TARABA STATE

FRAMEWORK FOR RESPONSIBLE AND INCLUSIVE LAND INTENSIVE AGRICULTURE

(FRILIA)

ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT TOOLKIT

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Acronyms and Abbreviations

EIA – Environmental Impact Assessment

ESIA – Environmental and Social Impact Assessment

ESRM – Environmental and Social Risk Management

ESMP - Environmental and Social Management Plan

FRILIA - Framework for Responsible and Inclusive Land-Intensive Agricultural Investments

IAP – Investment Approval Process MDA –

Ministry Department and Agency

1. INTRODUCTION

A responsible land-based investment requires an independent environmental and social impact assessment (ESIA) to identify potential impacts the project may have on tenure rights, human rights (including food security), livelihoods, employment, the local culture and the environment. They are an essential tool for managing risk for investors, communities and governments alike.

This Environmental and Social Risk Management (ESRM) toolkit provides guidance and templates for environmental and social (E&S) standards pertaining to the operationalization of the Framework for Responsible and Inclusive Land-Intensive Agricultural Investments (FRILIA) in TARABA State. The intended audience of the toolkit are investors, host communities,

Box 1-The Importance of ESIAs

"Responsible investors understand that adequate feasibility studies and impact assessments help define the potential success of an investment. Research indicates that inadequate assessment of and response to potential risks is one of the primary causes of failure of agricultural investments. Thus, investors should commission independent ESIAs as part of their own due diligence process, as a tool for the government and other stakeholders to assess project proposals and as a way to identify needed changes in proposals, including the development of strategies to mitigate potential harm and the possible relocation of the project. Impacts should be determined on a gender-disaggregated basis. To ensure that the impact assessment fulfills its purpose of identifying potential negative and positive impacts of an investment so as to inform the decision whether to proceed, it must be conducted before any final decisions are made and before any agreement is signed. The local community should play a role in gathering information on impacts and should have the opportunity to provide input into the final report. Recommendations in the final ESIA should be reflected in an environmental and social management plan (ESMP) that will guide operations. ESIAs also provide the data required to monitor impacts of the project."

ministries, departments and agencies in Taraba State responsible for agriculture, investment and environment.

More specifically, this toolkit provides guidance on the following ESRM activities pursuant to FRILIA:

- Understanding the ESRM institutional framework and the investment approval process
- Understanding the environmental and social feasibility of the development project through screening and due diligence activities.

Conducting E&S baseline data collection for interpretation of potential impacts.

Managing potential positive and negative impacts (including climate change mitigation and adaption) in line with best practice requirements.

Developing management plans for mitigating negative impacts and/or enhancing positive impacts and monitoring and evaluation (M&E) of the effectiveness of these management plans.

2. APPLICABLE FRILIA PRINCIPLES TO ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT TOOLKIT

The guidance in this toolkit is intended to help to implement the following FRILIA principles:

Land acquisition and related adverse impacts will as much as possible be minimized or avoided (FRILIA principle 1.3).
Economic and social impacts caused by land acquisition or loss of access to natural resources shall be identified and addressed, including people who may lack full legal rights to assets or resources they use or occupy (FRILIA principle 3.2)
Public infrastructure and community services that may be adversely affected will be replaced or restored (FRILIA principle 3.5) .
Safeguard against environmental damage unless adequately mitigated (FRILIA principle 4.1).
Investments preceded by independent assessments of potential positive and negative impacts on tenure rights, food security, livelihoods, and the environment (FRILIA principle 4.2).
Take into account potential adverse impacts on physical, cultural property and as warranted, provide adequate measures to avoid, minimise, or mitigate such efforts (FRILIA principle 4.3).
Promote community, individual and worker safety (FRILIA principle 4.4).

Promote fair treatment, non-discrimination and equal opportunity of workers and prevent all forms of forced and child labour (FRILIA principle 4.5).

Promote the use of recognised good practices related to hazardous materials generated (FRILIA principle 4.6).

3. ESRM INSTITUTIONAL FRAMEWORK AND THE INVESTMENT APPROVAL PROCESS

3.1 Institutional Framework

The **Ministry of** Finance Budget and Economic Planning is responsible for coordinating all efforts related to FRILIA as contained in the State FRILIA Executive Order. The **Ministry of Environment** shall be responsible for the management of E&S risks associated with FRILIA. Cross-cutting responsibility will be appropriately supported by the Ministry of Agriculture, Ministry of Commerce Trade and Investment, Ministry of Rural Development, Taraba State Investment Promotion Agency

as contained in the State Executive Order

3.2 Requisite Environmental and Social Risk Permits and Licenses for Investment in Taraba State

The following permits and licenses are required for land investment approval in Taraba State.

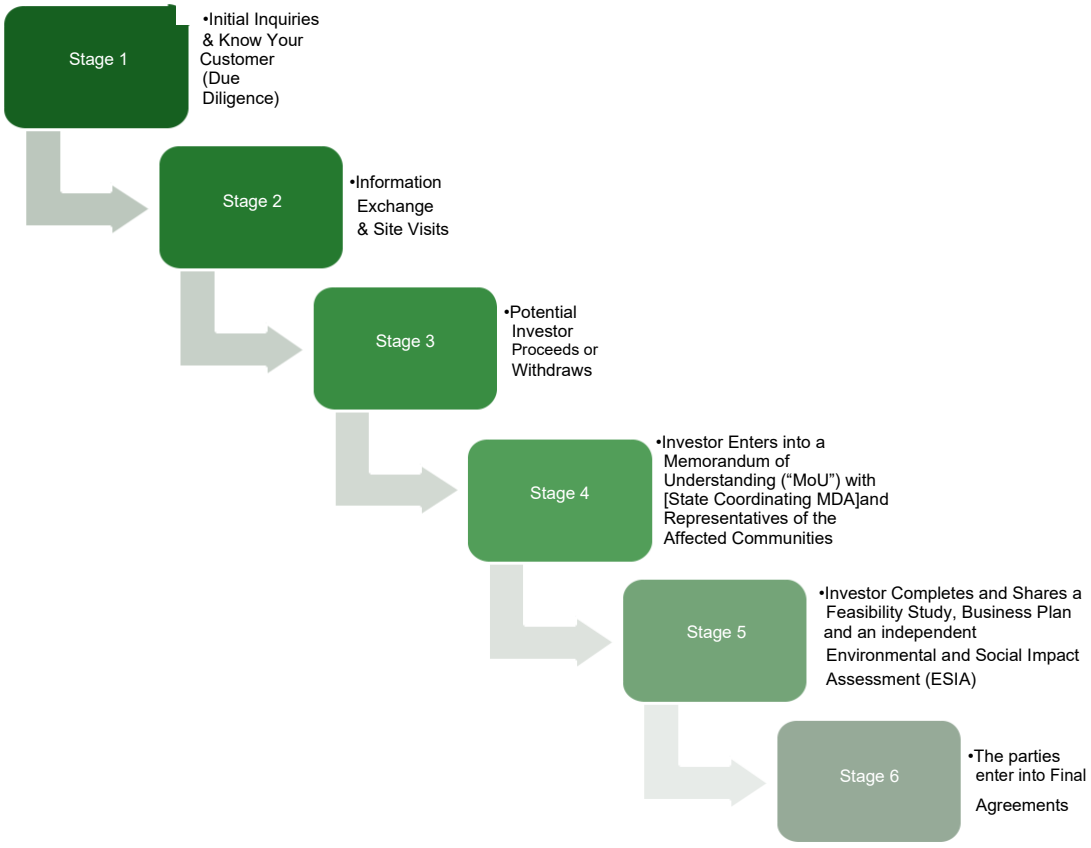
S/N	Permit/ License	Description	Issuer	Contact Detail (Email & Contact number)	Requirements
2	Environmental Impact Assessment (EIA)	Certificate issued by the Federal Ministry of	The Federal Ministry of	Environmental Assessment Department, Federal Ministry	An EIA Report

	Certificate	Environment for all proposed large scale projects including projects like FRILIA indicating the project proponent has identified the baseline E&S conditions of the project area of influence, identified potential E&S risks and proposed mitigation actions to minimize the effect of the risks as well as monitoring programmes to test effectiveness of the mitigation actions.	Environment	of Environment	

3.3 Alignment with the Investment Approval Process

The timing and details of ESRM activities in any particular investment scenario will be guided and aligned with the established agricultural Investment Approval Process (IAP) in Taraba State, together with applicable federal and state laws and regulations.[1] When and how each ESRM step fits into [Taraba] State's IAP is discussed below in conjunction with each step.

Box 2: _____ State Investment Approval Process

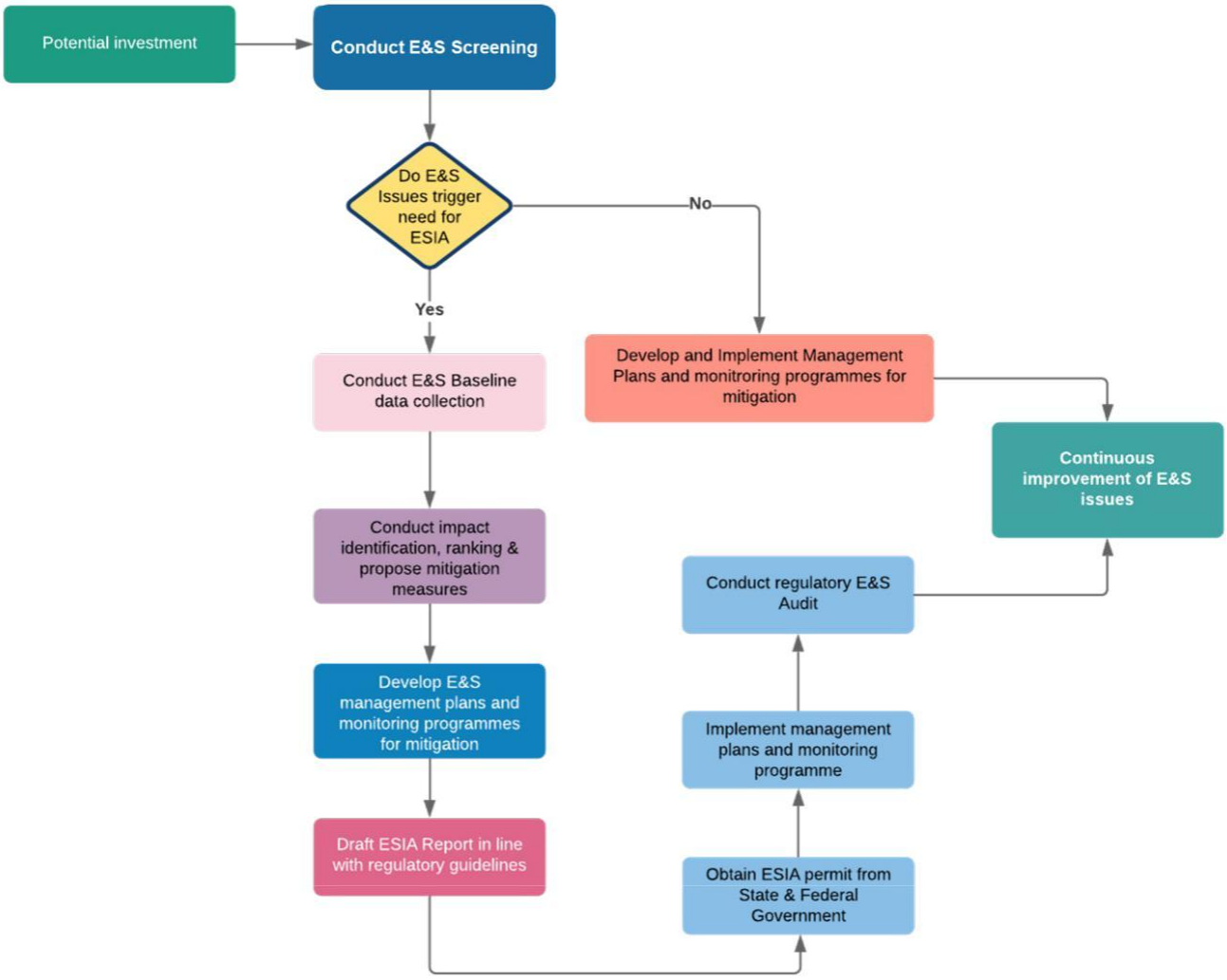


[1] A detailed description of Taraba State IAP can be found in Annex 1.

4. ENVIRONMENT AND SOCIAL RISK MANAGEMENT PROCESS IN DETAIL

The ESRM toolkit process map (Figure 1) describes the steps required of investors to manage and mitigate E&S risks from the project inception stage to the monitoring and evaluation of the Environmental and Social Management Plans (ESMP) . The process allows regulators, communities, and all other stakeholders to engage the investors across every phase of the project lifecycle regarding E&S risks, impacts and opportunities. Each individual step is discussed below in this section.

Figure 1



The FMENV has a step-by-step ESIA process that it enforces with the support of the Environmental Agency in each state (see Annex 2).[2]

4.1 Conduct E&S Screening

Once a potential investment is identified by an investor and registered with **TSIPA**, the investor and Ministry of Environment conduct an E&S Screening. This involves an initial assessment of the investment to understand the potential E&S impact. Pursuant to federal law, investments can be categorized as High (Category I), Medium (Category II), or Low Risk (Category III) as outlined below:

A. High Risk (Category I) Projects

1) If they are listed below (based on magnitude and risk)
   a) Land development schemes covering an area of 500 hectares or more for agricultural production (livestock/ranching or planting).
   b) Construction of inland fishing harbours.
   c)Land based aquaculture projects accompanied by clearing an area of 50 hectares or more.
   d) Conversion of hill/montane/sub-montane forest land use covering an area of 50 hectares or more.
   e) Any planting for logging activity.
   f) Construction of dams and man-made lakes and artificial enlargement of lakes with surface areas of 200 hectares or more.
   g) Irrigation schemes covering an area of 5,000 hectares or more.
2) Any project within an Environmentally Sensitive Area (ESA) or areas of High Conservation Value (HCV). These are –
   a) Areas with erosion prone soils e.g. mountain slopes.
   b) Areas prone to desertification (and semi-arid zones).
   c)Natural conservation areas.
   d) Wetlands of National or International importance.
   e) Areas which harbour protected and or endangered species.
   f) Areas of unique scenery.
   g) Areas of particular scientific interest.
   h) Areas of historic or archaeological interest.
   i) Areas of importance to threatened ethnic groups.
3) Any project interacting with vulnerable or marginalized or indigenous groups.

4) Any project requiring resettlements and/or livelihood restoration.

Medium Risk (Category II) Projects

1) If they are listed below (based on magnitude and risk).

[2] See Annex 3 for a detailed list of applicable federal and state laws and international practices along with an analysis comparing the Nigerian legal framework with relevant FRILIA principles.

a) Land development schemes less than 500 hectares for agricultural production including smaller out-grower land sizes.
b) Any afforestation/reforestation project.
c)Land based aquaculture projects accompanied by clearing an area of less than 50 hectares.
d) Conversion of hill/montane/sub-montane forest land use covering an area of less than 50 hectares.
e) Construction of dams and man-made lakes and artificial enlargement of lakes with surface areas of less than 200 hectares.
f) Irrigation schemes covering an area of less than 5,000 hectares.

Low Risk (Category III) Projects
1) Agriculture-linked institutional development initiatives.
2) Agriculture educational / entrepreneurial programmes.
3) Environmental and social awareness initiatives.

If the screening reveals that the project is medium or high risk, then this triggers the need for an ESIA. If the project is low risk, it may still be required to design and implement an environmental management and monitoring plan. This decision is made at the discretion of the Federal Ministry of Environment.

4.2 Collect E&S Baseline Data

Medium and high-risk projects will trigger the regulatory ESIA process.

The ESIA process begins with the collection of environmental and social baseline data. Data and information for the description of the existing environmental conditions of the project area shall be collected using appropriate methodologies for each parameter. Environmental aspects relevant to FRILIA projects include climate, geology and hydrogeology, air quality and noise, surface and groundwater quality, aquatic biodiversity (hydrobiology), soil, land use, terrestrial biodiversity (flora and fauna), and ecosystem services. A sample of the qualitative and quantitative parameters for each environmental aspect is shown in Annex 4.

Similar to environmental data, information for the description of the existing socioeconomic characteristics of the project area shall be collected using appropriate methodologies. Social aspects relevant to FRILIA investments include demography, settlement pattern, livelihood, economy, income, expenditure, security, critical infrastructure, critical services, community development, cultural diversity, literacy, skills, etc. A sample of the

qualitative and quantitative parameters for each social aspect is shown in Annex 5[3]

Note that the baseline data collection can begin in some cases in **stage no. 5** of the IAP (information exchange and site visits) . However, the bulk of this activity and, indeed all ESRM steps through to the E&S audit, will be done in IAP stage no.5 (Feasibility study, business plan and ESIA), as detailed in
Annex 1.

4.3 E&S Impact Analysis, Ranking and Mitigation

4.3.1 Impact identification and ranking methodology

The potential for environmental and social impact exists where a project activity has been determined to have the potential to interact with the biophysical and socio-cultural environment. This can be done using an interaction matrix of project activities versus receptors (Tables 1 and 2).

Table 1: Sample of project activities vs environmental receptors for FRILIA projects

Project activity		Air quality	Noise	Soil	Groundwater	Surface water	Flora and fauna
Site clearing and preparation		X	X	X	X	X	X
Planting activities for crops and Livestock rearing		X	X	X	X		X
Waste generation				X	X	X	

[3] The GMoU, Grievance Redress Mechanism (GRM), Community Needs and Development Plan (CNDP), Stakeholder Engagement (SE), and land access, easement and involuntary resettlement management toolkits contain more specific details on data collection in relation to potential social impacts of these investments.

Table 2: Sample of project activities vs social receptors for FRILIA projects

Project activity	Land use	Population	Infrastructure	Income	Socio-cultural structure & security	Workers' health & safety	Food safety
Site / Land take	X						
Site clearing and preparation	X			X		X	
Planting activities for crops and Livestock rearing	X	X	X	X	X	X	X
Waste generation and disposal			X			X	X
Farm management		X		X	X	X	X

4.3.2 Potential E&S impacts and significance ranking

Potential E&S impacts are any changes to the E&S baseline, whether adverse or beneficial, resulting from the investor's activities. Impacts should be identified by considering the interaction between project activity (e.g., site clearing, planting, etc.) and the E&S aspect (e.g., exhaust emissions, noise, etc.). The potential impacts can be defined as:

Negative: An impact that is considered to represent an adverse change from the baseline or to introduce a new undesirable factor.
Positive: An impact that is considered to represent an improvement to the baseline or to introduce a new desirable factor.
Direct: Impacts that result from the direct interaction between planned project activity and the receiving environment.
Indirect: Impacts that result from other activities that are encouraged to happen as a consequence of the project.
Cumulative: Potential impacts that may result from incremental changes caused by other past, present or reasonably foreseeable actions together with the Project.

After identifying potential impacts, the determination of significance and ranking process occurs in three (3) stages:

1. **Determination of Impact Magnitude -** which is a function of the combination of the following impact characteristics: extent,

duration, scale, and frequency. The magnitude designations for potential negative impacts can be Negligible, Low, Medium, or High. No magnitude may be assigned for positive impact.

2. **Determination of Receptor Sensitivity/Fragility/Value -** which refers to economic, social, and/or environmental/ecological importance of the receptor, including reliance on the receptor by people for sustenance, livelihood, or economic activity, and the importance of direct impacts to persons associated with the resource. The receptor-sensitivity designations for potential negative impacts can be: Low, Medium, or High.

3. **Determination of the impact significance -** which is the "product" of a combination of the impact magnitude and receptor sensitivity (Table 3).

Table 3: Impact Significance Matrix

		Sensitivity of Receptors		
		Low	Medium	High
	Negligible	Not Significant	Not significant	Low
	Low	Not significant	Low	Medium
	Medium	Low	Medium	High
	High	Medium	High	High

The significance ranking of potential impacts requires expert consultation within the respective fields (environmental and social) and engagement with stakeholders (including the host community) to accurately determine impact magnitude and receptor sensitivity to avoid bias or omissions.

Box 3: Impact Explanation Using a Large-Scale Agricultural Development Project

Imagine a project involving the establishment of a large commercial farm to grow crops on a previously uncultivated, semi-forested area near rural villages. The project includes the construction of extensive irrigation systems, land clearing, and the introduction of machinery. The nearby communities rely on the land for subsistence farming, hunting, and gathering, while the area also supports diverse ecosystems with wildlife and native plants.

Impact on Biodiversity

1. Determination of Impact Magnitude

The magnitude of impact would consider extent, duration, scale, and frequency of the effects of the agricultural project:

Extent: The project could potentially alter hundreds or thousands of hectares, affecting both the immediate area and surrounding ecosystems.

Duration: The impact is long-term since the land conversion to agriculture is permanent, disrupting natural habitats and community land use.

Scale: This large- scale project would significantly change the landscape, replacing natural vegetation with monoculture crops, leading to soil degradation and loss of biodiversity.

Frequency: Impacts such as water usage for irrigation and chemical runoff from fertilizers would be frequent and ongoing as part of regular farming operations. Based on these characteristics, the impact magnitude could be designated as **High** due to the substantial environmental alteration and effect on local land access.

2. Determination of Receptor Sensitivity/Fragility/Value

The sensitivity of the receptors (including local communities, wildlife, and plant ecosystems) depends on:

Economic Importance: The local population depends on this land for agriculture, fishing, and collecting forest products, which support livelihoods and food security.

Environmental Sensitivity: The area's flora and fauna, including endangered species, may be highly sensitive to habitat destruction and chemical exposure from farming practices.

If the land holds high social, economic, and ecological importance, the receptor sensitivity could be designated as **High**.

Box 4: Potential environmental impacts associated with FRILIA projects

Pre-operations (site selection and preparation for agricultural activities including ploughing and ridging using tractors)

- Terrestrial habitat destruction with adverse impacts for local flora and fauna.
- Air quality deterioration from release of dusts and gaseous emissions from exposed soil surfaces and tractors used in clearing, ploughing, and ridging.
- Generation of vegetal wastes from de-vegetation and site clearing activities.
- Eutrophication, nutrient enrichment, and/or siltation of surface water (if available) because of sediment runoffs from exposed soils leading to alteration of aquatic habitat (if available) and depletion of aquatic biota.
- Decrease in soil quality due to exposure of soil surface to higher temperatures and direct rainfall, which may lead to increasing soil degradation and erosion.
- Soil contamination from spillages of oil and other petroleum products from leakages and/or improper handling during usage of tractors.
- Noise and vibration from the use of tractors for clearing, ploughing, and ridging.
- Destruction of priority ecosystem services.

Operations (Planting, Weed management, Pest & disease control, Fertilizer application, Harvesting, and Storage)

- Terrestrial habitat alterations, with adverse impacts for local flora and fauna due to introduction of new crops or unsafe genetically modified crops.
- Ecosystem services alterations.
- Decrease in ambient air quality due to agriculture-related emissions (such as methane from livestock rearing), toxic aerosols from pesticides, herbicides, fertilizers, dust generated during harvesting, and gaseous emission from operating weeding machines and harvesters.

- Ecosystem risks from change in land use.
- Agricultural intensification in the form of continuous farming systems may lead to declining soil fertility and lower crop yields overall.
- Destruction of plants/ yield losses due to pests and diseases.
- Destruction of plants/ yield losses due to unpredictable weather patterns such as delayed rainfall, excessive heat waves, etc. caused by climate change.
- Decrease in groundwater availability for planting activities due to over-abstraction of water

- Noise and vibration disturbances from operation of weeding machines and harvesters - Runoff or leaching from excessive or inappropriate use of synthetic chemicals (fertilizers, herbicides, and pesticides) can lead to surface water contamination (alteration of aquatic habitat), algal blooms, and contamination of wells and drinking water sources (groundwater)
- Generation of vegetal wastes from weeding and harvesting
- Generation of hazardous waste and potential contamination of surface water, groundwater, and soil from fuel storage and indiscriminate handling of hazardous materials such as containers for herbicides, fertilizer bags, and pesticides.
- Use of pesticides may have adverse effects on non-targeted beneficial fauna such as insects, birds, aquatic fauna, and soil invertebrates
- Post-harvest physiological and microbial deterioration of produce before and during storage due to pests and diseases and unpredictable weather patterns

Box 5: Potential social impacts associated with FRILIA projects

Pre-operations (site selection and preparation for agricultural activities including ploughing and ridging using tractors) and Operations (Planting, Weed management, Pest & disease control, Fertilizer application, Harvesting, and Storage)

- Conflicts related to land acquisition and compensation process
- Grievances from communities and project affected persons especially when there are changes to settlements and livelihoods
- Workers' exposure to accidents, injuries, and other health/safety hazards from falling of trees, venomous wildlife and insects (snakes, scorpions, bees, wasps, spiders), use of heavy equipment, chemical hazards (from pesticides, fertilizers, and herbicides leading to poisoning, skin irritation, and respiratory problems)
- Workers' exposure to poor labour practices such as child labour, forced labour, non-payment of minimum wages as workers' compensation, absence of proper labour contracts, absence of workplace associations / unions, and absence of proper training and protective equipment for workers
- Threat to community culture, safety, and security due to presence of workers and business opportunists
- Workers' and communities' exposure to fire risk
- Labour Influx which could lead to increase in sexual activities and potential spread of STDs/STIs including HIV/AIDS as well as increased risk of Sexual Exploitation and Abuse (SEA) and/or Gender Based Violence (GBV)
- Evolution of slums/uncontrolled human settlements around the farms with attendant overcrowding, crimes, vices, and diseases
- Increased demand on community infrastructure -

Workers' exposure to security threats

- Companies' exposure to bribery and corruption especially during payments to obtain concessions, licenses, permits, certifications, controls, etc.
- Increased pressure on existing security infrastructure and service
- Workers' and communities' exposure to companies with weak corporate governance structure
- Disproportionate engagement of women based on gender biases for agricultural activities
- Decrease in groundwater availability for communities due to over-abstraction of water
- Communities' exposure to hazardous wastes, aerosols, and runoffs of pesticides,

4.3.3 Concept of impact mitigation and enhancement

Mitigation refers to measures or interventions necessary to avoid, minimise, reduce or offset adverse impacts. The standard approach for selecting appropriate mitigation measures is:

Avoid adverse impacts as far as possible by the use of preventive measures;

Minimise or reduce negative impacts to "as low as reasonably practicable" level;

Offset, remediate, or compensate for adverse impacts which cannot be mitigated or residual impacts which cannot be further reduced.

In proffering mitigation measures, preference should be given to avoidance or prevention of adverse impacts. Where not feasible, measures which are practicable and cost-effective using the best available technology, should be

suggested, such as climate-smart agriculture, innovative practices (aquaponics, vertical farming, black soldier flies, reforestation, etc.), irrigation and water management, sustainable livestock management, sustainable soil management, agricultural waste management, integrated pest management, etc. Compensation (see toolkits on **FRILIA** land access, easement and involuntary resettlement management toolkit, valuation and compensation toolkit) should only be considered as the last resort.

Enhancement refers to the identification, management, and improvement of positive impacts. Enhancement of positive impact or opportunities should be managed with the development of adequate management plans and procedures as well as evaluation and monitoring tools to review progress.

4.3.4 Recommended mitigation and enhancement measures

The proposed recommendation for impact mitigation or enhancement measures (see Table 4) should be based on the potential E&S impacts. The overall aim is to ensure that the project-related impacts are mitigated to the barest minimum, avoided, or compensated for, while the opportunities are enhanced as much as practicable.

Table 4: Some recommended mitigation or enhancement measures for potential E&S impacts

Environment
Pre-operations (site selection and preparation for agricultural activities including ploughing and ridging using tractors) - Restrict removal of vegetation to the boundary of project site only - Where possible, schedule vegetation clearing shall occur in phases so that the entire area is not cleared at once to allow time for migration of mobile species - Protect all vegetation not required to be removed against damage - Use spraying devices such as water tanker to sprinkle water on exposed soil surfaces to limit dusts - Train drivers/ workers on proper operation of tractors to include fuel efficiency and anti-idling techniques - Develop and Implement an Environmental Management System (EMS) using the ISO 14001 Clauses - Develop and Implement Waste Management Plan (WMP) using the World Bank General EHS Guidelines and Industry-Specific EHS Guidelines as part of the EMS - Vegetal waste can be used as compost or left on the farms to decompose to improve soil fertility - Woody debris and slash can be given to locals for appropriate use - Ensure early installation of temporary drainage and diversion structures to include silt traps. - Ensure prompt cultivation of all cleared areas to restore vegetation cover and soil stability

- Where possible, ensure site clearing is done during the dry season to protect farms from erosion
- Ensure all tractors are serviced before being brought to site and refuelled/maintained offsite
- Ensure tractors not in use are turned off
- Use low-noise tractors or fit tractors with exhaust mufflers/silencers to minimize noise

Operations (Planting, Weed management, Pest & disease control, Fertilizer application, Harvesting, and Storage)

- Ensure genetically modified organisms (GMOs) are adequately separated from ecosystem gene pool
- Avoid using GMOs as much as practicable
- Ensure livestock dung handling and disposal/reuse is integrated in the WMP
- Implement sustainable livestock/poultry management best practices
- Conduct an ecosystem services risk assessment and develop management plans (in line with best practices) to manage the land use transition

- Ensure steady application of the combination of medium amounts of compost with the right balance of N, P, and K in chemical fertilizer to ensure steady soil fertility

- Consider intercropping, especially with grains and legumes as much as practicable
- Implement sustainable soil management practices -

Implement integrated pest management practices

- Ensure cultivation/rearing of disease-resistant and pest-resistant varieties of crops and animals recommended by the International Institute of Tropical Agriculture (IITA), Food and Agriculture Organization (FAO), and other agriculture-related research institutes in Nigeria and more specifically Ogun State

- Ensure optimal use of pesticides by applying the minimum amount recommended by FAO for specific crops
- Where possible, cultivate farm without chemical fertilizers, herbicides or pesticide application
- Ensure cultivation/rearing of varieties of crops and animals tolerant with environmental stress
- Ensure optimal use of pesticides by applying the minimum amount recommended by FAO for specific crops
- Develop and implement a Water Conservation Management Plan (WCMP) using the World Bank General EHS Guidelines and Industry-Specific EHS Guidelines as part of the EMS
- Ensure equipment not in use are turned off
- Use low-noise equipment or fit equipment with exhaust mufflers/silencers to minimize noise

- Install impermeable surface at fuel storage and equipment servicing areas and limit zone to contain potential leakages. Ensure that equipment maintenance on site is done at the designated site where the surface is impervious.

Social

Pre-operations (site selection and preparation for agricultural activities including ploughing and ridging using tractors) and Operations (Planting, Weed management, Pest & disease control, Fertilizer application, Harvesting, and Storage)

- Conduct compensation, valuation, resettlement action, and livelihood restoration in line with the appropriate FRILIA toolkits
- Conduct a community needs assessment and develop & implement a community development plan in line with FRILIA toolkit
- Where out- growers are required, develop the out-grower model and implement in line with FRILIA principles and toolkit
- Develop and implement a grievance redress mechanism in line with the FRILIA toolkit
- Conduct continuous stakeholder engagement throughout the project lifecycle. Stakeholder engagement process should be developed in line with the FRILIA toolkit
- Conduct a security risk assessment and develop a Security Management Plan
- Ensure priority employment and training for vulnerable groups (women and youth)
- Develop an Occupational Health and Safety Management System (OHSMS) using the ISO 45001 Clauses including a focus on community health and safety in line with World Bank ESS 4
- Develop an induction program including a code of conduct for all workers. Code of conduct shall address the following: Respect for residents; No hunting or unauthorized taking of products or livestock; Zero tolerance of illegal activities such as child sexual exploitation and underage sex, prostitution, harassment of women, GBV, purchase or use of illegal drugs, Disciplinary measures and sanctions (e.g. dismissal) for infringement of the code of conduct and/or company rules; Commitment to cooperate with law enforcement agencies investigating perpetrators of GBV.
- Provide cultural sensitization training to improve awareness of and sensitivity of workers to local cultures, traditions, and lifestyles.
- Engage competent security personnel and provide guidance for use of arms in line with national and state laws.
- Prohibit child and forced labour. Ensure that children and minors are not employed directly or indirectly on the project. Communication on hiring criteria, minimum age, and applicable laws shall be ensured. Enforcement of legislations that prohibits child labour.

- Limit the number of migrant workers by engaging local workers
- Provide basic amenities (water, sanitation etc.) to workers according to WHO and World Bank standards
- Collaborate with communities to ensure slums and unauthorized developments around the projects are not allowed.

Furthermore, it is pertinent that FRILIA investments also consider climate adaptation beyond the mitigation measures. In the face of climate change, FRILIA investments are vulnerable to extreme weather events, changes in water availability, soil degradation, and altered growing conditions. Climate adaptation is crucial for sustaining crop yields, safeguarding food security, and protecting natural resources which can reduce the impact of the investment on environmental and social receptors. Key adaptation strategies include improving soil health, water management, adopting climate-resilient crops, diversifying crop systems, and incorporating advanced monitoring technologies.

Box 6: Key Climate Adaptation Strategies associated with FRILIA projects

1. Carbon Sequestration: Integrate carbon sequestration practices such as cover cropping, crop rotation, and reduced tillage, which improve soil carbon levels, enhance nutrient availability, and increase water retention.
2. Organic Amendments: Using organic inputs like compost improves soil structure and resilience against temperature extremes.
3. Efficient Irrigation Systems: Implement systems such as drip irrigation and soil moisture sensors to optimize water use and reduce waste.
4. Water Harvesting and Storage: Establish rainwater harvesting infrastructure and small-scale reservoirs to store water during dry periods.
5. Conservation Tillage and Mulching: Reduce soil disturbance and retain crop residues, which can decrease evaporation and improve soil moisture retention.
6. Drought- and Heat-Tolerant Crops: Select varieties bred to withstand climatic stressors, especially in regions prone to drought or high temperatures.
7. Agroforestry and Polyculture Systems: Incorporate multiple crop species or tree crops to stabilize yields, protect biodiversity, and buffer against extreme weather.
8. Weather Forecasting and Crop Monitoring: Use advanced tools like remote sensing, satellite imagery, and IoT sensors for real-time monitoring of soil moisture, temperature, and weather predictions.
9. Early Warning Systems: Establish early warning mechanisms for extreme events like floods and droughts to enable timely response and safeguard resources.
10. Climate Insurance and Financial Tools: Insurance products can protect farmers against climate-induced yield losses, while financial support for adaptation

4.4 Develop Environmental and Social Management Plan and Monitoring Program

An Environmental and Social Management Plan (ESMP) should be developed for effective management of significant mitigation and enhancement measures. The ESMP shall be monitored, audited, reviewed, and improved as indicated in the sections below.

For low-risk projects, where an ESIA was not triggered, approval will be sought from the Federal and State regulators (FMENV, Taraba State Ministry of Finance, Taraba State Ministry of Commerce, Taraba State Ministry of Environment to develop an ESMP.

The E&S monitoring program shall be produced from the ESMP to highlight the monitoring of compliance with mitigation measures. A typical E&S monitoring programme must contain the following:

- E&S Components/ Matrix
- Sampling Locations
- Sampling Method
- Parameters
- Compliance Requirement
- Frequency
- Responsible party

Furthermore, the E&S monitoring program will include the monitoring programs of all other FRILIA toolkits (Stakeholder Engagement, Out-grower and Food Security, Land Access, Easement and Involuntary Resettlement Management toolkit, Valuation and Compensation toolkit, Global Memorandum of Understanding toolkit, Grievance Redress Mechanism toolkit, and Community Needs Assessment and Development toolkit). This will serve as the overall Monitoring and Evaluation Framework for the potential FRILIA project.

4.5 Draft ESIA Report in line with Regulatory Guidelines

The most fundamental output of the ESIA process is an ESIA Report developed in line with national regulations and international best practices, including the World Bank Environmental and Social Framework (ESF). The outline of an ESIA Report is shown in Annex 6. Information collected through use of all other FRILIA toolkits will feed into the draft ESIA Report which will be subjected to the necessary reviews as stated in the ESIA process in Annex 2.

4.6 Implement Management Plans and Monitoring Programme

The FMENV, the National Environmental Standards and Regulations Enforcement Agency (NESREA), and Taraba State Ministry Of Environment require investment projects to submit evidence of the monitoring program activities in Quarterly Reports; these reports are called the Environmental and Social Compliance Monitoring Reports.

4.7 Conduct Regulatory E&S Audit

The FMENV, NESREA, andTaraba State Ministry Of Environment also require projects to submit an Environmental (and Social) Audit Report (EAR) every three years after commencement of operations. The EAR must be developed in line with the National Guidelines for Environmental Audit in Nigeria of 2011 issued by NESREA. Annex 7 shows the E&S Audit Reporting Template for a typical FRILIA project.

4.8 Continuous Improvement of E&S Issues

The investor should ensure continuous improvement in E&S practices to align with global best practices such as registering with the United Nations Global Compact (UNGC); indicating a commitment to addressing climate change issues by reporting using the International Financial Reporting Standards (IFRS) on climate-related financial disclosures (S2) and the Carbon Disclosure Project; commitment to human rights by ensuring alignment of processes with the United Nations Guiding Principles on Human Rights; aligning and showing contributions to the achievement of the United Nations Sustainable Development Goals (UNSDGs), Nigeria’s Nationally Determined Contributions (NDCs); amongst others.

ANNEX 1: Taraba STATE AGRICULTURAL INVESTMENT APPROVAL PROCESS

[Investment House No. 134, Hammaruwa Way, Jalingo, Taraba State, Nigeria.
e-mail : Invest@taraba state.gov.ng
[Contact Phone NO 08122288828
In Accordance with the provisions of Taraba State Laws & Other Matter Connected

Large-scale agricultural investments in [Name of State] are underpinned by a framework defined by [name of State MDA] FRILIA Principles. This large-scale agricultural investment approval process has been designed to be in line with the principles of FRILIA. It consists of the following __ stages:.

Process Stage	Responsible Party
Stage 1: Initial Inquiries & Know Your Customer (Due Diligence) **Assessments** A. TSIPA should be the primary entry point for ALL large-scale agricultural investments in Taraba State B. TSIPA approached by potential investor (or in some cases __ may reach out to a potential investor) C. TSIPA conducts preliminary due diligence on investor and provides investor with information related to potential investment. D. Possible initial engagement with community if area has been preliminarily identified. **Duration:** 1 month	**[Name(s) of the State MDA(s) Responsible for** large-scale agricultural investment approval process**]** **Taraba State Investment Promotion Agency (TSIPA)** **Ministry of Agriculture** **Ministry of Commerce and Industry**
Stage 2: Information Exchange & Site Visits A. TSIPA continues to provide information and resources the potential investor may need to proceed with the investment. Also coordinates the investor's interaction with other government agencies and helps the investor	**[Name(s) of the MDA(s) responsible, investors and Stakeholders identified**)

locate service providers. B. TSIPA arranges for site visits for the investor after notifying local officials and communities of investor interest. C. TSIPA notifies local government officials, other ward and community stakeholders to engage in internal consultations and then to respond preliminarily whether they might welcome the investment. **D. Duration: 1 month**	Taraba State Investment Promotion Agency (TSIPA) Ministry of Agriculture Ministry of Commerce and Industry
Stage 3: Potential Investor Proceeds or Withdraws A. The investor reacts to the community's initial response to the potential investment and the investor's own assessment of the viability of the investment and potential site. If the investor decides to withdraw, the process stops. If the investor wishes to consider a different location within the State, the process reverts to Stage 2. The process also ends if the community decides not to proceed. B. If the potential investor decides to proceed and the community is supportive, the investor should engage further, build relationships with the community and get them fully involved. The investor and the community (with legal assistance provided by [insert name of responsible party) should begin to discuss a community engagement plan to guide the ongoing consultations. **Duration:** 1 month	**[Name(s) of the MDA(s) responsible, investors and Stakeholders identified**) Taraba State Investment Promotion Agency (TSIPA) Ministry of Agriculture Ministry of Commerce and Industry
Stage 4: Investor Enters into a Memorandum of Understanding ("MoU") with TSIPA **and Representatives of the Affected Communities.** A. TSIPA does more in-depth due diligence on the investor and shares additional due diligence findings with other stakeholders. B. Consultations with the community continues and a community engagement plan may be agreed to at this point.	**[Name(s) of the Taraba State MDA(s) responsible, investors and Stakeholders identified**) ○ Taraba State Investme

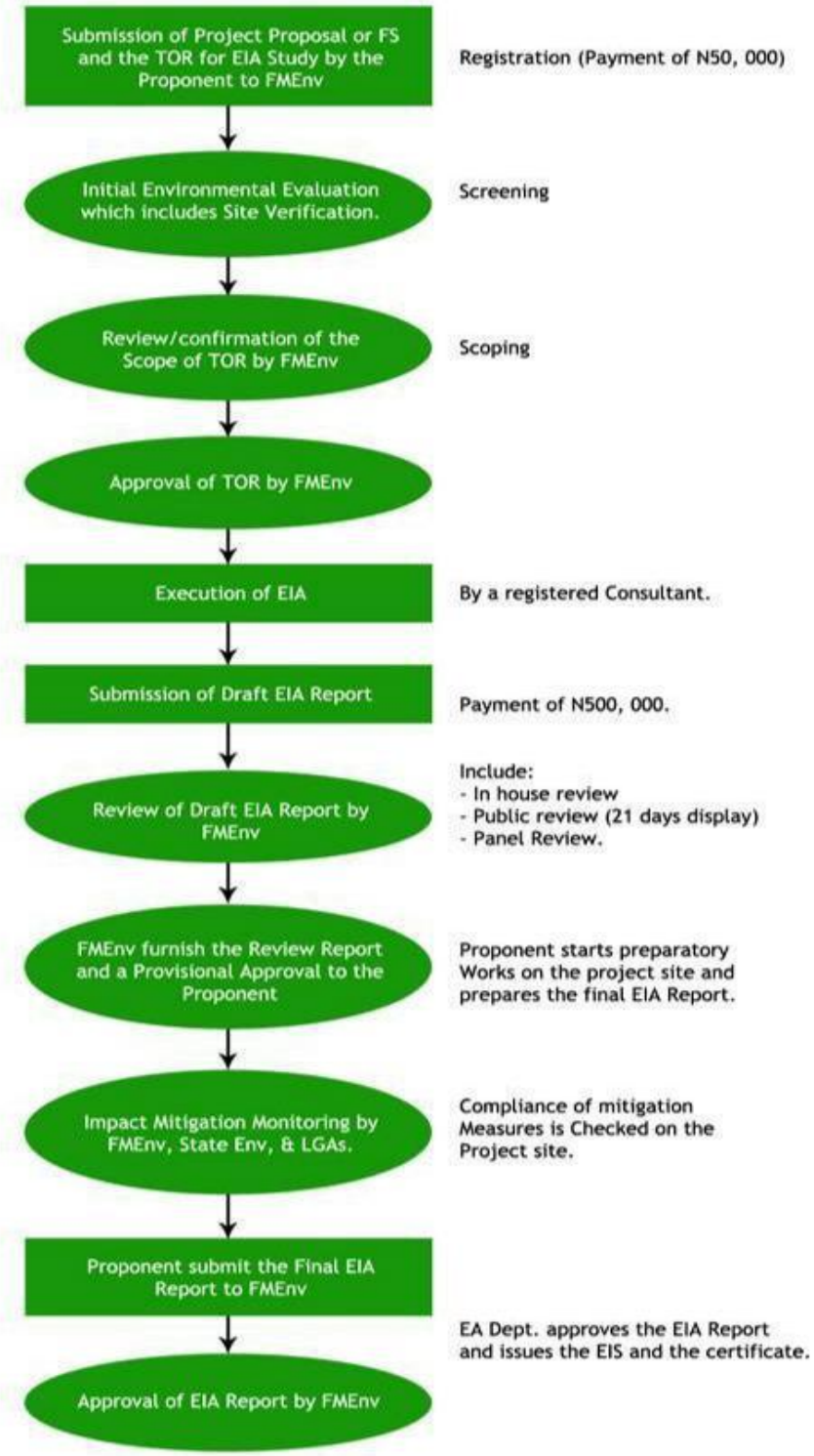
nt

investment, they attempt to agree on an MoU that covers the framework of the investment, how much land is required, benefits that may accrue to the community, commitments to ongoing consultation, preparation of an ESIA, etc. The MoU does not legally commit any party to a final agreement on the proposed investment. **Duration:** 1 month	Promotion Agency (TSIPA) ○ Ministry of Agriculture Ministry of Finance ○ Ministry of Justice
Stage 5: Investor Completes and Shares a Feasibility Study, Business Plan and an independent Environmental and Social Impact Assessment (ESIA). A. _ makes its determination whether the ESIA is acceptable and notifies the investor within __ days of receiving it. B. If not already completed, a community engagement plan should be finished in this stage. C. Land lease discussions can continue (if begun in a previous stage) or begin. Leases should not be finalized and signed until Stage 6. **Duration:** 1 month	**[Name(s) of the Taraba State MDA(s) responsible, investors and Stakeholders identified**) • Taraba State Investment Promotion Agency (TSIPA) • Ministry of Agriculture • Ministry of Environment
Stage 6: The parties enter into Final Agreements. A. The final agreement is likely to be contained in several individual agreements or could be combined into one document. While the precise requirements will vary, approved investment is likely to include some or all of the following: 1. Land lease agreement 2. Outgrower contract(s)	**[Name(s) of the MDA(s) responsible, investors and Stakeholders identified**) [Name(s) of the Taraba State MDA(s)

3. Community impact and benefit agreement 4. Community engagement plan 5. Monitoring plan 6. Inclusive, accessible and equitable dispute resolution mechanisms **Duration:** 1 month	responsible, investors and Stakeholders identified) o Taraba State Investment Promotion Agency (TSIPA) o Ministry of Agriculture • Ministry of Finance o Ministry of Justice

The 6 stages provide an overarching framework that guides all the toolkits of FRILIA. However, the unpacking of these stages varies from one toolkit to another. Hence, each of the FRILIA toolkits has its own approach embedded within the overall investment project cycle.

ANNEX 1: REGULATORY ESIA PROCESS IN NIGERIA



1. ***Project Proposal:*** **The project proposal should contain the following:**

A. Brief description of the proje - project title, proponent, a - nature of the project and - comment on any construction/operation w noise, night-time opera and

- process flow diagrams, s B. Outline of the planning - project plan and impleme - project interactions (if ap

C. Outline of the major ele - residential development site of specific interest, and surface water resou and potential project affe - environmentally sensitiv

D. Comment on environm incorporated in the design a - contractual controls, effects, secondary/induc similar projects, and abili E.Proceedings of consultation public forum (if any has bee

2. ***Screening*:**

- Upon receipt of the projec Environmental Examination category I, II, or III project (Screening for FRILIA as seen

- For projects under Category II, a full-scale ESIA may not be mandatory; a partial ESIA or environmental and social management plan (ESMP) will be required.

- The FMENV will issue an environmental impact statement (EIS) for projects in Category III which are expected to have essentially beneficial impacts on environmental and social parameters.
- The FMENV shall provide appropriate advice (Screening Report) in writing to the proponent.

3. ***Scoping*:**

Proponent	**FMENV and State Ministry of Environment**
Upon receipt of the screening report, the proponent shall carry out a scoping exercise to ensure that all significant E&S impacts and reasonable alternatives are addressed in the intended ESIA.	The FMENV and State Ministry of Environment must be involved in the scoping exercise.
The proponent shall submit a Terms of Reference (TOR) indicating the scope of the proposed ESIA study.	The FMENV and State Ministry of Environment may demand a preliminary assessment report, a public hearing, and any additional information to assist in vetting the TOR. After all consideration and consultations with the State Ministry of Environment. The FMENV shall define the final TOR of the ESIA.
Thereafter, the proponent shall undertake the ESIA study according to the final TOR.	

4. ***Execution of ESIA*: The ESIA scope must cover the following -**

- Review of national and international laws, regulations, and codes applicable to the ESIA study and the proposed investment project.
- Scoping and stakeholder engagement exercise (with FMENV and Taraba State Ministry of Environment).
- Description of all actions/activities that will be carried out during the proposed project.
- Baseline data gathering of environmental and social parameters, and laboratory analysis (with FMENV and State Ministry of Environment).
- Analysis of data obtained, and description of the study area based on

baseline data.
- Identification, evaluation, and significance ranking of potential environmental and social impacts of the project.
- Proposed recommendations of appropriate risk mitigation and/or opportunities enhancement measures including an Environmental and Social Management Plan (ESMP).
- Preparation of ESIA Report.

5. ***Draft ESIA Report*****:** The content of a Draft ESIA Report is shown in Annex 6 The proponent shall submit copies of the Report to the FMENV and State Ministry of Environment for review.

ANNEX 3: Applicable national and State laws and policies, international best practices

This is a non-exhaustive list and does not indicate the totality of national and state laws, policies, and international best practices applicable to the varying degree of projects. It is recommended that the investors, State MDAs, and host communities are to keep themselves abreast with related laws, regulations, policies, etc, that may exist other than this or updates that may emerge overtime.

National laws, regulations, and policies:

- Criminal Code, 1990
- EIA Act No 86 of 1992
  - Employee's Compensation Act, 2010
  - Labour Act, 1990
- Land Use Act, 1978
  - National Adaptation Strategy & Plan of Action on Climate Change for Nigeria, 2011
- National Climate Change Policy, 2021
- National EIA Procedural Guidelines, 1995
- National Environmental (Air Quality Control) Regulations, 2014
  - National Environmental (Control of Bush Forest Fire and Open Burning) Regulations, 2011
  - National Environmental (Desertification Control and Drought Mitigation) Regulations, 2011
  - National Environmental (Hazardous Chemicals and Pesticides) Regulations, 2014
  - National Environmental (Noise Standards and Control) Regulations, 2009
  - National Environmental (Sanitation and Wastes Control) Regulations, 2009
  - National Environmental (Soil Erosion and Flood Control) Regulations, 2011
  - National Environmental (Surface water and Groundwater Quality Control), Regulations, 2011
  - National Environmental (Wetlands, Riverbanks, and Lake Shores Protection) Regulations, 2009
  - National Environmental Protection (Management of Solid and Hazardous Wastes) Regulations, 1991
- National Policy on Environment, 2016

National Policy on Occupational Health and Safety, 2020
National Policy on Solid Waste Management, 2018
Nigeria's Cultural Policy, 1996
Pension Reform Act, 2004
Violence Against Persons (Prohibition) Act, 2015

State laws, policies, and reference materials:
[Insert list of related State Laws, regulations, policies, etc.]

International standards and best practices:
Africa Agenda 2063
FAO and World Health Organization (WHO) International Code of Conduct

FAO Code of Conduct for Responsible Fisheries, 2011
Food and Agriculture Organization (FAO) Environmental and Social Management Guidelines, 2015
IFC Corporate Governance Guidelines, 2019
IFC Good Practice Note on Animal Welfare, 2014
International Finance Corporation (IFC) Performance Standards (PS 1 to 8) and Guidance Notes 2012
International Labour Organization (ILO) Conventions, 1930 – 1958
International Organization for Standardization (ISO) 14001:2015 (Environmental Management System), 45001:2018 (Occupational Health and Safety Management System), 26000:2010 (Social Responsibility), 37101:2016 (Management Systems for Sustainable Development in Communities)
on Pesticide Management, 2014
Stockholm Convention on Persistent Organic Pollutants, 2004 UN Sustainable Development Goals, 2015-2030
United Nations (UN) Convention against Corruption (2005)
World Bank EHS Guidelines for Aquaculture, Perennial Crop Production, Annual Crop Production, Forest Harvesting Operations, Mammalian Livestock Production, Poultry Production, Water and Sanitation, and Waste Management, 2007-2012
World Bank Environmental and Social Standards (ESS 1 to 10), 2017

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

Comparative analysis of state and federal laws, regulations and policies with international best practices

E&S Topic	Nigerian E&S Regulations	FRILIA E&S Principles
Impact identification and mitigation	• EIA required: EIA Act No 86 of 1992 • National EIA Procedural Guidelines, 1995	4.2: Investments preceded by independent assessments of potential positive and negative impacts on the environment 4.3: Take into account potential adverse impacts on physical, cultural property, and as warranted, provide adequate measures to avoid, minimise, or mitigate such efforts.
Action plan for mitigation measures	• National Environment Policy on Environmental Audit (EA) (2016): mandated every three years; Environmental Management Plan (EMP) required • National Occupational Health and Safety Policy (2020)	4.1: Safeguard against environmental damage, unless adequately mitigated
Continuous monitoring of E&S parameters	• National Environment Policy on Quarterly compliance (ECM) required (2016): environmental monitoring • National Occupational Health and Safety Policy (2020)	4.1
Air	• Federal Environment Ministry of Guidelines	4.1

E&S Topic	Nigerian E&S Regulations	FRILIA E&S Principles
	and Standards for Environmental Pollution Control in Nigeria, 1991 • National Environmental (Air Quality Control) Regulations, 2014 • National Environmental (Control of Bush Forest Fire andOpenBurning) Regulations, 2011	
Noise	• National Environmental (Noise Standards and Control) Regulations, 2009 • Federal Ministry of Environment Guidelines and Standards for Environmental Pollution Control in Nigeria, 1991	4.1
Water (including irrigation)	• National Environmental (Surface water and Groundwater Quality Control), Regulations 2011 • National Environmental (Desertification Control and Drought Mitigation) Regulation 2011 • National Environmental (Wetlands, Riverbanks, and Lake Shores Protection) Regulations 2009 • National Environmental (Dams and Reservoirs) Regulations 2014	4.1
Biodiversity	• National Policy on Environment (2016): Conservation of biological diversity • National Environmental	4.1

E&S Topic	Nigerian E&S Regulations	FRILIA E&S Principles
	(Control of Bush Forest Fire and Open Burning) Regulations, 2011	
Climate Change	• National Adaptation Strategy & Plan of Action on Climate Change for Nigeria (2011) • National Environmental (Control of Bush Forest Fire and Open Burning) Regulations, 2011	4.1
Soil	• National Environmental (Soil Erosion and Flood Control) Regulations, 2011 • National Environmental (Control of Bush Forest Fire and Open Burning) Regulations, 2011	4.1
Waste	• National Environmental Protection (Management of Solid and Hazardous Wastes) Regulations, 1991 • National Environmental (Sanitation and Wastes Control) Regulations, 2009	4.1
Hazardous Materials (Pesticides)	• National Environmental (Hazardous Chemicals and Pesticides) Regulations, 2014 • National Policy on Occupational Health and Safety, 2020	4.4: Promote community, individual and worker safety. 4.6: Promote use of recognised good practice related to hazardous materials generated
Labour and working conditions	• National Policy on Occupational Health and Safety, 2020 • Employee's Compensation Act, 2010	4.5 Promote fair treatment, non-discrimination and equal opportunity of workers and prevent

E&S Topic	Nigerian E&S Regulations	FRILIA E&S Principles
	• Labour Act, 1990 • Pension Reform Act, 2004 • National Child Right's Act, 2003	all forms of forced and child labour
Security		4.4
Land use	• Land Use Act, 1978	4.1, 4.2, 4.3
Gender	• National Gender Policy, 2006	4.5

ANNEX 4: ESIA baseline data collection protocol (environmental parameters)

1. ***Climate and Meteorology:*** Typically, climate data is obtained from secondary sources. The regional climatic data of the project area will be sourced from the Nigerian Meteorological Agency (NIMET) and should span a minimum of 25 years from the most recent available date.

Climatic parameters to be obtained relevant to potential FRILIA projects are:

- Rainfall (mean annual rainfall)
- Temperature (average minimum and maximum temperature)

- Relative humidity (average relative humidity at day time [09:00 hrs] and night time [15:00 hrs]
- Sunshine (average sunshine hours)
- Wind speed (average wind speed)

2. ***Geology and Hydrogeology:*** This data is obtained from secondary sources; often, these are scientific publications on the geology and hydrogeology of the region of the project area. However, for some FRILIA projects, the FMENV may request for new geologic field studies for geologic characterization and mapping.

The study involves the following:
- Geologic characterization and mapping
- Hydrogeologic study
- Fossils identification (if any)
- Geologic structure and lithological identifications

3. ***Air Quality:*** The basis of air quality sampling should be informed by a preliminary classification of the surrounding environment and the TOR. The sampling can be conducted using pre-determined sampling locations which can then be geo-referenced using GPS when on site. In situ air quality measurement should be conducted with the use of pre-calibrated digital hand-held monitoring equipment.

Parameters to be measured are:
- Sulphur (IV) Oxide (SO_2)
- Nitrogen (IV) Oxide (NO_2)
- Carbon Monoxide (CO)
- Carbon (IV) Oxides (CO_2)
- Volatile Organic Compounds (VOC)
- Ammonia (NH_3)
- Hydrogen Sulphide (H_2S)
- Total Suspended Particles (TSP) or Particulate Matter ($PM_{2.5}$ & PM_{10})
- Methane (CH_4)

The concentrations of these parameters should be compared with the following standards
- Federal Ministry of Environment Guidelines and Standards for Environmental Pollution Control in Nigeria
- Nigerian Ambient Air Quality Standards (NAAQS)
- World Health Organization (WHO) Air Quality Guidelines
- World Bank General Environmental Health and Safety (EHS)

Guidelines

4. ***Noise:*** The basis of noise level sampling should be informed by a preliminary classification of the surrounding environment and the TOR. The sampling can be conducted using pre-determined sampling locations which can then be geo-referenced using GPS when on site. Noise level measurement should be conducted with the use of pre-calibrated digital hand-held monitoring equipment.

The noise levels recorded at the study area should be compared with the following standards:

- Federal Ministry of Environment Guidelines and Standards for Environmental Pollution Control in Nigeria
- World Bank General EHS Guidelines

5. ***Soil:*** The basis of soil sampling should be informed by a preliminary classification of the surrounding environment and the TOR. The sampling can be conducted using pre- determined sampling locations which can then be geo-referenced using GPS when on site.

Soil samples should be collected and preserved as follows:

- Collect samples (top [0-15cm] and subsoil [15-30 cm]) using a stainless-steel auger.
- Collected composite soil samples should be homogenized and sub samples should be taken for microbial (collected in microbial bottles) and physico-chemical analysis.
- All samples collected should be preserved in an ice chest and transported to an FMENV-accredited laboratory for analysis.

The parameters to be analyzed are:

- Chemical properties: pH, Moisture Content (%), Phosphate (mg/kg), Sulphate (mg/kg), Nitrate (mg/kg), Potassium (mg/kg), Copper (mg/kg), Lead (mg/kg), Iron (mg/kg), Zinc (mg/kg), Nickel (mg/kg), Cadmium (mg/kg), Chromium (mg/kg), Manganese (mg/kg)
- Physical properties: Sand (%), Silt (%), Clay (%), Bulk Density (g/ml), Electric Conductivity (µs/cm)
- Microbial properties: total heterotrophic bacteria (cfu/ml), total heterotrophic fungi (cfu/ml), total coliforms (cfu/ml), total hydrocarbon utilizing bacteria (cfu/ml), total hydrocarbon utilizing fungi (cfu/ml), and predominant species of microorganism isolated These parameters should be compared with existing literature within the project area in Nigeria.

6. ***Surface water quality:*** The basis of surface water sampling (when applicable) should be informed by a preliminary classification of the surrounding environment and the TOR. The sampling can be conducted using pre- determined sampling locations which can then be geo-referenced using GPS when on site. Accessibility of surface water sampling points should be done using the most appropriate means of transport that ensures optimal safety, security, and protection to aquatic flora and fauna.

Surface water samples should be collected and preserved as follows:

- Collect samples into 2-litre polyethylene bottle for general physico-chemical analysis
- Collect samples for Oil & Grease and Total Hydrocarbon Content (THC) determination in 1-litre glass bottles and preserve with concentrated sulphuric acid.
- Collect samples for heavy metals in plastic containers and fix with concentrated nitric acid.
- Collect samples for microbial analysis in pre-sterilized 50 ml McCartney bottles
- Conduct in-situ measurements of pH, Electrical Conductivity (µS/cm), Total Dissolved Solids (mg/l), Temperature (°C), and Dissolved Oxygen (mg/l) at each location using calibrated meters.
- Collected samples should be preserved in an ice chest and transported to an FMENV-accredited laboratory for analysis.

The ex-situ parameters to be analyzed are:

- Physico-chemical properties: Electrical Conductivity (µS/cm), Turbidity (NTU), Hardness (mg/l), Salinity (ppm), Chemical Oxygen Demand (mg/l), Biological Oxygen Demand (mg/l), Phosphate (mg/l), Sulphate (mg/l), Nitrate (mg/l), Potassium (mg/l), Copper (mg/l), Lead (mg/l), Iron (mg/l), Zinc (mg/l), Nickel (mg/l), Cadmium (mg/l), Chromium (mg/l), Manganese (mg/l), Oil and Grease (mg/l), THC (mg/l)
- Microbial properties: total heterotrophic bacteria (cfu/ml), total heterotrophic fungi (cfu/ml), total coliform (cfu/ml), hydrocarbon utilizing bacteria (cfu/ml), and predominant species of microorganism isolated

These parameters should be compared with the standard: Federal Ministry of Environment (1999): National Guidelines and Standards for Water Quality in Nigeria (Aquatic life)

7. ***Sediment analysis:*** The basis of sediment sampling (when applicable) should be informed by a preliminary classification of the surrounding environment and the TOR. The sampling can be conducted using pre-determined sampling locations which can then be geo-referenced using GPS when on site. Sampling should be conducted together with surface water sampling.

Sediment samples should be collected using a standard Grab, preserved on ice chest and transported to an FMENV-accredited laboratory for analysis. The parameters to be analyzed are:

- Chemical properties: pH, Phosphate (mg/kg), Sulphate (mg/kg), Nitrate (mg/kg), Potassium (mg/kg), Copper (mg/kg), Lead (mg/kg), Iron (mg/kg), Zinc (mg/kg), Nickel (mg/kg), Cadmium (mg/kg), Chromium (mg/kg), Manganese (mg/kg)
- Physical properties: Sand (%), Silt (%), Clay (%), Bulk Density (g/ml), Electric Conductivity (µs/cm)
- Microbial properties: total heterotrophic bacteria (cfu/ml), total heterotrophic fungi (cfu/ml), total coliforms (cfu/ml), total hydrocarbon utilizing bacteria (cfu/ml), total hydrocarbon utilizing fungi (cfu/ml), and predominant species of microorganism isolated

These parameters should be compared with existing literature within the project area in Nigeria.

8. ***Groundwater quality:*** The basis of groundwater sampling should be informed by a preliminary classification of the surrounding environment and the TOR. The sampling can be conducted using pre-determine sampling locations which can then be geo-referenced using GPS when on site. These locations are dependent on the availability of groundwater sources – wells, boreholes, etc.

Groundwater samples should be collected and preserved as follows:

- Collect samples into 2-litre polyethylene bottle for general physico-chemical analysis
- Collect samples for Oil & Grease and Total Hydrocarbon Content (THC) determination in 1-litre glass bottles and preserve with concentrated sulphuric acid.
- Collect samples for heavy metals in plastic containers and fix with concentrated nitric acid.
- Collect samples for microbial analysis in pre-sterilized 50 ml McCartney bottles
- Conduct in-situ measurements of pH, Electrical Conductivity (µS/cm),

Total Dissolved Solids (mg/l), Temperature (°C), and Dissolved Oxygen (mg/l) at each location using calibrated meters.

- Collected samples should be preserved on ice chest and transported to an FMENV-accredited laboratory for analysis.

The ex-situ parameters to be analyzed are:

- Physico-chemical properties: Electrical Conductivity (µS/cm), Turbidity (NTU), Hardness (mg/l), Salinity (ppm), Chemical Oxygen Demand (mg/l), Biological Oxygen Demand (mg/l), Phosphate (mg/l), Sulphate (mg/l), Nitrate (mg/l), Potassium (mg/l), Copper (mg/l), Lead (mg/l), Iron (mg/l), Zinc (mg/l), Nickel (mg/l), Cadmium (mg/l), Chromium (mg/l), Manganese (mg/l), Oil and Grease (mg/l), THC (mg/l)

- Microbial properties: total heterotrophic bacteria (cfu/ml), total heterotrophic fungi (cfu/ml), total coliform (cfu/ml), hydrocarbon utilizing bacteria (cfu/ml), and predominant species of microorganism isolated

These parameters should be compared with the following standards:

- Federal Ministry of Environment (1999): National Guidelines and Standards for Water Quality in Nigeria
- WHO (2000). World Health Organization, Potable Water Quality Guidelines

9. ***Aquatic Biodiversity:*** The basis of aquatic biodiversity sampling should be informed by a preliminary classification of the surrounding environment and the TOR. The sampling can be conducted using predetermined sampling locations which can then be geo-referenced using GPS when on site. Sampling should be conducted together with surface water and sediment sampling to cover plankton and benthic studies.

Plankton and benthic studies should show the following results:

- Total number of species – zooplankton and phytoplankton
- Abundance of species
- Shannon-Wiener Index
- Simpson's Dominance Index
- Species Equitability or Evenness index

10. ***Terrestrial Biodiversity (Flora):*** The basis of plant diversity sampling should be informed by a preliminary classification of the surrounding environment and the TOR. The sampling can be conducted using

predetermined sampling locations which can then be geo-referenced using GPS when on site. These locations should also be dependent on the type of vegetation cover within and around the project area including farmlands.

Plant diversity assessment should provide information on the following:

- Vegetation types
- Floristic composition
- Species diversity index
- Inventory of economic plants
- Ecosystem services assessment
- Conservation status of species

11. ***Terrestrial Biodiversity (Fauna):*** The basis of animal diversity sampling should be informed by a preliminary classification of the surrounding environment and the TOR. The sampling can be conducted using predetermined sampling locations which can then be geo-referenced using GPS when on site.

Animal diversity assessment should provide information on the following:

- Faunal composition
- Species diversity index
- Inventory of economic animals
- Ecosystem services assessment
- Conservation status of species

12. ***Land Use:***

Land use characteristic should be obtained using the following tools:

- Satellite imagery tools such as Google Earth Pro
- Administrative maps of Ogun State obtained from the Ogun State Bureau of Lands and Survey
- Aerial imagery from drones (if available)
- Basic ground truthing exercise to interpret images

13. ***Ecosystem Services Review:*** The project's direct impacts on priority ecosystem services may result in adverse health and safety risks and impacts to host communities. With respect to FRILIA projects, ecosystem services are limited to provisioning, regulating, and cultural services as defined in the International Finance Corporation (IFC) Performance Standard 6.

Type I: Provisioning, regulating, and cultural ecosystem services, over which the client has direct management control or significant influence, and where impacts on such services may adversely affect communities.

Type II: Provisioning, regulating, and cultural ecosystem services, over which the client has direct management control or significant influence, and on which the project directly depends for its operations.

ANNEX 5: ESIA baseline data collection protocol (social parameters)

Social baseline data collection typically involves a Household Survey[4] which is required to: understand the activities and standard of living of those who will lose land to the Project; gather feedback on the compensation process; to assess and monitor the impacts of the land acquisition process; and for the project to assess the potential project impacts on communities and measures to minimize these. The parameters are:

1. ***Demography:***

Survey Information

- Name of interviewer
- Survey number
- Date of survey
- Name of Community
- Name of Village Head/ Name of Chief
- Name of District
- GPS coordinates
- Photograph number

Interviewee Details

- Name of the person interviewed
- Gender (male/female)

[4] The project-specific Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) can be expanded upon from the sub-sections in the Household Survey.

- Position within the household (head, spouse, child, spouse of child, grandchild, parent of head or spouse, relative, non-relative, paid labourer, and others [specify])
- Name of household head
- Age
- Contact number
- ID details (if available - voters card, employment ID, national ID, passport, driver's license, national insurance ID)

Household Members Basic Information (this should be completed for all members of the household including all immediate family members who leave away for work but return home to live on a regular basis (e.g. at least once a year)

- Name and Surname
- Position within household (head, spouse, child, spouse of child, grandchild, parent of head or spouse, relative, non-relative, paid labourer, and others [specify])
- Gender (male/female)
- Age
- Marital Status (married, widowed, separated/divorced, single, co-habiting)
- Religion
- Ethnicity
- Primary language
- Residential status (whole life, 0 – 5 years, 6 – 14 years, 15 – 25 years, 26 – 35 years, >35 years)
- Literacy (cannot read or write, read only, write only, can read and write)
- Highest level of Education (no education, too young, kindergarten, primary school, junior secondary school, senior high school, vocational and technical education, tertiary)
- Primary occupation
- Secondary occupation
- Disabilities

2. *Land, Livelihoods, and Economy:*

Land

- How many plots of land does your household have access to? (including land that is owned, used/not used, borrowed, rented from someone else, sharecropping)
- What is the current area of your households' total land holding in hectares?
- Will you be affected by the land acquisition process for the project?

Livelihoods – General

- Is there anything that the household could do to further improve income

generation / livelihoods?

- Based on the list of livelihood support options (provide participant with list - crop production [farming inputs such as seeds and tools], crop production [irrigation/water], crop production [better farming techniques for soil improvement], livestock support [improved breeds], livestock support [improved animal health], livestock support [access to water], value-chain processing, improved transport to markets, fishing, produce processing), what are the top 3 that would help to support your day-to-day needs?

Agriculture (Top 5 including economic trees [agroforestry], livestock, natural resources) – this should be replicated to provide details on other means of livelihood such as fishing, food processing, trading, artisans, etc.

- Type of Crop / Livestock
- Quantity produced in a season / Amount owned
- For selling / consumption / both?
- Where do you cultivate these crops or rear livestock (own land within the project footprint, rented/other land within project footprint, mix of own land and rented/other land within the project footprint, mix of land inside and outside the project footprint, only land outside the project footprint, other [specify])?

- Average income generated from crops per season in the last 2 years (0-100,000, 101,000-200,000, 201,000-300,000, 301,000-400,000, 401,000-500,000, Above 500,000)?
- Have you experienced a change in production levels in the last 2 years? Please explain response
- What are the common farm practices you engage in (shifting cultivation, mechanized farming, bush burning, fertilizer application, extension services, crop rotation, mixed cropping, improved variety seeds, simple farm tools, extensive livestock rearing, intensive livestock rearing, semi-intensive livestock rearing, other [specify])?
- What, if any, are your major challenges with farming (inadequate farm inputs, inadequate water source, pests, weeds, reduced soil fertility, small sized farmlands, inadequate extension services, no challenges, livestock diseases, inadequate grazing land, access to markets, other [specify])?

- Do you hire labour from time to time? If yes, please explain from where/how?

3. ***Household income and expenditure:***

Sources of Income (Top 3) **and Household Expenditure**

- Income source
- Member of household
- Average income generated per month (0-100,000, 101,000-200,000, 201,000-300,000, 301,000-400,000, 401,000-500,000, Above 500,000)

- Monthly household income (total of all the above)
- On average, how much does the household spend on key expenses per month on: food, electricity, charcoal, firewood, healthcare/medication, education, transport, water, clothing, telecommunications, home maintenance, alcohol / tobacco, other (specify)
- Monthly household expenditure (total of all the above)
- Based on your total income and household expenditure, do you think that your household is able to "make ends meet", namely to pay their necessary expenses (very difficult, difficult, satisfactory, quite easy, easy, very easy)?

- How do you compare the economic situation of your household now compared to previous year (much worse, a little worse, the same, a little better, much better)? Explain response:
- What do you think the household could do to increase income?

- Household member (s) with bank account?
- Household Member (s) with savings?
- If savings, in what form? (cash, gold, livestock, other [specify], not applicable)

- Accessed credit/borrowed money in the last 12 months?
- If yes, what is the source of credit? (bank, cooperative, informal money lender, friend/relative, NGO, savings/loan, savings club, other [specify], not applicable)

- Any barriers to accessing credit? (no barriers, not available locally, I need a bank account and credit history but I do not have this, interest payment too high, other [specify])

- Provide the quantity of each asset: bed/mattress, machete/cutlass, bicycle, mobile phone, motorcycle, farm machines, car / minibus, radio, chair / bench, table, generator, television, solar panel, land plots / size in hectares, etc.

4. ***Food security:***

- What does the household eat (the most common staple food)?
- How much of your staple food do you grow and how much do you buy?
- Which member of the household is responsible for growing food?
- Does the household ever suffer from food shortages during any part of the year?

- If yes, what is the primary reason for your food shortage?
    - for food you grow: (poor quality land, not enough land, water shortage, lack of seed, lack of manure/fertiliser, limited money, shortage of household labour, drought, flood
    - for food you buy: shortage of money to buy food, market too far away, lack of household capacity, natural disaster

[drought/flooding], not applicable, other (specify)
  - If yes, what are the months during which there is food shortage?
- In the last 2 weeks, has any household member eaten less than 3 times a day?

- In the last 2 weeks, has any household member felt hungry and had nothing to eat?
- In the last 2 weeks, has any household member had limited variety of food?

- what do you do to improve matters or is this outside your capacity?

5. ***Community Infrastructure:***

Education

- Where (in the community, neighbouring community, other district, overseas, not applicable-no children in household or no children attending school) do the children in this household go to school (primary, secondary, tertiary)?

- What method is used to transport children to school? (walking, school bus, motorbike, car)
- How long does it take to get to school (one way)? (less than 15 mins, 16-30 mins, 31- 60 mins, 61-90 mins/1-1.5 hrs, 91+ mins/over 1.5 hrs)
- Are there any factors that limit household members from going to school?

- If yes, what factors limit household members going to school? (cost, distance, illness, work, marriage, cultural/religious, lack of transport, other [specify])

- Who is most affected by these factors? (females, males)

- Has anyone in the household suffered from any of the following health conditions in the last 3 months? (COVID-19, diarrhoea, malaria/fever, HIV/AIDS, schistosomiasis, acute respiratory infection [cold, cough etc.], cardiovascular [heart diseases], diabetes, cancer [if yes, indicate type of cancer], high blood pressure, cholera, Lassa fever, tuberculosis, meningitis, eye problems [cataract, glaucoma], sexually transmitted infections, malnutrition, other [specify])

- Which type of health facility do you frequently visit? (private hospital/clinic, General Hospital, traditional herbalist, pharmacy, NGO/mobile health clinic, community health centre// dispensary, other [specify], none)

- What is the distance to the health facility you visit? (less than 1 km, 1- 2 km, 3-4 km, 5-6 km, more than 6 km)
- How often do you visit the health facility in a year? (1-2 times, 3-4 times, 5- 6 times, more than 6 times)
- Are there any barriers to accessing healthcare?
- If yes, what barriers? (lack of finances, distance, poor services, other

[specify])

Water

- What is the source of drinking water for the household?
- What is the source of domestic water (bathing/cooking)?
- What source of water is used for crops?
- What is the source of water used for animals?

Sanitation, Hygiene & Waste

- What type of toilet facility does the household use? (none/the bush, communal ventilated pit latrine, communal non-ventilated pit latrine, private (household) ventilated pit latrine, non-ventilated private latrine, flush latrine/western style toilet)
- Does the toilet have handwashing facilities?
- What does the household use to wash hands? (nothing, water only, soap, gravel, other)
- Where is human waste disposed? (closed pit, sewerage pipe, in the bush)
- How is household waste disposed (e.g. plastics, metal, card/paper etc)? (dumped in an allocated place in the village, dumped anywhere, burnt, collected by company/authorities)
- Where is food waste disposed? (kept for fertilizer, dumped in an allocated place in the village, dumped anywhere, burnt, collected by company/authorities, given to animals)

Energy

- What is the main source of lighting for your household? (firewood, kerosene lamp, torch & batteries, candle, portable solar lamps, generator, electricity-grid, solar panel, other)
- What kind of fuel is mostly used for cooking? (gas, firewood, charcoal, kerosene, electricity, saw dust, solar panel, other)
- If you use fire wood, how do you obtain this?
- Who in the household mainly collects firewood?

Standard of Living and Access to Services

How do you assess the following aspects of living in your community (rating from not applicable/poor to excellent)?

- Sanitation/toilets
- Water supply
- Waste disposal
- Public transportation
- Roads
- Electricity supply
- Telephone network (either land or mobile)
- Air quality
- Natural beauty/Aesthetics
- Access to education (availability of schools)

- Quality of education
- Access to health care (availability of medical care)
- Quality of health care
- Safety (violence, crime, traffic)
- Public administration (local office, LGA)

6. ***Community Development Resources & Priorities:***

Community Based Organisations (CBO)/Associations

- Does anyone in the household belong to a CBO or association?
- If yes, what type of association (s)? (agriculture/farming, livestock/poultry, fishing, women, traders, youth, traditional/cultural society, other) Name of CBO/Association

Community Groups/Non-governmental organisations (NGOs)

- Are there other groups or NGOs currently supporting the community? - If yes, please state their name and type of support provided? **Community Development Priorities** (Top 3)
- What are the top 3 priorities (healthcare, education/skills training, water, electricity/power, roads, employment opportunities, public transport, agricultural support, livestock support, sanitation facilities/toilets, waste disposal facilities, other [specify]) in the community and why?

Training/Skills Acquisition

- What type of skills do you require to support the development of your community?

Community Resources

- Does the community have any capacity/resources to implement/sustain community development projects?
- If yes, please explain?

7. ***Security Assessment:*** **Community**

Security Infrastructure

- What security measures are in place or proposed for the project (e.g., fencing, surveillance, security personnel)?
- Are there any security challenges or concerns in the community or between the community and neighbouring communities?
- What is the response time of local law enforcement and emergency services?
- Do they have the necessary resources and training to handle security incidents?
- What is the crime rate in the area?
- Are there any specific types of crimes that are more prevalent?
- Have there been recent security incidents or trends?

- How were the security incidents addressed?

Conflict Resolution Mechanisms

- Are there established mechanisms for addressing conflicts or disputes that may arise from the project?
- How will grievances be handled?

ANNEX 6: ESIA report outline

1. Table of contents
   - Chapters and their titles
   - List of maps, illustrations and figures
   - List of Tables
   - List of acronyms
   - ESIA preparers
2. Executive summary
3. Acknowledgement
4. Chapter 1: Introduction – background information, objectives, scope and TOR, scoping exercise, ESIA process, administrative and legal framework, and ESIA report structure
5. Chapter 2: Project Justification – benefits, value, envisaged sustainability, project alternatives, and project development options
6. Chapter 3: Project and/or Process Description – type (ranching, planting, etc.), input and output of raw materials and products, location, technological layout, project activities, workforce and job creation, health and safety, community development, security, outgrower models, and project schedule

7. Chapter 4: Description of the Environment – study approach, baseline data acquisition methods, geographical location, field data, climatic conditions, geology and hydrogeology, air quality assessments, noise level assessment, vegetation cover characteristics, potential land use and landscape patterns, ecologically sensitive areas, ecosystem services assessment, terrestrial fauna and wildlife, soil studies, aquatic studies (hydro-biology and fisheries), groundwater resources, socio-economic characteristics (demography, ethnicity, language, religion, vulnerable groups, administrative and socio-cultural institutions, migration trends and patterns, land acquisition, economics, livelihoods, community grievances and expectations, education, employment, health status and access to health services, culture, settlement pattern, and infrastructural services), and stakeholder engagement

8. Chapter 5: Associated and Potential Environmental Impacts – impact assessment methodology, impacts across all project activities, significant positive impacts, significant negative impacts, cumulative impacts, long/short term impacts, direct/indirect impacts, and risk and hazard assessments

9. Chapter 6: Mitigation Measure – best available control technology/best practicable technology, liability compensation/resettlement, site alternative, location/routes, no project option, insert a table listing impacts with corresponding mitigation measures for risks and enhancement measures for opportunities and compliance with health & safety hazards requirements

10. Chapter 7: Environmental and Social Management Plan – E&S management system, additional management plans, scope of monitoring, parameters to be monitored, methodology, and monitoring schedule
11. Chapter 8: Remediation plans after decommissioning/closure
12. Chapter 9: Conclusions and Recommendations
13. Bibliography
14. Appendices

ANNEX 7: E&S audit report outline and action plan table

1. Table of contents
   - Chapters and their titles
   - List of maps, illustrations and figures
   - List of Tables
   - List of acronyms
   - EAR preparers
2. Executive summary
3. Acknowledgement
4. Chapter 1: Introduction – background information, objectives, scope, approach, and EAR structure
5. Chapter 2: Project / Facility and Process Description – facility layout, organizational structure, description of operational activities and facility components, resource management (water, energy, labour), safety and security management, and stakeholder and community management
6. Chapter 3: Description of the Environment –
   - E&S data collection – data acquisition methods, climatic conditions, geology and hydrogeology, air quality assessments, noise level assessment, vegetation cover characteristics, ecosystem services assessment, terrestrial fauna and wildlife, soil studies, aquatic studies (hydro-biology and fisheries), groundwater resources, socio-economic

characteristics (demography, ethnicity, language, religion, vulnerable groups, administrative and socio- cultural institutions, migration trends and patterns, land acquisition, economics, livelihoods, community grievances and expectations, education, employment, health status and access to health services, culture, settlement pattern, and infrastructural services), and stakeholder engagement.

- Assessment of compliance level with national and state E&S regulations, with recommendations from the last ESMP, with other international standards (if applicable, depending on the project funding source).

- Assessment and testing of emergency preparedness response.
- Assessment and review of effectiveness of other management plans such as waste management plan, local employment management plan, community sustainable development management plan, stakeholder engagement plan, etc.

- Review of existing E&S-related management systems.

7. Chapter 4: Audit Findings – site specific observations, summary of E&S data non-compliance with baseline, mitigation measures and/or regulations, summary of non-compliance with management systems, management plans, and emergency response (if any), impact of non-compliance (if any).

8. Chapter 5: ESMP – E&S monitoring programme, internal audit process, E&S-related management plans (existing, new or updated).
9. Chapter 6: Recommendations – recommendations, follow-up action plan (table format shown below)
10. References
11. Appendices

E&S Audit Follow-up Action Plan Table Format

E&S Reference Standard (regulations, obligations in ESMP, etc.)	Non-compliance issue	Corrective actions / Mitigation measures	Priority of action	Responsibility	Timeline	Cost