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FEDERAL REPUBLIC OF NIGERIA



**FADAMA – III PROJECT AND
ADDITIONAL FINANCING (AF)**

**ENVIRONMENTAL AND SOCIAL
MANAGEMENT FRAMEWORK (ESMF)**

FINAL REPORT

*PROJECT CO-ORDINATING UNIT (NFCO),
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March 29, 2013

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LIST OF ABBREVIATIONS AND ACRONYMS

CBO	Community Based Organization
CDD	Community Driven Development
CSDP	Community and Social Development Project
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
EMP	Environmental Management Plan
FCA	Fadama Community Association
FEPA	Federal Environmental Protection Agency
FGN	Federal Government of Nigeria
FUG	Fadama Users Group
FMAWR	Federal Ministry of Agriculture and Water Resources
FME _{env}	Federal Ministry of Environment
GEF	Global Environment Facility
ISDS	Integrated Safeguards Data Sheet
LEEMP	Local Empowerment and Environmental Management Project
LDP	Local Development Plan
LGA	Local Government Area
LFD	Local Fadama Desk
LFCO	Local Fadama Coordination Office
LFDC	Local Fadama Development Committee
NGO	Non-Governmental Organization

NFC	National Fadama Coordinator
NFCO	National Fadama Coordination Office
NFTC	National Fadama Technical Committee
NRM	Natural Resource Management
PAD	Project Appraisal Document
PCN	Project Concept Note
PCU	Projects Coordinating Unit
PMP	Pest Management Plan
PMU	Project Management Unit
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
SEPA	State Environmental Protection Agency
SFC	State Fadama Coordinator
SFCO	State Fadama Coordination Office
SCPZ	Staple Crops Processing Zone
SFDC	State Fadama Development Committee
SLM	Sustainable Land Management

EXECUTIVE SUMMARY

ES 1: Project Background and Objective: This ESMF outlines the general principles, process and procedures that would be followed under FADAMA III and the Additional Financing when any activity that will be financed by the Fadama-III and or AF has the potential to trigger any of the World Bank safeguard policies and subsequent significant adverse environmental and social impacts. The Additional Financing for the Fadama- III is a support operation to the Federal Government of Nigeria's Agricultural Transformation Agenda (ATA) by the World Bank. Under the additional Financing the project aims to scale up the baseline project's impacts and development effectiveness in increasing income of rural farmers by aligning it more closely with the new Transformation Agenda which was adopted by the Government of Nigeria (GoN) in 2011 under the Staple Crops Processing Zones (SCPZs) Concept. The additional Financing (AF) will comprise of support for investments in: (i) sustainable common user facilities such as small scale water harvesting structures; (ii) investments and technical assistance to facilitate out grower schemes ; seed multiplication and access to appropriate agricultural machinery; (iii) a competitive grant scheme for demand-driven adaptive and applied agricultural research, extension services and ancillary services; (iv) project management and monitoring and evaluation.

The proposed additional financing is aimed at increasing the income of farmers in prioritized Staple Crop Processing Zones (SCPZs) across the 6 geo – political zones of the country which is consistent with the development objective of the on-going parent Fadama III Project through the staple crops processing concept (SCPZs). It targets a number of commodities, including rice, cassava and sorghum.

Unlike the additional existing Fadama - III that is covering the entire 36 states and FCT, the AF will not be national in scope but the intervention shall be in prioritized Staple Crops Processing Zones (SCPZs) with comparative advantage in the cassava, sorghum, horticulture and rice value chains.

ES 2: Project Description and Objectives

The project has six (6) components:

I. Component 1: Capacity Building, Communications and Information Support

The AF will upscale capacity of farmers especially in the area of contracting for inputs and output supply to the processing firms who will be in an out-grower contract with the farmers, mobilization of farmers for group formation based on targeted value chains, identification of business plans, training of facilitators and Extension Agents (EAs) both in public and private sectors e,t,c.

In addition, strengthening existing ADP ICT centers and linking it with ICT platform of NAERLS, provision of media vans, undertaking farm broadcasts, production program,

and partnership with ministry of information/existing communication agencies will be undertaken.

II. Component 2: Small-scale Community-owned Infrastructure (SCI)

The major focus of this component will be limited to small-scale irrigation facilities for those farmers that may have their farms in areas adjoining the SCPZs and which do not benefit directly from the irrigation facilities to be made available on the site through the AF. There shall also be adequate provision of roads and other infrastructure such as electricity.

III. Component 3: Advisory Services and Input Support and GES Scheme:

The input support component of the parent project was retained since farmers that will be participating in the SCPZs might need more than the quantity of inputs that the GES can supply. This is to ensure that input availability at the right price does not restrict farmers' production. In addition, it was suggested that the current matching grant of 50-50 be maintained for all kinds of inputs to be procured in the Fadama-AF. On mechanization, the provision of additional tractors will have to be undertaken by Fadama-AF since GES is planning to provide 5 to 10 tractors per SCPZ with the necessary in-built maintenance which fixes the fertilizer sector by directly linking farmers with the fertilizer service providers.

IV. Component 4: Support to the ADPs and Adaptable Research and On-farm Demonstrations

Support to the ADPs and Adaptable Research and On-farm Demonstrations is the crux of component four. Mission noted the key roles of extension in agriculture and for the Additional Financing of Fadama. The extension intervention will be in targeted SCPZs, as pilot extension sub-projects, rather than the revival of the entire extension arm of the ADPs. Hence, additional financing will ensure adequate extension delivery at the SCPZs through support for capacity building, strengthening the capacity of ADPs to deliver advisory services (training, revised curricular, incentives, quality control), ability to set professional standards, register, certify, monitor service providers and to serve as farmers' call center and manage internet based information linked to SMS service with a feedback loop to call center (public sector delivering content, while private telecom-operators providing service). It emphasized the use of ICT and mobile-based interventions and other interventions such as farmers' field and business schools.

In addition, the Fadama-AF will support key activities that can give quick wins nationally. This is to be done by prioritization of activities into the short, medium and long term ones. Also, the integration of KVK-REFILS in selected zones will be enhanced to coordinate the scaling up of on-farm demonstrations and seed multiplication through the farmers' field school (FFS) approach.

V. Component 5: Acquisition for Individual FUGs/EIGs Assets

The fifth component will involve the acquisition of production assets that are critical to the production of farmers. Mission felt that farming equipment and tools such as sprayers, water pumps, bull for traction, power tillers; and storage facilities for both produce and inputs should be eligible for funding. Since this is going to be CDD, other productive assets might be required by the farmers in the course of implementation.

VI. Component 6: Project Management, Monitoring and Evaluation

The current monitoring and evaluation systems being used in the Fadama-III projects require little modification to suit the targeted SCPZs' activities. Essentially, the processes in the AF are similar to those in the parent projects. The only difference now is the specialization of location and value chain per SCPZ. The implication is that there is no multiplicity of activities as compared with the current Fadama.

Taking cognizance of the impacts of climate change, annual studies will have to be done on soil and water quality which directly impacts on crop production. There shall be adequate effluents and solid wastes monitoring programs, wastes conversion to renewable energy schemes e.t.c.

Project Location

Unlike the additional existing Fadama - III that is national in scope, covering the entire 36 states and FCT, the Additional Financing for the Fadama - III will cover only prioritized Staple Crops Processing Zones(SCPZs) with comparative advantage in the following value chains. The target value chains that will be funded by the World Bank are cassava, rice, sorghum and horticulture.

13 sites have been designated by the Government of Nigeria as stated below:

Bida-Badegi, Niger, Kadawa, Kano, Ikwo, Ebonyi, Gassol, Taraba, Ambrussa, Kebbi, Agbadu, Kogi, Osoa, Ogun, Biu, Borno, Andoni, Rivers, Ketu-Ereyun, Lagos, Ebedebiri, Bayelsa, Makurdi, Benue, Oban and Cross River.

However, not all will benefit from the Additional financing loan that will be received from the World Bank.

ES 3: Rationale for the ESMF

The multi-faceted features of the Fadama – III and the AF – necessitate an Environmental and Social Management Framework (ESMF) to give guidance to address environmental

and social concerns in compliance with the requirement of the World Bank's OP/BP 4.01 and extant environmental laws in Nigeria.

The Fadama and the AF have the following features:

- (i) a varied number of sub-projects and components;
- (ii) sub-projects are spread over a wide geographic area; and
- (iii) design of and exact locations for implementation are not yet determined at this stage. the sub-projects

The objective of the ESMF is to establish a mechanism to determine and estimate the future potential environmental and social impacts of the Bank-financed activities to be undertaken under the Fadama III and the Additional Financing, and to define the measures of mitigation, monitoring and the institutional measures to be undertaken during the implementation of this project. The ESMF outlines the process and procedure to be followed when any activity that will be financed by the AF Fadama-III has the potential to trigger any of the World Bank safeguard policies. It includes details of the existing environmental laws and regulatory framework in the country; World Bank safeguard policies, analysis of environmental and social impacts including alternatives; institutional arrangements for implementing the ESMF, capacity building needs; and public consultation carried out during project preparation. Specifically, the ESMF includes sections on: (i) Environmental Screening and scoping (ii) Environmental Policy and Regulatory Framework; (iii) Current Environmental Situation; (iv) Analysis of Environmental Impact Issues; (v) Development of Management Plan to Mitigate Negative Impacts (vi) Institutional Framework; (vii) Training Needs; and (viii) Public Consultation. In addition, the ESMF contains appendices explaining the EIA process of the FMEnv guidelines for preparing terms of reference for EIAs, national guidelines for environmental audit in Nigeria, World Bank interim guidelines for addressing legacy issues and the list of participants at stakeholder meetings. As stated above, a Resettlement Policy Framework (RPF) and Integrated Pest Management Plan that were prepared for the original project have also been updated to reflect the activities that would be funded by the Additional Financing. These three safeguards instruments have separate, budgets but complement each other. In addition, the ESMF contains a detailed checklist for screening all potential Fadama-III project and the AF' activities for their potential Environmental and Social impacts to determine: (i) Environmental Assessment (EA) category; (ii) applicable World Bank environmental and social safeguards policy triggers; (iii) potential for environmental and social impacts liability; (iv) cultural or other sensitivities; (v) relevant stakeholders; and (vi) the nature and extent of engagement for each stakeholder category. Finally, the ESMF contains an annex with TORs for conducting an ESIA or ESMP if and when required.

Specifically, the key objectives of the ESMF include the following:

- Identification and assessment of potentially adverse environmental impacts and risks in the projects intervention zone.
- Indication of the ways in which potentially adverse environmental and social impacts will be avoided, minimizes and mitigated.

- Establishment of clear procedures and methodologies for environmental and social planning, review, approval and implementation of subprojects to be financed under the Fadama III and GEF-SLM.
- Development of screening tool i.e. checklists and guidelines to be used for site selection.
- Specification of appropriate roles and responsibilities, and outlining the necessary reporting procedures, for managing and monitoring environmental and social concerns related to subprojects.
- Determination of the training, capacity building and technical assistance needed to successfully implement the provisions of the ESMF.
- Provision of practical information resources for implementing the ESMF.
- Development of an environmental monitoring plan under the projects to ensure that environmental and social issues will be managed effectively.

Scope of the ESMF

The ESMF outlines the process and procedure to be followed when any activity that will be financed by the original project and or additional financing has the potential to trigger any of the World Bank safeguard policies. It includes details of the existing environmental laws and regulatory framework in the country; World Bank safeguard policies, analysis of environmental and social impacts including alternatives; institutional arrangements for implementing the ESMF, capacity building needs; and public consultation carried out during project preparation. This ESMF also clarifies environmental mitigation principles, organizational arrangements and design criteria to be applied to the project. The expected output is a report that provides basic information about the scope of adverse environmental and social impacts to be induced by project operations; mitigation and monitoring actions to be taken, and indicative cost implications. This ESMF covers the primary catchment areas in the staple crops processing zones as cleared by IDA prior to re-disclosure country wide in Nigeria and InfoShop.

Study Approach and Methodology

The ESMF was prepared in accordance with applicable World Bank safeguard policies and Nigerian environmental assessment guidelines. The distinct phases of the study include:

- data gathering;
- literature review;
- environmental screening and scoping;
- identification of potential impacts;
- identification of impact mitigation measures;
- preparation of an Environmental and Social Management Plan; and
- preparation of sub-project guidelines.

Literature Review

The approach was based on review of available literature and other strategic planning documents at the national and state levels. Specifically, the following were reviewed: Concept-Stage Project Concept Note (PCN), draft project appraisal document (PAD), concept-stage Integrated Safeguards Data Sheet (ISDS) of the proposed Fadama III

project; the ESMFs of LEESMP and CSDP projects; the ESIA, PAD, and RPF of Fadama II project; the draft general environmental management conditions for construction contracts; federal and state environmental laws regulations, decrees, acts, policies and guidelines; World Bank safeguard policies and other relevant documents.

Policy, Legal and Administrative Framework

The policy, legislation and institutional procedures of Nigeria which are relevant to the AF Fadama - III and therefore considered included:

Nigerian National Policy Frameworks

- National Agricultural Policy
- National Youth Policy 2001 (Revised 2009)
- The National Urban Development Policy 1989
- National Employment Policy 2009
- Various International Labour Regulations & Conventions Ratified by Nigeria
- The Transformation Agenda 2011 – 2015
- Constitution of the Federal Republic of Nigeria 1999

Environmental Regulatory Frameworks

- Federal Environmental Protection Agency (FEPA) Act 1988
- National Policy on Environment 1989
- Environmental Impact Assessment Act 1992
- National Guidelines on Environmental Audit in Nigeria 1999

World Bank Operational Policies

Most applicable policies of the Bank triggered by the project are:

- *OP 4.01: Environmental Assessment*
- *OP 4.09: Pest Management*
- *OP 4.11: Physical Cultural Resource*
- *OP 4.12 Involuntary Resettlement*
- (OP/BP 4.04); Natural Habitat
- (OP/BP4.36); Forestry
- OP/BP 4.37 Safety of Dams

Under the original project triggered six of the policies: environmental assessment, natural habitats, pest management, involuntary resettlement, forests and projects in international waters. As part of due diligence and for consistency, is triggered even though the project will only be dealing with small earth dams and weirs as did be the original project. The project will engage a qualified dam expert for site selection, construction and operation of

the small dams/weirs. The existing laws in Nigeria are similar to World Bank safeguard policies. However, in the event of any divergence between World Bank safeguard policies and the country laws in Nigeria, the more stringent guideline will take precedence.

Project Alternatives

The alternatives considered for the AF Fadama were with respect to the ‘no project’ development scenario, “market force Employment scenario” and “proceed to ImplementAF Fadama”. It was concluded that implementing the AF Fadama option is the best alternative out of the three.

Potential Environment and Social Impacts

The impacts have been categorized into beneficial and adverse. The beneficial impacts include:

Environmental:

- Enhanced sanitation, effective wastes management and disposal
- Prevention of soil quality and quantity degradation
- Reduction in the phenomenon of flooding and erosion.
- Prevention of surface and groundwater pollution
- Cleaner air and aesthetics in the project areas
- Minimization in occupational health hazards
- Biodiversity conservation
- Increasing efficiency and speed in the ESIA/ESMP process
- Sustained environmental performance and governance
- Enhanced accessibility and reduction in traffic hazard

Social:

- Reduction in unemployment in Nigeria through increased youth participation in sub – projects
- Reduced farmers – pastoralist’s conflict
- Reduction in poverty, poverty induced-crime and enhanced community security
- Improved literacy rate through enhanced school enrolment of the poorest households
- Increase in the number of elite farmers
- Increased capacity in knowledge, technology and skill
- Increase in income, foreign exchange and consumption
- Enhanced food security
- Increase in GDP of the country
- Improved healthcare access and affordability
- Improved household capacity to attain basic needs such as health, education and shelter
- Reduction in the vulnerability of the unemployed persons

- Improved drainage system through public workfare will mitigate against avoidable flooding conditions and related morbidity

The adverse impacts considered include:

Environmental:

- Impacts on air quality;
- Health and safety risks ;
- Noise pollution
- Spillages
- Wastes generation
- Traffic congestion and accident,
- Erosion and flooding
- Adverse Impacts on natural resources including flora and fauna.

Social:

- Loss of land to individuals and the communities;
- Disruption of the rural traffic patterns
- Increased cost of living;
- Change in consumption pattern with introduction of new varieties/options
- Potential change in local demographic pattern through influx of artisans and farmers;
- Dissemination of diseases including HIV/AIDS spread;
- Conflict with social and cultural values; Potential effects on women and children

Environmental and Social Mitigation Principles

The ESMF considered a number of mitigation and enhancement measures and also principles for implementation to ensure the Fadama- III and the AF sub-projects become socially acceptable and environmentally sustainable, within the carrying capacity of the Environment.

The measures include:

- Mitigation principles for the effects of land loss
- Rural economy enhancement principles
- Aquifer recharge and sustainable extraction principles
- Soil quality protection principles
- Population influx control principles
- HIV/AIDS prevention and management principles
- Socio-cultural conflict prevention principles

- Gender impacts mitigation principles
- Air quality and control principles
- Health and safety principles
- Water quality protection principles
- Wildlife habitat protection principles
- SCPZs exit and access control strategies

The potential environmental and social impacts that may result from the implementation of Fadama– III and the AF are consistent with EA-Category B project- minor, site specific and easy to mitigate. However, in the unlikely event in which the screening and scoping exercise of any project activities identifies the sub-project to be typical of category A, such activities will be subjected to the EIA process.

Cumulative Impact Monitoring

Even though the ESMF did not at this stage identify any specific potential cumulative impact, for a CDD project of this size, it is not inconceivable to envisage cumulative impacts to result from multi- sub project activities that would be sited in catchment areas, across the country. The ESMF provides for environmental and social safeguards audit with particular focus on the potential for and or existence of cumulative adverse impact resulting from AF Fadama -III at mid-term review.

Consultation with Stakeholders

In tandem with World Bank safeguards policy 4.01 governing EA Category B projects, the Government of Nigeria recognizes that stakeholder involvement is an important element of the Fadama- III and the AF project and the Environmental Assessment process. Both of these recognize that stakeholder identification and analysis at an early stage of a project is critical in the assessment of interests, concerns, relationships, assumptions, and extent of impacts / ways in which they are affected by project risks. To this end, the preparation of the ESMF and RPF drew from inputs by stakeholder consultations held in each of the states where the proposed staple crops processing zones. One of the key agreements reached out of these consultations was the establishment of a demand-based and third party monitoring arrangement involving key national and local civil society groups, to monitor those likely to be impacted by prospective project activities. This consultation which started early during the project preparation phase will continue throughout lifespan of the project.

ESMF Implementation

The successful implementation of the ESMF depends on the commitment of Federal Ministry of Agriculture & Rural Development (FMA&RD), NFCO and the Federal Ministry of Environment (FMEnv). The FMARD, NFCO and Federal Ministry of Environment have the capacity within the institutions appropriate and effective for the review, implementation of the ESMF and design of follow- up programs. The key ESMF implementation areas and the relevant institutional roles as well as the institutional arrangement and collaboration for successful implementation of the ESMF for the

Fadama – III additional financing have been determined and outlined in this report. Specifically, there is the need to have an environmental and social management unit within the NFCO and an environmental and social safeguards officer in each PMU. This will be necessary to manage and report all environmental and social safeguard concerns within the sub-project and State level. The Environmental Social impact monitoring and reporting roles and responsibilities within institutions and among the stakeholders have been mapped out in this ESMP. **The result of the screening will be sent to the World Bank for approval and or concurrence prior to the approval and subsequent funding.**

Estimated Budget for Implementing the ESMF: Based on the mitigation principles the estimated budget for the implementation of the provisions of this ESMF is US\$ 2.3 million. The breakdown is provided in the table below:-

S/N	Mitigation Activity	Responsibility	Amount (US\$)
1	Preparation of site specific safeguards instruments (ESMP, ESIA etc)	Project Proponent / NFCO/PMU/FMEnv/WB	1,500,000
2	Capacity Building	Proponent / NFCO/PMU/FMEnv/WB	250,000
3	Environmental and Social Safeguard Audit	Proponent/ FPCU/SPCU/FMEnv/WB	200,000
4	Monitoring and Reporting	Proponent/FPCU/SPCU	350,000
	Total		2,300,000

CHAPTER ONE: INTRODUCTION

1.1: Project Background

Diversification of the economy away from the oil sector is a top policy priority for Nigeria, and the agricultural sector is central to this agenda. The sector has consistently contributed about 40 percent of the GDP, and remains the largest contributor to non-oil growth. Within the agricultural sector, the major drivers of growth are staple crops. Food staples are the largest subsector, and growth in food staples is more pro-poor than growth in high value exports because of larger forward and backward multipliers. Demand for staples is increasing, driven by population growth (Nigeria's population is increasing at 2.5 percent) and growing urbanization. Demand for food staples across Africa is projected to double from US\$50 billion in 2005 to US\$100 billion in 2015. This no doubt presents a huge market opportunity within the region, including Nigeria.

Previous attempts by the government of Nigeria to increase the productivity of staples included the launching of a series of Presidential initiatives targeted at individual commodities such as rice, maize, and cassava. Although the Presidential Initiatives have had some success in stimulating increased production, they have not made Nigerian farmers competitive in world and regional markets. As a departure from past government interventions, the current ATA, adopted in 2011, is focused on making improvements along the value chains of a number of prioritized agricultural commodities and working with the private sector. The ATA also differs from past efforts in that it pushes for badly needed policy reforms such as the fertilizer subsidies program, and liberalization of agricultural insurance and foundation seed production.

Nigeria's ATA consists of four main elements which are stated below:-

- fixing the fertilizer sector by withdrawing from direct government interventions in fertilizer distribution;
- strengthening marketing institutions by supporting private-sector led marketing organizations;
- fixing agricultural financing through the Nigerian Incentive-based Risk Sharing for Agricultural Lending (NIRSAL); and
- fixing the agricultural investment framework through the development of staple crop processing zones (SCPZs) as 'clusters' of nucleus and out grower-type arrangements centered on agribusiness investors supported with the necessary public infrastructure services.

The Government of Nigeria have requested Bank support for the ATA. In response, Bank management has set out a program of new investment operations, development policy operations and the scale-up of the existing agricultural portfolio that supports the spectrum of ATA elements including the on- going Fadama – III project. However, at this

stage the exact sub-project's locations and/or designs are yet to be determined, therefore the appropriate EA instrument to be used is the ESMF. The ESMF provides general environmental and social policies, guidelines and best practices to be integrated into the implementation of the World Bank supported AF Fadama - project.

Scope of the ESMF

The ESMF outlines the process and procedure to be followed when any activity that will be financed with the Fadama III and the AF fund has the potential to trigger any of the World Bank safeguard policies. It includes details of the existing environmental laws and regulatory framework in the country; World Bank safeguard policies, analysis of environmental and social impacts including alternatives; institutional arrangements for implementing the ESMF, capacity building needs; and public consultation carried out during project preparation. The Resettlement Policy Framework (RPF) and Integrated Pest Management Plan that were prepared for the original project have also been updated to reflect the activities that would be funded by the Additional Financing. These three safeguards instruments (ESMF, IPMP and RPF) have separate budgets but they complement each other. This ESMF clarifies the impacts of the proposed activities, mitigation principles, ESMP organizational arrangements and design criteria to be applied to the project. The report provides basic information about the scope of adverse environmental and social impacts to be induced by project operations; mitigation and monitoring actions; to be taken and indicative cost implications. This ESMF covers the catchment areas in the staple crops processing zones. This ESMF will be accordingly updated, reviewed and cleared by IDA prior to re-disclosure country wide in Nigeria and InfoShop.

Specifically, it focuses on:

- assessing the potential environmental and social impacts of sub-projects (construction and rehabilitation of small scale water abstraction facilities, rehabilitating / constructing access roads, produce storage infrastructures, target crops production and processing facilities etc. whether positive or negative, and the envisaged mitigation measures which will effectively address these impacts;
- establishing clear directives and methodologies for the environmental and social screening of micro-projects to be financed by the project;
- identifying the environmental policy, regulatory and institutional framework pertaining to the Fadama –III and the additional financing project;
- Ensuring social inclusiveness of vulnerable groups and women in project implementation. Measures to achieve this will be defined in sub-projects site specific Environmental and Social Management Plans; and
- Guiding the development of specific Environmental and Social Impact Assessments (ESIAs) activity as might be needed for specific sub-projects.

Similarly, a separate document has been prepared by the borrower to provide Resettlement Framework to address the Operational Policy 4.12: Involuntary

Resettlement, which may be triggered as a result of possible acquisition of land, displacement of people and /or their access to means of livelihood.

1.2: Study Approach and Methodology

This ESMF was developed in accordance with applicable World Bank policies and Nigerian environmental assessment guidelines and regulations. The distinct phases of the study include:

i. Literature Review

The approach was based on review of project literature and other strategic planning documents. Specifically, the following were reviewed: First and Second National Youth Policy document of the Federal Government of Nigeria, 2009, Draft Action Plan and Implementation Strategy for the National Youth Policy 2009-2014, federal and state environmental regulations, Decrees, Acts, policies and guidelines and World Bank safeguard policies.

ii. Data Gathering

Data on the current state of agro- production activities, yield agro-imports and exports and effects of agro –chemicals on natural resources e.tc were sourced from different institutions, including federal and state ministries of Agriculture, National Bureau of Statistics, Central Bank of Nigeria and the federal and state ministries of environment. The information gathered was reviewed to obtain detailed descriptive, qualitative and quantitative data on the environmental, sociological, land tenure and resettlement laws, regulations, standards, and policies relating to the project. Subsequently, baseline data of the 6 proposed staple crops zones visited were reviewed.

In addition, environmental screening and scoping of the project’s field of influence and activities were undertaken in line with the World Bank and federal ministry of environment guidelines. Such requisite information will be used to prepare site specific ESMPs.

iii. Stakeholder Consultations:

Stakeholder consultations and institutional inclusions included the 3 – tiers of government, NGOs, CBOs. Farmers groups and Fadama associations were a major consideration throughout the preparation of the Fadama-III additional financing sub-project and across the participating states visited.

iv. Data analysis and impact evaluation, identification of mitigation measures and preparation of ESMP were also undertaken.

CHAPTER TWO: PROJECT DESCRIPTION

2.1 Project Overview

The Additional Financing for the Fadama- III is a support operation to the Federal Government of Nigeria's Agricultural Transformation Agenda(ATA) by the World Bank. The project aims to scale up the baseline project's impacts and development effectiveness in increasing income of rural farmers by aligning it more closely with the new Transformation Agenda which was adopted by the Government of Nigeria (GoN) in 2011 under the Staple Crops Processing Zones (SCPZs) Concept. The additional Financing (AF) will comprise of support for investments in: (i) sustainable common user facilities such as small scale water harvesting structures; (ii) investments and technical assistance to facilitate out grower schemes ; seed multiplication and access to appropriate agricultural machinery; (iii) a competitive grant scheme for demand-driven adaptive and applied agricultural research, extension services and ancillary services; (iv) project management and monitoring and evaluation.

The proposed additional financing is aimed at increasing the income of farmers in prioritized Staple Crop Processing Zones (SCPZs) across the 6 geo – political zones of the country which is consistent with the development objective of the on-going parent Fadama III Project.(SCPZs). It targets a number of commodities, including rice, cassava and sorghum.

Unlike the additional existing Fadama - III that is covering the entire 36 states and FCT, the AF will not be national in scope but the intervention shall be in prioritized Staple Crops Processing Zones (SCPZs) sites with comparative advantage in the cassava, sorghum, horticulture and rice value chains.

2.2 Project Development Objective (PDO)

The PDO of Fadama III Additional Financing Project remains the same as that of the base project; to increase the incomes of users of land and water resources on a sustainable basis.

By increasing their incomes, the Project will help reduce rural poverty, increase food security and contribute to the achievement of a key Millennium Development Goal (MDG).The project aims to deliver resources directly to the beneficiary rural communities and to empower them to collectively decide on how resources are allocated and managed for their livelihood activities in the catchment areas within the prioritized Staple Crops Processing Zones.

2.3 Project Description and Objectives

The project has six (6) components:

I. Component 1: Capacity Building, Communications and Information Support

The AF will upscale capacity of farmers especially in the area of contracting for inputs and output supply to the processing firms who will be in an out-grower contract with the

farmers, mobilization of farmers for group formation based on targeted value chains, identification of business plans, training of facilitators and Extension Agents (EAs) both in public and private sectors e,t,c.

In addition, strengthening existing ADP ICT centers and linking it with ICT platform of NAERLS, provision of media vans, undertaking farm broadcasts, production program, and partnership with ministry of information/existing communication agencies will be undertaken.

II. Component 2: Small-scale Community-owned Infrastructure (SCI)

The major focus of this component will be limited to small-scale irrigation facilities for those farmers that may have their farms in areas adjoining the SCPZs and which do not benefit directly from the irrigation facilities to be made available on the site through the AF. There shall also be adequate provision of roads and other infrastructure such as electricity.

III. Component 3: Advisory Services and Input Support and GES Scheme

The input support component of the parent project was retained since farmers that will be participating in the SCPZs might need more than the quantity of inputs that the GES can supply. This is to ensure that input availability at the right price does not restrict farmers' production. In addition, it was suggested that the current matching grant of 50-50 be maintained for all kinds of inputs to be procured in the Fadama-AF. On mechanization, the provision of additional tractors ill have to be undertaken by Fadama-AF since GES is planning to provide 5 to 10 tractors per SCPZ with the necessary in-built maintenance which fixes the fertilizer sector by directly linking farmers with the fertilizer service providers.

IV. Component Four: Support to the ADPs and Adaptable Research and On-farm Demonstrations

Support to the ADPs and Adaptable Research and On-farm Demonstrations is the crux of component four. Mission noted the key roles of extension in agriculture and for the Additional Financing of Fadama. The extension intervention will be integrated SCPZs, as pilot extension sub-projects, rather than the revival of the entire extension arm of the ADPs. Hence, additional financing will ensure adequate extension delivery at the SCPZs through support for capacity building, strengthening the capacity of ADPs to deliver advisory services (training, revised curricular, incentives, quality control), ability to set professional standards, register, certify, monitor service providers and to serve as farmers' call center and manage internet based information linked to SMS service with a feedback loop to call center (public sector delivering content, while private telecom-operators providing service). It emphasized the use of ICT and mobile-based interventions and other interventions such as farmers' field and business schools.

In addition, the Fadama-AF will support key activities that can give quick wins nationally. This is to be done by prioritization of activities into the short, medium and long term ones. Also, the integration of KVK-REFILS in selected zones will be enhanced to coordinate the scaling up of on-farm demonstrations and seed multiplication through the farmers' field school (FFS) approach.

V. Component 5: Acquisition for Individual FUGs/EIGs Assets

The fifth component will involve the acquisition of production assets that are critical to the production of farmers. Mission felt that farming equipment and tools such as sprayers, water pumps, bull for traction, power tillers; and storage facilities for both produce and inputs should be eligible for funding. Since this is going to be CDD, other productive assets might be required by the farmers in the course of implementation.

VI. Component 6: Project Management, Monitoring and Evaluation

The current monitoring and evaluation systems being used in the Fadama-III projects require little modification to suit the targeted SCPZs' activities. Essentially, the processes in the AF are similar to those in the parent projects. The only difference now is the specialization of location and value chain per SCPZ. The implication is that there is no multiplicity of activities as compared with the current Fadama.

Taking cognizance of the impacts of climate change, annual studies will have to be done on soil and water quality which directly impacts on crop production. There shall be adequate effluents and solid wastes monitoring programs, wastes conversion to renewable energy schemes e.t.c.

Project Location

Unlike the additional existing Fadama - III that is national in scope, covering the entire 36 states and FCT, the Additional Financing for the Fadama - III will cover only prioritized Staple Crops Processing Zones(SCPZs) with comparative advantage in the following value chains that will be funded by the World Bank. They are as identified below including cassava, rice, sorghum and horticulture.

13 sites have been designated by the Government of Nigeria as stated below:

Bida-Badegi, Niger, Kadawa, Kano, Ikwo, Ebonyi, Gassol, Taraba, Ambrussa, Kebbi, Agbadu, Kogi, Ososa, Ogun, Biu, Borno, Andoni, Rivers, Ketu-Ereyun, Lagos, Ebedebiri, Bayelsa, Makurdi, Benue, Oban, and Cross River.

However, not all will benefit from the Additional financing loan that will be received from the World Bank.

CHAPTER THREE: POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

Nigeria has developed a number of important initiatives in policies, laws and regulations applicable to environmental protection and agricultural development.

The major national policies and regulations that are considered relevant to the project are summarized in this section.

3.1 Policy Framework

National Policy on the Environment

The stated goal of the National Policy on the Environment is to achieve sustainable development in Nigeria, and in particular to:

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

3.2 Legal Framework

A number of national and international environmental guidelines are applicable to the sub-projects under the proposed project. In Nigeria, the power to enforce all activities that might impact the environment is vested in the Federal Ministry of Environment (FMEnv). Internationally, agencies such as the World Bank, DFID and other development agencies usually set environmental criteria for projects they are involved in.

- Federal
- The National Council on Environment (NCE) is the highest environmental policy making organ in the country. Chaired by the Minister of the FME, it includes all the Commissioners responsible for environmental matters in 36 states. The Council meets annually to consider environmental issues; it adopts a common position on the issues and releases a communiqué, after which they become

National Policies. Where legislative backing is necessary, the FME presents a Bill to the National Assembly to that effect.

- The Federal Ministry of Environment (FMEnv), was created in 1999 to take over the function of the Federal Environmental Protection Agency (FEPA). The ministry has a mandate to co-ordinate the environmental protection and conservation of natural resources for sustainable development in Nigeria. The specific responsibilities of the ministry are to:
 - monitor and enforce environmental protection measures;
 - enforce international laws, conventions, protocols and treaties on the environment;
 - prescribe standards and make regulations on air quality, water quality, pollution and effluent limitations, the atmosphere and ozone layer protection, control of toxic and hazardous substances; and
 - promote cooperation with similar bodies in other countries and international agencies connected with environmental protection.

As contained in FEPA Acts 58 of 1988 and 59 of 1992. FMENV has put in place statutory documents to aid the monitoring, control and abatement of industrial waste. The statutory documents currently in place include:

- National Policy on the Environment 1999
- National Environmental Protection (Effluent Limitations) Regulations (S.1.8) 1991
- National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) (S.1.9) 2004
- National Environmental Protection (Management of Solid and Hazardous Wastes) Regulations (S.1.15) 1991
- Guidelines and Standards for Environmental Pollution Control in Nigeria 1991;
- Sectoral Guidelines for EIA 1995
- Harmful Wastes (Criminal Provisions) Decree No. 42, 1988
- National Policy on the Environment, 1989;
- Environmental Impact Assessment Procedural Guidelines 1995
- Environmental Impact Assessment (EIA) Act No. 86 of 1992
- Environmental Impact Assessment (Amendments) Act 1999.
- National Guidelines and Standards for Water Quality 1999
- National Guidelines on Environmental Management Systems (EMS) 1999
- National Guidelines on Environmental Audit in Nigeria 1999

These statutory documents clearly state the restrictions imposed on the release of toxic substances into the environment and the responsibilities of all industries whose operations are likely to pollute the environment. Such responsibilities include provision of anti-pollution equipment and adequate treatment of effluent before being discharged into the environment, etc. (S.1.8 & 9).

FMENV also has put in place procedural and sectoral guidelines detailing the EIA process including a categorization of environmental projects into Categories I, II and III.

These guidelines require that a complete EIA be performed for Category I projects. Category II projects may not require an EIA depending on the screening criteria, while Category III projects do not require an EIA.

EIA Process

In Nigeria, recognition of EIA as a tool started in the early 1980s; the EIA procedure according to Decree (now Act) 86 of 1992 can be summarized as:

- 1) the proponent notifies the FME of all relevant information in a *Project Proposal*
- 2) the FME carries out an *Initial Environmental Examination* (IEE) and assigns a category: Category I projects are those that require full EIAs ; Category II projects require partial EIAs; and Category III projects are those expected to have essentially beneficial impacts, and receive an *Environmental Impact Statement* (EIS), a document authorizing the project to go ahead.
- 3) the proponent carries out a *scoping* exercise, to ensure that all concerns and alternatives will be addressed by the EIA (preparation of TORs, consultations, public hearing, and preparatory studies)
- 4) proponent carries out EIA study using accredited EIA consultant
- 5) FME reviews draft EIA report and responds within six months; EIA reports are displayed at selected locations to enable stakeholders to comment and make input
- 6) upon receipt of final EIA report, FME issues an EIS, with or without additional conditions

The procedure is applicable for any project proponent, including those in the hydrocarbon sector; in the latter case, the FME makes a site visit for each project, including individual wells.

The Schedule to the EIA Act (Mandatory Study Activities) makes EIA mandatory for oil and gas field development and for gas and oil separation, processing, handling or storage facilities. Other activities for which EIA is mandatory because of environmental conditions are:

- Land development schemes covering an area of 500 hectares or more to bring forest land into agricultural production.
- Airstrip development in State and national parks.
- Drainage of wetland, wildlife habitat or of virgin forest covering an area of 100 hectares or more.
- Coastal reclamation involving an area of 50 hectares or more.
- Land-based aquaculture projects accompanied by clearing of mangrove swamp forests covering an area of 50 hectares or more.
- Conversion of hill forest land to other land use covering an area of 50 hectares or more.
- Logging or conversion of forest land to other land use within the catchment area of reservoirs used for municipal water supply, irrigation or hydro power

- generation or in areas adjacent to state and national parks and national marine parks.
- Logging covering an area of 500 hectares or more.
 - Conversion of mangrove swamps for industrial, housing or agricultural use covering an area of 50 hectares or more.
 - Clearing of mangrove swamps on islands adjacent to national marine parks.
 - Construction of coastal resort-facilities or hotels with more than 80 rooms.
 - Hill station resort or hotel development covering an area of 50 hectares or more.
 - Development of tourist or recreational facilities in national parks.
 - Development of tourist or recreational facilities, on islands in surrounding waters which may be declared as national marine parks.

Social Issues

In Nigeria, two sets of laws regulate social issues such as compensation and resettlement:

- 1) The FMEnv covers social issues such as land acquisition, resettlement, and the potentially harmful social impacts of projects. Compensation (e.g. for loss of land or assets) is not funded by FME but directly by the proponent. The EIA process ensures that land and productive assets are compensated fairly.
- 2) The Land use Act of 1978 (amended in 1990) addresses all matters relating to land acquisition and resettlement. This Act vests all land on the Governor of each state to hold in trust for the general public. Based on the provisions of this Act the Governor can revoke statutory rights of occupancy in the interest of the general public. The Act neutralizes all land acquisition constraints imposed by customary laws thus freeing land for all industrial and agricultural purposes. Further, under the Act, the governor of a State (appointed by the federal government), can grant land in his/her state to any individual or corporate entity and legally confirm such occupation by issuing a “certificate of occupancy.”

State

By the provision of acts, edicts and laws the states have also set up State Environmental Protection Agencies or Authorities (SEPAs) as the regulatory bodies to protect and manage the environmental issues in the states.

The functions of the SEPAs include:

- Enforcement of all environmental legislations and policies;
- coordination and supervision of environmental assessment studies;
- Minimization of impacts of physical development on the ecosystem;
- Preservation, conservation and restoration to pre-impact status of all ecological processes essential to the preservation of biological diversity;
- Protection of air, water, land, forest and wildlife within the states;
- Pollution control and environmental health in the states; and

- Co-operation with FMENV and other agencies to achieve effective prevention of abatement of trans-boundary movement of waste.

3.3 Assessment of the Legal Framework

The existing legal framework for environmental assessment in Nigeria is considered adequate. Detailed laws, regulations and guidelines have been developed and serve as the framework for conducting EIAs in both the public and private sectors. The implementation of these rules has been poor due to lack of adequate enforcement.

EIA Act

The Act encourages the consultation of people whose lives are likely to be affected by a project. Also, it encourages the collection and documentation of technical information that will enable a policy maker or a layman take an informed decision. The Federal Ministry of Environment is responsible enforcing and monitoring the implementation of all ESPMs.

Environmental Policy

The policy and its laudable institutional arrangements have not yielded the desired results. This is principally due to weak enforcement; inadequate manpower in the area of integrated environment management; insufficient political will; inadequate and mismanaged funding; a low degree of public awareness about environmental issues; and a top-down approach to the planning and implementation of environmental programmes.

Land Use Act

The Land Use Act points out that the interests of individuals and communities have been reduced to mere rights of occupancy, which can be revoked by the appropriate authorities on certain conditions such as ‘over-riding public interest’ (right-of-way, mining activities etc). Moreover, the law is ambiguous in certain respects and makes interpretation difficult. The Act which grants excessive powers to the Federal and State Governments has a dramatic impact on land rights. It does not provide adequate security against forced evictions, harassment, and threats.

The *National Environmental Standards and Regulation Enforcement Agency* (NESREA), A specialist parastatal of FMEnv, created in 2007, is responsible for enforcing all environmental laws, guidelines, policies, and standards, during implementation and operation; frequency of supervision depends on project category and is defined in the Environmental and Social Management Plan (ESMP) of each project. NESREA was created in response to the absence of an appropriate enabling law on enforcement. The NESREA Act was approved in 2007, and repealed the FEPA Act Cap F 10 LFN 2004.

*The New Agricultural Policy 2001:*The key features of the new Agricultural Policy are as follows:

- Evolution of strategies that will ensure self-sufficiency and improvement in the level of technical and economic efficiency in food production. This is to be achieved through (i) the introduction and adoption of improved seeds and seed stock, (ii) adoption of improved husbandry and appropriate machinery and equipment, (iii) efficient utilization of resources, (iv) encouragement of ecological specialization, and (v) recognition of the roles and potentials of small -scale farmers as the major producers of food in the country.
- Reduction of risks and uncertainties in agriculture, to be achieved through the introduction of a more comprehensive agricultural insurance scheme to reduce the natural hazard factor militating against agricultural production and security of investment.
- A nationwide, unified and all-inclusive extension delivery system under the Agricultural Development Programs (ADPs).
- Active promotion of agro-allied industry to strengthen the linkage effect of agriculture on the economy.
- Provision of such facilities and incentives as rural infrastructure, rural banking, primary health care, cottage industries etc. to encourage agricultural and rural development and attract youths (including school leavers) to go back to the land.

3.4 International Environmental Agreements

Nigeria is a signatory to the following relevant international conventions:

- The African Convention on the Conservation of Nature and Natural Resources, The African Convention, 1968
- The Convention Concerning the Protection of the World Cultural and Natural Heritage, The World Heritage Convention, 1972
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora, CITES, 1973
- The Convention on Conservation of Migratory Species of Wild Animals, Bonn, 1979
- The Basel Convention on the Control of Trans -boundary Movement of Hazardous Waste and Disposal, 1989
- The Framework Convention on Climate Change, Kyoto Protocol, 1995
- The Convention on Biological Diversity, 1992
- The Convention on the Prevention of Marine Pollution by Dumping of Waste, MARPOL, 1972

Nigeria also has obligations to protect the environment through various commitments to the African Union (AU), the Economic Community of West African States (ECOWAS) and the Commonwealth. It is also committed through relations with the European Community under the Lome -IV Convention.

3.5 World Bank Safeguard Policies

The Fadama III and AF project would be implemented in some staple crops Processing zones are brown fields that will require an Environmental Audit. For the green fields developments, site specific E. I.A studies will be carried out. The study will do the following:

- examines the project's potential negative and positive environmental impacts,
- recommends measures to prevent, minimize, mitigate, or compensate for adverse impacts; and
- recommends measures to improve environmental performance.

The World Bank has 10 Environmental and Social Safeguard Policies (see Annex 1) to reduce or eliminate the adverse effects of development projects, and improve decision making. These operational policies include:

- OP/BP 4.01: Environmental Assessment
- OP/BP 4.04: Natural Habitats
- OP 4.09: Pest Management
- OP/BP 4.12: Involuntary Resettlement
- OD 4.20: Indigenous Peoples
- OPN 11.03: Cultural Property
- OP 4.36: Forests
- OP/BP 4.37: Safety of Dams
- OP/BP 7.50: Projects on International Waters
- OP/BP 7.60: Projects in Disputed Areas

Under the original project triggered six of the policies: environmental assessment, natural habitats, pest management, involuntary resettlement, forests and projects in international waters. As part of due diligence and for consistency, OP/BP 4.37 Safety of Dams is triggered even though the project will only be dealing with small earth dams and weirs as did be the original project. The project will engage a qualified dam expert for site selection, construction and operation of the small dams/weirs. The project will be implemented in a manner that forests and natural habitats are not negatively impacted. With respect to the International waters policy, the project is in the process of notifying the riparian states.

This document i.e. the ESMF, RPF and PMP are the instruments prepared to address the triggered policies of environmental assessment, involuntary resettlement and pest management.

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OP 4.01 Environmental Assessment

The objective of OP 4.01 is to ensure that projects financed by the Bank are environmentally and socially sustainable, and that the decision making process is improved through an appropriate analysis of the actions including their potential environmental impacts. Environmental assessment (EA) is a process whose breadth, depth, and type of analysis depend on the nature, scale, and potential environmental impact of the proposed project. EA takes into account the natural environment (air, water, and land); human health and safety; social aspects (involuntary resettlement, indigenous peoples, and cultural property); and trans-boundary and global environmental aspects. OP 4.01 is triggered if a project is likely to present some risks and potential adverse environmental impacts in its area of influence. Thus, in the case of the Fadama III sub-projects, potential negative environmental and social impacts due to construction and rehabilitation activities of small-scale community-owned infrastructures are likely to include loss of vegetation, soil erosion, soil and groundwater pollution, air pollution, public health impacts such as traffic hazards, noise, dust, and possibly loss of livelihoods.

OP 4.12 Involuntary Resettlement

The objective of this operational policy is to:

- i avoid or minimize involuntary resettlement where feasible and explore all viable alternative project designs and location,
- ii assist displaced persons in improving their former living standards, income earning capacity, and production levels, or at least in restoring them;
- iii encourage community participation in planning and implementing resettlement; and
- iv provide assistance to affected people regardless of the legality of land tenure (encroachers and squatters included).

This policy also applies to the involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons.

OP 4.09 Pest Management

The objective of this policy is to promote the use of biological or environmental control methods and reduce reliance on synthetic chemical pesticides. In Bank-financed agricultural operations such as small irrigated perimeters, pest populations are normally controlled through Integrated Pest Management (IPM) approaches.

The policy further ensures that health and environmental hazards associated with pesticides are minimized. The procurement of pesticides in a Bank-financed project is

contingent on an assessment of the nature and degree of associated risk, taking into account the proposed use and the intended user. The policy is triggered, even where the project does not envisage the procurement of pesticides.

3.6 Comparing the Nigeria Extant EIA Law and the World Bank Operational Policies

Aspects	Extant EIA Laws	World Bank Ops
Mandatory EA	The law makes it mandatory for proponents of all development projects to undertake mandatory EA to ascertain the environmental sensitivity of the project whether EIA is required or not before proceeding with project implementation	For all Bank supported project, consideration for EA, is required before approval of the proposed project in order to ensure environmental and social sustainability of the project.
Projects for EIA	All projects with significant adverse effects on the environment	All projects with significant adverse effect whose impact can be mitigated through planning
Exclusion from EIA	<ol style="list-style-type: none"> 1. All projects that fall under category 3, implying that they have no adverse environmental impacts 2. Those in the list of projects which the President, Commander-in-Chief of the Armed Forces or the Council is of the opinion that the environmental effects of the project is likely to be minimal; 3. the project is to be carried out during national emergency for which temporary measures have been taken by the Government; 	Projects that have been pre-determined to have no adverse environmental and social impacts, typical of category C projects.
Screening	Required to be carried out at early stage of project conception, planning & design to determine the nature, scope, site, and environmental impacts. It also determines the category of the sub-project	Required to be carried out at early stage of project conception, planning & design to determine the nature, scope, site, and environmental impacts. It also determines the category of the sub-project
Category	4 categories- 1, 2 and 3 1 and 2 required for further EA study	5 Categories,- A, B, C and F1 A, B and F1 required for further EA study

Aspects	Extant EIA Laws	World Bank Ops
Public engagement or consultation	Provides that opportunity be given to government agencies, members of the public, experts in any relevant discipline and interested groups to make comment on environmental impact assessment before final decision on the proposed development	Public or community consultation is a continuous process of public inclusion and participation in decision that affects any development project
Pollution limit Control	Guided & regulated by the national guideline & standard for environmental pollution control	Guided & regulated by the Pollution Prevention and Abatement handbook, and also takes into account the borrower country's legislation and local condition
Social Sustainability	The extant EIA laws anticipates and addresses social concerns but in a rather non-stringent manner. In terms of project involving land acquisition, it compensates land for money subject to right of ownership of land. Asset compensation is based on the current market value of the asset	WB OPs is very rigid with social sustainability. It mainstreams vulnerability, involuntary resettlement and gender concerns in its EA concerns. In terms of project involving land acquisition, it compensates land for land and compensation for non-land asset is based on asset replacement amount at current market value irrespective of PAPs right to land being occupied.
Disclosure	Required to be carried out in accessible public domain such as national daily, FMEnv, SMEnv, LGAs and at the implementing institutions Concerns & Input of the public to be taken into account in further decision of the project	To be disclosed at two levels: in country and at World Bank infoshop Concerns & Input of the public to be taken into account in further decision of the project
Management Plan	Requires that mitigation measures be offered to adverse environmental impacts and an ESMP prepared to ensure management of the impacts to reduce adverse conditions	Requires that mitigation measures be offered to adverse environmental & social impacts and an ESMP prepared to ensure management of the safeguards concerns.

From the above, it is found that a lot of similarities exist between the World Bank operational policies and the Nigerian extant EIA laws. However, where discrepancies exist, the more stringent one will take preeminence.

Based on the World Bank EA guideline, two instruments, the ESMF and the RPF are required at this level to provide frameworks for addressing the potential impacts related to Environmental Assessment and Involuntary Resettlement respectively due to the project. This ESMF is the appropriate instrument prepared to address OP/BP 4.01 (Environmental Assessment) policy and provides within it the framework for addressing OP 4.11 (Physical Cultural Property)OP/BP.4.09 (Pest Management),OP/BP 4.04: Natural Habitats and OP/BP4.36: Forests that may be triggered by sub-projects under consideration.

In order to fulfill the OP 17.50 requirement, the two instruments (ESMF and RPF) are prepared as standalone documents and shall be disclosed at two levels; in-country and at the World Bank Infoshop. In-country disclosure shall be carried out in accordance with the guideline of the FMEEnv.

Compliance with OP 4.01 Environmental Assessment

The objective of OP 4.01 is to ensure that projects financed by the Bank are environmentally and socially sustainable, and that the decision making process is improved through an appropriate analysis of the actions including their potential environmental impacts. Environmental assessment (EA) is a process whose breadth, depth, and type of analysis depend on the nature, scale, and potential environmental impact of the proposed project. EA takes into account the natural environment (air, water, and land); human health and safety.

OP 4.01 is triggered in this project because some sub-projects will require civil works such as the gullies/drainage, construction of markets and administrative offices and/or their rehabilitations. The impact is however expected to be site specific, moderate and reversible, hence, classified as a category B project based on World Bank EA screening guideline.

According to the Annex C of the World Bank OP 4.01, an Environmental and Social Management Plan (ESMP) could be a recommended instrument of EA reports for category B projects. This is however, subject to the environmental health & safety risk and hazard consideration of the sub-project, usually determined from the screening activity by the Task Team with the concurrence of the Regional Environmental and Social Unit (RESU) of the World Bank and the national authorities. The ESMP consists of a set of mitigation, monitoring and institutional measures to be taken during implementation and operation to eliminate adverse environmental and social impacts, offset them or reduce them to acceptable levels. The ESMP of AF Fadama will align with the following requirements:

- Developing terms of reference (TORs), collecting baseline data, impact assessment; and formulating mitigating measures
- Identify feasible and cost effective measures that may reduce potentially significant adverse environmental impacts to acceptable levels
- Appropriately delineate responsibilities for implementing and monitoring safeguards mitigation measures
- The ESMP will define monitoring objectives and specify the type of monitoring needed, with linkages to the impacts and mitigation measures assessed in this ESMF report.
- The ESMP will provide the capacity to strengthen the AF Fadama management teams on environmental and social management capability. It may specifically recommend any technical assistance that may be needed.
- For all three aspects above (mitigation, monitoring and capacity development) the ESMP should provide:
 - An implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans, and
 - The cost estimates and sources of funds for implementation and monitoring of the ESMP.

The ESMP must be mainstreamed into the projects overall planning, design, budget and implementation. During project implementation the project management teams (PCUs/ PMUs) shall ensure that it reports on compliance with the mitigation measures outlined in the ESMF/ESMP, the status of the mitigation measures, the compliance monitoring of the contractors implementing safeguards measures, and the extent of the involvement of national/state regulatory and operational agencies on environmental protection. These items are the integral requirements of the environmental and social safeguards audit that will follow at during or at post implementation stage as part of the Bank's monitoring of sub-projects.

Compliance with OP 4.11: Physical Cultural Property

Physical cultural resources, are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural resources are important as sources of valuable scientific and historical information, as assets for economic and social development, and as integral parts of a people's cultural identity and practices.

The World Bank's general policy regarding cultural properties will subsist in this project, which is to assist in their preservation, and to seek to avoid their elimination. Specifically:

a) The Bank normally declines to finance projects that will significantly damage non-replicable cultural property, and will assist only those projects that are sited or designed so as to prevent such damage.

b) The Bank will assist in the protection and enhancement of cultural properties encountered in Bank-financed projects, rather than leaving that protection to chance. In some cases, the project is best relocated in order that sites and structures can be preserved, studied, and restored intact in situ. In other cases, structures can be relocated, preserved, studied, and restored on alternate sites.

c) According to the World Bank guideline, deviations from this policy may be justified only where expected project benefits are great, and the loss of or damage to cultural property is judged by competent authorities to be unavoidable, minor, or otherwise acceptable. Specific details of the justification should be discussed in project documents.

For any sub-project that may entail the risk of damaging cultural property, in this project, critical assessment and consultations will be taken to preferably consider the plausibility of relocation of the proposed facility to another site. Only where this option is not feasible, will the second option be considered which is on how to relocate/preserve the affected cultural property in an alternative site. This must be in consultation with the community and agencies of the government responsible for the administration and preservation of such cultural property. In this case, the cost of the preservation including training and strengthening of institutions entrusted with safeguarding the cultural patrimony shall be internalized in computing overall project costs.

Physical Cultural Resources within Environmental Assessment

Based on the World Bank policy guideline on cultural property, the State government implementing sub-projects under AF Fadama with the likelihood of damaging cultural property shall address the impacts as an integral part of the environmental assessment (EA) process. Appropriate measures for avoiding or mitigating these impacts as part of the EA process shall be undertaken by the SPCU. These measures may range from full site protection to selective mitigation, including salvage and documentation, in cases where a portion or all of the physical cultural resources may be lost.

The steps to follow is consistent with the EA process: screening; developing terms of reference (TORs); collecting baseline data; impact assessment; and formulating mitigating measures and preparation of a cultural property management plan.

The following projects are classified during the environmental screening process as Category A or B, and are subject to the provisions of this policy: (a) any project involving significant excavations, demolition, movement of earth, flooding, or other environmental changes; and (b) any project located in, or in the vicinity of, a physical cultural resources site recognized by the borrower. Projects specifically designed to support the management or conservation of physical cultural resources are individually reviewed, and are normally classified as Category A or B.

To develop the TORs for the EA, the borrower, in consultation with the Bank, relevant experts, and relevant project-affected groups, identifies the likely physical cultural resources issues, if any, to be taken into account by the EA. The TORs normally specify that physical cultural resources be included in the baseline data collection phase of the EA.

When the project is likely to have adverse impacts on physical cultural resources, the borrower identifies appropriate measures for avoiding or mitigating these impacts as part of the EA process. These measures may range from full site protection to selective mitigation, including salvage and documentation, in cases where a portion or all of the physical cultural resources may be lost.

As an integral part of the EA process, the borrower (PMU/ FCAs) shall develop a Chance Finds Procedure that includes: 1) measures for avoiding or mitigating any adverse impacts on physical cultural resources, 2) provisions for managing change, 3) any necessary measures for strengthening institutional capacity, and a monitoring system to track the progress of these activities. It shall be consistent with the Nigeria's overall policy framework and national legislation and takes into account institutional capabilities with regard to physical cultural resources.

A generic Chance Finds Procedure is attached as an **annexure**. It is important that a physical cultural resource (PCR) committee be constituted by the applicable SPCU once sub-projects screening reports shows that OP 4.11 will be triggered. This committee will include representatives from Ministry of Environment, Ministry of Culture, Community, and an archeologist. The World Bank will review, and discuss with the implementing agency ((PMU/ FCAs) on the findings and recommendations related to the physical cultural resources aspects of the EA, and determine whether they provide an adequate basis for processing the project for the Bank's approval and financing.

OP/BP 4.04: Natural Habitats: The conservation of natural habitats, like other measures that protect and enhance the environment, is essential for long-term sustainable development. The Bank does not support projects involving the significant conversion of natural habitats unless there are no feasible alternatives for the project and its sitting, and comprehensive analysis demonstrates that overall benefits from the project substantially outweigh the environmental costs. If the environmental assessment indicates that a project would significantly convert or degrade natural habitats, the project includes mitigation measures acceptable to the Bank. Such mitigation measures include, as appropriate, minimizing habitat loss (e.g. strategic habitat retention and post-development restoration) and establishing and maintaining an ecologically similar protected area. The Bank accepts other forms of mitigation measures only when they are technically justified. Should the sub-project-specific ESMPs indicate that natural habitats might be affected negatively by the proposed sub-project activities with suitable mitigation measures, such sub-projects will not be funded under the AF Fadama- III project.

OP/BP 4.36: Forests. This policy applies to the following types of Bank-financed investment projects: (a) projects that have or may have impacts on the health and quality of forests; (b) projects that affect the rights and welfare of people and their level of dependence upon or interaction with forests; and (c) projects that aim to bring about changes in the management, protection, or utilization of natural forests or plantations, whether they are publicly, privately, or communally owned. The Bank does not finance projects that, in its opinion, would involve significant conversion or degradation of critical forest areas or related critical habitats. If a project involves the significant conversion or degradation of natural forests or related natural habitats that the Bank determines are not critical, and the Bank determines that there are no feasible alternatives to the project and its siting, and comprehensive analysis demonstrates that overall benefits from the project substantially outweigh the environmental costs, the Bank may finance the project provided that it incorporates appropriate mitigation measures. Sub-projects that are likely to have negative impacts on forests will not be funded under the project.

Consultation

As part of the public consultations required in the EA process, the consultative process for the physical cultural resources component normally includes relevant project-affected groups, concerned government authorities, and relevant nongovernmental organizations in documenting the presence and significance of physical cultural resources, assessing potential impacts, and exploring avoidance and mitigation options.

Disclosure

The findings of the physical cultural resources component of the EA shall be disclosed as part of, and in the same manner as, the EA report. Exceptions to such disclosure would be considered when the PMU, in consultation with the Bank determines that disclosure would compromise or jeopardize the safety or integrity of the physical cultural resources involved or would endanger the source of information about the physical cultural resources. In such cases, sensitive information relating to these particular aspects may be omitted from the EA report.

CHAPTER FOUR: BASELINE DATA

BASELINE DATA

General Description of the Environment:

Nigeria is situated in the western portion of Africa, and lies between latitudes 4° 00' N and 14° 00' N, and longitudes 2° 50' E and 14° 45' E. Nigeria is bordered by Chad to the northeast, Cameroon to the east, Benin Republic to the west, Niger to the northwest and the Atlantic Ocean to the south. The country's total area is 923,768 sq km, of which 910,768 sq km is land and 13,000 sq km is water.

Nigeria was created by the merging of the northern and southern protectorate by the British Colonial Government in 1914. The country gained independence on October 1st, 1960 and was declared a republic in 1963. The country is divided into 36 states and a federal territory (see map below):

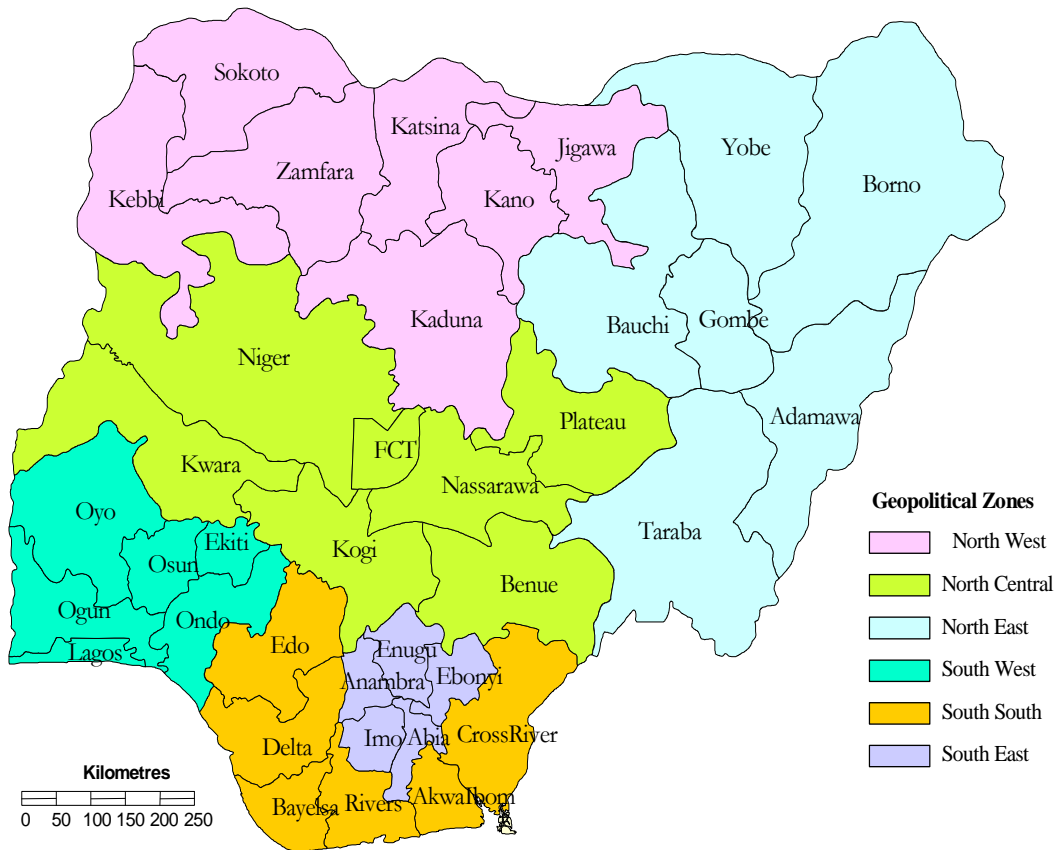


Figure 2.1: Administrative Map of Nigeria

The scope of the ESMF covers all the participating Fadama III project states located in all the six geo-political zones of the country. A description of the physical, biological and socio-economic environment of Nigeria is presented below.

Description of the Nigerian Environment

The main characteristics of the biological, physical and socio-economic environment of the project area are summarized below:

Physical Environment

Climate

Nigeria's climate varies from arid in the north, to tropical in the centre and equatorial in the south. The climate is largely controlled by prevailing winds and nearness to the Atlantic Ocean. The two dominant air masses are the dry wind from the Sahara and the wet wind from the Atlantic Ocean. Marginal alterations have been recorded due to landform characteristics, configuration of surrounding shoreline and the generally flat topography of the country.

Rainfall

Rainfall is the single most important element for defining the climatic seasons in the tropics. Hence, Nigeria has two dominant seasons; the wet and the dry seasons. Rainfall throughout Nigeria depends on the interaction of the tropical maritime air mass and the tropical continental mass which meet along the inter-tropical convergence zone (ITCZ). The annual average rainfall around the country is between 750mm and 3000mm.

Temperature

Nigeria's climate is characterized by relatively high temperatures throughout the year. The average annual maximum varies from 35°C in the north to 31°C in the south; the average annual minimum from 23°C in the south to 18°C in the north. On the Jos plateau and the eastern highlands altitude makes for relatively lower temperatures, with the maximum no more than 28°C and the minimum sometimes as low as 4°C.

Wind

Two principal wind currents affect Nigeria. The south-westerly winds dominate the rainy season of the year while north-easterlies dominate the dry season. Depending on the shifts in the pressure belts in the Gulf of Guinea, these winds are interspersed respectively by south-easterlies and north-westerly in different parts of the year. The wetter winds prevail for more than 70% due to the strong influence of the breeze from the Atlantic Ocean. Mean annual wind speed varies between 2 to 6 m/s. Speeds in dry season (November - March) are lower. In the wet season (April–October), daily average speed could rise to 15 m/s. Values of up to 25 m/s are sometimes experienced due to inducement by convective rainfall activities and relative diffusion.

Ambient Air Quality

The quality of air in some parts of the country is within the National Ambient Air Quality Standards (NAAQS). However, air quality in major industrialized cities (Lagos, Port Harcourt, Aba, Kaduna, Kano, and Ibadan) is relatively high. Nigeria adopted the WHO standards as the national standards for air emissions against which air quality parameters monitored are compared in order to ascertain its “cleanliness”.

Geology

Nigeria lies on the southern portion of the West African Craton. The geological setting comprises broadly crystalline basement complex rocks and sedimentary formations. They occur in equal proportions around the country. The former are highly mineralized and give rise to soils of high nutrient status, although variable from place to place. The latter are found in the south-east, north-east and north-west of the country, and give rise to sandy and less variable soils that are deficient in plant nutrient.

Topography

Nigeria has varying landforms and most part of the country is dominated by plains, generally less than 610m above sea level. The eastern border with the Republic of Cameroun is lined by an almost continuous range of mountains which rise to about 2,419m at Chappal Waddi, the highest known point in Nigeria.

In the North, the Jos Plateau rises abruptly from a general level of about 609.5m in the Hausa Plains to an average level of some 1,219m but reaches 1,781.6m in Shere Hills. The area west of the River Niger is dominated by the plain, which rises gently from the coast northwards 'to the area of crystalline rocks where inselbergs rise abruptly above the surrounding plains. The Idanre Hills, the highest point of these inselbergs, rises to about 981m above sea level.

In general, the land surface of the country could be classified into three broad physical units or major relief features namely: the plains; the highlands; the troughs and the river valleys.

Soils Characteristics

The broad pattern of soil distribution in the country reflects both the climatic conditions and the geological structure; heavily leached, reddish-brown, sandy soils are found in the south, and light or moderately leached, yellowish-brown, sandy soils in the north. The difference in colour relates to the extent of leaching the soil has undergone.

Nigeria soils are highly weathered and are characterized by light texture, low pH, low organic matter, low potassium levels, variable phosphorous levels with clay contents ranging between 7%-43%.

Surface and Ground Water Hydrology

Nigeria has two major rivers, the Niger and the Benue, which traverse the northwest and northeast portion of the country, then merge at Lokoja before draining down to the

Atlantic. There are several other rivers and quite a number of minor streams and rivulets that crisscross the entire Nigerian land mass. These include the Ogun, Oshun, Imo, Cross, Osse, Nun and the Anambra rivers in the south and the Kaduna, the Gongola, Katsina-Ala and the Hadeija in the North.

Generally the water quality in the rivers of Nigeria is very good. The average electrical conductivity in the main rivers ranges between 48-65 Umhos/cm² and the total dissolved solids (TDS) concentration is about 100mg/l. The pH is less than 6.5, although higher values were reported in swamps and floodplains with levels of 100-150 Umhos/cm². These rivers are also low in nutrients, with an average nitrogen content of 0.32mg/l and a total phosphorous content of 0.1 mg/l. The data indicate water of high quality according to FEPA limits.

Biological Environment

Fauna

Animals found in both forest and savannas include leopards, cats, monkeys, gorillas, and wild pigs. Today these animals can be found only in protected places as the Yankari Park, Gashaka- Gumpti Park, and CrossRiverPark. Rodents such as the squirrel, porcupine, and cane rat constitute the largest family of mammals. The northern savannah abounds in guinea fowl. Other common birds include quail, vultures, kites, bustards, and gray parrots. The rivers contain crocodiles and a great variety of marine life.

In the rain forest, few large animals notably gorillas, chimpanzees, baboons and monkeys are present. Crocodiles, lizards, and snakes of many species are also present. Hippopotamuses, elephants, giraffes, leopards, and lions now remain only in scattered localities and in diminishing number. Wildcats, however, are more common and widely distributed. Wildlife in the savannas includes antelope, lions, leopards, gazelles, and desert hyenas. Nigeria also abounds in bird life with a great number of species being represented.

Flora

Vegetation varies dramatically in relation to climate, soil, elevation, and human impact on the environment. In the low-lying coastal region, mangroves line the brackish lagoons and creeks, while swamp forest grows where the water is fresh. Farther inland, this vegetation gives way to tropical forest, with its many species of tropical hardwoods, including mahogany, iroko, and obeche.

North of the forest is the Guinea Savanna, a region of tall grasses and trees. The southern margin of the Guinea Savanna has been so altered by humans that it is also called the derived savanna. Beyond the Guinea savanna lies the Sudan Savanna, a region of shorter grasses and more scattered, drought-resistant trees such as the baobab, tamarind, and acacia. In the north eastern corner of Nigeria, the very dry semi-desert Sahel Savanna persists.

Socio-Economics

Demographics

Nigeria is the most populous country in Africa and ninth most populous country in the world. According to the 1991 census, the country's population was 88.5 million; with an average population density of 96 persons per sq km.

Table 2.1: Demographic Data

	1990	1995	2000	2005	2010	2015
Total population (000s)	96,154	111,721	128,786	147,610	168,369	190,922
Urbanization level (%)	35.0	39.6	44.0	48.2	52.0	55.4
Urban population (000s)	33,664	44,184	56,651	71,121	87,557	105,699
Urban population growth rate (%)	5.53	5.44	4.97	4.55	4.16	3.77
Rural population growth rate (%)	1.65	1.55	1.32	1.17	1.1	1.06

Source: UN Habitat 2004

The provisional figure from the 2006 census, estimate the population to be 140 million which placed it among the ten most populous nations in the world. The population density has thus increased from 141 per sq km in 2002 to 151 per sq km. Regional differences are significant; population is densest in the south and sparsest in the north. According to the UN, the annual population growth rate for 2000–2005 is 2.53%, with the projected population for the year 2015 at 190 million (Table 2.1).

The UN Population Reference Bureau estimated that 44% of Nigerian population lived in urban areas in 2001. The principal cities include Lagos, Kano, Ibadan, Kaduna, and Port Harcourt. The prevalence of HIV/AIDS has had a significant impact on Nigeria's population growth. In 2001, the United Nations estimated that 5.8% of adults between the ages of 15–49 were living with HIV/AIDS.

Ethnic Groups and Religion

Nigeria is composed of more than 250 ethno-linguistic groups. Three dominant ethnic groups are the Yorubas, the Hausas and the Igbos. The Yoruba predominate in the South West. The Igbo predominate in South East. The Hausa and Fulani constitute the largest single groups in North. Other important groups include the Kanuri; the Edo (Bini); the Ibibio; the Ijaw; the Tiv; and the Nupe.

English is the official language while the vast majority of the population conducts commercial activities in their ethnic language. The literacy level of the population is 57.1% (male: 67.3%, female: 47.3%). Nigerians are predominantly Muslims and Christians with few animists.

Land Use Pattern

The estimated land area of Nigeria is 924,000 km². Land use varies based on location and the needs of the community. However, the major uses of land revolve around agriculture, industry and social needs such as the provision of infrastructure. Recent data shows that

about 60% of the land area of Nigeria is under various forms of food (crop and animal) production and forest plantation.

Land Tenure

The Land Use Decree of 1978 vests all land in the state through the office of the governor. Land is to be held in trust and administered for the use and common benefit of all Nigerians according to the provisions of the Act. By this legal instrument, the state replaced the traditional institutions of obaship and chieftaincy in their roles as keepers of communal land.

Control and management of land in urban areas is the responsibility of the state governor, while all other land (rural, public, etc.) is the responsibility of the Local Government of the area. The governor is empowered to designate certain areas as urban land and to grant statutory rights of occupancy of fixed periods and rights of access to any person, subject to rental arrangements fixed by and payable to the state. The local government can grant a customary right of occupancy to land in the local government area (LGA) to any person or organization for agriculture, grazing, residential or other purposes.

Economics

Nigeria's economy depends heavily on the oil sector, which contributes 95 percent of export revenues, 76 percent of government revenues, and about a third of gross domestic product (GDP). Despite the country's relative oil wealth, poverty is widespread - about 37% of the population lives in extreme poverty (World Bank, 2006).

Nigeria's major industries are located in Lagos, Sango Otta, Port Harcourt, Ibadan, Aba, Onitsha, Calabar, Kano, Jos and Kaduna.

Infrastructural Facilities

The main transportation means in Nigeria is the road. Water transportation is fairly developed in some coastal areas. Air transportation is considered fair with major airports in Lagos, Abuja, Port Harcourt, Kano and Kaduna. The railway sector has experienced a major decline in the last decades but efforts are being made to revive it.

Electricity is supplied through the national grid. The power supply is erratic; and government is promoting the development of independent power supply to augment the current inadequate supply.

Waste Management and Environmental Awareness

Waste collection is a major challenge in many of the States in Nigeria. The State Environmental Protection Agencies are the main authority responsible for waste management in the States. There is a high cost associated with the operations and maintenance of the waste management services especially as over 70% of households in the States attest to not paying any fees for waste management services.

The awareness on environmental management is still inadequate, and remains more or less confined to the monthly municipal environmental sanitation observed based government policies. The practice has not reflected in terms of improvement in the general management of wastes by households, contractors and institutions. This is evidenced in the indiscriminate waste disposal by households, organizations and road users in many cities. Cross River and Lagos are perhaps significant exceptions to this amongst the states in Nigeria due to government strong enforcement in those States.

CHAPTER FIVE: ENVIRONMENTAL AND SOCIAL IMPACTS IDENTIFICATION

5.0 Introduction

This section examines the positive and negative impacts associated with the implementation of AF Fadama – III sub-projects; methods for identifying impacts and subsequent processes to be carried out in the implementation of the EA after identification of adverse impacts. In order to determine the impacts of sub-projects, robust screening measures were put in place as follows:

5.1 Screening Process

The objective of screening is to determine the appropriate level of environmental and social impact assessment and management for a proposed subproject. Environmental and Social screening process distinguishes sub-projects and activities that will require thorough environmental review to prevent/mitigate negative environmental impacts or those which will provide opportunities to enhance positive impacts. Thus, one of the objectives of the screening process is to rapidly identify those subprojects, which have little or no environmental or social issues so that they can move to implementation in accordance with pre-approved standards or codes of practices for environmental and social management.

In other words, based on environmental screening, sub-projects with no noticeable impacts are cleared from an environmental perspective; subprojects with some impacts proceed to another level of conducting an environmental assessment, which will be evaluated to clear the subproject.

Specifically, under Component 2 of the proposed Fadama III project and AF, sub-projects in Local Development Plans will be financed to rehabilitate and or provide new infrastructure. The menu of sub-projects will include: (a) rehabilitation and/or construction of feeder and Fadama access roads, culverts and small bridges; and (b) infrastructure for sustainable natural resources management, including improved conservation of soils and agronomic practices, and water harvesting techniques. These sub-projects will have both positive and negative environmental and social impacts.

a. Positive Environmental Impacts

- Construction and rehabilitation of water management infrastructures: small reservoirs, water point, bore hole, will permit good management of the water resources. They also prevent the pollution of the pastoral water points. In addition, these infrastructures will avoid long trips for livestock farmers to their watering points and consequently, they will prevent or at least minimize land degradation and soil compaction that result from the movements of cattle.

- Construction and rehabilitation of infrastructures of transportation: The construction and rehabilitation of rural roads will connect the rural population to local and regional markets, and will facilitate the development of planned settlements along the rural roads. Thus, avoiding the degradation of sensitive areas
- The bore holes and wells will make the water fully available for the population so that they can use it for crop production, irrigation and drinking purposes as well as to water the trees and the nurseries in their environs, thus contributing to expanding the plant coverage in the areas
- The improvement of the cattle health situation using infrastructures such as vaccination parks and vaccination corridors will help develop the cattle, and ensure the safety of groundwater and surface water resources in pastoral areas. This phenomenon could be particularly important in the pastoral zones ending up in the risk of conflict outbreak.
- Reforestation (nurseries, plantations, fencing, natural regeneration) while creating the conditions of restoration of the habitats, encourages regeneration and the development of fauna.
- The agricultural activities particularly the reforestation of degraded lands or probably fruit nurseries in villages and at communal level, will help combat desertification, conserve and diversify the floristic population in sites where the nurseries will be established. Moreover, these activities will embellish the landscape; conserve soils while slowing down runoff thus contributing to the recharging of ground water tables. The market garden plots will allow for the diversification of crop production, while enriching at the same time farming areas through crop rotations that can also help combat certain pests.

b. Negative Environmental Impacts

The adverse environmental impacts of the project will mainly come from (i) agricultural activities; and (ii) the construction and rehabilitation works (irrigation canals / irrigation infrastructures, roads, culverts buildings, etc.). In addition, we have to point out that the extraction of construction materials from quarries could be a source of adverse impacts on the landscape' aesthetics. The temporary quarries will certainly need to be restored after exploitation.

The environmental impacts are likely to relate to soil erosion, soil and water pollution, vegetation loss, and the impact caused by the increase of solid and liquid wastes can originate from construction's activities and the use of quarries as sources of construction materials.

More specifically:

- The provision of bore holes, small water supply systems, and wells will contribute to the lowering of groundwater tables. (the impact is low because the wells and bore holes are not concentrated in the same area).
- Vegetable garden plots can be a source of pollution of surface water or ground waters through the use of agricultural inputs (pesticides, fertilizers). In some low land zones, the use of synthetic chemicals (NPK fertilizer) in the Vegetable garden is going to contribute to soil salinity; while some pesticides can have adverse effects on the micro fauna that plays a very important role in the restoration of soils.
- Agricultural activities: An increase in agricultural activities as well as an increase in water use could have, among other things, lead to an increased use of pesticides even though the proposed project doesn't finance pesticide purchases. The unsafe use of pesticides can lead to the pollution of underground water tables; rivers; water surfaces; contamination of pastoral wells, pesticide poisoning among the human population and animals. To this effect a pesticide management plan that was prepared for the Fadama III project prior to the development of an operational management plan in relation with specific projects has been updated to include ATA and sustainable land Management component.
- Feeder and Fadama access rural roads can disrupt water runoff ways and contaminate the surface water during the construction phase. The construction of rural roads is one of the main sources of adverse impact on fauna habitat. The discharge of used oils, fuel and lubricants from operating may cause surface and groundwater contamination.
- The expansion of irrigated crops will require additional land and thus may lead to some deforestation.

Table 5.1 Potential adverse environmental impacts due to Fadama access and rural roads and infrastructure construction / rehabilitation

Phase	Potential adverse impacts
Construction	<ul style="list-style-type: none"> - Conflicts and litigation due land acquisition impacts, - Reduced access to resources / source of livelihood by vulnerable groups resulting in marginalization and disenfranchisement. - Degradation of sites used for the storage of construction materials - Deterioration of the disposal areas - Surface water pollution - Non rehabilitated quarries and other borrowed pits - Deforestation due to the establishment of construction sites - Air pollution due to vehicular emissions, noise e.t.c. - Soil pollution from motor oil and grease - Waste generated by construction work - Pollution and inconveniences leading to a: deterioration of living environment - Soil erosion - Loss of natural zones and biodiversity
Operation	<ul style="list-style-type: none"> - Influx of people resulting in dilution of local norms and culture and probable conflicts. Environmental risks caused by poor biomedical waste management - Non functioning equipments - Traffic hazards and traffic impacts such as noise and accidents risks in the case of fights, pushing and shoving, panic and people getting carried away due to high human concentration . - Pressure on the existing infrastructures available to the public

Table 5.2: Adverse environmental impacts of the agricultural activities

Sub-sector	Potential Adverse Impacts
Economic fruit trees Promotion of agricultural activities	<ul style="list-style-type: none"> - habitat destruction - soil erosion, disruption of the water cycle - loss of grazing land - use of large quantities of pesticides - pollution of underground water tables - rivers – stretches of water - contamination of livestock watering points - pesticides poisoning in case of unsafe use - pesticides residues in the food chain - use of ESMP containers to store food or water - destruction of non-target species - Adverse impacts of land take and probable conflicts.. - Restricted access to farmlands and other resources by Vulnerable groups.

Sub-sector	Potential Adverse Impacts
Animal Husbandry	<ul style="list-style-type: none"> - reduction of grazing capacity - tree felling for the establishment of land use pattern - soil erosion - Loss of vegetation around the works (watering points, etc.) - excessive withdrawal of ground waters
Sub-sector	Potential Adverse Impacts
Fisheries/Aquaculture	<ul style="list-style-type: none"> - stripping of humid zones - disappearance of grazing lands - change in water flows - competition with other water uses - water pollution (chemicals, etc.) - depletion of local fish populations with the introduction of exotic species - development of water related diseases

Table 5.3: Adverse environmental impacts of the hydraulic infrastructures.

Phase	Potential adverse Impacts
Construction	<ul style="list-style-type: none"> - emanation of dust - Loss of vegetation (water pipe bore hole, etc.) - Disruption of the traffic during works, trench digging, and the evacuation of excavated soil - Accident risks (non protected trenches, machinery, etc.) - disruption of the surrounding drainage system
Operation	<ul style="list-style-type: none"> - Increase of water use - Over abstraction of the ground water - Increase of the competition for the use of natural resources - Increased level of soil salinity - proliferation of invasive aquatic plants - Development of water related diseases (malaria, bilharzias, etc.) - reduction of arable and pastoral surfaces - increase of the population density around the infrastructures

In order to cope with these adverse impacts, the environmental and social screening process proposed in the ESMF will be carried out in such a way as to ensure that potential negative impacts are mitigated appropriately. It is recommended that Environmental Guidelines for Contractors (Annex 5) are used to ensure that the construction and rehabilitation activities are carried out in compliance with the mitigation measures proposed in the ESMF. These guidelines can be written into contractual agreements and form the basis for monitoring compliance.

5.4 Social impacts of Fadama- III and additional Financing activities

a. Positive Social Impacts

Overall, the project is likely to have a positive impact on the social issues in the communities' development in the participating states, in the short, medium and long term. The sub-projects that will be financed in the framework of the CDP are supposed to have positive social impacts thus addressing the needs of the population. These positive impacts can be summarized as follows:

- Enhance food Security
- The creation of new jobs (fight against poverty);
- The improvement of the capacities of the agricultural services and those of the producers organizations involved;
- A better access to the opportunities of investment (access to the micro-credits and matching grants).

At the institutional level:

- **Gender and Fairness:** Through the involvement of the Local Communities in the decision-making process and preparation of Local Development Plans (LDPs), the project is going to encourage taking gender and fairness into account in the execution of activities. Women, who constitute essential levers in the organization and the animation of the Local Communities, will actively participate in the activities of the project of which they will be privileged recipients, in terms of growth of income, of mastery of technologies and management.
- **Water supply infrastructures.** The construction of water supply facilities (bore holes, watering points, wells, etc.) will contribute to improving the availability of water in the villages reducing thus both the time and energy spent by women to go and fetch water. Thus these achievements, will contribute to improving the health situation of the populations by making available to them clean water.
- The development of fishing (in coastal zone and rivers) will significantly contribute to improving nutrition (availability of proteins) among the populations and raising the economic living standard in areas potentially rich in fishing resources.
- The improvement of the production systems such as irrigation, planning of small market perimeters is going to permit the creation of employment, the diversification of the local production, the improvement of the nutrition and is going to increase production in a meaningful way and increase domestic incomes. The population will then be able to satisfy its fundamental needs, notably the schooling of their children, the access to health care, the involvement in the implementation of communal infrastructures, etc. The sustainable management of

production systems, technologies and the post-harvest activities considered in the implementation of the project has the goal to promote productive agriculture without harm to the environment (preservation of natural resources, restoration of soil fertility, etc.).

- The development of activities intended for women and young girls such as in the project's area (like the processing of agricultural products) will help improve the life of women in particular and the household in general.
- The infrastructures for the promotion of animal husbandry (vaccination parks and vaccination corridors, migration corridors, pastoral wells, grazing areas) will facilitate the development of this activity particularly in agro-pastoral and pastoral.

b. Negative Social Impacts

- Increased volume of vehicular movement could result in traffic and expose the local community to traffic hazards such as accidents, particulate emissions e.t.c. The same applies also to the handling of dust materials (cement and sand) that may annoy surrounding population (dusts). The different pollution and nuisances associated with the works could have some effects on the health of neighboring populations.
- The development and extension of irrigated surfaces, canals and the production of irrigated crops can be a source of infection by waterborne diseases if adequate prevention measures are not taken.
- The building of grazing corridors/or routes can lead to the outbreak of conflicts between landowners, farmers and the pastoralists.
- Risk of outbreak of social conflicts: In terms of local employment, the non-use of local labour or manpower during the rehabilitation and construction of the infrastructures could cause some frustrations at the local level (and could lead to social conflicts). ..
- Occupation of lands during works: In the course of the construction and rehabilitation works, it is possible for the works to occupy lands (installation of building sites bases, storage of equipment, parking of machines etc.). This could lead to the degradation of such lands or even be a source of loss of revenue and livelihoods for their owners and users.

5.5 Cumulative Impacts

In a project such as AF FadamaIII many of the sub-projects are small in scope, particularly those ones that focus on modest lending to individual farmers. Even sub-projects at the community level maybe small in size but significant in terms of the socio-

economic benefits to be gained by the people of the community. Although some of the sub-activities can result in significant potential impacts of these latter small activities will be insignificant. Certainly, the residual impacts of these latter small activities will be very insignificant. Even though each small activity may result in only a very small residual impact, the overall cumulative effect of all of the small impacts could be significant. Some examples of activities related to such sub projects are as follows:

- Potential impacts on groundwater, owing to the construction of numerous wells.
- Bush clearing (using slash and burn methods) of marginal forest or bush land with subsequent depletion of soil fertility;
- Deforestation due to the exploitation of forest resources for such uses as firewood, construction materials, etc.;
- Development of lowlands which may have both upstream and downstream impacts (e.g., increase in soil erosion, decrease in available water resources downstream resulting in less water flowing into international water flowing into international waterways);
- Resettlement, relocation, displacement or loss of access to assets due to the acquisition of land for construction of facilities, such as public amenities.
- Increased proximity and access to protected areas through construction of rural feeder and forest roads.

Considering possible cumulative impacts of the Fadama III funded sub-projects, stakeholders will be provided with an opportunity to learn how to avoid or mitigate localized impacts from initial sub-projects, so that measures can be integrated into subsequent activities.

5.6 Residual Impacts

Residual impacts are those that will remain as a result of AF Fadama-III implementation after mitigation has been carried out. If mitigation is fully implemented the residual impacts will be minimal. However, it is unlikely that full mitigation will occur and the residual impact will be greater than minimal. Effective environmental monitoring will help to ensure that appropriate mitigation is carried out. It is difficult to predict the level of residual impact to expect but it certainly will exceed minimum. There is bound to be some water contamination, some additional erosion and lost natural habitats. Periodic monitoring will indicate the nature of the impacts and the level of occurrence.

Although the outcome of the above matrix on impact prediction analysis shows that adverse impacts are largely within medium and low significance region appropriate mitigation measures are put place in this ESMF in order to safeguard the environment and social impacts human population because the cumulative impacts of these medium and low adverse impacts may be severe over time.

Implementing the ESMF

The ESMF will guide the preparation of environmental and social impact assessments (ESIAs)/environmental and social management plans (ESMPs), and/or other safeguards instruments that will be prepared for the AF Fadama - III activities. Since such activities are financed by the Bank, the safeguards specialists at the NFCO and PMU in the staple crops processing zones will submit the report of the screening exercise with its recommendations for clearance to the World Bank to proceed with the detailed Environmental and Social Management Plans (ESMP) or Environmental and Social Impact Assessment (ESIA), and any other safeguards instrument. Some specific considerations for Bank-financed activities under this project are as follows:

Screening: The ESMF includes an environmental and social screening checklist that has been designed using the World Bank environmental and social safeguards guidelines, and Nigerian EIA guidelines as checklist benchmarks to assist in the evaluation of proposed interventions under AF Fadama-III project. The screening checklist is designed to place information in the hands of reviewers so that mitigation measures, if any, can be identified and/or that requirements for further environmental and social analyses and safeguards instruments (i.e., ESMP, ESIA,) can be determined. The screening checklist also identifies potential socioeconomic impacts that will require mitigation measures.

*Environmental and Social Management Plans:*The project and all its activities will include the preparation of ESMPs to address environmental, health, safety, and environmental regulatory compliance objectives, institutional responsibilities (e.g., World Bank), and other related commitments. During the proposal stage, each SPIU/implementing agency will as part of its proposal, submit an overview of how environmental issues of the project will be addressed on a continuous basis. The plans will also specify standards proposed for the sub-project to ensure environmental sustainability. Standards and plans proposed to address social issues including involuntary resettlement and or chance finds. The PCU will include an environmental and social safeguard specialists with specific responsibilities to oversee all safeguards work to be undertaken through the project in support of AF Fadama - III financed activities.

*Capacity building and training requirements:*The capacity of the borrower to carry out its design, planning, approval, permitting, monitoring and implementation roles will, to a large extent, determine the success and sustainability of the AF Fadama- III program in addressing environmental and social issues. The first step in pursuing capacity building will be to identify the capacity building needs of the various stakeholders. Given the nature of the environmental and social management requirements and provisions outlined in this ESMF, competencies and capacity building will be required in the following areas: (i) Environmental Impact Assessment Process, (ii) Environmental Due Diligence, (iii) Environmental and Social Audit; (iv) Resettlement Action Plan Process, and (v) Monitoring and Evaluation.

Stakeholder engagement: In tandem with World Bank safeguards policy 4.01 governing EA Category B projects, the FMF recognizes that stakeholder involvement is an important element of the AF Fadama- III project and the EA process and that stakeholder identification and analysis at an early stage of a project is critical in the assessment of interests, concerns, relationships, assumptions, their level of influence and the ways in which they affect project risks. To this end, the preparation of the ESMF and RPF drew from inputs by eight stakeholder consultations in each of the participating States.. One of the key agreements reached out of these consultations was the establishment of a demand-based and third party monitoring arrangement involving key national and local civil society groups likely to be impacted by prospective sub- project activities in the additional financing for the Fadama- III project. Consultation which started early during the project preparation phase will continue during project implementation.. There shall be adequate stakeholder engagement and participation to prevent conflicts as well

*Grievance Redress Mechanism:*The grievance redress procedure established during the implementation of the base Fadama – III project, provides a mechanism to mediate conflict and cut down on lengthy litigation which often causes delay in project implementation. This will be applied in the AF Fadama – III. It will also provide people with concerns about project impacts a public forum to raise their objections and, through conflict resolution, ensure issues are adequately addressed. The grievance procedure adopted for the project will not entail complex processes or procedures; administered as far as possible at the local and State levels to facilitate access; flexible and open to various proofs, taking cognizance of the fact that most people are illiterate; and, will entail timely, and fair resolutions of their grievances.

Mainstreaming gender and vulnerable groups: Through the involvement of vulnerable groups such as unemployed youths, women and the aged in the decision-making process, ,meetings selection of economic enterprises and preparation of Local Development Plans (LDPs), the project is going to encourage social inclusion and gender fairness into account in the execution of sub-project activities. Women, who constitute essential levers in the organization and the animation of the Local Communities, will actively participate in the activities of the project of which they will be privileged recipients, in terms of growth of income, of mastery of technologies and management skills. Appropriate sensitization talks and social change trainings will be conducted regularly to achieve overall social sustainability of the Fadama-III AF Project

CHAPTER SIX: INSTITUTIONAL ARRANGEMENT AND FRAMEWORK FOR ENVIRONMENTAL AND SOCIAL MANAGEMENT.

6.1 Institutional Roles and Responsibilities

The main institutions with key responsibilities in this ESMF are:

6.1.1 The Federal Ministry of Environment (FMEnv)

One of the primary responsibilities of the Federal Ministry of Environment (FMEnv) is to ensure that all major development projects in Nigeria are subject to mandatory Environmental Impact Assessment (ESIA) pursuant to EIA Act. No. 86 (Decree No. 86) of 1992. The FMEnv reviews and approves EA documents for category A projects; especially the complex and more risky ones. For the AF Fadama III project, the respective State Environmental Protection Agency or Authority (SEPA) will handle the reviews, approvals and participate in the follow-up monitoring.

The role FMEnv will play in this project is one of monitoring, to ensure (i) that the SEPA's are reviewing the EA documents and clearing them according to Federal Guidelines, State Laws and World Bank Safeguards policies, (ii) that the SEPA's are monitoring the activities of the SFCOs during construction and post-construction (i.e. operations stage) at all locations in the state on which the SFCOs have sub-projects investments.

6.1.2 The State Environment Protection Agencies (SEPA's)

The State Environmental Protection Agencies or Authorities (SEPA's) are responsible; (i) to ensure the activities planned under this project by the SFCO's comply with their state's environmental laws and requirements, and that of the Federal Government and the World Bank's triggered Safeguards Policies, (ii) for receiving, review, commenting, requiring revisions where necessary and clearing and approving the EA document details of the SFCO's, and (iii) to perform regular and intrusive monitoring regime of the construction, operations and maintenance stages of the activities of the SFCO's, (iv) for preparing periodic monitoring reports on the activities of the SFCO's at all stages of operations and to send these reports on a regular basis to the FMEnv (v) to comply with (consistent with state laws) the directives of the FMENV.

6.1.3 The State AF Fadama-III Coordination Offices (SFCOs)

The SFCOs will be responsible for: (i) complying with all Federal, State and Local Laws regarding the environment and with all social/poverty guidelines, parameters and targets set by the project, and of all triggered World Bank Safeguards policies; (ii) ensuring that communities prepare an ESMP report for their planned investments under this project and to submit the ESMP to the SEPA's for clearance; (iii) to implement all appropriate mitigation measures identified in the ESMP into the project planning cycle, technical and

engineering designs and drawings, and contracts; (iv) to ensure that these mitigation measures are complied with during construction and post construction (i.e. operations) stages of their activities, by self-monitoring of their activities and by periodically reporting to the SEPAs and the FMENV; and (v) to comply with any directives that may be issued from time to time from the SEPAs and FMENV.

6.1.4 Local Fadama Desk and Local Fadama Development Committee

A Local Fadama Desk (LFD) and Local Fadama Development Committee (LFDC) will be established by the Project. The LFDC and its Secretariat, the LFD will be responsible for local level review and approval of subprojects. The LFD will comprise one or two civil servants, with qualifications and experience satisfactory to the SFCO, seconded to the Project to play this role of a clearing house for LDPs. It will screen LDPs to ensure that they meet a basic set of criteria as spelled out in the PIM, and will call meetings of the LFDC to review and approve the plans. Decision-making on subproject investment proposals emanating from the communities is delegated by the state government to the LFDC. The LFDC will also be responsible for reviewing and approving subproject and advisory service activity proposals. The LFDC will be chaired by the chairperson of the local government council or his/her representative. The LFDC will also play a major role in applying the environmental and social checklist to screen sub-projects.

6.1.5 The World Bank

The Federal Government of Nigeria has overall responsibility to ensure that its Safeguards Policies are complied with. However, the World Bank will be responsible for the final review and clearance of ESMPs and or ESIAs; as well as review and give “no objection” to the ESMP/ESIA TORs. The responsibility for preparing the TORs for EIAs/ESMPs resides with the SFCOs / PMUs. **However, the result of the screening will be sent to the World Bank for approval and or concurrence prior to the approval and subsequent funding.**

6.2 Capacity Assessment to Perform Attributed Institutional Roles.

6.2.1 Federal Ministry of Environment and Housing

The role of the FMENV in this project will be that of monitoring. Although the staffing levels at the EIA division of the FMENV and the Impact Mitigation and Monitoring (IMM) Branch of the EIA division are sufficient with adequate experience to carry out these roles, there is a need for further training.

6.2.2 State Fadama Coordination Office (SFCO)

All technical assistance, institutional building, and productive investment sub-projects will be managed and supervised by the SFCO. The SCPZs/ PMU will be headed by a State Fadama –III Additional Financing Coordinator who will manage an inter-disciplinary staff that will also include an environmental specialist.

The designated environment specialist will be responsible for day to day monitoring and reporting feedback throughout the life of the project, specifically the monitoring of (i) of LDPs and ensuring that the sub-projects were screened using the environmental and social screening mechanism contained in this ESMF; (ii) overseeing the implementation of the ESMPs/ESIA and RAPs (if applicable); and (iii) monitoring of environmental issues during operations

6.2.3 State Environmental Protection Agencies/Authorities (SEPAs).

The SEPAs will perform the following key roles in this project:

- Reviews terms of reference (TOR) for ESMPs or ESIA
- Ensure adherence to ESMP/ESIA requirements
- Ensure implementation of ESMPs/ESIAs in communities
- Monitor compliance of ESMPs for micro-projects
- Enforce state laws.
- Report to the FMENV

Table 6.1: Summary Table of Institutional Framework for Environmental and Social Management Plan (ESMP)

<i>Institution</i>	<i>Tasks/Activities</i>
National Fadama Co-ordination Office/ PMU (NFCO)	Project Coordination and Oversight; reporting to IDA
State Fadama PMU / Project Mgt Unit	Preparation of TORs for ESMPs/ESIAs; monitoring activities of ESMPs.
Federal Ministry of Environment(FMENV),	Monitoring State Environment Ministries/Agencies and collaborating NFCO.
State Environment Ministries/Agencies	Review, approve and clearance of ESMPs; Monitoring SFCOs and reporting to FMENV and State Fadama Technical Committee (SFTC)

CHAPTER SEVEN: ENVIRONMENTAL AND SOCIAL MITIGATION PRINCIPLES

7.0 Introduction

The objective of the ESMF is to provide a framework for preventing and mitigating the negative impacts associated with the AF Fadama- III. The sub-projects may have different levels of environmental and social impacts. The mitigation principles are considered broadly as they capture all levels of impacts that each sub-project could present in the communities. These mitigation principles will also be useful and fundamental in the preparation of mitigation strategies which will be developed and implemented in the ESMPs prepared for sub-projects requiring ESIA.

The result of the screening will be sent to the World Bank for approval and or concurrence prior to the approval and subsequent funding.

The Environmental Management Framework institutionalizes the measures through assigning implementation responsibilities and formulation of contract clauses for incorporation into contract documents.

The potential impacts of the projects and their mitigation measures are indicated in the Table 8.0 below.

Activities/Sub-Projects	Impacts	Mitigation Measures
	<i>Environmental Concerns</i>	
Rehabilitation &/or Construction of new irrigation / Drainage system	<ul style="list-style-type: none"> • Soil erosion by wind or water • Flood • Drains may be silted up causing reduction of drain capacity • Encroachment into forest land leading to loss 	<ul style="list-style-type: none"> • Engage a qualified dam expert for site selection, construction and operation of the small dams/weirs. • Divert all runoff and flood water away from constructional area& drain properly • Plant trees for wind break effects • Level up, compact and stabilize soil after excavation • Avoid private lands. • De-silt drains

Activities/Sub-Projects	Impacts	Mitigation Measures
	<i>Environmental Concerns</i>	
	<p>of natural vegetation & bio-diversity</p> <ul style="list-style-type: none"> • Soil pollution may result from dredge spoils of canals, oil / grease spills & contamination by grease from trucks conveying cement & other materials to site 	<ul style="list-style-type: none"> • Avoid encroachment into forest land by re-aligning the sub-projects design as much as possible • Apply soil conservation measures • Clean up engine oil & grease spills as soon as reported • Ensure maintenance of vehicles/trucks used at site. • Ensure appropriate disposal socially acceptable to the community.
	<i>Social Concerns</i>	
	<ul style="list-style-type: none"> • Encroachment into cultural property, & impairment of aesthetics • Dislocation from homes because of flooding 	<ul style="list-style-type: none"> • Avoid encroachment into cultural sensitive property • Immigrants should be sensitized on the culture and norms of the host community • Prepare chance finds procedure which will include strategy for restoration of cultural property in consultation with community, cultural people, expert archeologist • Ensure progress restoration of aesthetic • Give right sizing to drains • Sensitize the community/public against building on flood plains
Land Clearance for Irrigation Schemes	<i>Environmental Concerns</i>	
	<ul style="list-style-type: none"> • Irrigation induced erosion & flooding 	<ul style="list-style-type: none"> • Do not construct on irrigation schemes lose erodible soil • Apply good soil conservation measures (terracing, contour

Activities/Sub-Projects	Impacts	Mitigation Measures
	<i>Environmental Concerns</i>	
		bundling, minimum tillage, etc)
	<ul style="list-style-type: none"> • Salinity 	<ul style="list-style-type: none"> • Avoid over irrigation • Flush or leach irrigated land regularly • Install efficient drainage system
	<ul style="list-style-type: none"> • Tendency for bush burning leading to loss of soil micro-organism & erosion 	<ul style="list-style-type: none"> • Carry out awareness campaign to discourage bush burning
	<ul style="list-style-type: none"> • Residues of agro-chemicals, pesticides, fertilizers in ground water flows 	<ul style="list-style-type: none"> • Apply agrochemicals, pesticides & fertilizers judiciously after proper calibration
	<ul style="list-style-type: none"> • Ground water pollution due to human activities 	<ul style="list-style-type: none"> • Provide proper sanitation facility to avoid open defecation • Sensitize the public on adverse health effect of poor waste management & chemical application
	<i>Social Concerns</i>	
<ul style="list-style-type: none"> • Acquisition of private land, posing land use shortage and crises • Possibility of involuntary displacement and loss of income from agricultural activities • Irrigation farmer/pastoralist conflicts within an 	<ul style="list-style-type: none"> • Avoid private land acquisition • Carry out involuntary resettlement procedure (see RPF document of . Fadama for guideline) <p>Delineate livestock routes, grazing areas & watering points fro livestock</p> <p>Enforce relevant environmental laws against disposal of industrial waste/effluents into water</p> <p>Carry out education/public</p>	

Activities/Sub-Projects	Impacts	Mitigation Measures
	<i>Environmental Concerns</i>	
	irrigation scheme <ul style="list-style-type: none"> • Human health epidemics resulting from industrial waste disposal into the irrigation stream 	awareness campaign
Reforestation	<i>Environmental Concerns</i>	
	<ul style="list-style-type: none"> • Soil compaction from use of heavy equipment • Destruction of seedlings • Pest infestation • Poaching & degradation 	<ul style="list-style-type: none"> • Use much of labour & light equipment as in compliance with labour intensive PDO of YESSO • Use protective devices around young seedlings • Choose right planting materials • Apply disease control measures
	<i>Social Concern</i>	
	<ul style="list-style-type: none"> • Will mainstream climate change adaptation 	<ul style="list-style-type: none"> • Positive, no mitigation required
Agricultural Activities & processing	<i>Environmental Concerns</i>	
	<ul style="list-style-type: none"> • <i>Air pollution</i> - fumes of NO₂, NO₃, SO₃, CO₂, etc from processed agricultural particulates • Soil Pollution from engine oil 	<ul style="list-style-type: none"> • Use tall chimneys/stacks to disperse fumes • Wear nose masks • Use concrete floor or impermeable surface to collect used oils, and clean spills completely • Apply saw dust when discharging spent oil to avoid

Activities/Sub-Projects	Impacts	Mitigation Measures
	<i>Environmental Concerns</i>	
	<ul style="list-style-type: none"> • Water pollution from processing water • Tendency for bush burning leading to loss of soil micro-organism & erosion • Residues of agro-chemicals, pesticides, fertilizers in ground water flows 	<p>seepage into the soil</p> <ul style="list-style-type: none"> • Dispose contaminated soil/saw dust in the SEPA designated site • Reduce volume of process water • Re-cycle waste water where possible • Carry out awareness campaign to discourage bush burning • Apply agrochemicals, pesticides & fertilizers judiciously after proper calibration • Engage the services of an agric extension expert in mentoring
	<i>Social Concerns</i>	
	<ul style="list-style-type: none"> • Risk of loss due to pest, rodents, etc • Discouragement due to unrealized expectation • Influence of peer pressure against farming profession • Risk of loss of income & means of livelihood due to sub-merging 	<ul style="list-style-type: none"> • Apply IPM to pest control <p>Take advantage of Agric Insurance Scheme through agricultural cooperative scheme to minimize risks</p> <p>Avoid/minimize loss of income through use of improved varieties/species, and best applications</p> <p>Identify market for optimal return</p>

Activities/Sub-Projects	Impacts	Mitigation Measures
	<i>Environmental Concerns</i>	
	of farm crops/land by flooding & other natural resources	
Construction of Market Stalls	<ul style="list-style-type: none"> • Construction debris • Air pollution from earth dust during construction • Flood risk • Noise hazard during construction stage 	<ul style="list-style-type: none"> • Convert some debris to fuel wood, and dispose of the rest properly • Wet the site with water during construction • Put proper drainage system • Wear face/nose masks
	<i>Social Concerns</i>	•
	<ul style="list-style-type: none"> • Occupational accident during construction period • Risk of fire after completion • Road traffic and accidents 	<ul style="list-style-type: none"> • Ensure that workers wear necessary PPEs • Provide first aid on site • Provide firefighting equipment and prepare and comply with basic EHS requirements • Ensure that market is not constructed within 50 meters from the road • Instill and enforce minimum vehicular speed limit near market • Put speed breaks/bumps
Rehabilitation of Mechanic Garage / Warehouse Blocks	Environmental Concerns	
	<ul style="list-style-type: none"> • Construction debris will litter the site and cause health hazards 	<p>Collect, transport and dispose debris properly</p> <p>Improve on safety at work site, and ensure use of PPEs</p>

Activities/Sub-Projects	Impacts	Mitigation Measures
	<i>Environmental Concerns</i>	
	<ul style="list-style-type: none"> • Risk of injury for site workers • Air pollution may result from use of paints and other solvents • Soil degradation may result from use of paints and cements 	Ensure that site specific ESMP are prepared and implemented
	<i>Social Concerns</i> <ul style="list-style-type: none"> • Rehabilitation work will obstruct academic learning if done during school period, and will cause public health hazard for the school children and teachers 	Ensure that implementation is done when students/pupils are on holiday Conduct sensitization/social change training.
Solid Waste Management	<i>Environmental Concerns</i> <ul style="list-style-type: none"> • Air pollution emanating from degradable wastes • Soil pollution due to toxic waste and spent oil at dump site • Pollution of ground water sources due to open dumping • Occupational health & safety 	<ul style="list-style-type: none"> • Segregate waste by type before disposal to landfill • Compact waste and cover the compact truck during collection and transporting • Apply waste treatment • Conducting water quality monitoring & testing • Provide PPEs (boot, hand gloves, mouth mask) to workers • Workers to go on retune medical check

Activities/Sub-Projects	Impacts	Mitigation Measures
	<i>Environmental Concerns</i>	
	risks for waste management workers	
	<i>Social Concerns</i>	
	<ul style="list-style-type: none"> • Waste collection and management will improve the social profiling on the communities and attract tourism • Scavengers may go out of business 	<ul style="list-style-type: none"> • Positive, mitigation measures not required • Through a well thought out plan, integrate scavengers into the waste management scheme
Rehabilitation/Construction of PHCs & Public Health Sanitation Facilities	<ul style="list-style-type: none"> • Air pollution from public latrines • Construction debris will litter the site and cause health hazards • A break out of communicable diseases due to public use of latrine • Risk of HIV/Aids and other terminal diseases due to bad management of healthcare waste 	<ul style="list-style-type: none"> • Provide air/ventilation vents for better air • Provide portable water for flushing of toilets after use • Provide soap for washing of hands • Collect, transport and dispose debris properly • Ensure that latrines have close fitting lids • Ensure the use of septic tanks for collection of liquid medical wastes • Dispose medical waste according to medical waste guideline of Nigeria/WHO.
Traffic Control	<ul style="list-style-type: none"> • Traffic control youth may be 	<ul style="list-style-type: none"> • Use mouth masks

Activities/Sub-Projects	Impacts	Mitigation Measures
	<i>Environmental Concerns</i>	
	pre-disposed to adverse health conditions due to exposure to earth dust <ul style="list-style-type: none"> • Risk of motor accident and death 	<ul style="list-style-type: none"> • Use reflective wears always while on duty • Workers to undergo training on traffic management

7.1 AF Fadama Institutional Arrangement

Generally, the AF Fadama project is expected to be implemented at two levels, namely the Federal and State. At the Federal level, the Federal Project Support Unit (FPSU) supervised by the Federal Ministry of Finance will manage the Coordination and Program Support. The FPSU will establish coordination and support relationship with the State counterpart Agencies.

Thus at the State level, the participating State governments are expected to set up by State Law, agencies that would work in collaboration with the FPCU, though operating independently. Albeit, the Ministry of Finance, Budget and /Economic Planning, as the case may be in the various State is at present taking the lead in the coordination of the AF Fadama III preparatory programmes.

The law or legal agreement used in establishing the agencies will insulate the agencies and specifically the management unit from undue political or administrative interference. In addition, to implement the AF Fadama – III program according to the agreed terms and conditions, a formal agreement is needed between the State Governments, the Implementing Agencies (PMUs/ NFCO) and other MDAs outlining the tasks, responsibilities, schedules, procedures, deliverables etc., required for preparation and implementation of the approved sub-projects.

Furthermore, the State Agency/Project Management Unit (PCU) will have an advisory board or a technical steering committee and a management unit. The board will include representatives from civil society and the government.

The PMU shall be headed by a General Manager/Coordinator who will supervise activities of staff within three (3) major departments of the Agency, namely: Operations, Finance and Administration, and Monitoring & Evaluation (all three departments will cater for the environmental and social components/issues as concerns the AF Fadama - III).

To capture the inflow and use of credit proceeds in a transparent manner through the Office of the Accountant General [Project Financial Management Unit (PFMU) set up for financial management of donor assisted projects at the state level], the PM/NFCO shall establish a relationship with the project Financial Management Unit(PFMU).

This relationship would entail:

- A copy of the annual budget and work plan will be made available to the PFMU by the PCU.
- PFCU internal auditors will be responsible for regular internal audit in the PCU and submit quarterly reports to the government (copied to IDA).
- A copy of monthly progress reports, quarterly reviews and interim Financial Reports (IFRs) shall be sent regularly to the PFMU.
- The PFMU internal auditors shall participate in quarterly monitoring visits to communities as organized by the PCU.

7.2 Roles and Responsibilities for Environmental & Social Safeguards Implementation

The successful implementation of the ESMF depends on the commitment of the inter-related institutions, and the capacity within the institutions to apply or use the ESMF effectively, as well as the appropriate and functional institutional arrangements, among others.

Therefore, details of institutional arrangements, the roles and responsibilities of the institutions that would be involved in the implementation of the ESMF are highlighted below. For the purpose of this ESMF, the institutions identified include;

- Federal Level Institutions: Federal Ministry of Environment and other relevant Ministries, Departments and Agencies (MDAs).
- State Level Institutions: PCUs and other relevant Ministries, Departments and Agencies (MDAs).
- Local Government Level Institutions: Local Government Review Committee (LGRC); Local Government Desk Office (LGDO)
- Community Level and other Institutions
- Direct and Other Stakeholder/Groups: Community Project Management Committee (CPMC); FCA/ FUG; CBO/NGOs
- Consultants, Contractors and Site Engineers
- World Bank and Other Development Partners

Their roles and responsibilities are highlighted below

7.2.1 Federal Level Institutions

The institutions at the federal level are responsible for the establishment of national policy goals and objectives and the appropriate provision of technical and financial assistance to State and local governments.

For this ESMF specifically, the Federal Ministry of Environment shall play the role of lead environmental regulator, overseeing compliance requirements, granting consent and also monitoring or providing supervisory oversight for the sub-projects under the AF Fadama- III project. It shall also receive comments from stakeholders, public hearing of project proposals, and convening technical decision-making panel as well as provide approval and needed clearance for EA/EMP or other environmental clearance.

Federal Ministry of Environment (FMEnv) is mandated by the Federal Republic of Nigeria to ensure environmental protection and natural resources conservation for a sustainable development in the country. They promote cooperation in environmental science and conservation technology with similar bodies in other countries and with international bodies connected with the protection of the environment and the conservation of natural resources. The Ministry also cooperates with Federal and State Ministries, Local Government, statutory bodies and research agencies on matters and facilities relating to the protection of the environment and the conservation of natural resources.

National Environmental Standards and Regulatory Enforcement Agency (NESREA)

The agency is chiefly responsible for the protection and development of the environmental, biodiversity conservation and sustainable development of Nigeria’s natural resources in general and environmental technology including liaison with relevant stakeholders within and outside Nigeria on matter of enforcement of environmental standards, regulations, rules, laws, policies and guidelines.

The safeguard responsibilities for the AF Fadama are highlighted in the table 7.0 below

Table 7.0: Safeguard Responsibilities for AF Fadama –III Project

S/No	Category	Roles
I	Federal Government MDAs (Federal Ministry of Environment and her agencies (Such as NESREA)	Lead role -provision of advice on screening, scoping, review of draft RAP/EA report (in liaison with State Ministry of Environment), receiving comments from stakeholders, public hearing of the project proposals, and convening a technical decision-making panel, Project categorization for EA, Applicable standards, Environmental and social liability investigations, Monitoring and evaluation process and criteria
ii	State Government MDAs (Ministry of Lands, Survey and Urban	Compliance overseer at State Level, on matters of Land Acquisition and compensation and other resettlement issues, Lead role -provision of advice on screening, scoping, review of draft RAP/EA report (in liaison with Federal Ministry of Environment), receiving comments from stakeholders, public hearing of the project proposals, and convening a technical

S/No	Category	Roles
	Development, Ministry of Environment, etc.	decision-making panel, Monitoring and evaluation process and criteria.
	Other MDAs	The MDAs applies when relevant areas or resources under their jurisdiction are likely to be affected by or implicated sub-projects. They participate in the EA processes and in project decision-making that helps prevent or minimize impacts and to mitigate them. These institutions may also be required, issue a consent or approval for an aspect of a project; allow an area to be included in a project; or allow impact to a certain extent or impose restrictions or conditions, monitoring responsibility or supervisory oversight.
Iii	World Bank	Assess implementation Recommend additional measures for strengthening the management framework and implementation performance.
Vi	FADAMA NFCO/PCU Safeguards Unit	Liaise closely with Ministry of Environment in preparing a coordinated response on the environmental and social aspects of project development.
V	Local government	Liaising with the PCU to verify adequacy of resettlement location and provide approval for such sites, Providing additional resettlement area if the designated locations are not adequate, Provide necessary infrastructures in relocated areas, engage and encourage carrying out comprehensive and practical awareness campaign for the proposed sub-projects, amongst the various relevant grass roots interest groups.
Vi	CDA (Community Development Associations)	Ensure Community participation by mobilizing, sensitizing community members;
	Consultants, Contractors, and Site Engineers	Will work with the PCUs at Federal and State levels, and other stakeholders. They are to ensure effective project delivery in a timely, safe and environmentally sound manner.
Vii	NGOs/CSOs	Assisting in their respective ways to ensure effective response actions, Conducting scientific researches alongside government groups to evolve and devise sustainable environmental strategies and rehabilitation techniques, Organizing, coordinating and ensuring safe use of volunteers in a response action, and actually identifying where these volunteers can best render services effectively & Providing wide support assistance helpful in management planning, institutional/governance issues and other livelihood related matter, Project impacts and mitigation measure,

S/No	Category	Roles
		Awareness campaigns
Viii	The General Public	Same as above

The other institutions, on the other hand, come in as and when relevant areas or resources under their jurisdiction or management are likely to be affected by or implicated in the execution of the project. These institutions are grouped broadly into two – resource based ones and the utility service providers. They all have a significant role and are consulted as appropriate. They participate in the EIA processes and in project decision-making that helps prevent or minimize impacts and to mitigate them. These institutions may also be required:

- to issue a consent or approval for an aspect of a sub- project; and
- to allow impact to a certain extent or impose restrictions or conditions.

Furthermore, the institutions may have monitoring responsibility or supervisory oversight during in an area of concern or interest to them during implementation.

7.2.2 State Level Institutions

The State level institutions include the PCUs and other relevant Ministries, Departments and Agencies (MDAs). Some relevant agencies include:

State Environmental Protections Agencies/Authorities (SEPAs)

Most states have set up Environmental Protection agencies as the regulatory body to protect and manage the environmental issues in their domain. The functions of the SEPAs include:

- Enforcement of all environmental legislations in the states
- Minimization of impacts of physical development on the ecosystem
- Preservation, conservation and restoration to pre-impact status of all ecological process essential for the preservation of biological diversity.
- Protection of air, water, land, forest and wildlife within the state.
- Pollution control and environmental health in the state.

State Ministry of Agriculture & Rural Development (SMARD)

The state ministry promote accelerated agricultural development, increase production in all the sub sectors; and realization of the structural transformation in the socio-economic development of the rural areas.

State Ministry of Works (SMW)

The Ministry of Works at the State level ensures the construction and maintenance of rural and urban road networks. They are also responsible for the physical development of the States specifically the duties of Planning, Researching, Formulation, Implementation and evaluation and evaluation of policies on roads, electrical and Mechanical installations as well

as the acquisition of earthmoving equipment and other machines needed in survey and Civil Engineering works.

State Ministry of Lands

The major function of the Ministry of Land is to ensure that there is optimal utilization of land resources in their states in order to achieve development. For the YESSO purpose, the State Ministry of land will provide proper guidelines in acquiring land from the members of the community for the purpose for the work.

Ministry of Rural Development Local Government Affairs/

The State Ministry of Rural Development is responsible for community-based matters such as community mobilization; self-help projects, rural industrialization, neighborhood watch, training and workshop for community development associations, listing of community development associations in the State etc. It will assist in educating the community members on the importance of the AF Fadama project It will provide indigenous communities with assurance. For example, the AF Fadama will not disrupt any farming practices but rather provide knowledge and skill to produce elitist farmers and a better environment for production systems to thrive.

7.2.2.1 State Fadama Coordinating Unit/Project Management Unit (SFCO / PMU)

The SA/PCU, as the implementing authority, has the mandate to:

- Co-ordinate all policies, programmes and actions of all related agencies in the States.
- Ensure the smooth and efficient implementation of the project's various technical programmes.
- Cooperate through a Steering Committee that provides guidance to the technical aspects of all project activities.
- Maintain and manage all funds effectively and efficiently for the sub-projects.
- Plan, coordinate, manage and develop AF- Fadama subprojects to ensure success.
- Coordinate activities of the State Licensing Authority and all vehicle inspection units.
- Recommend on policy issues to the Governor including mechanisms for implementation.
- Prepare plans for the management and development of AF Fadama sub - project.

- Facilitate the discussion between PAPs and communities regarding compensation for land acquired for the subprojects micro-projects.
- Monitor the project work to ensure that the activities are carried out in a satisfactory manner.
- Organize the necessary orientation and training for the departmental officials so that they can carry out consultations with communities, support communities in carrying out RAPs and implement the payment of compensation and other measures (relocation and rehabilitation entitlement) to PAPs in a timely manner.
- Ensure that progress reports are submitted to the World Bank regularly.

7.2.2.2 PCU Safeguard Units

To ensure sustainability in all the AF Fadama sub- projects, an Environmental/Social Safeguards Unit that reports directly to the General Manager shall exist. The paramount objective of the Environmental/Social Safeguards unit is to ensure the effective consideration and management of environmental/social concerns in all aspects of project design, planning, implementation, monitoring and evaluation of initiatives in the various States. Thus a key function of the Unit is to engender a broad consensus, through participatory methods and extensive dialogue with affected and interested parties, on fair and adequate methods by which rights of way can be cleared of occupants as needed, taking account of international standards for involuntary displacement as incorporated into the World Bank's OP 4.12 on Involuntary Resettlement and environmental compliance with the Environmental Assessment.

With this, particular attention is directed at minimizing environmental/social risks associated with the development of sub-project initiatives, as well as the identification and maximization of social development opportunities arising from investments.

In the implementation of the AF Fadama, the Safeguard Unit will be expected to advise on the environmental and social costs/benefits of the different options and audit environmental and social safeguards compliance of sub-projects. The PCU Safeguards Unit will function as an independent unit. For all environmental and social issues, the Safeguard Unit shall work closely with other relevant MDAs in preparing a coordinated response on the environmental and social aspects of the AF Fadama sub-projects. In order to achieve this, the PCU/NFCO/PMU would have in each State, a Steering Committee (Board) and a Project Implementation Unit (PIU) for coordinating the day to day activities with the relevant line departments.

Two members of the PCU/ NFCO/ PMU will be designated as Environmental & Social Officers to oversee the implementation of Safeguard instrument for the ESMF and the RPF as well as any other environmental and social provisions as deemed fit for project implementation as per the regulations of the World Bank and Government of Nigeria and the respective State government. The roles and responsibilities of the Safeguard

Specialists (Environmental and Social Officers to anchor environmental and social issues distinctively) are described below:

Roles & Responsibilities of Safeguard Specialist

- Review all EA / SA Documents prepared by consultants and ensure adequacy under the World Bank Safeguard policies including the OP4.01.
- Ensure that the project design and specifications adequately reflect the recommendations of the EIA / ESIA
- Co-ordinate application, follow up processing and obtain requisite clearances required for the project, if required
- Prepare compliance reports with statutory requirements.
- Develop, organize and deliver training programme for the PIU staff, the contractors and others involved in the project implementation, in collaboration with the PCU
- Review and approve the Contractor's Implementation Plan for the environmental measures, as per the ESIA and any other supplementary environmental studies that may need to be carried out by the PIU
- Liaise with the Contractors and the PIU / State Implementing agency on implementation of the ESMP / RAP
- Liaise with various Central and State Government agencies on environmental, resettlement and other regulatory matters
- Continuously interact with the NGOs and Community groups that would be involved in the project
- Establish dialogue with the affected communities and ensure that the environmental concerns and suggestions are incorporated and implemented in the project
- Review the performance of the project through an assessment of the periodic environmental monitoring reports; provide a summary of the same to the Project Manager, and initiate necessary follow-up actions
- Provide support and assistance to the Government Agencies and the World Bank to supervise the implementation

Note: Because of the sectoral nature of the AFF Fadama anticipated sub –project types, and given the number of safeguard policies, a safeguards manual will be prepared by the proponent.

7.2.3 Local Government Level Institutions

The Local Government has become accepted as the government nearest to the people or the masses. For any meaningful development to take place, this level of government needs to be galvanized, to execute people oriented programs, which seek to lower poverty level as is designed in AF Fadama. The Local Government governs the affairs in the various communities. It is expected that it serve as an inter-phase between the community members and the AF Fadama. The Local Government can assist in the implementation of the proper community mechanism. Members of the local government are mostly people

from the community and can easily win the trust of the people. Their staff can work together with the other MDAs and CBOs.

The Local Government Council has to be fully briefed and enlightened in the process and steps to be taken in the ESMF/EA/ESMP and the overall project execution. The Council should in turn engage and should be encouraged to carry out a comprehensive and practical awareness campaign for the proposed project, amongst the various relevant grass roots interest groups.

7.2.4 Community Level and other Institutions

This includes direct and other concerned stakeholders/groups. This may have complaints/views that need to be resolved in the choosing and execution of the various sub-projects. It is obvious

7.2.5 Community Based Organizations (CBO)

These are organization based in the communities. Organizations in the community can serve as an inter-phase and can speak for the people. They can communicate to the FADAMA III and the Additional Financing, the intentions and needs of the people and vice versa.

7.2.6 World Bank

The World Bank will assess the implementation of the ESMF and recommend additional measures for strengthening the management framework and implementation performance, where need be. The reporting framework, screening procedures and preparation of management and mitigation plans shall be discussed and agreed by the Bank team and PCU during the early part of project implementation.

7.2.7 Consultants, Contractors and Site Engineers

The Consultant and Contractor will work with the PCUs and other stakeholders in prompt and effective projects delivery.

7.2.8 Safeguards Manual

A Safeguard manual will be prepared in order to enable the AF Fadama-NFCO, AF Fadama-SFCO, Safeguards PCU and implementers of sub-projects, ensure that all sub-project activities comply with environmental and social safeguards requirements of the World Bank.

Estimated Budget for Implementing the ESMF: Based on the above mitigation principles the estimated budget for the implementation of the provisions of this ESMF is US\$ 2.3million. The breakdown is presented in Table 7. 1

Table 7. 1 Estimated Budget for Implementing the ESMF:

S/N	Mitigation Activity	Responsibility	Amount (US\$)
1	Preparation of site specific safeguards instruments (ESMP, ESIA etc)	Project Proponent / FPCU/SPCU/FMEnv/WB	1,500,000
2	Capacity Building	Project Proponent/ FPCU/SPCU/FMEnv/WB	250,000
3	Environmental and Social Safeguard Audit	Proponent/ FPCU/SPCU/FMEnv/WB	200,000
4	Monitoring and Reporting	Proponent/FPCU/SPCU	350,000
	Total		2,300,000

The objectives of the training/capacity building efforts under AF Fadama – III additional Financing project will be to:

- Support communities and the FCAs to mainstream environmental and social issues in their sub-projects.
- Ensure that LGAs have the capacity to assist communities in preparing sub-project proposals, to appraise, approve and supervise the implementation of sub-projects; and
- Strengthen the capacity of local NGOs and other services providers to provide technical support to communities in environmental and social aspects of the sub-projects.

The target audience for training, sensitization and capacity building, will inter-alia include the following:

- NFCO/SFCO Project Coordinators
- LFDC Team
- FCAs
- LFTC Team
- LGAs Staff involved in environmental and social concerns
- Desk Officers in the FMENV/ FMARD/ FMWR.
- NGO's/CBOs
- Local Service Providers

CHAPTER EIGHT

8.1 ENVIRONMENTAL AND SOCIAL PLANNING, REVIEW AND CLEARING PROCESS AND PROCEDURES FOR SUB-PROJECTS

As already stated in the earlier chapters, at the time the Fadama-III project additional financing was being prepared, the sub-projects were not yet identified. Consequently, specific information on numbers of sub-projects, site locations, land requirements, local communities, geo-physical land features, nature, type and use of equipment/plant etc. was not available. Therefore, exact details and intensity of social and environmental impacts and their effective mitigation cannot be determined during project preparation.

This document referred to as the Environment and Social Management Framework (ESMF) is thus prepared to establish mechanism to determine and assess future potential adverse environmental and social impacts of sub-projects that are to be identified and cleared based on a community demand driven process, and then to set out mitigation, monitoring and institutional measures to be taken during implementation and operation of the sub-projects to eliminate adverse environmental and social impacts, offset them or reduce them to acceptable levels.

This chapter therefore, identifies and illustrates the specific steps involved in environmental and social assessment process leading towards the clearance and approval of the EA process for sub-projects. The steps incorporate both relevant Nigerian guidelines/requirements and the Bank's policy OP 4.01 Environmental Assessment.

8.2 Environmental Screening Process

The purpose of the screening process is to determine whether sub projects are likely to have potential negative environmental and social impacts; to determine appropriate mitigation measures for activities with adverse impacts; to incorporate mitigation measures into the sub project design; to review and approve sub project proposals and to monitor environmental parameters during implementation. The extent of environmental and social work that might be required for the sub project prior to implementation will depend on the outcome of the screening process.

Environmental Screening will be done using information provided on Environmental and Social Screening Form (Annex 3A). The Fadama Community Associations (FCAs) and Local Fadama Development Committee (LFDC) will guide and facilitate the communities to fill and complete this form during sub project identification process. A checklist (Annex 3B) is provided to guide the FCA/LFDC teams identify appropriate mitigation measures for the sub project identified.

For situations where the environmental and social screening process identifies land acquisition needs, that would trigger OP 4.12 Involuntary Resettlement, then the provisions of the updated Resettlement Policy Framework (RPF), which was prepared as

a separate and stand-alone document would apply. This would require the FCA/LFDC teams to advise communities to choose an alternative land site that does not trigger this policy. Any sub projects that land acquisition will not be resolved at the community level will be ineligible for funding. **The result of the screening exercise will be sent to the World Bank for approval and or concurrence prior to the approval and subsequent funding.**

8.3 Categorization of AF Fadama III subprojects for EA

As a general rule all projects regardless of their size are supposed to be screened. Screening provides information which is the basis for classification of projects into categories A, B, or C depending on the nature, type, scale, location, sensitivity and magnitude of the potential /envisaged environmental impact of the project or sub-project.

The groups are as follows:

- **Category A project** is the one that is likely to have significant adverse environmental impacts that is sensitive, diverse or unprecedented. They will not be funded by FADAMA or the Additional Financing.
- **Category B project** is the one whose potential adverse environmental impacts are less adverse than those of Category A, and are few, site specific. In most cases, such adverse impact can be ameliorated by implementing appropriate mitigation measures.
- **Category C project** is that one that is likely to have minimal or no adverse environmental impacts. Apart from registration and screening no further EA action is required.

In light of the above categorization, and given the fact that the prime objective of Fadama III is to finance community-based micro projects, then Fadama III and AF funded sub projects falls under category B according to the Operational Manual and Category 2 of the Nigerian EIA Procedures and Guidelines.

Assigning appropriate environmental category

The screening process will lead to four safeguard requirements:

- No further action if the sub project has no impacts on the environment.
- Carry out simple Environmental Review if sub project may create a few minor and easily mitigated environmental problems.
- Carry out Limited Environmental Review if sub project may create minor environmental problems that require frequent site visit or construction modifications to minimize or eliminate impact.
- Carry out full EIA if sub project will result into potentially significant direct or indirect adverse impact.

8.4 Conduct ER, LEA or EIA

After reviewing the filled Environmental Social Screening Form (ESSF) and the sub-project environmental checklist, the FCA/LFDC teams will determine the extent of the environmental and social work required, i.e. whether the application of mitigation measures outlined in the environmental checklist will suffice or not. Some design modifications can be incorporated at this stage in order to minimize or avoid environmental impacts.

Depending on the magnitude of the environmental impact identified, then the designated local government environmental Officer will carry Environmental Review or Limited Environmental Assessment. Forms for carrying out ER and LEA are attached as Annex 3C and 4D.

In some cases, the results of the environmental and social screening process may indicate the need to carry out a full EIA or ESIA. In this case, the more complex environmental procedures shall be followed. Such full-fledged EIA/ESIA requires inputs from teams of specialists/consultants as well as from other stakeholders. A draft EIA/ESIA terms of reference is portrayed in Annex 4.

8.5 Review and Approval

Under the guidance of the SFCO Environmental specialist, the FCA/LFDC team will review the Environmental and Social Screening Form as well as the Environmental Checklists that were completed in the course of sub-project preparation to ensure that all environmental and social impacts have been identified and successfully mitigated. The LFDC must also ensure that the sub-project designs include monitoring and institutional measures to be taken during implementation and maintenance. **The result of the screening will be sent to the World Bank for approval and or concurrence prior to the approval and subsequent funding.**

If the application has satisfactorily addressed these issues, the LFDC will then clear the sub-project and recommends for approval and subsequent funding.

If the LFDC finds that the submitted design is not consistent with the requirements of the environmental screening form and the environmental checklist, then the sub-project implementer would be requested to re-design (e.g. make additional modifications and /or choose other sites) and re-screen the project until it is consistent and then re-submit it for review. On sub-projects that entails civil works like Fadama access roads, culverts and small bridges, it is expected that the environmental guidelines for contractors (Annex 5) be included in the contractors agreements.

Any proposed sub-projects that do not comply with the requirements of Nigeria and the World Bank safeguards policies will not be cleared for approval.

8.6 Environmental and Social Management Plan (ESMP)

1.2.1 Sub-project proposals must contain as part of the sub-project proposal an ESMP that will consist of a set of mitigation measures, monitoring and institutional measures to be taken during the implementation and operation of the sub-projects to eliminate adverse environmental and social impacts, offset them or reduce them to acceptable levels. The ESMP should also include the actions needed to implement these measures, including the following features:

-**Mitigation:** Based on the environmental and social impacts identified from the use of the checklists, the ESMP should describe with technical details each mitigation measures, together with designs, equipment descriptions and operating procedures as appropriate.

-**Monitoring:** Environmental and social monitoring during the implementation of the sub-projects, in order to measure the success of the mitigation measures. The ESMP should include monitoring objectives that specify the type of monitoring activities that will be linked to the mitigation measures. Specifically, the monitoring section of the ESMP provides:

- (i) A specific description and technical details of monitoring measures that include the parameters to be measured, the methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions, e.g. the need for on-site construction supervision.
- (ii) Monitoring and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures and to furnish information on the progress and results of mitigation, e.g. by annual audits and surveys to monitor overall effectiveness of this ESMP.

The ESMP should also provide a specific description of institutional arrangements, i.e. who is responsible for carrying out the mitigating and monitoring measures (for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting and staff training).

Based on information presented in this ESMF, a sample ESMP has been prepared and this is documented in Annex 6. This summary ESMP captures those general activities that are proposed for implementation under AF Fadama - III. It should be noted that an ESMP must be developed for each sub-project. As a rule, each sub-project should not be considered or approved for funding without documenting an implementable and fundable ESMP.

Additionally, the ESMP should include an estimate of the costs of the measures and activities recommended so that the SFCO can budget the necessary funds. The mitigation and monitoring measures recommended in the ESMP should be developed in consultation with all affected groups to incorporate their concerns and views in the design of the ESMP.

8.7 Review and Approval of ESMPs

The ESMPs for sub-projects are part and parcel of the Environmental Reports i.e. ER, LEA or the EIA reports as the case may be. In summary the review and approval process will follow any of the three procedures:

- The respective State AF Fadama Coordinator will prepare the ER report. It will be reviewed and approved by the respective State Environmental Protection Agency or Authority.
- The LEA report will be prepared by a consultant commissioned by LFDC and will be submitted to the SFCO and SEPA for review and approval.
- For those few projects which requires a full EIA then it will trigger an EIA process which involves hiring an EIA consultant to undertake the EIA study as stipulated in the *National EIA Procedure and Guidelines* and World Bank's OP 4.01.

8.8 Public Consultations

Public consultations are critical in preparing an effective and sustainable sub-project. The first step is to hold public consultations with the local communities and all other interested/affected parties. These consultations should identify key issues and determine how the concerns of all parties will be addressed in the terms of reference of the design of sub-projects activities.

The consultations should also include vulnerable groups within the community, specifically the poorest of the poor, elderly, widows and widowers, and women. To facilitate meaningful consultations, the local governments and the Local Fadama/GEF-SLM Development Committee (LFDC) will provide all relevant material and information concerning the sub-projects in a timely manner prior to the consultation, in a form and language that are understandable and accessible to the groups consulted.

Depending on the public interest in the potential impacts of the sub-projects, a public hearing may be requested to better convey concerns. Once the sub-project has been reviewed and cleared, the implementers will inform the public about the results of the review. This approach would be consistent with Bank's OP 4.01 as well as Nigeria's efforts to enhance its participatory planning process.

8.9 Monitoring and Evaluation

Sub Project Monitoring; Monitoring is a systematic measurement of how a sub project is performing; it is part of the overall supervision of a sub project. From environmental point of view, it is of interest to determine that mitigation measures are being properly implemented, that environmental contractual measures are being respected, that construction is proceeding in accordance with the agreed design standards, and that no unforeseen negative impacts are occurring as the result of sub project execution.

Environmental monitoring needs to be carried out during the construction as well as operation and maintenance of the sub-projects. The responsibilities for monitoring and evaluation of the mitigation measures adopted under the sub-projects would be assigned as follows:

LFDCs with the support of the FCAs will be responsible for the day to day monitoring and reporting of feedback throughout the life of the sub-project, specifically the monitoring of (i) the environmental and social assessment work to be carried out on its behalf by consultants; (ii) overseeing the implementation of the Resettlement Action Plans; (iii) monitoring of environmental issues and the supervision of the civil works contractor during the construction process (iv) monitoring of environmental issues during operations and during maintenance of the infrastructure and facilities when handed over to the communities after construction; (v) submission of monitoring reports to the SFTC and eventual submission to the SFCO and the respective SEPA.

The monitoring and reporting will be done by members of the respective Fadama Community Associations (FCAs) and the Local AF Fadama Development Committees (LFDCs) of the communities/villages and the environmental specialist (or official responsible for environmental issues) at the local government councils who will be trained.

8.10 Monitoring Indicators

The objectives for monitoring are: (i) to alert project authorities and to provide timely information about the success or otherwise of the EIA process as outlined in the ESMF in such a manner that changes to the system can be made, if required; (ii) to make a final evaluation in order to determine whether the mitigation measures designed into the sub-projects have been successful in such a way that the pre-subproject environmental and social condition has been restored, improved upon or worse than before.

A number of indicators would be used in order to determine the status of affected people and their environment (land being used compared to before, standard of house compared to before, level of participation in project activities compared to before, how many kids in school compare to before, health standard, how many clean water sources than before, how many people employed than before etc.

Therefore, the sub-project EA reports (i.e. either the ER Report, LEA Report, EIA reports/EIS) will set 3 major social-economic goals by which to evaluate:

- affected individuals, households, and communities are able to maintain their pre-project standard of living, and even improve on it;
- has the pre-subproject environmental state of natural resources, bio-diversity and flora and fauna, been maintained or improved upon; and
- the local communities remain supportive of the project.

In order to assess whether these goals are met, the sub-projects will indicate parameters to be monitored, institute monitoring milestones and provide resources necessary to carry out the monitoring activities. The following parameter and verifiable indicators will be used to measure the process, mitigation plans and performance.

For the safeguard screening environmental and social process the following monitoring indicators are proposed:

- Number of sub-projects which have adopted the safeguard screening process as required by Fadama III, evaluate the rate of adoption;
- How has the adoption of the safeguard requirements improved the environmental health and bio-physical state of the communities using/affected by the sub-projects; and
- What are the main benefits that member derive from the use of the safeguard process?

Economic benefits: (i) increase in achievement of sub-projects adoption of safeguard screening guidelines; and (ii) increase in revenue for local councils resulting from adoption of safeguard guidelines, compared with conventional practices.

Social benefits: Expected benefits from likely micro-projects e.g. increased enrolment in schools etc.

Environment benefits; (i) improvement in the sustainable use of Nigerian's natural resources;

- efficiency of sub-projects maintenance and operation performance;
- number of environmental resource persons on LFDC and local government teams and who have successfully received EIA training in screening methods etc.; evaluate the training content, methodology and trainee response to training through feedback;
- numbers of women trained; assess understanding of the need for the EIA process as a tool for sustainable development;
- overall assessment of (i) activities that are going well (ii) activities that need improvements and (iii) remedial actions required;
- is the screening process identified in this ESMF working well; and
- based on the performance of the sub-project performance review, what, if any, changes to the ESMF, and additional training capacity building, are required to improve the performance of the framework's implementation.

8.11 Summary of Environmental and Social Management Process

The table below summarizes the environmental and social management process by phase and responsibilities

Table 8.1: Summary of Environment and Social management cycles by phases and responsibilities.

Cycle	Phase	Activities	Responsibilities
PLANNING	Scoping and Screening	<ul style="list-style-type: none"> ✓ Initial site visit & consultations. ✓ Identification of technical, environment and social issues and applicable safeguards policies ✓ Categorization ✓ Action plan ✓ Screening Report ✓ <i>WB No-Objection</i> 	Screening: FCA/LFDC Consultant; Supervision by SFCO/SEPA/State Environmental Ministry FMENV
DESIGN	Preparation of ESMP/ESIA and RAP (if applicable) and consultations	<ul style="list-style-type: none"> ✓ Draft ESMP ✓ Draft RAP (if applicable) ✓ Consultations ✓ <i>WB No-Objection</i> 	Consultant; Supervision by SEPA/State Environmental Ministry FMENV
	Disclosure	<ul style="list-style-type: none"> ✓ Disclosure of ESP/ RAP locally & to WB InfoShop 	NFCO/SFCOs FMENV; World Bank
	Finalization and Incorporation	<ul style="list-style-type: none"> ✓ Final version of ESMP/RAP ✓ Incorporation of ESMP into contract documents ✓ <i>WB No-Objection</i> 	Consultant; Supervision by SFCOss
EXECUTION	Implementation and monitoring	<ul style="list-style-type: none"> ✓ Implementation ✓ Monitoring & reporting on environmental and social mitigation measures 	Contractors: Supervision by SFCOs/LFDC, FCAs & the Community
OPERATIONS (POST-COMPLETION)	Operations and maintenance	<ul style="list-style-type: none"> ✓ Maintenance ✓ Monitoring & reporting on environmental and social mitigation measures 	Contractors: Supervision by SFCOs/LFDC, FCAs & the Community, SEPA

CHAPTER NINE

CAPACITY BUILDING AND TRAINING REQUIREMENTS FOR ENVIRONMENTAL AND SOCIAL MANAGEMENT

In order to ensure proper implementation of environmental and social screening and mitigation measures, as well as effective community development, the AF Fadama project will undertake an intensive programme of environmental training and institutional capacity building spread out over the life cycle of the project

9.1 Environmental Training and Sensitization

Training and sensitization will be required at the levels of the SFCO, FCAs, LFDCs, and community workers. The environmental specialist at the local government council and the SFCO's environment specialist will be responsible for providing the required specialists to deliver a range of technical training on environmental and social issues to these groups.

For each group, training will be provided to bring them to a different level of expertise in different areas, and would include:

- ✓ In-depth training to a level that allows trainees to go on to train others, including technical procedures where relevant;
- ✓ Sensitization, in which the trainees become familiar with the issues to a sufficient extent that it allows them to demand precise requirement for further technical assistance; and
- ✓ Awareness-raising in which the participants acknowledge the significance or relevance of the issues, but are not required having technical or in-depth knowledge of the issues.

The objectives of the training/capacity building efforts under AF Fadama – III AF project will be to:

- Support communities and the FCAs to mainstream environmental and social issues in their sub-projects.
- Ensure that LGAs have the capacity to assist communities in preparing sub-project proposals, to appraise, approve and supervise the implementation of sub-projects; and
- Strengthen the capacity of local NGOs and other services providers to provide technical support to communities in environmental and social aspects of the sub-projects.

The target audience for training, sensitization and capacity building, will inter-alia include the following:

- SFCO Project Coordinators
- LFDC Team

- FCAs
- LFTC Team
- LGAs Staff involved in environmental and social concerns
- Environment specialist at the SFCO
- NGO's/CBOs
- Local Service Providers

ANNEX 1.0

SUMMARY OF WORLD BANK ENVIRONMENTAL AND SOCIAL SAFEGUARD POLICIES

- ***Environmental Assessment (OP 4.01)***. Outlines Bank policy and procedure for the environmental assessment of Bank lending operations. The Bank undertakes environmental screening of each proposed project to determine the appropriate extent and type of EA process. This environmental process will apply to all sub-projects to be funded by Fadama III.
- ***Natural Habitats (OP 4.04)***. The conservation of natural habitats, like other measures that protect and enhance the environment, is essential for long-term sustainable development. The Bank does not support projects involving the significant conversion of natural habitats unless there are no feasible alternatives for the project and its siting, and comprehensive analysis demonstrates that overall benefits from the project substantially outweigh the environmental costs. If the environmental assessment indicates that a project would significantly convert or degrade natural habitats, the project includes mitigation measures acceptable to the Bank. Such mitigation measures include, as appropriate, minimizing habitat loss (e.g. strategic habitat retention and post-development restoration) and establishing and maintaining an ecologically similar protected area. The Bank accepts other forms of mitigation measures only when they are technically justified. Should the sub-project-specific ESMPs indicate that natural habitats might be affected negatively by the proposed sub-project activities with suitable mitigation measures, such sub-projects will not be funded under the Fadama III project.
- ***Pest Management (OP 4.09)***. The policy supports safe, affective, and environmentally sound pest management. It promotes the use of biological and environmental control methods. An assessment is made of the capacity of the country's regulatory framework and institutions to promote and support safe, effective, and environmentally sound pest management. This policy was triggered by the proposed project; since improved agricultural activities could lead to increased use of pesticides. However, as due diligence, a pest management plan was prepared.
- ***Involuntary Resettlement (OP 4.12)***. This policy covers direct economic and social impacts that both result from Bank-assisted investment projects, and are caused by (a) the involuntary taking of land resulting in (i) relocation or loss of shelter; (ii) loss of assets or access to assets, or (iii) loss of income sources or means of livelihood, whether or not the affected persons must move to another location; or (b) the involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons. The RPF report discusses the applicability of this policy in detail.
- ***Indigenous Peoples (OD 4.20)***. This directive provides guidance to ensure that indigenous peoples benefit from development projects, and to avoid or mitigate adverse effects of Bank-financed development projects on indigenous peoples. Measures to address issues pertaining to indigenous peoples must be based on the informed participation of the indigenous people

themselves. Sub-projects that would have negative impacts on indigenous people will not be funded under the proposed project.

- ***Forests (OP 4.36)***. This policy applies to the following types of Bank-financed investment projects: (a) projects that have or may have impacts on the health and quality of forests; (b) projects that affect the rights and welfare of people and their level of dependence upon or interaction with forests; and (c) projects that aim to bring about changes in the management, protection, or utilization of natural forests or plantations, whether they are publicly, privately, or communally owned. The Bank does not finance projects that, in its opinion, would involve significant conversion or degradation of critical forest areas or related critical habitats. If a project involves the significant conversion or degradation of natural forests or related natural habitats that the Bank determines are not critical, and the Bank determines that there are no feasible alternatives to the project and its siting, and comprehensive analysis demonstrates that overall benefits from the project substantially outweigh the environmental costs, the Bank may finance the project provided that it incorporates appropriate mitigation measures. Sub-projects that are likely to have negative impacts on forests will not be funded under the project.
- ***Cultural Property (OPN 11.03)***. The term “cultural property” includes sites having archaeological (prehistoric), paleontological, historical, religious, and unique natural values. The Bank’s general policy regarding cultural property is to assist in their preservation, and to seek to avoid their elimination. Specifically, the Bank (i) normally declines to finance projects that will significantly damage non-replicable cultural property, and will assist only those projects that are sited or designed so as to prevent such damage; and (ii) will assist in the protection and enhancement of cultural properties encountered in Bank-financed projects, rather than leaving that protection to chance. The management of cultural property of a country is the responsibility of the government. The government’s attention should be drawn specifically to what is known about the cultural property aspects of the proposed project site and appropriate agencies, NGOs, or university departments should be consulted; if there are any questions concerning cultural property in the area, a brief reconnaissance survey should be undertaken in the field by a specialist. Fadama III will not fund sub-projects that will have negative impacts on cultural property.
- ***Safety of Dams (OP 4.37)***. For the life of any dam, the owner is responsible for ensuring that appropriate measures are taken and sufficient resources provided for the safety to the dam, irrespective of its funding sources or construction status. The Bank distinguishes between small and large dams. Small dams are normally less than 15 m in height; this category includes, for example, farm ponds, local silt retention dams, and low embankment tanks. For small dams, generic dam safety measures designed by qualified engineers are usually adequate. This policy does not apply to the proposed project.
- ***Projects on International Waterways (O 7.50)***. The Bank recognizes that the cooperation and good will of riparians is essential for the efficient utilization and protection of international waterways and attaches great importance to riparians making appropriate agreements or arrangement for the entire waterway or any part thereof. Projects that trigger this policy include hydroelectric, irrigation, flood control, navigation, drainage, water and

sewerage, industrial, and similar projects that involve the use or potential pollution of international waterways. The proposed Fadama III project triggered this policy. Government has initiated moves on riparian notification.

- ***Disputed Areas (OP/BP/GP 7.60)***. Project in disputed areas may occur in the Bank and its member countries as well as between the borrower and one or more neighbouring countries. Any dispute over an area in which a proposed project is located requires formal procedures at the earliest possible stage. The Bank attempts to acquire assurance that it may proceed with a project in a disputed area if the governments concerned agree that, pending the settlement of the dispute, the project proposed can go forward without prejudice to the claims of the country having a dispute. This policy is not expected to be triggered by sub-projects. This policy is unlikely to be triggered by sub-projects to be funded by Fadama III.

ANNEX 2
POTENTIAL POSITIVE AND NEGATIVE IMPACTS OF AF FADAMA -III SUB-PROJECTS

Activities/Sub-Projects	Impacts	Mitigation Measures
	<i>Environmental Concerns</i>	
Rehabilitation &/or Construction of irrigation and Drainage system	<ul style="list-style-type: none"> • Soil erosion by water over flows • Flood • Drains may be silted up causing reduction of drain capacity • Encroachment into forest land leading to loss of natural vegetation & bio-diversity • Soil pollution may result from oil leaks, spills & contamination by grease from trucks conveying cement & other materials to site 	<ul style="list-style-type: none"> • Divert all canals away from production area & drain properly • Plant trees for wind break effects/ buffer for aquifer recharge • Level up, compact and stabilize soil after excavation • De-silt drains regularly • Avoid encroachment into forest land by re-aligning the sub-projects design as much as possible • Apply soil conservation measures • Clean up engine oil & grease spills as soon as reported • Ensure maintenance of vehicles/trucks used at site
	<i>Social Concerns</i>	
	<ul style="list-style-type: none"> • Encroachment into cultural property, & impairment of aesthetics • Dislocation from homes because of flooding 	<ul style="list-style-type: none"> • Avoid encroachment into cultural sensitive property • Prepare chance finds procedure which will include strategy for restoration of cultural property in consultation with community, cultural people, expert archeologist • Ensure progress restoration of aesthetic • Give right sizing to drains • Sensitize the

Activities/Sub-Projects	Impacts	Mitigation Measures
	<i>Environmental Concerns</i>	
		community/public against building on flood plains
Land Clearance for Irrigation Schemes	<i>Environmental Concerns</i>	
	<ul style="list-style-type: none"> • Irrigation induced erosion& flooding 	<ul style="list-style-type: none"> • Do not construct on irrigation schemes lose erodible soil • Apply good soil conservation measures (terracing, contour bundling, minimum tillage, etc)
	<ul style="list-style-type: none"> • Salinity 	<ul style="list-style-type: none"> • Avoid over irrigation • Flush or leach irrigated land regularly • Install efficient drainage system
	<ul style="list-style-type: none"> • Tendency for bush burning leading to loss of soil micro-organism & erosion 	<ul style="list-style-type: none"> • Carry out awareness campaign to discourage bush burning
	<ul style="list-style-type: none"> • Residues of agro-chemicals, pesticides, fertilizers in ground water flows 	<ul style="list-style-type: none"> • Apply agrochemicals, pesticides & fertilizers judiciously after proper calibration
	<ul style="list-style-type: none"> • Ground water pollution due to human activities 	<ul style="list-style-type: none"> • Provide proper sanitation facility to avoid open defecation • Sensitize the public on adverse health effect of poor waste management & chemical application
	<i>Social Concerns</i>	
	<ul style="list-style-type: none"> • Acquisition of private land, posing land use shortage and crises • Possibility of involuntary displacement and loss of income from agricultural activities • Irrigation farmer/pastoralists conflicts within an irrigation scheme -Human health epidemics 	<ul style="list-style-type: none"> • Avoid private land acquisition • Carry out involuntary resettlement procedure (see RPF document of Fadama- III for guideline) <p>Delineate livestock routes, grazing areas & watering points fro livestock</p> <p>Enforce relevant</p>

Activities/Sub-Projects	Impacts	Mitigation Measures
	<i>Environmental Concerns</i>	
	<p>resulting from industrial waste disposal into the irrigation stream</p> <ul style="list-style-type: none"> • Marginalization of women, youth and vulnerable people 	<p>environmental laws against disposal of industrial waste/effluents into water Carry out education/public awareness campaign</p> <p>Ensure social inclusion of all vulnerable groups.</p>
Reforestation	<i>Environmental Concerns</i>	
	<ul style="list-style-type: none"> • Soil compaction from use of heavy equipment • Destruction of seedlings • Pest infestation • Poaching & degradation 	<ul style="list-style-type: none"> • Use much of labour& light equipment as in compliance with labour intensive PDO of Fadama-III AF. • Use protective devices around young seedlings • Choose right planting materials • Apply disease control measures
	<i>Social Concern</i>	
<ul style="list-style-type: none"> • Will mainstream climate change adaptation 		<ul style="list-style-type: none"> • Positive, no mitigation required
Agricultural Activities & processing	<i>Environmental Concerns</i>	
	<ul style="list-style-type: none"> • <i>Air pollution</i> - fumes of NO₂, NO₃, SO₃, CO₂, etc from processed agricultural particulates • Soil Pollution from engine oil • Water pollution from processing water • Tendency for bush 	<ul style="list-style-type: none"> • Use tall chimneys/stacks to disperse fumes • Wear nose masks • Use concrete floor or impermeable surface to collect used oils, and clean spills completely • Apply saw dust when discharging spent oil to avoid seepage into the soil • Dispose contaminated soil/saw dust in the SEPA designated site • Reduce volume of process water

Activities/Sub-Projects	Impacts	Mitigation Measures
	<i>Environmental Concerns</i>	
	burning leading to loss of soil micro-organism & erosion <ul style="list-style-type: none"> • Residues of agro-chemicals, pesticides, fertilizers in ground water flows 	<ul style="list-style-type: none"> • Re-cycle waste water where possible • Carry out awareness campaign to discourage bush burning Apply agrochemicals, pesticides & fertilizers judiciously after proper calibration • Engage the services of an agric extension expert in mentoring
	<i>Social Concerns</i>	
	<ul style="list-style-type: none"> • Risk of loss due to pest, rodents, etc • Discouragement due to unrealized expectation • Influence of peer pressure against farming profession • Risk of loss of income & means of livelihood due to sub-merging of farm crops/ land by flooding & other natural resources 	<ul style="list-style-type: none"> • Apply IPM to pest control Take advantage of Agric Insurance Scheme through agricultural cooperative scheme to minimize risks Avoid/minimize loss of income through use of improved varieties/species, and best applications Identify market for optimal return
Construction of Market Stalls	<ul style="list-style-type: none"> • Construction debris • Air pollution from earth dust during construction • Flood risk • Noise hazard during construction stage 	<ul style="list-style-type: none"> • Convert some debris to fuel wood, and dispose of the rest properly • Wet the site with water during construction • Put proper drainage system • Wear face/nose masks
	<i>Social Concerns</i>	•
	<ul style="list-style-type: none"> • Occupational accident during construction period • Risk of fire after completion • Road traffic and accidents 	<ul style="list-style-type: none"> • Ensure that workers wear necessary PPEs • Provide first aid on site • Provide firefighting equipment and prepare and comply with basic EHS requirements

Activities/Sub-Projects	Impacts	Mitigation Measures
	<i>Environmental Concerns</i>	
		<ul style="list-style-type: none"> • Ensure that market is not constructed within 50 meters from the road • Instill and enforce minimum vehicular speed limit near market • Put speed breaks/bumps
Rehabilitation of Cooling sheds/ market stalls	Environmental Concerns	
	<ul style="list-style-type: none"> • Construction debris will litter the site and cause health hazards • Risk of injury for site workers • Air pollution may result from use of paints and other solvents • Soil degradation may result from use of paints and cements 	<p>Collect, transport and dispose debris properly</p> <p>Improve on safety at work site, and ensure use of PPEs</p> <p>Ensure that site specific ESMP are prepared and implemented</p>
	<i>Social Concerns</i>	
	<ul style="list-style-type: none"> • Rehabilitation work will obstruct academic learning if done during school period, and will cause public health hazard for the school children and teachers 	<p>Ensure that implementation is done when students/pupils are on holiday</p>
Solid Waste Management	<i>Environmental Concerns</i>	
	<ul style="list-style-type: none"> • Air pollution emanating from degradable wastes • Soil pollution due to toxic waste and spent oil at dump site • Pollution of ground water sources due to open dumping • Occupational health & safety risks for waste management workers 	<ul style="list-style-type: none"> • Segregate waste by type before disposal to landfill • Compact waste and cover the compact truck during collection and transporting • Apply waste treatment • Conducting water quality monitoring & testing • Provide PPEs (boot, hand gloves, mouth mask) to workers • Workers to go on retune medical check

Activities/Sub-Projects	Impacts	Mitigation Measures
	<i>Environmental Concerns</i>	
	<i>Social Concerns</i>	
	<ul style="list-style-type: none"> • Waste collection and management will improve the social profiling on the communities and attract tourism • Scavengers may go out of business 	<ul style="list-style-type: none"> • Positive, mitigation measures not required • Through a well thought out plan, integrate scavengers into the waste management scheme
Rehabilitation/Construction of PHCs & Public Health Sanitation Facilities	<ul style="list-style-type: none"> • Air pollution from public latrines • Construction debris will litter the site and cause health hazards • A break out of communicable diseases due to public use of latrine • Risk of HIV/Aids and other terminal diseases due to bad management of healthcare waste 	<ul style="list-style-type: none"> • Provide air/ventilation vents for better air • Provide portable water for flashing of toilets after use • Provide soap for washing of hands • Collect, transport and dispose debris properly • Ensure that latrines have close fitting lids • Ensure the use of septic tanks for collection of liquid medical wastes • Dispose medical waste according to medical waste guideline of Nigeria/WHO.
Traffic Control	<ul style="list-style-type: none"> • Traffic control youth may be pre-disposed to adverse health conditions due to exposure to earth dust • Risk of motor accident and death 	<ul style="list-style-type: none"> • Use mouth masks/PPEs • Use reflective wears always while on duty • Workers to undergo training on traffic management

The safeguard responsibilities for the AF Fadama – III are highlighted in the table 7.0 below

Table 7.0: Safeguard Responsibilities for AF Fadama – III

S/No	Category	Roles
I	Federal Government MDAs (Federal Ministry of Environment and relevant Stakeholder.	Lead role -provision of advice on screening, scoping, review of draft RAP/EA report (in liaison with State Ministry of Environment), receiving comments from stakeholders, public hearing of the project proposals, and convening a technical decision-making panel, Project categorization for EA, Applicable standards, Environmental and social liability investigations, Monitoring and evaluation process and criteria
ii	State Government MDAs (Ministry of Lands, Survey and Urban Development, Ministry of Environment, etc.	Compliance overseer at State Level, on matters of Land Acquisition and compensation and other resettlement issues, Lead role -provision of advice on screening, scoping, review of draft RAP/EA report (in liaison with Federal Ministry of Environment), receiving comments from stakeholders, public hearing of the project proposals, and convening a technical decision-making panel, Monitoring and evaluation process and criteria.
	Other MDAs	The MDAs applies when relevant areas or resources under their jurisdiction are likely to be affected by or implicated sub-projects. They participate in the EA processes and in project decision-making that helps prevent or minimize impacts and to mitigate them. These institutions may also be required, issue a consent or approval for an aspect of a project; allow an area to be included in a project; or allow impact to a certain extent or impose restrictions or conditions, monitoring responsibility or supervisory oversight.
iii	World Bank	Assess implementation Recommend additional measures for strengthening the management framework and implementation performance.
vi	AF Fadama NFCO/ PMU Safeguards Unit	Liaise closely with Ministry of Environment in preparing a coordinated response on the environmental and social aspects of project development.
V	Local government	Liaising with the PCU to verify adequacy of resettlement location and provide approval for such sites, Providing additional resettlement area if the designated locations are not adequate, Provide necessary infrastructures in relocated areas, engage and encourage carrying out comprehensive and practical awareness campaign for the proposed sub-projects, amongst the various relevant grass roots interest groups.
vi	FCA (Fadama Community Associations)	Ensure Community participation by mobilizing, sensitizing community members;

	Consultants, Contractors, and Site Engineers	Will work with the PCUs at Federal and State levels, and other stakeholders. They are to ensure effective project delivery in a timely, safe and environmentally sound manner.
Vii	NGOs/CSOs	Assisting in their respective ways to ensure effective response actions, Conducting scientific researches alongside government groups to evolve and devise sustainable environmental strategies and rehabilitation techniques, Organizing, coordinating and ensuring safe use of volunteers in a response action, and actually identifying where these volunteers can best render services effectively & Providing wide support assistance helpful in management planning, institutional/governance issues and other livelihood related matter, Project impacts and mitigation measure, Awareness campaigns
Viii	The General Public	Same as above

7.2.8 Safeguards Manual

A Safeguard manual will be prepared in order to enable the NFCO Safeguards Specialists and all facilitators in Fadama ensure environmental and Social sustainability of sub-projects and that all sub-project activities comply with environmental and social safeguards requirements of the World Bank.

Estimated Budget for Implementing the ESMF: Based on the above mitigation principles the estimated budget for the implementation of the provisions of this ESMF is US\$ 2.3million. The breakdown is presented in Table 7. 1

Table 7. 1 Estimated Budget for Implementing the ESMF:

S/N	Mitigation Activity	Responsibility	Amount (US\$)
1	Preparation of site specific safeguards instruments (ESMP, ESIA, Safeguards manual etc)	Project Proponent / FPCU/SPCU/FMEnv/WB	1,500,000
2	Capacity Building	Proponent Proponent/ FPCU/SPCU/FMEnv/WB	250,000
3	Environmental and Social Safeguard Audit	Proponent/ FPCU/SPCU/FMEnv/WB	200,000
4	Monitoring and Reporting	Proponent/FPCU/SPCU	350,000
	Total		2,300,000

CHAPTER TEN: STAKEHOLDER CONSULTATION

10.0 Introduction

In tandem with World Bank safeguards policy 4.01 governing EA Category B projects, the GoN recognizes that stakeholder involvement is an important element of the YESSO project and the EA process and that stakeholder identification and analysis at an early stage of a project is critical in the assessment of interests, concerns, relationships, assumptions, their level of influence and the ways in which they affect project risks. To this end, the preparation of the ESMF and RPF drew from inputs by eight stakeholder consultations in each of the participating States. One of the key agreements reached out of these consultations was the establishment of a demand-based and third party monitoring arrangement involving key national and local civil society groups likely to be impacted by prospective YESSO project activities. This consultation which started early during the project preparation phase will continue during project implementation.

In particular, the YESSO recognizes the importance of stakeholder consultation and participation in successful project implementation including its relevance in mainstreaming environmental and social sustainability considerations into project design, planning and implementation. Based on this, stakeholder consultation had already begun at the level of this ESMF preparation with the identification and consultation with relevant stakeholders in all the seven states visited (see list of stakeholder attendance at the annex). The outcome of these wide consultations include: 1) preliminary understanding of what each State is doing currently and intends to carry out within the project components, 2) legal and institutional arrangement and capacity, 3) potential environmental concerns and peculiarities, which provide veritable inputs contained in this report.

Therefore, the public consultation and participation which has begun at this stage will continue during project implementation stage. The SPCUs and SPIUs have the responsibility to effectively engage stakeholders to successfully implement the project and achieve the stated objectives for the benefit of all. The public consultation will aim to assist the PCU/PIU in learning about the interests of, establishing a systematic dialogue with, and earning the trust of the youth, private partners and institutions and all interested parties.

10.1 Objectives

The objective of the public consultations under this project will include:

- promoting openness and communication;
- ensuring effective stakeholder participation in the development of the project;
- increasing public knowledge and understanding of the project implementation process;
- using all strategies and techniques which provide appropriate, timely and adequate opportunities for all stakeholders to participate; and
- evaluating the effectiveness of the engagement plan in accordance with the expected outcomes.

10.2 Identification of Stakeholders

The stakeholders of YESSO are identifiable through the ownership structure, partnership structure and the target beneficiary plan of YESSO. Based on these, the stakeholders include

MDAs at the Federal State and LGA levels, the youth, civil society groups and NGOs within the defined age bracket. These categories are listed as follow:

Federal Level:

- Federal Ministry of Finance
- NDE
- NAPEP

State Level- MDAs:

- Ministry of Youth Development
- Ministry of Work
- Ministry of Agriculture
- Ministry of Environment
- Ministry of Water Resources
- Ministry of Social Welfare
- Ministry of ICT
- Private Organizations/Entrepreneurs

Local Government Level:

- Local Government Officials
- Religious Leaders
- CBOs
- Community Leaders
- Youth Leaders
- Cooperatives societies promoting youth agenda

10.3 Consultation Strategies

At federal level, identification of the MDAs was simple given their involvement in farmers groups, co-operate societies, youth, and women programmes. At the State level, the MDAs and private partners were identified through the SPCU who have before now been involved with coordination of the SURE-P, CS/WYE and other related programmes. The efforts of the SPCU, the NGOs, Civil Society groups and Youth groups at the State and LGA level was helpful in the identification of the target groups for preliminary consultation at this level.

10.4 General Guidelines for Stakeholder Engagement

With the evolving of sub-projects underway, consultation and engagement of stakeholders should be pragmatic, participatory and embracing the following key guidelines for environmental and social sustainability:

- Proper identification of stakeholders based on definitions earlier provided
- Profiling of stakeholders including their description, and identification of key contact persons and details
- Selection of suitable venue and time schedule for stakeholder meetings to allow and encourage participation of maximum attendance and cross exchange of ideas

- As much as possible pre-inform/dispatch the agenda and issues of discussion and required information (example checklist and questionnaires) to stakeholder representatives for their perusal before date of meeting
- Use of local language or a language that is convenient and generally acceptable for expression and understanding of all the stakeholders
- Provision of sufficient project information in an easy to understand format
- Allowing sufficient stakeholders sufficient time to discuss, respond and make inputs/raise concerns to subject matters that will affect them and/or the sub-projects
- Provide response on issues raised during stakeholder forums, and committing to provide response to unanswered questions (where applicable)
- Obtain feedback from stakeholders on agreed action steps from earlier stakeholder engagement meetings
- Recording/documenting manually and electronically as much as possible all proceedings and inputs, including attendance of meetings.

ANNEXES

Annex 1: Summary of World Bank Environmental and Social Safeguard Policies

- ***Environmental Assessment (OP 4.01)***. Outlines Bank policy and procedure for the environmental assessment of Bank lending operations. The Bank undertakes environmental screening of each proposed project to determine the appropriate extent and type of EA process. This environmental process will apply to all sub-projects to be funded by Fadama-III AF project.
- ***Natural Habitats (OP 4.04)***. The conservation of natural habitats, like other measures that protect and enhance the environment, is essential for long-term sustainable development. The Bank does not support projects involving the significant conversion of natural habitats unless there are no feasible alternatives for the project and its siting, and comprehensive analysis demonstrates that overall benefits from the project substantially outweigh the environmental costs. If the environmental assessment indicates that a project would significantly convert or degrade natural habitats, the project includes mitigation measures acceptable to the Bank. Such mitigation measures include, as appropriate, minimizing habitat loss (e.g. strategic habitat retention and post-development restoration) and establishing and maintaining an ecologically similar protected area. The Bank accepts other forms of mitigation measures only when they are technically justified. Should the sub-project-specific ESMPs indicate that natural habitats might be affected negatively by the proposed sub-project activities with suitable mitigation measures, such sub-projects will not be funded under the Fadama-III AF project.
- ***Pest Management (OP 4.09)***. The policy supports safe, effective, and environmentally sound pest management. It promotes the use of biological and environmental control methods. An assessment is made of the capacity of the country's regulatory framework and institutions to promote and support safe, effective, and environmentally sound pest management. This policy will most likely not apply to Fadama-III AF project.
- ***Involuntary Resettlement (OP 4.12)***. This policy covers direct economic and social impacts that both result from Bank-assisted investment projects, and are caused by (a) the involuntary taking of land resulting in (i) relocation or loss of shelter; (ii) loss of assets or access to assets, or (iii) loss of income sources or means of livelihood, whether or not the affected persons must move to another location; or (b) the involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons. This policy will most likely not apply to Fadama-III AF project as this project will not entail taking of land or restriction of access to sources of livelihood.
- ***Indigenous Peoples (OD 4.20)***. This directive provides guidance to ensure that indigenous peoples benefit from development projects, and to avoid or mitigate adverse effects of Bank-financed development projects on indigenous peoples. Measures to address issues pertaining to indigenous peoples must be based on the informed participation of the indigenous people themselves. Sub-projects that would have negative impacts on indigenous people will not be funded under YESSO project.

- ***Forests (OP 4.36)***. This policy applies to the following types of Bank-financed investment projects: (a) projects that have or may have impacts on the health and quality of forests; (b) projects that affect the rights and welfare of people and their level of dependence upon or interaction with forests; and (c) projects that aim to bring about changes in the management, protection, or utilization of natural forests or plantations, whether they are publicly, privately, or communally owned. The Bank does not finance projects that, in its opinion, would involve significant conversion or degradation of critical forest areas or related critical habitats. If a project involves the significant conversion or degradation of natural forests or related natural habitats that the Bank determines are not critical, and the Bank determines that there are no feasible alternatives to the project and its siting, and comprehensive analysis demonstrates that overall benefits from the project substantially outweigh the environmental costs, the Bank may finance the project provided that it incorporates appropriate mitigation measures. Sub-projects that is likely to have negative impacts on forests will not be funded under Fadama-III AF project.
- ***Cultural Property (OP 4.11)***. The term “cultural property” includes sites having archaeological (prehistoric), paleontological, historical, religious, and unique natural values. The Bank’s general policy regarding cultural property is to assist in their preservation, and to seek to avoid their elimination. Specifically, the Bank (i) normally declines to finance projects that will significantly damage non-replicable cultural property, and will assist only those projects that are sited or designed so as to prevent such damage; and (ii) will assist in the protection and enhancement of cultural properties encountered in Bank-financed projects, rather than leaving that protection to chance. The management of cultural property of a country is the responsibility of the government. The government’s attention should be drawn specifically to what is known about the cultural property aspects of the proposed project site and appropriate agencies, NGOs, or university departments should be consulted; if there are any questions concerning cultural property in the area, a brief reconnaissance survey should be undertaken in the field by a specialist. Fadama –III project will not fund sub-projects that will have negative impacts on cultural property.
- ***Safety of Dams (OP 4.37)***. For the life of any dam, the owner is responsible for ensuring that appropriate measures are taken and sufficient resources provided for the safety to the dam, irrespective of its funding sources or construction status. The Bank distinguishes between small and large dams. Small dams are normally less than 15 m in height; this category includes, for example, farm ponds, local silt retention dams, and low embankment tanks. For small dams, generic dam safety measures designed by qualified engineers are usually adequate. This policy does not apply to Fadama-III AF project since the policy is not triggered under the project.
- ***Projects on International Waterways (OP 7.50)***. The Bank recognizes that the cooperation and good will of riparians is essential for the efficient utilization and protection of international waterways and attaches great importance to riparians making appropriate agreements or arrangement for the entire waterway or any part thereof. Projects that trigger this policy include hydroelectric, irrigation, flood control, navigation, drainage, water and sewerage, industrial, and similar projects that involve the use or potential pollution of international waterways. This policy will not apply to Fadama- III AF project.

- ***Disputed Areas (OP 7.60)***. Project in disputed areas may occur between the Bank and its member countries as well as between the borrower and one or more neighbouring countries. Any dispute over an area in which a proposed project is located requires formal procedures at the earliest possible stage. The Bank attempts to acquire assurance that it may proceed with a project in a disputed area if the governments concerned agree that, pending the settlement of the dispute, the project proposed can go forward without prejudice to the claims of the country having a dispute. This policy is not expected to be triggered by sub-projects. This policy is unlikely to be triggered by sub-projects to be funded by YESSO project.
- **The Country Systems Policy (OP 4.00)** is intended to allow countries to apply their own social and environmental safeguard systems if they are judged to be equivalent to the Bank's own standards.
- **Disclosure Policy (OP 17.50)**. This policy requires that all safeguards policy documents prepared for projects funded by the Bank be disclosed to the public at two levels: 1) In-Country disclosure at domains accessible to stakeholders, 2) At World Bank infoshop.

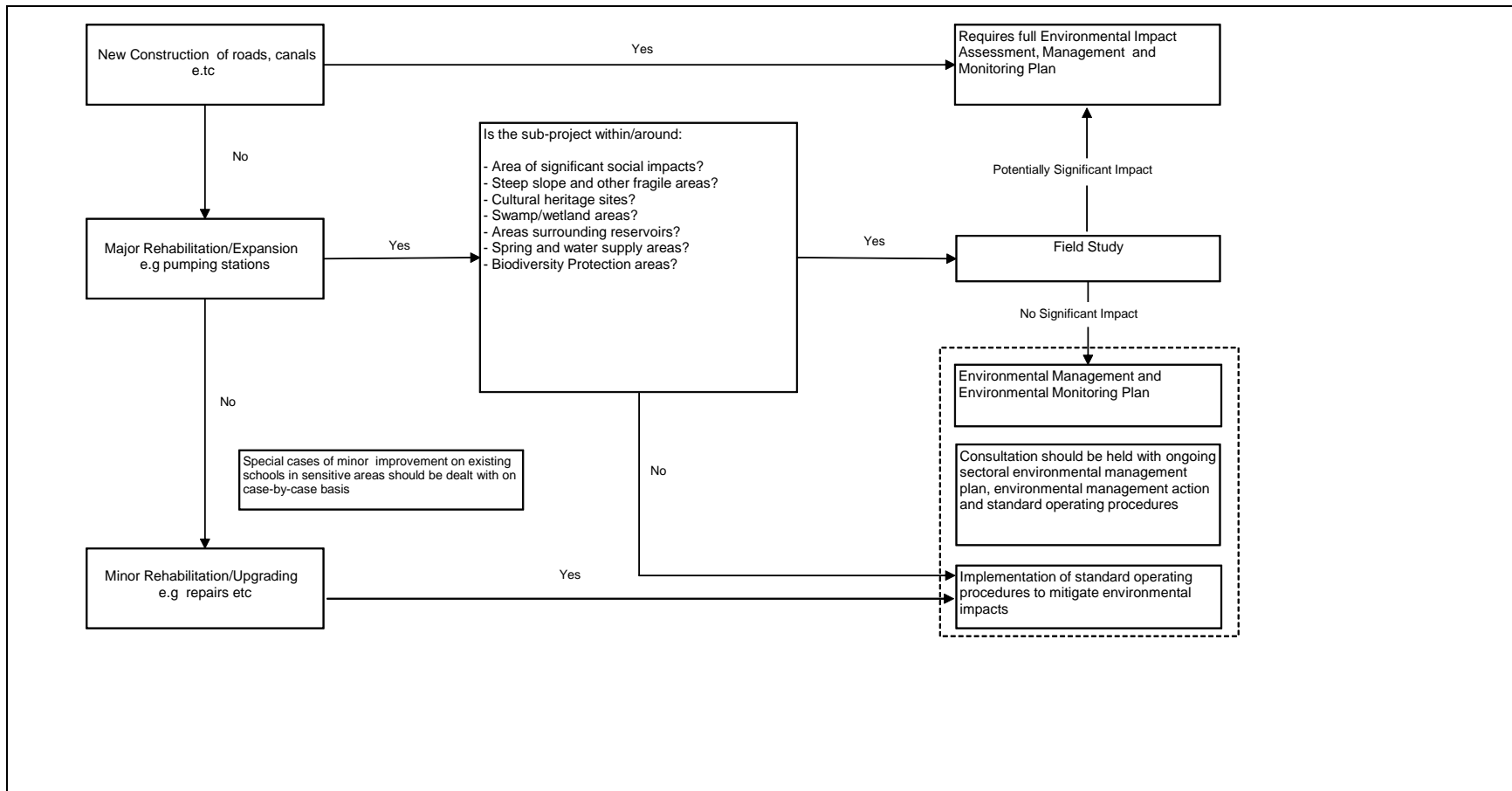
Annex 2: Environmental and Social Screening (ESS) Format of sub-projects

This stage marks the beginning of the ESIA or ESMP process, which should be initiated as early as possible along with the sub-project planning process after the sub-project is conceived. During this stage, the important functions that need to be performed are:

- i. Establish the likely study area by identifying broad boundaries for the sub-project;
- ii. Make a preliminary assessment of the significance of potential environmental impacts, and likely mitigating measures;
- iii. Identify possible alternatives and the major potential environmental impacts associated with each, as well as the likely corresponding mitigation measures;
- iv. Estimate the extent and scope of ESIA to be performed, and offer an initial recommendation as to whether a full ESIA is required;
- v. Estimate the time frame of the ESIA study;
- vi. Identify the expertise and human resources needed for the ESIA study; and
- vii. Prepare the terms of reference for the conduct of an initial environmental examination.

The value of conducting environmental and social screening at the early conception and planning phase of a development project is to provide useful technical input to the project team for their planning and budgeting, thereby eliminating the possibility of costly remedial environmental work and delays caused by problems with adverse environmental damage. Such early input on environmental considerations also provides useful information that helps the project team to gain government approval and win public acceptance.

The environmental and social screening process considers the following aspects in the recommendation: project type, environmental and social setting, and magnitude and significance of potential environmental and social impacts. Some of the typical questions asked in the environmental and social screening process are outlined in the figure in the next page



Annex Figure 1: Typical Environmental Screening Procedure

Standard Format for Screening Report

1. GENERAL DESCRIPTION
 - 1.1. Overview of the study area
 - 1.2. List of Selected Sub-projects
2. PROJECT-SPECIFIC SCREENING (FOR EACH SUB-PROJECT):
 - 2.1. Existing infrastructure
 - 2.2. Proposed Works
 - 2.3. Estimated Cost
 - 2.4. Summary of Environmental and Social Issues
 - 2.4.1. Land Resources
 - 2.4.2. Hydrology and Water Resources
 - 2.4.3. Air and Noise
 - 2.4.4. Biological Resources
 - 2.4.5. Socio-Economic and Cultural
 - 2.4.5.1. Population
 - 2.4.5.2. employment and agricultural Benefits
 - 2.4.5.3. Resettlement issues
 - 2.4.5.4. Other site-specific issues
 - 2.5. Environmental Screening Category
 - 2.6. Applicable Safeguard Policies
3. ESMP ACTION PLAN
4. ATTACHMENTS
 - 4.1. Maps
 - 4.2. Photos
 - 4.3. Location and Administrative Maps
 - 4.4. Environmental and Social Checklist

Annex Table 1: Checklist for Screening Report for Environmental and Social Impacts

Title of sub-project/activity:
 Brief description of the sub-
 Project/activity: Location:

Section 1: Environmental Checklist

INTRODUCTION				
1	Does the site/project require any;	Yes	No	If yes, give the extent in ha
	Reclamation of land/wetland	<input type="checkbox"/>	<input type="checkbox"/>	
	Clearing of forest	<input type="checkbox"/>	<input type="checkbox"/>	
	Felling of trees	<input type="checkbox"/>	<input type="checkbox"/>	
2	Distance from coastline(m)			
3	Minimum land area required for the proposed development (based on urban guidelines)(ha)			
4	Available land area within the identified location (ha)			
5	Expected construction period (for infrastructure projects)			
6	Anticipated Date of Completion			
7	Present Land Ownership	State <input type="checkbox"/>	Private <input type="checkbox"/>	Other (specify)
8	Total approximate Cost of the Project			

DESCRIPTION OF THE ENVIRONMENT				
PHYSICAL				
9	Topography & Landforms (map): Attach an extract from relevant 1: 50,000 topographic sheet/if detailed maps are available provide them. If this information is unavailable, please describe the location.			
10	Relief (difference in elevation)	Low <20m <input type="checkbox"/>	Medium 20-40m <input type="checkbox"/>	High 40-60 <input type="checkbox"/>
11	Slope	Low <30% <input type="checkbox"/>	Medium 30-40% <input type="checkbox"/>	High 40-60% <input type="checkbox"/>
12	Position on Slope	Bottom <input type="checkbox"/>	Mid-slope <input type="checkbox"/>	Upper-slope <input type="checkbox"/>
13	Soil Type			
14	Depth of topsoil	Shallow <20cm <input type="checkbox"/>	Moderate 20-100cm <input type="checkbox"/>	Deep >100cm <input type="checkbox"/>
15	Soil Erosion (this information will be based on the site and surrounding environment)	Low <input type="checkbox"/>	Medium <input type="checkbox"/>	High <input type="checkbox"/>
16	Climate	Wet <input type="checkbox"/>	Dry <input type="checkbox"/>	Arid <input type="checkbox"/>
17	Annual dry period			

DESCRIPTION OF THE ENVIRONMENT						
PHYSICAL						
18	Source of fresh Surface Water	Spring/ canal <input type="checkbox"/>	Tank / Rese rvoir <input type="checkbox"/>	Perennial Stream <input type="checkbox"/>	Seasonal Stream <input type="checkbox"/>	None <input type="checkbox"/>
19	Surface Water Use(at the site and/or Surrounding environment)	Domestic <input type="checkbox"/>	Washing/ Bathing <input type="checkbox"/>	Irrigation <input type="checkbox"/>	Animal use <input type="checkbox"/>	Other <input type="checkbox"/>
20	Surface Water Quality	Poor <input type="checkbox"/>		Moderate <input type="checkbox"/>		Good <input type="checkbox"/>
21	Ground Water Availability	Dug Well <input type="checkbox"/>		Tube Well <input type="checkbox"/>		Other(specify) <input type="checkbox"/>
22	Ground Water Use	Domestic <input type="checkbox"/>	Washing/B athing <input type="checkbox"/>	Irrigation <input type="checkbox"/>	Animal use <input type="checkbox"/>	Other <input type="checkbox"/>
23	Ground Water Quality	Poor <input type="checkbox"/>		Moderate <input type="checkbox"/>		Good <input type="checkbox"/>
24	Incidence of Natural Disasters	Floods <input type="checkbox"/>	Prolonged droughts <input type="checkbox"/>	Cyclones/ tidal waves <input type="checkbox"/>	Other (specify) <input type="checkbox"/>	
25	Geological Hazards	Landslides <input type="checkbox"/>	Rock falls <input type="checkbox"/>	Subsidence <input type="checkbox"/>	Other (specify) <input type="checkbox"/>	

ECOLOGICAL						
26	Habitat Types in the Project Site (indicate the approximate % of each habitat type)	Natural forest	degraded forest	natural scrubland	riverine forest	abandoned agricultural land
		Marsh	lagoon	estuary	coastal scrub	mangrove
		salt marsh	home-gardens	grassland	degraded scrubland	Other(list)
27	Habitat types within 500m radius from the site periphery (indicate the approximate % of each habitat type)	Natural forest	degraded forest	natural scrubland	riverine forest	abandoned agricultural land
		Marsh	lagoon	estuary	coastal scrub	mangrove
		salt marsh	home-gardens	grassland	degraded scrubland	Other(list)

Screening Questions	Yes	No	Scale of impacts			Remarks
			High	Medium	Low	

A. Siting of the Activity/ Sub-project

Are there any environmentally and culturally sensitive areas within the project site and 500 meters from the project boundary?

- Protected Areas/ Forest Reserve
- Migratory pathways of animals
- Archeological sites

Screening Questions	Yes	No	Scale of impacts			Remarks
			High	Medium	Low	
• Wetlands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Mangrove strands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Special area for protecting biodiversity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are there any plants (endemic and threatened species) of conservation Importance within the project site and 500meters from the project boundary?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are there any animals (endemic and threatened species) of conservation Importance within the project site and 500meters from the project boundary?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
B. Potential Environmental Impacts						
Will the activity/sub-project cause						
▪ land disturbance or its clearance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ negative effects on rare (vulnerable), threatened or endangered species of flora or fauna or their habitat?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ negative effects on designated wetlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ spread of invasive plants or animals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ Negative effects on wildlife habitat, Populations, corridors of movement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ negative effects on locally important or value the ecosystems or vegetations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ destruction of trees and vegetation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ impact on fish migration and navigation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ obstruction of natural connection Between river and wetlands inside project area or natural drainage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Screening Questions	Yes	No	Scale of impacts			Remarks
			High	Medium	Low	
system?						
▪ water logging due to inadequate drainage?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ Insufficient drainage leading to Saline intrusion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ negative effects on surface water Quality/quantities or flow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ negative effects on groundwater Quality./,quantity or movement?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ increased demand of water Requirement leading to reduction of water supply for competing uses?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ increase probability of spread of Diseases and parasites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ significant sedimentation of soil Erosion or shoreline or river bank erosion on/ or off site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ loss of existing buildings property, economic livelihood?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ negative impact on soil stability And compactness?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ impacts on sustainability of Associated construction waste disposal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ changes to the land due to material extraction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ traffic disturbances due to Construction material transport and wastes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ increased noise due to Transportation of equipment and construction materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
▪ increased noise due today-to-day Construction activities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Screening Questions	Yes	No	Scale of impacts			Remarks
			High	Medium	Low	
<ul style="list-style-type: none"> increased wind-blown /dust from material(e.g.fine aggregate) storage areas? 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<ul style="list-style-type: none"> degradation or disturbance of historical or culturally important sites? 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<ul style="list-style-type: none"> health and safety issues? 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Will the activity/sub-project require						
<ul style="list-style-type: none"> setting up of ancillary production facilities? 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<ul style="list-style-type: none"> significant demand on utilities and services? 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<ul style="list-style-type: none"> accommodation or service Amenities to support the workforce during construction 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Note: Please add any other screening questions relevant to the proposed activity/ sub-project. Also provide additional explanation of the responses and/or positive impacts in the remarks column.

Name of the officer completed the form (project proponent)
Designation and contact Information
Overall observation and recommendation
Signature and date

FINAL OBSERVATIONS & RECOMMENDATIONS		
(a)	Does this site require a mandatory EIA/ESIA or any other Environmental Assessments (EA) under the national regulations and please state the reasons?	
(b)	Although national regulations may not Require EIA at this Site, are the environmental issues which need to be addressed through further environmental investigations and/or EA based on the guidance provided in ESMF? If the answer is "Yes" .briefly describe the issues and type of investigations that need to be undertaken.	
(c)	Will this site be abandoned based on The current observations? If yes, ,please	

FINALOBSERVATIONS&RECOMMENDATIONS		
(d)	Does the proposed site meet the National urban planning requirements (only applicable for activities outside PAs)? If the answer is “No”, what needs to be done to meet these requirements? If the answer is“ Yes”, has the project site obtained the necessary approvals?	
(e)	In addition to the above issues, please indicate any additional observations, recommendation If any	

Name and Contact Informationoftheofficerwhomadethefinalobservationsandrecommendations(PCU)
Signature and Date

Section 2–Social Screening Format

A. General Information

Title of the Sub-

project:

Site Locality:

Screening Date :

B. Project Related Information

B1 Activities includes: **(described in brief regarding subproject activities)**

B2. Describe existing land use/occupancy
Of site and surrounding in brief **(Please uses separate sheet)**

C. Socio-economic Information

C1 What are the asset(s) that would be affected due to Sub-project Interventions? **Yes or No**

- Land.....
- Physical Structure (dwelling or commercial).....
- Trees/crops.....
- Natural Resources (Waterbodies/Forest/PublicPond)....
- Community Resource Property.....
- Others(please specify)....

C2 Land

C.2.1 Ownership of Land: Public/Private.....

C.2.2 Type of Land: Agricultural/Homestead/LowLand/Fallow/Pond/Other
Please specify.....

- Does the subproject require additional land permanently or on a temporary basis?

Sometimes as part of road / canal / community resource property upgrading interventions, subprojects may require small parcels of land permanently to meet engineering design requirements. In such case what would be the land procurement policy?

1. Direct Purchase... Yes/no.....;
2. Voluntary donation.....yes/no...;
3. Acquisition..... Yes/no.....?

- To acquire land not voluntarily donated, what would be the legal procedure?
- In case of land acquisition,, will there be physical and/or economic displacement of people?

C2.3 Is there any **squatter/encroacher/leaseholder** residing on public lands? **Yes /No** and specify type

If yes.

- What would be the total numbers of Affected Families?
- Is there any possibility of physical displacement?
- How will their livelihoods be affected?(example: due to loss of shelter and structure, loss of income source, loss of grazing field/social etc)Do the affected families have school going children? Yes/no
If yes,.....how many such children are here?
- Among the affected household, is there any person holding long term lease?
Yes/no.....ifyes, Landusesforwhatpurpose?....., Tillhow
Many years remains out of total leasing period?.....

C3 Structure(Housing/Commercial)

C3.1 Type and total number of Housing structure that would be affected:

C3.2 Is there any commercial/business structure that would be affected?

C3.3 Ownershiptypesoftheaffectedstructures:Private/Leaseholder/squatter/encroacher
Please specify

C3.4 Is there any tenant identified using the affected structure? Yes/No

C4. **Trees and Crops**

C4.1 Is there any tree/plant that might be affected? Yes/no..... Total estimated number by size.....?

C4.2 Is there any social forestry / plantation project that would be affected? Yes /no

C4.3 Is there any common fruit bearing tree that would be affected? Yes/no
Species.....

C4.4 Any agricultural land included within the subproject footprint? Yes/no.....

If yes please provide necessary information regarding productivity of land, type and quantity of Crop that might be affected and market value

.....
.....

C5. Is there any **Community Resource Property** that would be affected?
Yes/No.....Please Specify.....Who are the beneficiaries of the affected?
Community Resource? What is their reaction-Positive/negative?.....
Did they support the project ?Yes /No.....What are the reasons to support/stand against the project?

C6. Is there any **Natural Resource** that might be affected?

Yes/No..... If yes, please, describe regarding
dependency on the Affected Resources

C7. **Indigenous Peoples**

C7.1 Is there any community of Indigenous Peoples residing within or adjacent the project site?

Yes/No.....For how long.....?

C7.2 Any Households of Indigenous Peoples would be affected?
Yes/No..... If yes, ,how many families would be affected?.....

C7.2 Is there any way that proposed project may pose any threat to cultural tradition and way of life of indigenous Peoples? Bj5Yes/No.....

C8 **Beneficiaries**

C8.1 Who are the Beneficiaries? How they would be benefited by the sub-project?

- Access to health facilities /services? Yes /No.....
- Better access to schools, education and communication? Yes/No.....

- Project activities would provide income generating source. Yes/No..
Please describe
- Subprojectsshallpromotemarketingopportunitiesofthelocalproducts?Yes/No.....
If yes, ,how would that happen? Please elaborate
- Are people ready to co-operate with the project? Yes/No.....
Please elaborate the
reasons

C9 How will the subproject create opportunities for Beneficiaries?

- Obstruction of natural connection between river and wetlands inside project area or natural drainage.

Annex 4: Standard Format for Environmental and Social Management Plan (ESMP)**EXECUTIVE SUMMARY****1 PROJECT DESCRIPTION**

- 1.1. Overview of the Local Government where the sub-project are located
- 1.2. List of Selected Sub-projects
- 1.3. Environmental Screening Category

2 POLICY AND ADMINISTRATIVE AND LEGAL FRAMEWORK**3 SUB-PROJECT -SPECIFIC ESMPs (FOR EACH SUB-PROJECT):**

- 3.1. Location
- 3.2. Proposed Works
- 3.3. Estimated Cost
- 3.4. Baseline Data
 - 3.4.1. Land Resources
 - 3.4.2. Hydrology and Water Resources
 - 3.4.3. Air and Noise
 - 3.4.4. Biological Resources
 - 3.4.5. Socio-Economic and Cultural
- 3.5. Potential Impacts
 - 3.5.1. Land Resources
 - 3.5.1.1. Construction Phase
 - 3.5.1.2. Post Construction Phase
 - 3.5.2. Hydrology and Water Resources
 - 3.5.2.1. Construction Phase
 - 3.5.2.2. Post Construction Phase
 - 3.5.3. Air Quality and Noise
 - 3.5.3.1. Construction Phase
 - 3.5.3.2. Post Construction Phase
 - 3.5.4. Biological Resources
 - 3.5.4.1. Construction Phase
 - 3.5.4.2. Post Construction Phase
 - 3.5.5. Socio-Economic and Cultural
 - 3.5.5.1. Construction Phase
 - 3.5.5.2. Post Construction Phase
- 3.6. Analysis of Alternatives
- 3.7. Mitigation Measures
- 3.8. Monitoring and Supervision Arrangements
- 3.9. Summary ESMP Table

4 Annexes

- 4.1. Photos
- 4.2. Summary of Consultations and Disclosure
- 4.3. Other

Annex 5: National Guideline for Environmental Audit in Nigeria

1.0 INTRODUCTION

Environmental Protection has become a more central topic of discussion worldwide and an imperative for sustainable development. This calls for the environmental audit of existing industries and environmental impact assessment from new industries and major developmental projects by the Federal Environmental Protection Agency in section 21 of the S.I.9 regulation of 1991 on National Environmental Protection Pollution Abatement in industries and Facilities generating wastes).

The Environmental Audit as a management tool comprises of a systematic, documented, periodic and objective evaluation of how well organisations, management and equipment are performing with the aim of helping to safeguard the environment by facilitating management control of environmental practices and assessing compliance with company policies which would include meeting regulatory requirements.

Environmental audit in manufacturing industries has a direct impact on market share and company profitability because it promoted “green” marketing.

1.1 Objectives of Environmental Audit (EA)

The objective of EA includes:

- generating of adequate environmental information assessment of facilities for the potential environmental risks that are likely to be caused by the operations to the facilities;
- achieving maximum resources optimization and improved process performance;
- encouraging organisations to self regulate their environmental practices, and to increase their responsibility to stakeholder and society;
- ensuring compliance with regulatory requirements.

1.2 Types of Environmental Audit and their Scope

The following types of environmental audit exist:

- Regulatory Compliance Audit (RCA);
- Process Safety Audit;
- Occupational health Audit;
- Product Quality Audit;
- Liability Audit; and
- Management Audit

1.2.1 Regulatory Compliance Audit (RCA)

This is mandatory for all companies in Nigeria. All facilities preparing for the RCA are to submit its terms of reference (TOR) to FEPA for proper categorisation of RCA before commencement.

- More progressive audit will examine areas not yet covered by legislation.
- Checks the extent to which an organisation is complying with existing environmental laws

1.2.2 Process Safety Audit

- identifies hazards and quantifies the risks arising from the process.
- examines procedures for emergencies and accidents response preparedness, and training in areas of health and safety.

1.2.3 Occupational health Audit

- examines exposure of the workforce to pollution and physical disabilities (e.g. noise, temperature)
- sees to the availability, quality and usage of protective equipment/clothing, training and information are also assessed.

1.2.4 Product Quality Audit

- examines product or operational quality systems
- existing safety and product control systems are analysed, as well as quality assurance.

1.2.5 Liability Audit

- examines environmental conditions of the site and determine the need for clean up and remediation measures of existing facilities. It involves spot checks of sites known to have actual or potential environmental problems.

1.2.6 Management Audit (MA)

- assesses the management system to ascertain whether it is an asset or a liability for the company's environmental performance.

2.0 THE AUDIT PROCESS

2.1 Pre-Audit Activities

This is the audit preparation phase prior to site visit by an audit team.

2.1.1 Objectives

The objectives of the audit have to be clearly defined and communicated to the facility at this stage. It should provide the base data to allow the preparation of an audit.

2.1.2 Management Commitment

The first step in the preparation for audit is an invitation letter from the facility to the auditor or a written management decision to conduct the audit. It should be obtained before commencement of the audit.

2.1.3 Team Selection

The audit team should be carefully selected and should include Employees of the facility or and the external consultants. The team leader should be a FEPA certified Auditor while the other team members must have skills aptitudes relevant to the audit process as they relate to research , interview, data analysis and report writing. Each member of the team must understand his/her role and responsibilities and pre-audit training is necessary to ensure that all the team members are adequately prepared for the task.

2.1.4 Scope of Audit

This varies with the type of audit being performed, however, for the purpose of the mandatory Regulatory Compliance Audit (RCA) due every three (3) years, the audit must assess compliance of the facility with the criteria derived from:

- National Policy on Environment
- Laws (FEPA Decree 59, Harmful Waste Decree 42);
- Regulations (S.1.8, S.1.9, S.1.15 of 1991);
- Applicable Guidelines & Standards.

2.1.5 Background Information

Background information to be collected should include:

- Identification of source for the main legal requirements that affect the operation of the facility or processes/domestic/storm water discharges, air emission, storage of materials, waster storage/ disposal, use of the specific substances.
- Preparation of the payout of the unit operations.
- Provision of block or Engineering diagram.
- Development and preparation of questionnaires and checklist which could enable identification of:
 - Level of compliance with existing regulations on air, water, and land;
 - Frequency of audit;
 - Personnel involvement;
 - Organogram; and
 - Process unit linked with discharge point.

A sample pre-audit questionnaire is provided in Appendix I and checklist in Appendices II and III.

3.0 LIFE CYCLE ANALYSIS (LCA)

The life cycle analysis should aim at providing the following;

- Identification of inputs
- Identification of outputs.
- Materials balance

- Identification, quantification and characterisation of waste impacts.

3.1 Inventory Analysis

Inventory analysis which is simply identification of inputs and outputs is the initial stage of LCA. The energy and material input of the products, and the resulting products and emissions should be quantified. These include all stages of a particular process from extraction, cultivation, processing, transportation, manufacturing, packaging, distribution, through use and final disposal.

3.2 Materials Balance

The calculation of a material balance requires a good working knowledge of the process. It will indicate areas of concern and help to prioritise problem waste. Thus, the materials balance should be used to:

- (i) Identify, characterise and quantify major sources of waste;
- (ii) Identify deviations from the norm in terms of waste production;
- (iii) Identify areas of unexplained losses and pinpoint operations which contribute to flows that exceed national or site discharge regulations; and
- (iv) Identify, characterise and quantify effects of wastes on the working and receiving environment.

3.2.1 Mass Balance Measurement

- (i) Describes the burdens i.e. the emissions, discharges and waste produce by the activity.
- (ii) Describes the effects, i.e the contribution that the burden makes to a recognised effect.
The description of the burden should include:
 - (a) Activities at the process level;
 - (b) Grouping of processes by the type of burden and the required management control;
 - (c) Classification of the burden e.g hazardous substances;
 - (d) Specification of the receiving environment;
 - (e) Identification of what routine and emergency situations in the process (start-ups and shut-down are non-routine);
 - (f) Quantification of the burden;
 - (g) Calculation of material for each process step and/or emissions/discharges (the amounts over time and concentrations);
 - (h) Assessing the effects of burdens that are direct i.e. those controlled by the facility and those that are indirect i.e. those influenced by a third party.

3.3 Identification, quantification and characterisation of waste impacts

On completion of the material balance and inventory analysis, it is important to interpret it and identify process areas or components of concern. Impacts on air, water, soil and ecosystems should be quantified for all stages of the process from the acquisition of the raw materials to the disposal of the product, as defined in the inventory analysis.

3.3.1 **Identification, quantification and characterisation of impacts.**

The materials balance should facilitate the determination of the impacts of wastes generated through the process. Major parameters which need to be identified and quantified in the audit process in order to determine the impacts of the waste and prioritise problem wastes are as follows:

- (i) Waste-water volume and physicochemical parameters (i.e BODs, COD, suspended solids, total solids, total chromium, sulphides, oil and grease, total nitrogen and hydrogen ion concentration-pH)
- (ii) Identification of Unit operations:
- (iii) Identification of Raw Materials Storage, Values and handling Loses
- (iv) Input Data (e.g Raw materials, water, energy):
- (v) Water usage by unit Operation including amounts used for cleaning, steaming, colouring etc)
- (vi) Process outputs (including products, by-product, waste to be reused, wastewater, gaseous emissions, stored wastes, liquid/solid waste);
- (vii) Wastewater flows(i.e flows and concentration of contaminants of concern to all discharge points
Public sewer, storm water drain, reuse, storage
Total wastewater output
- (viii) Quantification of Wastes for off-site disposal (i.e. quantities in m³annum or ton/annum and composition of liquid, sludge, solid);
- (ix) Annual Process and Waste Treatment operating costs (i.e. raw materials, water, energy, labour, maintenance, administration etc.)

4.0 **IMPACT EVALUATION**

The major impact to be considered is in relation to the facility's operation with respect to soil, water and air. This has to be done by field sampling using International and national acceptable methodology.

4.1 **Field Sampling**

The sampling procedure and concern for evaluation of facilities impact on the environments is outlines below for soil, water and air.

4.1.1 Soil Sampling

- (i) Soil sampling should be preceded by identifying and reporting all facilities within 2km radius of the company being audited;
- (ii) Sampling could be cluster or random with emphasis on the most impacted area;
- (iii) Sampling location shall be 200m, 800m, 2000m away from the central point of the facility.
- (iv) Each sampling point must be geo-referenced; using a GPS;
- (v) In the case of “built up” areas, reasonable evidence must be provided for non-sampling;
- (vi) Parameters to be investigated are Total hydrocarbon, heavy metal, nutrients and micro-biology, (Faecal coliforms), pH. Soil profile.

4.1.2 Groundwater Sampling

- Evaluate ground water reserve and quality;
- Determine the direction of flow;
- Determine the water profile
- Parameters to be investigated include hydrocarbon, heavy metals, pH, colour, temperature, conductivity, salinity, COD, BODs, hardness and coliform

4.1.3 Surface Water Sampling

- Use the outfall of the facility as a control point, and sample within 2km radius upstream and do downstream of the outfall.
- Parameters to be investigated are the same for groundwater.

4.1.4 Air Sampling

- Provide the meteorological data including wind direction and wind speed;
- Describe pollution dispersion profile
- Determine the ground level air pollution at 0, 1, 5, 10km radius up wind and down-wind of the emission stack.
- Each sampling point should be geo-referenced using a GPS
- Parameters to be investigated are noise, odour, NO_x, SO_x, VOC, dust and particulates, ozone and BTEX.

4.2 Methodology

The methods acceptable are those of APHA, ASTM, USEPA, ISO and other methods as prescribed by FEPA from time to time.

5.0 EVALUATION & GENERAL HOUSEKEEPER

Good housekeeping practices, if overlooked or neglected can seriously affect the pollution potential of a facility/company.

The audit should therefore determine if there is/are:

- Adequate knowledge of workers/personnel about material types and potential hazards e.g (common sources of spills, preventative measures and control;
- Adequate personnel protection;
- Safe working practices, (e.g standardised in-house instructions on when equipment must be cleaned);
- Safe use of equipment practice;
- A positive Employee's attitude at the workplace;
- Medical services
- Suitable occupational hygiene
- Suitable emergency procedures and warning systems;
- Suitable emergency facility e.g (provision of spill containment facility, fire extinguishers);
- Suitable access to the facility;
- Sufficient site security;
- Good sanitation of facility's premises (e.g proper sorting and segregation of wastes);
- Adequate tidy and clean conveniences;
- Staff competency.

6.0 EVALUATION OF FINDINGS

After gathering of information and data collection, the findings should be reviewed with the facility management. The key rules in discussing the finding are:

- Do not draw unsubstantiated conclusions;
- State the exact nature of the problems clearly;
- Avoid generalisation;
- Communicate the extent of the problem fully whether the facility is in compliance or non-compliance;
- Do not draw legal conclusions;
- Avoid extreme languages;
- Use familiar terminologies;
- Give legal, site or good management practice;
- Avoid contradictory messages.

After analysing the result of findings, the following steps should be taken:

- Prioritise the problems/impacts;
- Allocate responsibilities of roles;
- Develop a plan of action;
- Implementation of the plan;
- Assess the effectiveness of the plan and effect a change if it is not effective;
- make all the necessary agreed changes with facility management;
- Document and communicate the changes to the facility management.

7.0 RECOMMENDATIONS

General observation on major aspects of the life cycle of a facility and identifiable impacts has to be highlighted. Appropriate recommendations that would enhance the environmental sustainability of the facility operations have to be proffered.

Issues for consideration here include but are not limited to the following:

- ❖ Company Environmental Policy and Plan
- ❖ Organisation and responsibilities;
- ❖ Visibility of management;
- ❖ Environmental awareness and culture;
- ❖ Communication (internal and external);
- ❖ Record keeping;
- ❖ Emission monitoring;
- ❖ Baseline Studies/Environmental Impact Assessment;
- ❖ Assessment of effects on the environment;
- ❖ Environmental incidents and claims;
- ❖ Cost benefit analysis;

These recommendations can be proffered in two parts as:

- ❖ General recommendation on process improvement, housekeeping, record keeping, company environmental policy and plan, organisation and responsibilities; and
- ❖ Specific recommendation on environmental management plan with ESMP on waste minimisation, cleaner production techniques and environmental accounting.

8.0 ENVIRONMENTAL AUDIT REPORT WRITING FORMAT

- (i) Title page (including the name of complying facility)
- (ii) List of preparers
- (iii) Table of contents;
- (iv) Acknowledgement;

- (v) Executive Summary.
 - (vi) Introduction
 - Overview of Background Information;
 - Objectives;
 - Terms of Reference (TOR)/ Scope of Audit.
 - (vii) Overview of the Facility
 - Description of facility;
 - Organisational structure;
 - Process description.
 - (viii) Report of Site/Facility Inspection
 - Baseline environmental assessment study;
 - Existing environmental Management Systems;
 - Evaluation of General Housekeeping Records
 - (ix) Life Cycle Analysis
 - Identification of input;
 - Identification of output;
 - Material balance.
 - (x) Identification, quantification and characterisation of waste
 - (xi) Impact Evaluation
 - Impact identification;
 - Impact qualification;
 - Public health impact
 - Socio impact analysis
 - (xii) Recommendation
 - General recommendation;
 - Specific recommendation.
 - (xiii) Follow up Action Plan
 - EMS;
 - Waste Reduction;
 - Efficiency Improvement;
 - Others (Miscellaneous).
 - (xiv) Bibliography
 - (xv) Appendix
 - Company's layout
 - Company's policies (avoid including unnecessary photocopies of regulations).

Annex 6: Chance Find Procedures

(Adapted from WB PCR Guidebook 2009)

Contracts for civil works involving excavations should normally incorporate procedures for dealing with situations in which buried PCR are unexpectedly encountered. The final form of these procedures will depend upon the local regulatory environment, including any chance find procedures already incorporated in legislation dealing with antiquities or archaeology. The following will form the basis for a section in the Contract Specification for any civil works under this project.

Roles & Responsibilities

1. Federal Ministry of Environment and Ministry of Culture are the specific conservation authorities in Nigeria .
2. The Contractor will provide the service of an archaeologist or similar qualified person, on call to advise the Contractor on matters related to chance finds.
3. A Chance Find is defined as a: “movable or immovable object, site, structure or group of structures having archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance”.
4. In most cases ownership will be State Government/local community; however it may be a religious institution, the land owner, or could be as determined later by a PCR committee.

Recognition & Suspension of Work in the circumstance of discovery of a Chance Find:

5. The Contractor must immediately notify the SFCO/ PMU of all possible chance finds and cease work in the locality until he informed otherwise by the SFCO/ PMU
6. The Contractor may only be entitled to claim compensation for work suspension during this period with the prior agreement of the SPIU.
7. The SPIU may suspend work and to request from the Contractor some excavations at the Contractor’s expense if he believes that a discovery had been made but not reported.

Demarcation of the Discovery Site

8. The Contractor will be required to temporarily demarcate, and limit access to, the site as instructed by the SPIU.

Non-Suspension of Work

9. The SPIU may decide, and instruct the Contractor that the PCR may be removed and for the work to continue, in specific circumstances

Chance Find Report

10. The Contractor must at the request of the SFCO/ PMU, and within a specified time period, make a *Chance Find Report*, recording:

- a) Date and time of discovery;
- b) Location of the discovery;
- c) Description of the PCR;
- d) Estimated weight and dimensions of the PCR;
- e) Temporary protection implemented.
- f) The *Chance Find Report* should be submitted to the SPIU, PCR COMMITTEE and any other concerned parties as advised by the SPIU as agreed with PCR COMMITTEE, and in accordance with national legislation.

Arrival and Actions of Cultural Authority

11. The SPIU undertakes to ensure that a PCR COMMITTEE representative will arrive at the discovery site within an agreed time such as 24 hours, and determine the action to be taken. Such actions may include, but not be limited to:

11.1 Removal of PCR deemed to be of significance;

11.2 Execution of further excavation within a specified distance of the discovery point;

11.3 Extension or reduction of the area demarcated by the contractor.

12. These actions should be taken within a specified period, for example, 7 days. The Contractor may only be entitled to claim compensation for work suspension during this period with the prior agreement of the SPIU.

13. Should the PCR COMMITTEE representative fails to arrive within the stipulated period (for example, 24 hours), the SPIU may extend the period by a further stipulated time.

14. Should the PCR COMMITTEE representative fails to arrive after the extension period, the SPIU may instruct the Contractor to remove the PCR or undertake other mitigating measures and resume work. Such additional works may be charged to the contract. However, the Contractor will not be entitled to claim compensation for work suspension during this period.

Further Suspension of Work

15. During this 7-day period, the PCR COMMITTEE representative will be entitled to request the temporary suspension of the work at or in the vicinity of the discovery site for an additional period of up to, for example, 30 days.
16. The Contractor will be, entitled to claim compensation for work suspension during this period.
17. Alternatively the Contractor will be entitled to establish an agreement with the PCR COMMITTEE for additional services or resources during this further period under a separate contract with the PCR COMMITTEE.

Annex 7 : Generic Integrated Pest Management Plan

Integrated Pest Management Plan

[Adapted from two sources: IPM institutional manual and FADAMA 2 project, Nigeria].

**IMPLEMENTED WITH SUPPORT OF YOUTH EMPLOYMENT AND SOCIAL
SUPPORT OPERATION (YESSO)**

COORDINATORS NAME:

CONTACT ADDRESS:

NAME OF STATE

INTRODUCTION

Pests are populations of living organism (animals, plants, or microorganism) that interfere with agricultural activities and use of other facilities for human purposes. Integrated Pest Management (IPM) is an approach that establishes a sustainable approach to managing pests by combining biological, cultural, physical and chemical tools in a way that minimizes economic, health and environmental risks.

PEST MANAGEMENT AND PESTICIDE USE POLICY

The general pest control objectives in the existing (1988) agricultural policy for Nigeria are to:

- Control, and/or eradicate and maintain good surveillance of the major economic pests whose outbreaks are responsible for large-scale damage/loss to agricultural production.
- Provide protection to man and animals against vectors of deadly diseases.

In the responses to actual and potential pest threats to intensify agriculture, the Federal Ministry of Agriculture and Rural Development (FMARD) annually purchases and distributes pesticides (through tender) to the States. A number of national institutions play different roles in the pesticide supply, and the Federal Government had issued a number of legislation and institutional framework using four main organizations (FMEV, FMH, NAFDAC and FMLP) for the regulation of the distribution and use of pesticides. The current legislative tools are:

- FEPA Decree 58 of 1988 as amended by Decree 59 of 1992 and 1999 but complemented by rules and regulations such as FEPA S.1.5, FEPA S.1.9 dealing with disposal and distribution/use of pesticides.
- NAFDAC Decree 15 of 1993, as amended by Decree 19 of 1999.
- The Factories Acts 1990 being implemented by the Factories Inspectorate Division of FMLP.
- The Harmful Waste (Special Criminal Provisions etc) Decree 42 of 1988 being implemented by FMEV.

Based on the approval of the agencies mentioned above, Annexes 1 and 2 list current banned and approved Pesticides stocks in Nigeria. FMARD acts upon request of the Federal Pest Control Services which prepares the lists of pesticide needs for its operation.

PART 2: COMPONENTS OF THE IPMP

PEST MANAGEMENT PLAN

This pest management plan (PMP) addresses the [*insert name of the Agricultural Scheme National*] need to monitor and mitigate negative environmental and social impacts of the project and promote ecosystem management. The IPMP provides an information basis for stakeholder groups to establish functional mechanisms enabling farmers to identify, understand and manage pest and vector problems in the further development of the agricultural Cooperative (as may be applicable), reduce personal and environmental health risks associated with pesticide use, and protect beneficial biodiversity such as natural enemies of pests and pollinators in the farmers'

efforts to increase productivity. The PMP also raises the need for farming youth and women to understand and respond to the external IPM environment affecting farmers' livelihoods. For example, quarantine pests, alien invasive species and stringent minimum pesticide residue levels limit the potential for farmers to benefit from international trade opportunities. Collaborative linkages between the project and international IPM groups will help to bring relevant expertise and supporting IPM resources developed elsewhere to strengthen national and local capacity to address pest problems faced by farmers in Nigeria, develop a national IPM policy to encourage national and local compliance with international conventions and guidelines on pesticides, and to further develop IPM. For example NFDP II can collaborate with the recently approved Nigeria/FAO project TCP/NIR/2903 (T) on "sustainable legumes and cereal production through integrated production and pest management" for synergy of efforts in participatory learning approaches.

OBJECTIVES

The PMP will enable (THE FACILITY) to monitor pests and disease vectors and mitigate negative environmental and social impacts associated with pest/vector control in agriculture and promote agro-ecosystem management. The plan provides farming youth and women decision-makers and partners with clearer guidelines on integrated pest management (IPM) approaches and options to reduce crop and livestock losses with minimal personal and environmental health risks. Overall, the PMP will Empower crop and livestock farmer groups to contribute significantly to household and national economies. The specific objectives of the PMP are to:

- Assist Fadama users to plan and design location specific IPM activities.
- Promote participatory approaches in IPM for farmers to learn, test, select and implement "best-bet" IPM options to reduce losses due to arthropod pests, diseases and weeds.
- Promote biodiversity monitoring to serve as early warning systems on pest status, alien invasive species, beneficial species, and migratory pests.
- Establish linkages to develop a national IPM policy to promote IPM and compliance with international conventions and guidelines on pesticide use in fadama agriculture.
- Monitor and evaluate the benefits of IPM including its impact on food security, the environment and health.

This IPM plan will be stored in the office of the IPM Coordinator.

IPM COORDINATOR

The Chief Operating Officer (COO) or designee shall be YOUR FACILITY NAME HERE'S IPM Coordinator and be responsible to implement the IPM plan and to coordinate pest management-related communications between YOUR FACILITY NAME HERE, its landlords, service providers, staff and patients.

The COO shall designate an employee at each YOUR FACILITY NAME HERE-managed facility to serve as the IPM Site Coordinator for the site.

IPM COMMITTEE

YOUR FACILITY NAME HERE will maintain an IPM or other safety-related committee with responsibility for annual review of the IPM program and for assisting the IPM Coordinator in resolving pest-related issues. The committee will address IPM issues as needed and at least annually. Minutes will be taken of committee meetings and kept on file by the IPM Coordinator. Membership will include the IPM Coordinator and IPM Site Coordinators, and may also include community members, health advocates, patients and representatives from the Maryland IPM program.

POSTING AND NOTIFICATION OF PESTICIDE APPLICATIONS

The IPM Coordinator shall be responsible to annually notify patients and guardians of the procedures for requesting notification of planned and emergency applications of pesticides in facility buildings and on facility grounds.

When pesticide applications are scheduled in YOUR FACILITY NAME HERE-managed buildings or on grounds, YOUR FACILITY NAME HERE Service Providers and staff shall provide notification in accordance with law, including:

1. Posting a pest control information sign with the date, time and location of the application and the product applied in an appropriate area and including contact information for additional details.
2. Providing this information to all individuals working in the building.
3. Providing this information to all patients and guardians who have requested notification of individual applications of pesticides.

Where pests pose an immediate threat to the health and safety of patients or Employees,

YOUR FACILITY NAME HERE may authorize an emergency pesticide application and shall notify by telephone any guardian who has requested such notification. Disinfectants, anti-microbials and self-contained or gel-type pesticide baits applied in inaccessible areas are exempted from posting, notification and the 7-hour re-entry requirement.

RECORD KEEPING & PUBLIC ACCESS TO INFORMATION

YOUR FACILITY NAME HERE will maintain records of all Service Provider visits and pest control treatments for at least three (3) years. Information regarding pest management activities will be made available to the public at the YOUR FACILITY NAME HERE's administrative office. Requests to be notified of pesticide applications may also be made to this office. All guardians will be informed of their option to receive notification of all pesticide applications at enrollment and once annually.

TRAINING

All YOUR FACILITY NAME HERE staff will be provided with training on YOUR FACILITY NAME HERE's IPM policy at hire and during annual update training. Training will include the rationale for the IPM policy and program and specific elements including use of the pest-sighting log and prohibition on pesticide applications by non-certified individuals.

Additionally, designated staff including the IPM Coordinator, IPM Site Coordinators and those who conduct regular inspections of YOUR FACILITY NAME HERE facilities will receive advanced training on identifying pest infestations and pest-conducive conditions. This training will improve the ability of YOUR FACILITY NAME HERE staff to oversee Service Providers and YOUR FACILITY NAME HERE staff compliance with YOUR FACILITY NAME HERE's IPM policy and plan.

GENERAL IPM STRATEGIES

Pest management strategies may include education, exclusion, sanitation, maintenance, biological and mechanical controls, and pre-approved, site-appropriate pesticides.

An Integrated Pest Management decision at YOUR FACILITY NAME HERE shall consist of the following steps:

1. Identify pest species.
2. Estimate pest populations and compare to established action thresholds.
3. Select the appropriate management tactics based on current on-site information.
4. Assess effectiveness of pest management.
5. Keep appropriate records.

Decisions concerning whether or not pesticides should be applied in a given situation will be based on a review of all available options. Efforts will be made to avoid the use of pesticides by adequate pest proofing of facilities, good sanitation practices, selection of pest-resistant plant materials, and appropriate horticultural practices.

When it is determined that a pesticide must be used in order to meet pest management objectives, the least-hazardous material, adequate for the job, will be chosen.

All pesticide storage, transportation, and application will be conducted in accordance with the requirement of the Federal Insecticide, Fungicide, and Rodenticide Act (7 United States Code 136 et seq.), Environmental Protection Agency regulations in 40 CFR, Occupational Safety and Health Administration regulations, YOUR FACILITY NAME HERE policies and procedures, and local ordinances.

No person shall apply, store, or dispose of any pesticide on YOUR FACILITY NAME HERE-managed property without an appropriate pesticide applicator license. All pesticide applicators will be trained in the principles and practices of IPM and the use of pesticides approved for use by YOUR FACILITY NAME HERE. All applicators must comply with the IPM policy and follow appropriate regulations and label precautions when using pesticides in or around YOUR FACILITY NAME HERE facilities.

Pest-specific strategies will be included in the IPM Program Specifications provided to each service provider.

YOUR FACILITY NAME HERE SERVICE PROVIDER ROLES

YOUR FACILITY NAME HERE service providers including cleaning, pest control and landscape maintenance will be guided by written and signed contracts including YOUR FACILITY NAME HERE-developed IPM program specifications for structural pest control providers.

Service providers will be directed to provide special attention to pest-vulnerable areas including food storage, preparation and serving areas; washrooms; custodial closets; mechanical rooms and entryways into the building.

Service providers or other IPM experts will be asked to provide input on any YOUR FACILITY NAME HERE facility renovation or reconstruction projects including reviewing plans for pest-conducive conditions, suggesting pest-proofing measures and inspecting construction where applicable to prevent and avoid pest problems.

YOUR FACILITY NAME HERE STAFF ROLES

YOUR FACILITY NAME HERE administration will provide support to assist the IPM Coordinator in maintaining an IPM program that relies on minimal pesticide use. Such support will include efforts to promptly address any structural, horticultural, or sanitation changes recommended by the coordinator to reduce or prevent pest problems.

Furthermore, YOUR FACILITY NAME HERE administration will assist the Coordinator in developing and delivering materials and programs for staff, students, and the public to educate them about the importance of good sanitation and pest control.

The facility director is responsible for ensuring staff compliance with the IPM policy and plan, including the attached check list.

PEST-SPECIFIC STRATEGIES

The following strategies will be used for frequently encountered pests:

1. ANTS

- a. Ants will be identified to species to aid in locating nesting sites, preferred food, habits and appropriate baits when necessary.
- b. Ants inside buildings will be cleaned up with soapy water, including the areas ants are traversing to eliminate any pheromone recruiting trail, which ants deposit to help other ants find the location of food and water sources.
- c. Maintenance will be informed and the opening providing entry for ants into the building will be located and repaired.
- d. Building and room occupants will be informed of any action they need to take to prevent future problems, e.g., cleaning up spilled food or drink more promptly or thoroughly, storing food in sealed containers, repairing leaking or dripping pipes or faucets, etc.
- E.** If the above steps fail to correct the problem, the contractor will inform the IPM Coordinator and discuss additional steps, such as more extensive repairs, changes in the food policy, changes in exterior landscaping to remove ant habitat, or selection of least-toxic pesticide baits or gels, preferably in manufactured tamper-resistant bait stations placed in areas inaccessible to children or other building occupants.

List of banned pesticides

1. Aldrin 2. Chlordane 3. DDT (Dichlochlorophenyltrichloroethane) 4. Dieldrin 5. Endrin
 6. Heptachlor 7. Toxaphene 8. Chlordimeform 9. Mercury Compounds 10. Lindane
 11. Parathion 12. Methyl Parathion 13. Methyl bromide 14. Hexachlorobenzene

List of crop and livestock protection products approved for use by NAFDAC

a) Insecticides

Organochlorines insecticides	Organophosphorus insecticides	Carbamates	Pyrethroids
1. Endosulfan	<u>Organophosphorus i</u>	1. Carbaryl	1. Lambda – Cyhalothrin
2. Helptachlor	1. Diazinon	2. Carbofuran	2. Cypermethrin
3. Lindane (Restricted to use on Cocoa only)	2. Dichlorvos (DDVP)	3. Propoxur	3. Deltamethrin
	3. Chlorpyrifos	4. Carbosulfan	4. Phenothrin
	4. Chlorpyrifos – Methyl	5. Furathiocarb	5. Permethrin
	5. Dicrotophos	6. Temik (Aldicarb)	6. Tetramethrin
	6. Dimethoate		7. Cyfluthrin
	7. Monocrotophos		8. Allethrin
	8. Perimiphos – Ethyl		
	9. Perimiphos – Methyl		
	10. Ethion		
	11. Rugby (Cadusofas)		
	12. Malathion		
	13. Temeguard (Temephos)		
	14. Isazofos		
	15. Parathion – Methyl		
	16. Phosphamidon		
	17. Methidathion		

b) Herbicides and fungicides

<u>Organophosphorus</u>	<u>Carbamates</u>	Otherherbicides	Fungicides
<u>Organophosphorus</u>	1. Asulam	1. Dimethachlor	1. Benomyl (Nitroheterocyclic Compound)
1. Anilofos		2. Metazachlor	2. Dazomet (Thiadiazine Fungicide)
2. Piperophos		3. MonosodiumMethylArsonate (MSMA)	3. Folpet (Phthalimide Fungicide)
3. Glyphosate		4. Fluxixpyr	4. Metalaxyl (AcylalamineFungicide)
4. GlyphosateTrimesium (Touchdown orSulfosate)		5. Imazaquine	5. Cyproconazole (Alto – 100SL)
5. Amideherbicides (Acetochlor; Alachlor; Propanil; Butachlor; Metalochlor)		6. Triassulfuran (Amber)	6. Bavistin (Carbon) – Benzimide
Triazines and Triazoles (Atrazine; Ametryn; Desmetryn; Terbutalazine; TerbutrexTerbutryne)		7. Osethoxym	7. Triadmenol (Bayfidon GR Conzole Fungicide)
Chlorophenoxyherbicides (Prometryn; Simazine; 2.4-D (2.4 Dichlorphenoxyacetic acid))		8. Oxadiazon (Ronster)	
7. Urea and guadinidines ;		9. Clomaone	
		10. Trifluralin	
		11. Stamp 500 (pendimethalin)	
		12. Fluazifop – P.butyl	

(Diuron ; Linurex
(=Linuron); Fluometurone;
Chloroxuron; Neburon)
Quaternary nitrogen
compounds (paraquat; diquat)
