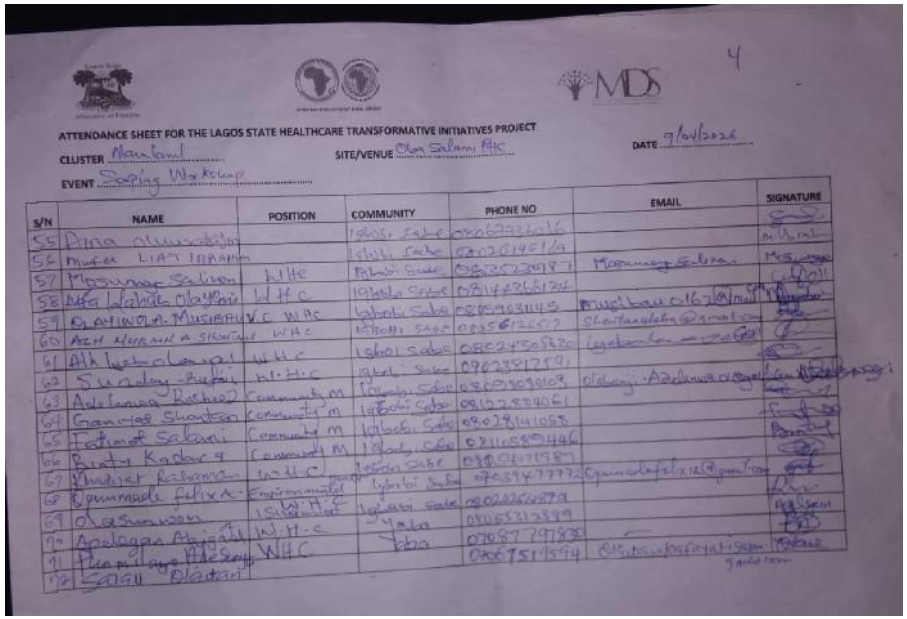
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ATTENDANCE SHEET FOR THE LAGOS STATE HEALTHCARE TRANSFORMATIVE INITIATIVES PROJECT

CLUSTER Mainland SITE/VENUE Ola Salami, PHC DATE 9/04/2026

EVENT ~~Health Summit~~ Scoping Workshop

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46	Ekeocha Ikenna G-4	Analyst	Finbud	[illegible]	[illegible]	
47	Adewunmi Ameen Oluwa	Consultant	MDS	+234 8035 971595	[illegible]	
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51	Ronnie Olawuyi	PASS	PASS	08080562333		
52	Chinwe Ifeyinwa	Consultant	MDS	08163687878	[illegible]	
53	AFOLABI KEHINDE A.	CMEL	OLA SALAMI	08035995482	afolabikehinde.ca@gmail.com	
54	Ajayi Johnson	Supervisor	Engineering	07033761326	Seejahn@gmail.com	



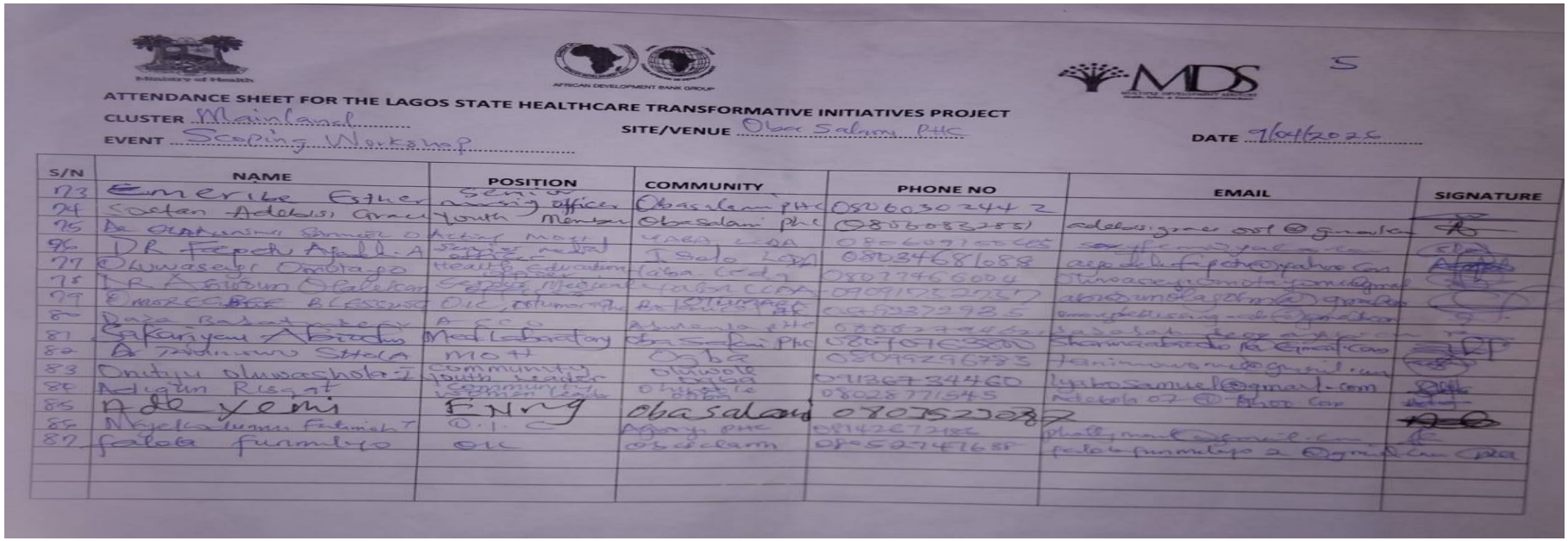
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ATTENDANCE SHEET FOR THE LAGOS STATE HEALTHCARE TRANSFORMATIVE INITIATIVES PROJECT

CLUSTER Mainland SITE/VENUE Ola Salami, PHC DATE 9/04/2026

EVENT Scoping Workshop

S/N	NAME	POSITION	COMMUNITY	PHONE NO	EMAIL	SIGNATURE
55	Rina Oluwasolaja		Igbobi, Sabo	08068736616		
56	Musa LIATU IBRAHIM		Ishiti, Sabo	08028145164		
57	Mosunmo Salawu	WHC	Akiwo Sabo	08025720987	Mosunmosalawu@gmail.com	
58	Mrs Lateefat Olayemi	WHC	Igbobi Sabo	08114726124		
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60	ADEH ADEBAYO A SHOLA	WHC	IGBOBI SABO	08056726517	Shollaadeh@gmail.com	
61	Alh Lateef Olaniyi	WHC	Igbobi Sabo	08024750826	Lateefolaniyi@gmail.com	
62	Sunday Ajibade	WHC	Igbobi Sabo	07023512591		
63	Adelawun Rachael	Community M	Igbobi Sabo	08079098109	olalanji.Azeezawo@yahoo.com	
64	Ganiyat Shontan	Community M	Igbobi Sabo	08139141058		
65	Fatimat Sabani	Community M	Igbobi Sabo	08139141058		
66	Biaty Kadara	Community M	Igbobi Sabo	08141171987		
67	Khadijat Rahman	WHC	Igbobi Sabo	07034777772	Equinoxlafelix1@gmail.com	
68	Equinoxle Felix A.	Environmental	Igbobi Sabo	08028564879		
69	Olasunwon	WHC	Igbobi Sabo	08065313899		
70	Apalagba Abigail	WHC	Yaba	07087797830		
71	Thompson Adesoye	WHC	Ebute	08075115994	Olufunmilayothompson@gmail.com	
72	SAIGU Olaitan					



ATTENDANCE SHEET FOR THE LAGOS STATE HEALTHCARE TRANSFORMATIVE INITIATIVES PROJECT

CLUSTER Mainland

EVENT Scoping Workshop

SITE/VENUE Obasa Salvation PHC

DATE 9/04/2025

S/N	NAME	POSITION	COMMUNITY	PHONE NO	EMAIL	SIGNATURE
73	Emeribe Esther	Senior nursing officer	Obasa Salvation PHC	08060302442		
74	Soetan Adeleke Grace	Youth Member	Obasa Salvation PHC	(08060832551)	adelekegrace001@gmail.com	
75	Dr Olatunji Samuel O.	Acting MOH				
76	DR Fesobi Ajadi. A	Senior medical officer	Isolo LCDA	08034681688		
77	Oluwasegun Omolayo	Health education officer	Isolo LCDA	08077466064	Oluwasegunomolayo@gmail.com	
78	DR Asiribun Olalekan	Senior Medical officer	Isolo LCDA	09091022027		
79	Omorefe Blessing	OIC, Pharmacy	Ajeromi PHC	08059379935		
80	Daja Bakare	A.C.O	Ajeromi PHC	08067744452		
81	Sefunyemi Abiodun	Med Laboratory	Obasa Salvation PHC	08070763800	Shamsideendo@gmail.com	
82	Dr Taninuwo Stella	MOH	Ogba	08099296785	Taninuwostella@gmail.com	
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84	Adigun Risqat	Community women leader	Oluwole Lisaba	08028771545	Adeleke 07 @gmail.com	
85	Adeyemi	FNrg	Obasalvation	08075220887		
86	Nkechi Juliana Fatunsin T	O.I.C	Agoyi PHC	08142671286		
87	Falola Funmilayo	OIC	Obasalam	08052741655	falolafunmilayo@gmail.com	

Appendix 8: FMEnv Field Attestation Register

Project: Lagos State Health Infrastructure Project (LSHIP) – Mainland (Group 2)

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.

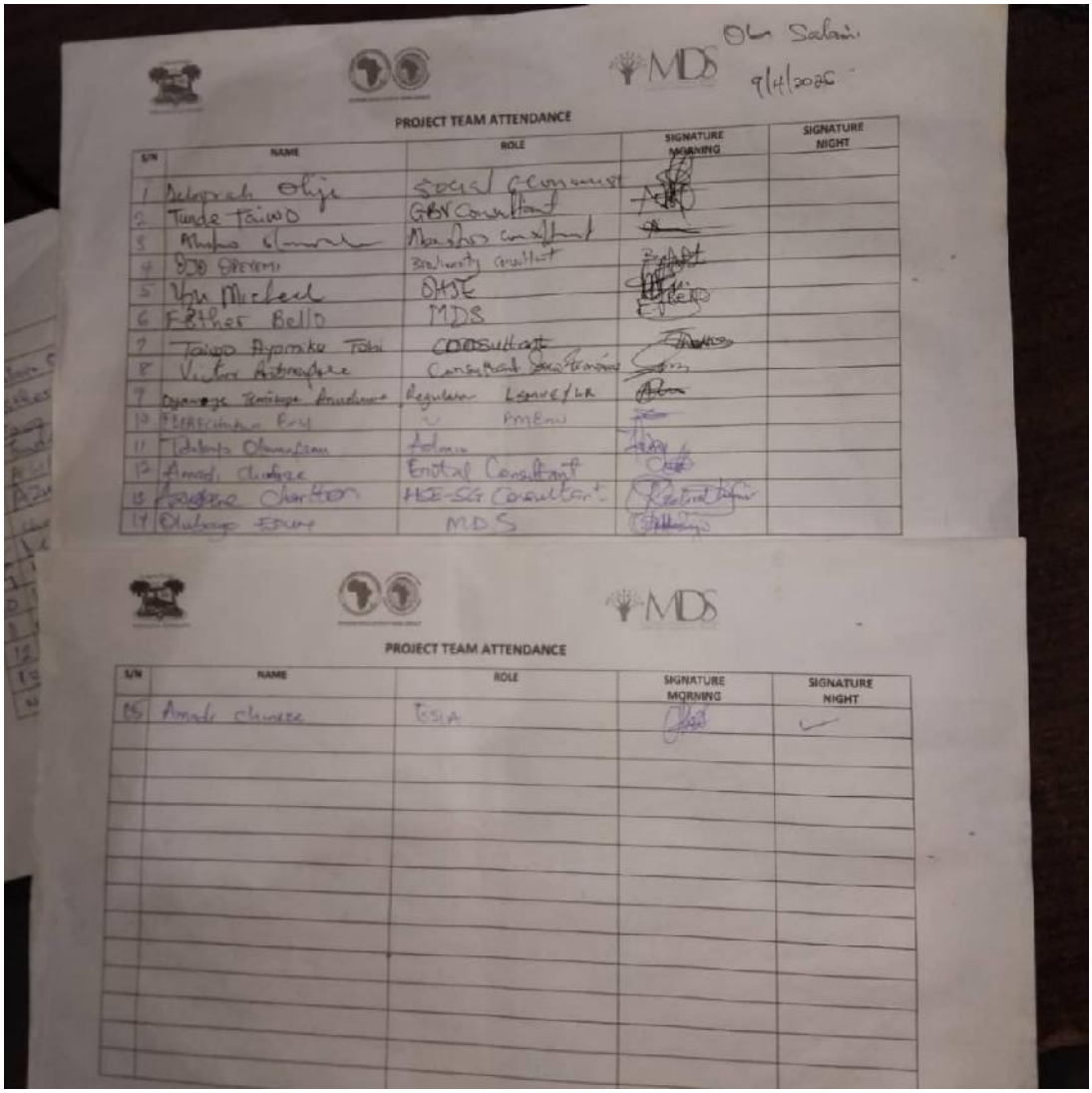
Position **Signature** **Date**

ESIA Lead Consultant

FMEnv Representative (Abuja)

FMEnv Representative (Lagos Zonal Office)

PIU Project Manager



PROJECT TEAM ATTENDANCE

S/N	NAME	ROLE	SIGNATURE MORNING	SIGNATURE NIGHT
1	Babajide Olaje	Social Economist		
2	Tunde Taiwo	GBV Consultant		
3	Mufuo Olawale	Monitoring Consultant		
4	DDD OPEYEMI	Biodiversity Consultant		
5	Yau Michael	OHSE		
6	Father Bello	MDS		
7	Taiwo Ayomike Tobi	COO Consultant		
8	Victor Aibangbee	Consultant Socio Economic		
9	Oyamoje Benisoye Anuduwo	Regulator Lagos S/LA		
10	FEDERICO Fey	PMEnv		
11	Tidoko Olawuyi	Admin		
12	Amadi Chinedu	Envtal Consultant		
13	Ogunleye Olawale	HSE-SS Consultant		
14	Olubunmi Esan	MDS		

PROJECT TEAM ATTENDANCE

S/N	NAME	ROLE	SIGNATURE MORNING	SIGNATURE NIGHT
15	Amadi chinedu	ESIA		✓

APPENDIX 9: TRAFFIC MANAGEMENT PLAN (TMP)

A. Purpose

This Traffic Management Plan (TMP) ensures safe movement of vehicles, workers, and community members during construction of the four PHC facilities in the Mainland Axis.

B. Traffic Impact by Site (Group 2 Mainland Axis)

Site	Baseline Traffic (AADT)	Construction Traffic (Peak)	Risk Level	Key Traffic Drivers & Constraints
Isolo PHC	8,000–12,000	15–25 vehicle trips/day	● **High**	Dense urban commercial zone, narrow access roads, proximity to Isolo market and main arterial congestion; requires off-peak haulage and dedicated flaggers.
Oba Salami PHC	5,000–10,000	10–20 vehicle trips/day	□ **Medium-High**	High-density residential/commercial interface, tight street turnings, active pedestrian traffic; delivery scheduling required to prevent lane blockage.
Ojodu PHC	10,000–18,000	15–25 vehicle trips/day	● **High**	Major transit corridor (Berger/Ojodu hub linkage), heavy peak-hour traffic jams; strict traffic management and staging area controls essential.
Otumara PHC	1,000–3,000	10–15 vehicle trips/day	□ **Medium-High**	Constrained access routes in coastal/lagoon settlement, narrow community roads, pedestrian-dense alleys; off-site parking and marshals required.

C. Mitigation Measures

1. Delivery Scheduling:

- Deliver materials 9:00-16:00 (avoid peak hours 7:00-9:00, 17:00-19:00)
- Schedule concrete pours during low-traffic periods
- Coordinate with local authorities on road closures

2. Signage and Communication:

- Install warning signs 200m from construction entrances
- Post speed limit signs (30 km/h zones)
- Display construction schedule notices in communities
- Use variable message boards where feasible

3. Traffic Control:

- Deploy trained traffic marshals at site entrances
- Use stop/go paddles or portable traffic lights where needed
- Maintain clear sightlines at entry/exit points
- Provide safe crossing points for pedestrians

4. Access Management:

- Maintain access to all homes and businesses
- Provide alternative routes where roads are closed
- Ensure emergency vehicle access maintained
- Install temporary footpaths where pedestrian access is disrupted

5. Worker Transport:

- Provide designated parking for worker vehicles
- Encourage carpooling and shuttle services
- Separate worker vehicle entry from material delivery routes
- No parking on public roads

6. Emergency Access:

- Maintain clear access for ambulances and fire trucks
- Designate emergency access route with signage
- Provide site layout maps to emergency services
- Train security personnel on emergency access procedures

D. Monitoring

Indicator	**Target**	**Frequency**	**Responsible**
Traffic incidents	Zero	Daily	Site Supervisor
Signage compliance	100%	Weekly	HSE Officer
Speed limit compliance	100%	Weekly	Security
Community complaints	Resolve ≤14 days	Ongoing	CLO
Emergency access	Maintained	Daily	Site Supervisor

E. Contact List for Traffic Management

Role	Name	Phone Number
Site Traffic Marshal (Isolo)	*[Name]*	*[Phone]*
Site Traffic Marshal (Ojodu)	*[Name]*	*[Phone]*
Site Traffic Marshal (**Oba Salami**)	*[Name]*	*[Phone]*
Site Traffic Marshal (Otumara)	*[Name]*	*[Phone]*
Ibeju-Lekki LGA Traffic Department	*[Name]*	*[Phone]*
LASEMA Emergency	—	112

APPENDIX 10: LABORATORY QA/QC DOCUMENTATION

10A: Chain-of-Custody Forms (Completed forms for all samples)

10B: Laboratory Accreditation Certificate (FMEnv Certificate No. FMEnv/LAB/014)

10C: 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)

10D: Analytical Plot-Outs and Laboratory Reports

- Air quality chromatograms and spectra
- Water quality analytical sheets
- Soil quality analytical sheets
- Microbiological culture plates (photographs)

10E: Laboratory Attestation Form (Signed by Bato Chemical Laboratories Limited)

10F: 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 (LSHIP) CODE OF CONDUCT FOR WORKERS

MAINLAND AXIS FACILITIES

I, the undersigned, acknowledge that I am working on the LSHIP Mainland 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,	Contractor	Contract Clause 2.2; FMEnv EA Guidelines

		covering waste, dust, noise, water, and spills. The EMP shall be reviewed in line with FMEnv's Environmental Assessment (EA) reporting 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 potential nuisances.	Contractor / Employer	Lagos State Environmental Noise Regulations
	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	Contractor	NESREA (Chemical Mgmt) Regulations

		prevention and response plan, including inventory of fuel/chemicals to be stored.		
	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.	Contractor	LASEPA Noise Regulations; FMEnv Noise Standards

		Monitor noise levels to comply with LASEPA and FMEnv 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, 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.	Contractor	NESREA (Solid Waste) Regulations; FMEnv Plastic Waste Policy
	Hazardous Waste Management	Store used oil, paint thinners, and chemical containers in sealed, bunded, labelled containers; dispose via	Contractor	NESREA (Hazardous Waste) Regulations

		NESREA-licensed contractor.		
	Spill Response	Maintain spill response kit on site; report any spill ≥5 litres to Engineer within 2 hours. Major spills shall also be reported to FMEnv through NESREA .	Contractor	Contract Clause 3.5; NESREA Regulations
	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	Contractor / Employer	NESREA (Medical Waste) Regulations (FMEnv)

		removal by authorised 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 system or connection to public sewer.	Employer	Lagos State Water Regulations; FMEnv Water Quality Standards
	Air Quality (Generator)	Standby generators shall be serviced regularly; located away from patient	Employer	LASEPA Air Quality Guidelines; FMEnv Air Quality Standards

		and community areas; exhaust directed upward. Emissions shall comply with FMEnv National 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 and incinerated or disposed of by a NESREA-licensed contractor.	PHC Operator	NESREA (Pharmaceutical Waste) Regulations (FMEnv)
	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), and other hazardous materials.	Future Contractor	IFC EHS Guidelines; NESREA Regulations
	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	Future Contractor	NESREA (Solid Waste) Regulations

		LASEPA-approved landfill.		
	Hazardous Waste Disposal	All hazardous waste (oils, chemicals, pharmaceuticals) shall be disposed of through a NESREA-licensed hazardous waste contractor with manifests.	Future Contractor	NESREA (Hazardous Waste) Regulations
	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.