

PPP and Climate Change Mitigation and Adaptation Screening Assessment Report for the Nasarawa Meter Manufacturing Project

1. Summary Output

For inclusion in the State PPP Pipeline, a preliminary project screening was conducted using United Kingdom Nigeria Infrastructure Advisory Facility's (UKNiAF's) Project Screening Tool. The Project Screening Tool Kit incorporates **Poverty, Gender and Social Inclusion & Climate Change** (PGESI & CC) considerations and captures UKNiAF's Project Screening criteria for Public Private Partnership (PPP) Investment projects.

The screening tool is based on the well-known international standards used by infrastructure investors for gender and climate smart investing, such as the Development Impact and Environmental & Social (E&S) risk due diligence framework of the CDC Group, the IFC's Performance Standards, and the 2X Criteria developed by the 2X Challenge initiative for gender-smart investing. (See Annexure 1 for basic information about the tool and the Decision Criteria).

The output from the project screening shows medium commercial viability potential, high development impact, and low environmental social, and climate risk.

The project has an overall score of 71%, an E&S score of 93%, and a Climate Mitigation & Adaptation score of 70%. This is above the minimum required for the project to be selected and to proceed in the PPP Lifecycle. Project is therefore recommended to proceed. See detailed scoring output in Annexure 2

Below is the summary result of screening the project with UKNiAF's Project Screening tool. Detailed output is in the Annexure.

Table 1: Preliminary Environmental and Social Risk Assessment Outcome

Key Assessment Criteria	High, Medium, Low
Commercial Viability	
Strategic Alignment	High
Market Demand	High
Commercial Viability	Low
Complexity	Low

Project Selection Decision Criteria

- i. Have a minimum overall score of 70%
- ii. Have a minimum score of 60% on Climate Change and Adaptation criteria
- iii. Have a minimum score of 60% on environmental and social factors

Key Assessment Criteria	High, Medium, Low
Lenders' Interest	Medium
Development Impact Assessment	
SDG Fit	High
Sector Fit	High
GESI Impact	Medium
Poverty Impact	High
Climate Impact	Low
E&S Risk Assessment	
Exclusion List met? (Y/N)	Yes
Compliance with local laws / develop E&S Management Systems	High
Environmental Pollution or Destruction	Low
Negative impact to heritage, resettlement, and indigenous communities	Low
Adverse impacts from Climate Change and/or high emissions	Low
Material E&S risks (biodiversity, climate, other)	Low

2. Project Overview

Description	
Project Title	Nasarawa Meter Manufacturing Plant
MDA	Key MDA Nasarawa Electricity Power Agency Other MDA Nasarawa Investment and Development Agency
Project Locations	Lafia, Nasarawa State
Sector	Energy

Project is for the set-up of a meter manufacturing plant in the state, to produce state of the art Smart Single and Three Phase Smart Meters to cover Nigeria and Africa's Metering Gap while ensuring the viability of the Nigeria Electricity Sector Industry.

There is a significant metering gap in Nigeria, estimated at 44.7 million, and this is a significant contributor to the liquidity crisis and the continuous poor performance of the power sector in the country. There is a general appreciation that no significant investment can crystallise into the sector unless the metering gap is resolved. This metering project is, therefore a critical piece in resolving the Nigerian power sector debacle. There is strong evidence from the NERC and the CBN that if well-structured and implemented, a meter manufacturing plant such as the one being proposed can tackle the key issues militating against the progress of the power sector. This project has the potential to grow the electricity value chain in Nigeria, reduce FGN forex spending, reduce pressure on the naira, bring in the much-needed Foreign Direct Investment (FDI), create jobs, improve IGR, and accelerate industrialisation, knowledge transfer, urbanisation and improve the overall standard of living.

From a regulatory perspective, there is a commitment from the Federal Government through various laws, policies, and programmes, to geo-expand and deepen the electricity metering market in Nigeria – the Nigeria Electricity Regulatory Authority drives this. The idea is to scale back on importing the

meters and increase local capacity to facilitate the transfer of skills and technology in the metering space across the continent.

The Nasarawa Meter Manufacturing Plant aims to leverage on the commitment of the Federal Government to;

- i. eliminate estimated billing practices in NESI;
- ii. Attract private investment to the provision of metering services in NESI;
- iii. Close the metering gap through accelerated meter rollout in NESI;
- iv. Enhance revenue assurance in NESI;
- v. To create employment opportunities, especially for the teaming youth.

The above has triggered an opportunity to work with the Distribution Companies and Meter Asset Providers across Nigeria to achieve the objectives of the MAP regulations recently passed by the regulator. At Nasarawa, we aim for a market leading position by leveraging on efforts to develop an independent and competitive meter service in the Nigerian Electricity Supply Industry (NESI).

The Nasarawa Meter Manufacturing project has clear and specific outputs that can be commercialised. End users, Electricity Distribution companies, the government, and other off-takers will be expected to pay for the meters as the case may be.

The project has strong potentials – it will be the first-meter manufacturing company in Northern Nigeria, with the largest concentration of unmetered households. There is also an existing demand for meters from all DISCOS in the country. Furthermore, there is a strong commitment from the highest political leadership in the State towards the implementation of this project.

The evidence that we have seen so far indicates that this project can potentially be delivered in an environmentally sustainable way. The scale of the project shows there will be insignificant or no impact on natural habitat, damage to areas of diversity, and unfair displacement of communities.

Preliminary analysis shows that the project can be structured not to unfairly discriminate against women or disadvantaged groups and not to adversely impact climate change or increase Greenhouse Gas (GHG) emissions. If well-structured and implemented, the project is likely to generate significant socio-economic benefits. Further analysis is required when more data is made available.

From a continental perspective, Nigeria is an entry point into the African market. With the African Continental Free Trade Area Agreement in place, there is significant potential for expansion once appreciable progress is reached in Nigeria.

3. Climate and Disaster Risk Assessment

A structured climate and disaster risk assessment for infrastructure projects is necessary to understand the short- and long-term climate risks that may impact the project components' sustainability. It provides information to guide decisions on climate-smart design and other resilience measures to reduce the impacts of the identified climate and disaster risks and insight on how the project aligns with national and global climate policies such as Nationally Determined Contributions, National Adaptation Plans, and the Paris Agreement.

Project Exposure to Climate and Geophysical Hazards

The current and future exposure of the project location and target beneficiaries to relevant climate and geophysical hazards was assessed using information and data from World Bank's Climate Change

Knowledge Portal (CCKP)¹, ThinkHazard!² And Nigeria's National Adaptation Plans. A **High** exposure to risks associated with Extreme Precipitation & Floods, Droughts and Extreme Heat were considered.

Maximum annual temperatures in Nasarawa, Nigeria, where the project is located, is projected to increase by 0.88-1.7°C (SSP2-4.5 scenario) by mid-century (32.91°C in 2021 and a median (50th percentile) of 33.79°C, with the 10th-90th percentile projections of 34.61°C in 2050). Warming is projected for all seasons with substantial increases are expected in the frequency of days and nights that are considered 'hot' (Tmax under greater than 35°C) the current climate (27% increase). Projected increases in seasonal rainfall and the proportion of rainfall as heavy events will have implications for flooding. Continuing climate change is likely to exacerbate existing challenges including drought and water scarcity. The risk is rated as High since projections clearly indicate an increase in extreme temperature and precipitation in future decades. Although flooding risk is rated Low and drought risk is rated Medium, overall exposure rating is **High** on principle since extreme heat hazard level is rated high according to ThinkHazard!

Potential Impact of Identified Climate Change Risks on the Project's Infrastructure, Services Delivery, and Beneficiaries

Extreme temperature: Extreme temperature can induce cracking and fissuring of the factory buildings and impact cooling and water systems. Exposure to higher-than-average temperatures and lack of cooling infrastructure, can decrease cognitive ability – especially in hot regions. On the other hand, extreme heat exposure can lead to increased demand of energy to meeting cooling needs.

Extreme Precipitation and flooding: Flooding can damage and impact access to the factory buildings and facilities, and interrupt school sessions. Extreme precipitation can increase transmission of vector-borne and waterborne diseases.

Drought and water scarcity: Exposure to drought conditions is associated with poorer cognitive ability, lower school enrolment and diminished educational opportunities. Droughts can also affect water quality, leading to diarrheal disease.

In 2022 alone, a flooding event induced by heavy rainfall in Nasarawa State damaged and destroyed houses and other critical infrastructure, displaced 145 000 people from 95 communities (settlements) in 11 LGAs while also disruption business and livelihoods in the state. The North-central states are recording a reduction in the amount of rainfall resulting from late onset of rainfall, early cessation, and shortened length of the rainy season as well as desert encroachment which are evidence of drought in the region. The project is expected to be designed with a consideration to both recent and future climatic trends in its preliminary designs. This includes locating the factory in an area with low flood-risk, ensuring the building is an elevated structure with considerable tree cover to provide shade, and designing drainages to be more storm-resilient.

The indicative rating of the potential impacts of climate and geophysical hazards on the project's physical infrastructure and assets as currently designed under relevant subsectors is **Moderate**. Climate and geophysical hazards are likely to impact the structural integrity, materials, siting, longevity, and overall effectiveness of the investments.

Climate Actions | Resilience Measures - Modulation of risks by the project's soft components and development context

¹ <https://climateknowledgeportal.worldbank.org/country/nigeria/trends-variability-projections>

² <https://thinkhazard.org/en/report/182-nigeria>

Further analysis on the potential impact on key components/subsectors due to exposure from hazards is modulated by the project's soft components and broader development context, considering particularly vulnerable groups including women, is presented as follows:

- i. Modulation of risks by the project's soft components: The project includes capacity enhancement, emergency preparedness plans, awareness raising and evacuation drills for target beneficiaries. The project also supports the updating of flood maps to inform the location of future critical urban infrastructure away from high-risk sites. Combined, these features will reduce the anticipated risk from climate and geophysical hazards;
- ii. Modulation of risks by the project's development context: In Nasarawa state, where the project is taking place, there is efforts to develop strategies and build institutional capacity to identify and respond to disruptions from climate and geophysical hazards. Also, the project development is located in a well-organised academic environment where there is effective enforcement of laws ensuring that building and development are zoned in low-risk locations. However, there are weak emergency response systems in place to bring relief services in case of extreme weather events. There is an overall decrease in the risk from climate and geophysical hazards.

Overall Project Risk

The indicative level of risk to the outcome/service delivery that the project is aiming to provide is **Low**. This rating is derived from hazard information, subject matter expertise, contextual understanding of the project, and modulated on the basis of the project's soft components and broader development context.

The potential risks exposure of the project to extreme heat, flooding and drought are greatly reduced by preliminary design, which takes flood risk and extreme temperatures into account. The project will also support the updating of flood maps to inform the location of future critical urban infrastructure away from high-risk sites. However, lack of emergency response systems for recovery in the project location in the case of extreme weather events increases the risk. Therefore, the overall risk to the outcome of the project is considered to be **Moderate**.

By understanding which of the project's components are most at risk from climate change through this initial screening, additional measures could be taken to avoid the impacts and lower the risks to **No/Low risk** level.

The following additional adaptation measures could be considered in the project planning & design to achieve the No/Low Risk level.

Design project components to help alleviate the risks to women from climate and geophysical hazards. For example, include long-term plans that considers women's needs and constraints for assessing early warning systems and emergency or post-disaster recovery services.

Establish plans to Strengthen early warning systems, disaster planning and response for urban infrastructure and services. This ensures there is emergency response systems to bring relief services in case of extreme weather events.

Potential Impact of Identified Climate Change Risks on the Project's Infrastructure, Services Delivery, and Beneficiaries

Extreme temperature: Extreme temperature can induce cracking and fissuring of the project buildings and impact cooling and water systems. Exposure to higher-than-average temperatures and lack of cooling infrastructure, can decrease cognitive ability – especially in hot regions. On the other hand, extreme heat exposure can lead to increased demand of energy to meeting cooling needs.

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The indicative rating of the potential impacts of climate and geophysical hazards on the project's physical infrastructure and assets as currently designed under relevant subsectors is **Moderate**. Climate and geophysical hazards are likely to impact the structural integrity, materials, siting, longevity, and overall effectiveness of the investments.

Climate Actions | Resilience Measures
Modulation of risks by the project's soft components and development context

Further analysis on the potential impact on key components/subsectors due to exposure from hazards is modulated by the project's soft components and broader development context, considering particularly vulnerable groups including women, is presented as follows:

Modulation of risks by the project's soft components: The project includes capacity enhancement, emergency preparedness plans, awareness raising and evacuation drills for target beneficiaries. The project also supports the updating of flood maps to inform the location of future critical urban infrastructure away from high-risk sites. Combined, these features will reduce the anticipated risk from climate and geophysical hazards.

- Modulation of risks by the project's development context: In Nasarawa state, where the project is taking place, there are efforts to develop strategies and build institutional capacity to identify and respond to disruptions from climate and geophysical hazards. Also, the project development is located in a well-organised academic environment where there is effective enforcement of laws ensuring that building and development are zoned in low-risk locations. However, there are weak emergency response systems in place to bring relief services in case of extreme weather events. There is an overall decrease in the risk from climate and geophysical hazards.

Environmental and Social Impact Assessments (ESIA)

Given the project type and scope, the environmental impact expectation is minimal, as no significant impact on noise level, air quality, biodiversity, water, and local communities is expected. A full Environmental and Social Impact Assessment (ESIA) might therefore not be required. The land covers approximately 2 hectares and is characterised by plain terrain with no dense vegetation or trees. These factors collectively contribute to a positive outlook for the project's environmental compatibility and adherence to sustainable land use practices. Despite the positive outlook, some potential environmental risks remain, and the impact and risk response are presented below.

Table 29: Environmental Risks, Impact and Risk Response

Activities	Risk	Impact	Risk Response
Construction	Land Disruption	Temporary disturbance of land	Implement soil erosion control

Phase			measures
		Potential soil erosion	Conduct regular environmental monitoring
		Disruption to local ecosystems	Engage with local communities for feedback
		Noise pollution	Schedule noisy activities during off-peak hours
		Dust emissions	Use dust suppression methods during construction
		Potential traffic congestion	Coordinate with local authorities for traffic management
Operational Phase	Resource Consumption	Increased water and energy use	Implement water and energy-efficient technologies
	Waste Generation	Generation of solid waste	Develop a waste management plan
		Potential pollution of water bodies	Treat and manage wastewater appropriately
	Community Relations	Community dissatisfaction	Establish a community liaison officer
		Social conflicts	Conduct regular stakeholder engagement
		Local job opportunities	Prioritise local hiring and skill development
	Habitat Disruption	Removal of project structures	Develop a habitat restoration plan
		Potential impacts on local fauna and flora	Monitor ecological recovery
		Noise and disturbance during removal	Notify local communities in advance

ANNEXURE 1: ABOUT THE PROJECT SCREENING TOOL AND DECISION CRITERIA

About the Screening Tool

The Project Screening Tool Kit incorporates Poverty, Gender and Social Inclusion & Climate Change (PGESI & CC) considerations and captures UKNIAF's Project Screening criteria for Public Private Partnership (PPP) Investment projects.

The quality of existing infrastructure to support Nigeria's productivity and competitiveness have been categorised as poor; constraining; disproportionately accessible to the poor; and extremely vulnerable climate change risks. Closing Nigeria's infrastructure gaps in a way that can sustain equitable human development requires a re-orientation in designing and delivering commercially viable PPP infrastructure projects that integrate more "responsible" considerations. These responsible considerations look beyond the typical 'Value for Money' and 'affordability' tests to focus on 'doing no harm' and 'leaving no-one behind' in order to attract private sector funding. It will integrate climate smart, environmental & socio-economic considerations in the current PPP delivery approach.

In this light, the Project Screening tool outlines a systematic approach for selecting, prioritising, categorising, assessing, & managing PPP projects that focus on climate adaptation and effective management of Environmental & Social issues while integrating opportunities for increasing developmental impact through meeting poverty reduction, gender equality and social inclusion targets. The Project Screening toolkit is based on the international standards used by infrastructure investors for gender and climate smart investing. It will be used by the UKNIAF team to engage with the Nigerian government and member of the investment community.

Decision Criteria

The maximum score for each Assessment Area is 100%, and the overall score will be determined by the sum of all weights taken from each thematic area (Commercial Viability, 20%; Climate Change, 25%; E&S Risk, 25%; Gender Equality, 15%; Poverty Reduction, 15%) which is also a maximum of 100%. For a project to be selected, it must meet a set of criteria, which includes;

- i. Have a minimum overall score of 70%*
- ii. Have a minimum score of 60% on Climate Change and Adaptation criteria*
- iii. Have a minimum score of 60% on environmental and social factors*

The second and third criteria are critical to avoid a scenario where a project that scores very low on key E&S and CC issues but scores high on other thematic areas still proceeds to be selected. This would be a major risk to the project, UKNIAF and the people of Nigeria.

ANNEXURE 2: OUTPUT FROM PROJECT SCREENING

Summary Sheet – Nasarawa Meter Manufacturing Project

Investment Name	<i>Nasarawa Meter Manufacturing Project</i>
Project Owner	<i>Nasarawa Electricity Power Agency</i>
Location	<i>Lafia, Nasarawa State</i>
Investment Category	<i>Minor</i>
Investment Tenor (years)	<i>20</i>
Investment Size (USD)	<i>\$5.5 Million</i>
Investment Sector	<i>Power</i>
Date	<i>44997</i>

2. Exclusion List

Does the project to be invested in participate in any activities listed in the exclusion list? (click here)	No
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OVERALL SCORE 71%

SCORE
COMMERCIAL VIABILITY (20%) 57%

3. Strategic Alignment	
Project has high strategic importance	1
Project delivers public infrastructure or service in a priority sector	1
Project fills a clear and substantiated critical Infrastructure gap or service deficiency	1
Existing legal framework accomodates private sector participation in the project	1
MDA can finance the project's operating and maintenance costs out of its recurrent budget	0
4. Market Demand	
Market appetite to support the project is proven	1
Government has successfully delivered similar PPP projects	0
Project has secured funding commitments from non-IGR sources	0
5. Complexity	
Project is a brownfield project	0
Project output requirements are clearly defined in tangible or measurable terms and are verifiable	1
Project affects, or is affected, by the delivery of other critical infrastructure project(s)	1
6. Lenders Interest	
Project meets all or parts of lenders' commercial requirements	1
Interest rate risk (fluctuation of loan interest)	0
Project is exposed to currency exchange rate risk	0

Environmental and Social Risk (25%) 93%

7. Provisional E&S Risk Categorization

Does the project operate in a High, Medium or Low Risk Sector?	1
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8. Potential Environmental & Social Risks

Air Emissions: Significant levels of air emissions that may breach of local regulations or World Bank/IFC Standards	1
Solid Waste Management: Potential generation of waste that can significantly affect the living conditions of local communities or ecosystems or may have an impact on ambient environmental conditions (i.e. air, surface and groundwater, and soils)	1
Water Quality / Management: Significant impact on availability and/or quality of water resources to local communities or habitats	1
Community Health, Safety & Security: Significant risk to local communities due to heavy industrial transport activities	1
Community Health, Safety & Security: Significant risk to local communities due to exposure to communicable diseases from operations or movement of migrant workers (e.g. HIV/AIDS, or water borne diseases such as malaria or cholera).	1
Community Health, Safety & Security: Need for consultantion with, and disclosure to, the public in relation to the investment operations and its potential impacts in accordance with appropriate procedures. Specifically acknowledging stakeholder engagement of women as a subset of the community.	1
Operation in remote areas: Operations in remote areas (or with supply chains that affect such areas) which introduce infrastructure (e.g. roads, electricity, etc.) or increase activities in such areas.	0
Land Acquisition: Significant changes in use of the land (e.g. from agricultural land or residential premises to industrial use, or vice versa) that requires prior agreement and informed consultation with stakeholders	1

Resettlement and economic displacement: Operations will require people to move from their homes, or will result either in the loss of economic assets (e.g. crops, fields), or access to livelihoods that leads to loss of income,	1
Wildlife and natural habitats: Impacts on protected areas or other natural habitats. Potential introduction of invasive alien species, major changes to ecosystem services	1
Indigenous Peoples: Direct or indirect impacts on indigenous / vulnerable peoples (i.e. distinct social and cultural groups with identities that are distinct from dominant groups in national societies).	1
Cultural Heritage: Operations will impact on cultural heritage e.g. building on sites with archaeological, historical, cultural, or religious value) or intangible cultural heritage (e.g. by impacting a minority community such that its language, performing arts, customs are affected).	1
Social Licence to Operate/Track Record: Scale, location and project operations may raise concerns from local or international communities (e.g. newspaper articles, NGO action, etc.) or project will be located in areas where there is a history of tension and activism over oil & gas development (including locations where plant damage, closure or public campaigns have occurred)	1

Climate Mitigation & Adaptation (25%)	70%
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9. Climate Change Risk, Mitigation & Adaptation	
Potential vulnerability of the project to Climate Risk	1
Does the program contribute towards the NDC's target to achieve Climate Mitigation in at least 2 areas?	
<i>Contribute to net change in Greenhouse Gas Emissions (tCO₂e) – tonnes of GHG emissions by x% (KPI 6)</i>	1
<i>Reduce deforestation of degradation by x% (KPI 8, 10)</i>	0
<i>Promote energy saving by x% (KPI 16)</i>	1
<i>Improvement of electricity generation grid (NDC)</i>	1
Does the program contribute towards NDC's target to achieve Climate Adaptation in at least 2 areas?	

Promote Climate Smart Agricultural practices	0
Improve access to clean energy for x people , clean low carbon emission technology for x people (MW)	1
Mobilise up to NGN x of public or private finance funds with the main objective to reduce climate change or impacts of climate change (KPI 11, 12)	1
Integrate Climate Change in any national planning process with defined policy / program outputs (KPI 13)	0
Promote knowledge of climate change issues, mitigation and adaptation approaches with clear expected policies / projects outputs (KPI 14)	1
Gender Equality (15%)	63%
6. Development Impacts (Gender Impact, Climate Adaptation Considerations)	
Project will integrate at least 30% share of women in the workforce	1
Project will diversify supply chain to include at least 30% of women entrepreneurs	1
Women in Senior Management will represent at least 40% share or Women on Board / Investment Committee will represent 30%	0
Program will contribute to women's access to at least 2 of the following services (select as appropriate)	
Increase access to internet services for x people	1
At least 30% of the DFI loan proceeds to financial institutions support investments for women entrepreneurs	1
Increase access to safe transportation for at least x women and girls in the community	0
Increase access to life skills training and job placement assistance for at least x women and girls in the community	0
Increase access to community clinical preventive and emergency services for at least x women and girls in the community	1
Poverty (15%)	60%
6. Development Impacts (Poverty Reduction Impacts)	
Project will create at least x jobs – especially green and inclusive jobs – and access to jobs for vulnerable people (KPI 5)	1

Project will improve access to food nutrition and personal security for at least x poor and vulnerable people	0
Project will provide or improve access to infrastructure and clean energy for at least x poor and vulnerable people (KPI2)	1
<i>Does the program contribute to reducing poverty for the poor and vulnerable & Climate Adaptation in at least 1 of the following ways</i>	
<i>Project will improve access to finance for at least x poor and vulnerable</i>	0
<i>Project will improve access to markets for at least x poor and vulnerable people</i>	1

