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CEFTER FOOD TECHNOLOGY INNOVATION COMPLEX (CEFTIC)

ENVIRONMETAL AND SOCIAL MANAGEMENT PLAN

CENTRE FOR FOOD TECHNOLOGY AND RESEARCH
BENUE STATE UNIVERSITY, MAKURDI

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List of Acronyms and their definitions

ACE	African Higher Education Centre of Excellence
BMP	Best Management Practices
CEFTER	Centre for Food Technology and Research
CEFTIC	CEFTER Food Technology Innovation Complex
CFRN	Constitution of the Federal Republic of Nigeria
EIA	Environmental Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FEPA	Federal Environmental Protection Agency
FMEnv	Federal Ministry of Environment
FMARD	Federal Ministry of Agriculture and Rural Development
FMS&T	Federal Ministry of Science and Technology
H_2O	Water
ICT	Information Communication Technology
K	Cretaceous
NESREA	Nigeria Environmental Standards and Regulatory Enforcement Agency
NGN	Nigerian Naira
NIS	Nigeria Industrial Standard
PG	Post Graduate
PUTOR	Public Health and Toxicological Research
Qe	Quaternary extrusive and intrusive rocks
SDG	Sustainable Development Goals
STEM	Science Technology and Mathematics
TOR	Terms of Reference
US	United States of America
WASH	Water Sanitation and Hygiene

Executive Summary

The Africa Higher Education Centers of Excellence (ACE) Project is a World Bank initiative in collaboration with governments of participating countries to support Higher Education institutions in specializing in Science, Technology, Engineering and Mathematics (STEM), Environment, Agriculture, applied Social Science / Education and Health. It is the first World Bank project aimed at the capacity building of higher education institutions in Africa.
The first phase (ACE I) was launched in 2014 with 22 Centers of Excellence in nine (9) West and Central African countries; Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Gambia, Ghana, Nigeria, Senegal and Togo. The Project aims to promote regional specialization among participating universities in areas that address specific common regional development challenges. It also aims to strengthen the capacities of these universities to deliver high-quality training and applied research as well as meet the demand for Socio-Economic skills required for Africa's development.

Under ACE Impact, the Centre for Food Technology and Research (CEFTER) plans to establish **CEFTER FOOD TECHNOLOGY INNOVATION COMPLEX (CEFTIC)** where students will be trained in modern intensive food processing techniques with a focus on controlling post-harvest losses which is the core mandate of the Centre.

Project Description
The proposed activities associated with the project will involve the construction of two factory buildings, car park, an admin building, a security post and male and female toilets. The planned construction will be completed within 18 months. The associated structure and works expected include, foundation laying, plumbing, electrical fittings, soak away, universal access to all buildings including toilets, roofing, landscaping, etc to accommodate the factory and all factory activities. The factory buildings will be divided into sections and equipped with processing machines for various agro-based products. The implementation activities include the following**:**
Civil works: This will include clearing of the project site, demolition of the uncompleted building on the site, excavation and laying of the foundation for the structure and roofing. **Other Civil works** will include installation of doors and windows, plastering, tiling, painting and plumbing. **Electrical works** will involve wiring and electrical fittings. **Mechanical works** will involve the installation of processing machines including Yam processing machines, Yoghurt processing, Bakery (bread and biscuit), Tomatoes and pepper paste processing, Vegetable oil processing, Rice processing, Orange juice Processing, Animal feed production and Fruits and grain sorting machines.

Rationale

The proposed project will involve the construction of a new building to accommodate the factory. Activities associated with the project such as, foundation excavation, cement works, de-vegetation, waste generation etc, will pose negative environmental and social risks/impacts due to the nature of the works. Some of the potential negative impacts that could arise during the construction works will include: the generation of hazardous, and non-hazardous waste, noise/air pollution, vibrations, accident from the movement of equipment and materials to the site, occupational health & safety risks, risks associated with labour influx (gender-based violence in particular Sexual Exploitation and Abuse, increase in sexually transmitted infections and diseases), grievance and disturbance to physical and cultural resources among others. All these trigger the World Bank's Operational Policy (OP) on Environmental Assessment (OP 4.01) and Physical Cultural and Resources (OP 4.11). In addition, the Nigeria EIA Act mandates that any construction that would have a significant impact on the environment must be subjected to an environmental assessment before the commencement of the civil works.

The ESMP identifies environmental and social impacts associated with this sub-project as well as the mitigation of impact associated with it. It details measures to be taken during the implementation and operation of this project to eliminate or offset anticipated adverse environmental and social impacts.

Methodology for the Assessment and Development of the ESMP.

This study used the checklist approach which is an effective tool recommended for low-risk typology (Canter, 2010)[1] in the determination of the impacts of the planned project. However, to achieve a comprehensive and effective ESMP, there was a triangulation of methods to gather and compile data to generate information for determining the impacts and the development of mitigation measures, these include: a) **Site visits/ Transect:** the transect method was used to take a view of the physical and social components of the environment; b) **Survey:** was useful to generate primary data on the socio-economic characteristic of the site; c) **Desk review** was useful to review regulatory/ legal frameworks and other relevant literature d) **Experts view**; this was used to support analysis of the impact of the project activities; e) **Stakeholder consultation** wa**s** used to acquire the views of various stakeholders.

Biophysical Environment of the Project Area

Climate and Meteorology

The project site is located in Makurdi around Latitude 7.716478 and Longitude 8.608371 along the Makurdi- Gboko road. The area of influence experiences two seasons the dry season begins in November and ends in April and the rainy season is from April to November. The geology of Makurdi town is cretaceous and consists of fluviodeltic sediments with well-bedded sandstones which are of hydrogeological significance in terms of groundwater yield and exploitation (Kogbe,

[1] Canter L. W. (2010). Environmental Impact Statement. McGraw-Hill, Inc, New York, 2nd Edition.

1978). The project area has a generally low-lying topography. The surface elevation ranges between 95 – 130m above sea level. It is drained by River Benue and its tributaries which flow in a southern direction and empties into the Atlantic Ocean after joining the Niger River at Lokoja. The vegetation of the area of influence of the subproject is consistent with the guinea savannah. It generally consists of grasses, shrubs and herbs. Trees found in the area are majorly economic trees and a variety of ecstatic trees planted within houses and along fences to beautify the houses. Some economic trees observed in the area include, oil palm, mango and citrus.

Environmental Quality Assessment

Soil quality

The soils of the project site and surrounding assessed at the depth of 0-22cm and 22-58cm indicated the soil is generally sandy and clayey. The average pH of both top and sub soil ranges from 5.6 - 6.8 indicating moderately or weakly acidic.

Water Quality

Groundwater samples were collected from hand-dug wells in the project community including the project site. Analysis of the concentration of metals indicated elevated concentrations of Cadmium, Lead, and Manganese with values above the World Bank's acceptable limits. Microbiological analysis shows high levels of E. Coli (0.0402) in the water.

Air Quality

An on-site measurement of the air quality and noise level at the CEFTIC project site will generate baseline data for determining the impact of the project's activities on the environment during implementation. Measurements was taken at three locations within the project community including on the site, near the highway and around the chief's house using MSA ALTAIR® 5x Multi Gas detector. The result showed all major parameters were below the Federal Ministry of Environment's standards.

Ambient Noise Level

The noise level has an average value of 45.55. This is below the standard recommended limit of 90Dba for 8 hours by the Federal Ministry of Environment.

Socio-demographic Analysis

Population

The population of Makurdi town where the project is to be implemented is estimated to be 433,000, projected from the 2006 National Census with a growth of 3%. The town is dominated by the Tiv people considered as the indigenes. Other indigenous Benue ethnic groups found in Makurdi are the Idoma, Igede and the Etulo. There are small populations of Ibos, Hausas and Jukuns who have settled in Makurdi for many years to carry out trade and fishing respectively.

The population of Makurdi town is composed of 48.7% female and 51.3% male. The population is generally young with about 62% of the population falling between 20-49 years old and less than 1% of the population is above 70 years. Based on the composition, there is no remarkable

difference in the population of males to females in the project community, it shows a low ratio (1.1:1) of the males to the female population.

There is lack of statistics on the vulnerable population in project area, however, the women, children and Persons Living With Disabilities (PLWD) constitute the vulnerable population in the project's area. Policies to address the needs of this population are made and managed centrally at the state level. The Ministry of Women Affairs is specifically responsible to lead the implementation of relevant policies to address the needs of the vulnerable population. Some of the policies are derived directly from the federal government. The state policies include education for the PLWD, vocation training and provision of various forms supports and empowerment. There are also protection laws like the Prohibition of Violence Against All Persons Law and Child Rights law aimed to protect them from discrimination and the violation of their rights.

Socio-political and Cultural Organization

Makurdi town doubles as the state capital and local government headquarters of Makurdi local government area**.** As the state capital Makurdi town is a multi-cultural settlement because of the influx of different groups and tribes to take advantage of its commercial and political activities. The presence of two universities and other institutions of higher learning has significant influence on its social-cultural diversity. As a local government, it is made up of 10 wards comprising of Bar, Agan, Central Ward, Clerk Ward, North Bank I and II, Mbalagh, Fiidi, Agan and Walomaiyo. The proposed CEFTIC complex is to be sited at fiidi settlement from which the fiidi ward derives its name.

Economic activities/situation

The project area is dominated by people who are engaged in formal jobs working with the public or private sectors. They have 70% formal education which indicate high literacy rate. The project town is considered as administrative settlement because the majority of the working populations are engaged in government work especially in the civil service.

There are very few industries mostly producing on a small scale and a few economic activities in Makurdi. Micro scale businesses are dominant, those commonly located near the project site include provision stores and tailoring centres. Others are dry cleaning and hair dressing services. There is also a soya oil processing factory located about 70 meters to the CEFTIC complex site with its warehouse lying across the street, directly opposite the project site. The site has the Nigeria Air force's tactical command headquarters within 200 meters and it is generally very well secured.

Methods and Techniques Used in Assessing the Environmental Impacts of the Project

The potential environmental impact of the project on the area of influence was assessed using the checklist approach. The method is an effective tool recommended for low-risk typology (Canter,

2010)[2]. It involves the use of a checklist to relate the project activities to the components of the environment based on the existing environmental conditions. It includes site visits/ transects to take a view of the physical and social components of the environment of the project's site. The observed baseline conditions were logically matched on the checklist on a decision was taken.

Potential Adverse Environmental and Social Impact

The construction works will be implemented on the land Benue State University Management has donated to CEFTER as such there is no involuntary resettlement, acquisition of land, relocation, compensation, loss of physical and economic assets, and /or loss of livelihoods.

However, the proposed project is expected to have positive and negative impacts on the project community. It would have high positive environmental and social impacts within its area of influence as it would provide the opportunity for industrial-linked training, improved food quality, reduce postharvest waste and increase the income of farmers, support agricultural value chain development and provide job opportunities and livelihood sources for many people, lead to capacity development and generate manpower especially for local industrial development.

In terms of the negative environmental and social impacts, it is expected that they would be largely localized in spatial extent owing to the size of the project and its location within less sensitive environmental area. The impacts could be generally contained through the implementation of specific appropriate mitigation measures.

Identification and assessment of impacts

Activities of potential environmental and social impact identified with the proposed project are outlined under three (3) major phases of project activities: Pre-Construction, Construction, Operation.

Pre-Construction phase impacts
During the pre-construction phase, the potential negative and positive impacts will arise from project design and land preparation and will be as follows;

Negative Impacts
- Occupational Health & Safety and traffic/public Safety Issues
- Non inclusive architectural design (not incorporating the needs of PLWD)

Key mitigation measures for these risks will be:
• Public and stakeholder consultation during site selection and preparation and validation of studies.
• Quality control and implementation of validation procedures for environmental studies and their dissemination.
• Regular supervision of the building sites by environmental experts.

Positive Impact

[2] Canter L. W. (2010). Environmental Impact Statement. McGraw-Hill, Inc, New York, 2nd Edition.

Income to consultants/experts

Key mitigation measures

- Following of standard procurement procedures and principles will mitigate this impact.

Construction phase impacts

The risk during the construction will be most prevalent within the site and its community. The following significant impacts are identified;

Negatives impacts

- Debris from demolition of abandoned uncompleted structure
- Loss of vegetation and impacts on fauna.
- Effects on the local microclimate •
- Soil pollution, disturbance and erosion.
- Air quality deterioration.
- Vibration and noise nuisance.
- Generation and disposal of solid waste (vegetal/soil).
- Hygiene, health and safety of workers
- Risk of work accidents and occupational diseases
- Risk of spread of COVID19, respiratory and skin infections
- Public Safety issues
- risk of grievance and conflict

Positive impacts

• Increased and improved economic activities around the project site
• Temporary employment opportunity, business opportunity

Operation phase

During the operation phase, the operation of the processing machine, energy and water use, raw materials and packaging may impact the environment but will be low due to scale of operation and limited within the project site. The negative impacts likely to occur may include:

Negative impacts

- Waste generation and disposal
- Fire hazards
- Emission of bad odours
- Noise from machinery
- Vibration
- Water extraction for factory processes
- Early degradation of the building due to misuse and lack of maintenance
- Public health and safety
- Occupational health and safety
- gender-based violence and sexual harassment
- Risk of spread of COVID19, respiratory and skin infections
- failure to take account of vulnerable people (disabled students, etc.)
- risk of grievance and conflict
- oil leaks

- laboratory waste

Positive impacts

- Improvement of the aesthetics of the community
- development of green spaces around the building
- Increased economic activity around the community
- Improved learning opportunity for students
- employment opportunity, business opportunity
- Asset on the higher education system at national level
- Provision of processed foods to the public
- Achievement of the CEFTER objectives

Contractual Measures

This ESMP shall be included or otherwise referred to in the construction bidding documents and appended to construction contracts. The technical specifications of the bid documents will clearly state that contractor will comply with the mitigation measures provided in ESMP. The contractor shall ensure adequate budget to meet all provisions of ESMP in the bidding documents. The technical specifications of the bid documents will clearly state that contractor will need to comply with the Mitigation measures as provided in this ESMP.

Measures for Non- Compliance with ESMP

Payments to contractors will be linked to environmental and social performance, measured by completion of the prescribed environmental and social mitigation measures. For any non-compliance causing damages or material harm to the natural environment, public or private property or resources, the contractor will be required to either remediate/rectify any such damages in a timeframe specified by and agreed with the engineer or pay CEFTER for the cost (as assessed by CEFTER) of contracting a third party to carry out the remediation work.

Cost Estimate for ESMP Implementation

The indicative cost of implementing the Environmental and Social Management Plan is Sixteen Million, One Hundred and Twenty Thousand Naira (**NGN16, 120,000.00**) Only.

S/n	Item	Cost Estimate (NGN)
1	Mitigation	5,640,000
2	Monitoring	4,080,000
3	Disclosure	2,000,000
4	Contingency	1,800,000
5	Grievance Redress	3,000,000
	Total	**16,520,000**

Chapter 1: Introduction

1.1 Introduction to the ACE Project

The African Higher Education Centers of Excellence (ACE) Project is a World Bank initiative in collaboration with governments of participating countries to support Higher Education institutions specializing in Science, Technology, Engineering and Mathematics (STEM), Environment, Agriculture, applied Social Science / Education and Health. It is the first World Bank project aimed at the capacity building of higher education institutions in Africa.

The first phase (ACE 1) was launched in 2014 with 22 Centres of Excellence in nine (9) West and Central African countries. The success of the project gave rise to the second phase as ACE Impact Project (ACE II) in 2018. The new areas of intervention under the ACE II include sustainable cities; sustainable power and energy; social sciences and education; transport; population health and policy; herbal medicine development and regulatory science; public health; applied informatics and communication; and pastoral production. The second phase (ACE) low-risk includes newly selected centers in Nigeria totaling 17.

1.2 Description of the proposed construction activities

The proposed activities associated with the project will involve the construction of two factory buildings, a car park, an admin building, a security post and male and female toilets. The associated structures and works expected include:

Civil works: This will include clearing of the project site, demolition of an abandoned uncompleted building on the site, excavation and laying of the foundation for the structure, disposal of unwanted materials from the site, filling to make up levels, laying of foundation blocks and concrete and reinforcement works for the foundation. It will also involve, concrete works such as reinforcement works for columns and beams and walls. Other civil works will include roofing covering such as the wood frame for the installation of roofing sheets

Other Civil works will include the installation of doors, windows, plastering tiling painting, plumbing and installation of sanitary appliances.

Electrical works will involve laying of appropriates pipes, electrical wiring and installation of electrical fittings

Mechanical works will involve the installation of food processing machines to process agricultural products to include, Yam processing machines, Yoghurt processing, Bakery (bread and biscuit), Tomatoes and pepper paste processing, Vegetable oil processing, Rice processing, Orange juice processing, animal feed production and fruits and grain sorting machines.

1.3 Rationale for ESMP

The proposed project will involve the construction of a new building to accommodate the factory. Activities associated with the project such as, foundation excavation, cement works, de-vegetation, waste generation etc, will pose negative environmental and social risks/impacts. Some of the potential negative impacts that would arise during the construction work will include: the generation of hazardous, and non-hazardous waste, noise/air pollution, vibrations, accident from the movement of equipment and materials to the site, occupational health & safety risks, risks associated with labour influx (gender-based violence in particular Sexual Exploitation and Abuse, increase in sexually transmitted infections and diseases), grievance and disturbance to physical and cultural resources among others. All these trigger the World Bank's Operational Policy (OP) on Environmental Assessment (OP 4.01) and Physical Cultural and Resources (OP 4.11). In addition, the Nigeria EIA Act mandates that any construction that would have significant impact on the environment must be subjected to an environmental assessment before the commencement of the civil works.

This is a site-specific Environmental and Social Management Plan (ESMP) for the proposed project. It is designed to address the environmental and social risks and impacts associated with this proposed subproject and to comply with the requirements of the EIA Act (Cap E12 LFN 2004) and the World Bank Environmental and Social Safeguard Policies. The ESMP will be disclosed in line with the EIA act and the World Bank's Operational Policy on Public Disclosure (OP 17.60). The instrument identifies environmental and social impacts associated with this sub-project as well as the mitigation of impact associated with this sub-project. It details measures to be taken during the implementation and operation of this project to eliminate or offset anticipated adverse environmental and social impacts.

The ESMP will be utilized by the contractor(s) to be commissioned by the CEFTER to prepare the required Contractor's ESMP (C-ESMP). which will form the basis of the site-specific management plan, prior to the commencement of civil works.

The ESMP will be used by the contractor to address all Occupational Health and Safety (OHS) issues and community health and safety issues associated with the proposed construction work.

1.4 Methodology

The approach and methodology adopted for the ESMP include:

- Bibliographic research / literature review
- Site inspection
- Data collection
- Stakeholder Consultation.
- Reporting/ Review

1.4.1 Bibliographic research / literature review

A desk review of different regulatory frameworks, final ESMP of some related projects and other project related documents were reviewed for development of this ESMP. Some of the documents reviewed include;

- Final Environmental & Social Management Plan (ESMP) for rehabilitation of Aiya 1&11, Ajolagun Culvert, Osun
- Environmental and Social Management Plan (ESMP) for Alaro 7up Bridge Ibadan Urban Flood Management Project, 2016
- AAU Environmental and Social Management Framework (ESMF), Revised version 28 November 2018
- National Environmental (Noise Standards and Control) Regulations 2009
- National Environmental (Air Quality Control) Regulations 2014
- Nigerian Industrial Standard (NIS-554-2015) Nigerian Standard for Drinking Water Quality
- Environmental and Social Management Plan (ESMP) for the construction of ACE PUTOR building complex

1.4.2 Site Inspection

The Site Inspection involved a physical visit to the project site/community by the study team. It was useful for observing the geo-physical features of the project area, take samples, measure environmental parameters and to identify land use type and the people likely to be affected by project activities. The project site is located between Lat. $7^0$43'02"N and Long. 8^0 36'31"E. It has a total area of 10,511sqm and is located off Benue State University Campuses, on a land donated by the University to CEFTER about 7km on the Makurdi- Gboko road. The site lies within a small community around the Nigeria Air Force Tactical Command Headquarters, the Air Force occupies the entire other side of the road and lies opposite the project community.

Figure 1 Site inspection

1.4.3 Stakeholder Consultations

Critical stakeholders comprising individuals and groups who may be affected directly or indirectly by the project's activities were consulted to incorporate their concerns in the design of the plan. This was done in line with the standard practices relating to such projects and as important practice by CEFTER to ensure the incorporation of the views and concerns of all stakeholders in the ESMP. The stakeholders that were consulted include;

- Project community
- University planning department
- Ministry of Urban development
- Civil Society

- CEFTER Management
- CEFTER Students
- Project consultants

Two levels of stakeholder consultation were used in this study. The first was during the socio-economic data gathering. A second phase of the stakeholders' involvement was through a stakeholder consultative meeting. A detailed stakeholder analysis was conducted by the consultant with support of the CEFTER safeguard officer and the Centre deputy leader.

Figure 2: Consultant and team member in an interaction with members of the community on the project site

1.4.4 Reporting/Review

The report contains the findings from the field and key recommended actions to address potential impact of the project on the environment. The drafting of the report followed a thorough process to ensure that it meets quality standards. The first draft was based on the TOR provided for the project. It was followed with a detail review process and technical recommendation to improve its quality. Major headings of the report include the following:

A. Executive summary
B. Introduction
C. Institutional and Legal framework
D. Description and analysis of the initial state of the environment
E. Description of Environmental and Social impacts of the project
F. Environmental and Social Mitigation management plan
G. Environmental Management Structure
H. Conclusion
I. References
J. Annexes

Chapter 2: Institutional and Regulatory Frameworks Relevant to this Project

2.1 The Institutional framework

2.1.1 The Federal Ministry of Agriculture and Rural Development (FMARD)

The Federal Ministry of Agriculture and Rural Development (FMARD), is a Ministry of the Nigeria government that regulates agricultural research, agriculture and natural resources, forestry and veterinary research all over Nigeria through its agencies.

2.1.2 Federal Ministry of Science and Technology (FMS&T) and Parastals

The National Biotechnology Development Agency (NABDA) (2001).

The Agency was established under the aegis of the Federal Ministry of Science and Technology to implement the policy that is aimed at promoting, coordinating, and setting research and development priority in biotechnology for Nigeria. Pat of its specific mandates is to undertake research, development and innovation, promotion and deployment of appropriate biotechnologies for increased productivity and value chain development to enhance sustainable agriculture and food security.

Federal Ministry of Environment (1999 Presidential Directive)

The Federal Environmental Protection agency (FEPA) was established by Decree No. 58 of 1988 and subsequently amended by Decree 59 of 1992 with further amendment by Decree 14 of 1999. FEPA was absorbed into the Federal Ministry of Environment (FMEnv) in 1999 by a presidential directive and its functions among others are now the responsibility of the new Ministry however the creation of NESREA by an act of parliament No 25 of 2007 transferred all the responsibilities of FEPA to the new agency.

National Biosafety Management Agency Act, 2015

This Act establishes the National Biosafety Management Agency charged with the responsibility for providing regulatory framework, institutional and administrative mechanism for safety measures in the application of modern bio-technology in Nigeria with the view to preventing any adverse effect on human health, animals, plants and environment.

The National Environmental Standards and Regulations Enforcement Agency (NESREA) Act No 25 of 2007

The Act establishing the Agency creates provisions for the setting of air quality standards and atmospheric protection. The Act also prohibits the discharge of hazardous substances into the air or upon the land and waters of Nigeria or at the adjoining shorelines except where such discharge is permitted or authorized under any law in force in Nigeria. Some of these regulations include:

- The National Environmental (Sanitation and Wastes Control) Regulation S.I 28 of 2009;
- National Environmental (Noise Standard and Control Emission) Regulations, S.I No. 35 of 2009:

Benue State Ministry of Environment and Water Resources

The Benue State ministry of environment is established with the responsibility to oversee policy formulation and implementation in the environmental subsector. This is achieved through the following objectives:

- Policy formulation, and evaluation and advising of government.
- Environmental regulation and control of environmental hazards
- Lead in formulating standards and enforcement in all projects including donor funded projects within the state;

2.1.3 Regulatory frameworks

- National Agency for Food and Drug Administration and Control (NAFDAC) act no. 15,1993 15.
- Standards Organization of Nigeria Act No. 14 2015
- Land Use Act Cap 202 LFN 1990
- Environmental Impact Assessment Act 1992
- National Environmental Standards and Regulations Enforcement Agency (Establishments) Act of 2007
- Nigeria Urban and Regional Planning Decree 1992

2.1.4 Relevant World Bank Policies

- **Environmental Assessment (EA) (OP/BP 4.01)**

  Environmental Assessment is used in the World Bank to identify, avoid, and mitigate the potential negative environmental and social impacts associated with Bank's lending operations early- on in the project cycle. In World Bank operations, the purpose of Environmental Assessment is to improve decision making, to ensure that project options

under consideration are sound and sustainable, and that potentially affected people have been properly consulted and their concerns addressed. This policy is triggered if a project is likely to have potential adverse environmental and social risks and impacts in its area of influence. The EA has various tools that can be used, including amongst others Environmental and Social Impact Assessment (ESIA) or Environmental and Social Management Plan (ESMP). The selection of EA instruments to be used for a particular project is made through the Environmental and Social Screening process; all projects proposed for World Bank financing are to be screened, and are categorized according to their potential environmental and social impacts as preliminarily assessed during the screening process. Efforts have been made to identify some potential adverse environmental and social impacts of the CEFTIC Complex Project.

- **Physical Cultural Heritage OP 4.11**

  This policy addresses physical cultural resources, which are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. The project in itself will not be implemented in any culturally sensitive site. Sites of cultural significance will be avoided. In the case of a chance find, cultural artifacts will be collected and secured. Physical cultural resources are important as sources of valuable scientific and historical information, as assets for economic and social development, and as integral parts of a people's cultural identity and practices.

Chapter 3: Project Description

3.1 Project Location

The complex will be built on a piece of land measuring about 10,500 squere meters which the Benue State University (BSU) donated to CEFTER. The land is located outside the campus of the university and lies in the fiidi community about 7km along the Makurdi- Gboko road. Fiidi community is a small community around the Makurdi air field. It is located entirely on one side (north) of the Makurdi- Gboko road while the Nigeria Airforce occupies the entire other side (south) of the road. The project site is located around Lat. $7^0$43'02" N and Long. 8^0 36'31"E. It is bounded on the north by an access road (street) and another on the west. On the South and East, it is bounded by residential buildings. There is located very close to the site of the proposed project a soil oil processing company with its warehouse standing on the other side of the street bounding the project site on the west.

3.2 Description of the Proposed Project

The Complex, **CEFTER FOOD TECHNOLOGY INNOVATION COMPLEX (CEFTIC)** is planned to house training facilities where students will be trained in modern intensive food processing techniques with a focus on controlling post-harvest losses which is the core mandate of the Centre for Technology and Research (CEFTER). The Centre (CEFTER) has had challenges with sending students on Student's Industrial Work Experience (SIWES) and practical training due the absence of standard industries within Nigeria that have modern food processing facilities. Therefore, the complex will be equipped with food processing facilities to serve as training facilities for the students. Specifically, the factory will be developed in two sections:

1. The technology modelling, design and fabrication section, will contain machines and equipment dedicated to the modelling/design and fabrication of equipment and tools for use in research, production processes and packaging.
2. The food processing technology section will contain processing machines and equipment for the processing of various agro produce.

The implementation will be phased as; pre-construction, Construction and Operation. The specific works are presented in table 1.

Table 1 Project implementation activities

Phase	Activity frame	Task/ Project Activities
Pre-Construction Phase	Technical consultancy/ expert advise	This will involve architectural design of the project, site inspection and data acquisition for evaluation and design. Environmental and Social Impact Assessment

Construction Phase	Structural frame	This will include clearing of the project site, demolition of an uncompleted building on the site, excavation and laying of the foundation for the structure, disposal of unwanted materials from the site, filling to make up levels, laying of foundation blocks and concrete and reinforcement works for the foundation. It will also involve, concrete works such as reinforcement works for columns, beams and walls. Other civil works will include roofing covering such as the wood frame for the installation of roofing sheets
		Roof Carpentry and Covering: this includes wooden and Iron bars to be used for carpentry and installation of roofing sheets
	External works	This will include landscaping, planting of trees and shrubs, planting of grass and flowers. Waste Disposal: this includes the construction of sceptic tanks and Cesspools for the disposal of soil and liquid waste, provision of dedicated bins for refuse disposal
		Furniture and equipment: this include the installation of laboratory benches, office work stations and furniture etc
		Plumbing and Electrical fixtures: this includes all pipe works for electrical and plumbing works and electrical wiring.
	Installations	Structural installations include the installation of doors, windows, and installation of sanitary appliances
		Electrical installations will involve laying of appropriates pipes, electrical wiring and installation of electrical fittings
		Mechanical installations will involve the installation of food processing machines to process agricultural products to include, Yam processing machines, Yoghurt processing, Bakery (bread and biscuit), Tomatoes and pepper paste processing, Vegetable oil processing, Rice processing, Orange juice Processing, Animal feed production and Fruits and grain sorting machines.
Operation Phase	Industrial processing	This will involve the processing of various products in the complex for the purpose of learning and for a limited supply to the market. Activities will involve acquisition of raw materials, laboratory testing, storing, packaging and management of waste.
	Teaching and Learning	Learning will involve laboratory analysis, processing of specific agricultural produce and conferences.

3.3 Description of Proposed Design

The proposed complex will contain an admin block, two factory/ production blocks, detached toilet block, a security post and a car park. The admin block is a storey building with the ground floor containing 7 offices and 3 laboratories which will include food analysis laboratory, fabrication workshop and technology incubation centre. The ground floor also has, 8 toilet rooms spread equally across both ends of the building. The top floor contains 105 seater capacity computer conference hall, 6 offices and 9 toilet units. The design has limited consideration for people with special needs especially in terms of access and use of toilet facilities.

The factory/production blocks will contain four units of production units each. Each one of the units will contain, a raw materials testing lab, raw materials and goods store, loading and offloading bay, a production area, one office space, sale and records cubicle, a finished goods store, waiting room and male and female cloak rooms. The production units will be installed with the following possessing facilities;

- Yam, cassava and potatoes (tuber) processing
- Water treatment plant
- Yoghurt processing
- Bakery (bread and biscuit)
- Tomatoes and pepper paste processing
- Vegetable oil processing
- Rice processing
- Orange juice Processing
- Animal feed production

Chapter 4: Biophysical and Socio Economic Characteristics of Project Area

4.1 Biophysical Environment of the Project Area

4.1.1 Climate and Meteorology

The project site is located in Makurdi around Latitude 7.716478 and Longitude 8.608371 (fig.9) along the Makurdi- Gboko road. The area of influence experiences two seasons; the dry season begins in November and ends in April and the rainy season beginning from April to November. The mean annual rainfall total is 1190 mm and ranges from 775-1792 mm. The mean monthly relative humidity varies from 43% in January to 81% in the July-August period. Temperatures are generally high throughout the year, with February and March occurring as the hottest months. The temperature of the area varies from a daily of 40ºC and a maximum of 22.50C (Fig. 4).

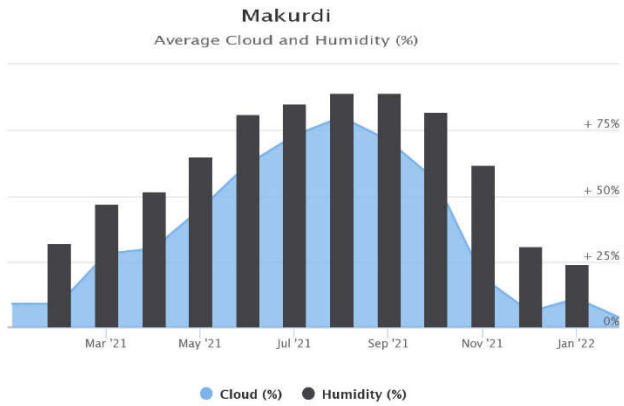


Figure 3 Average Humidity and cloud in Makurdi *(Source: WoldWheatheronline.com)*

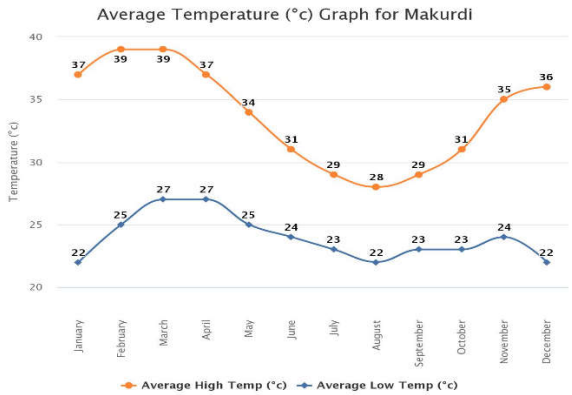


Figure 4 Average temperature in Makurdi (Source: WoldWheatheronline.com)

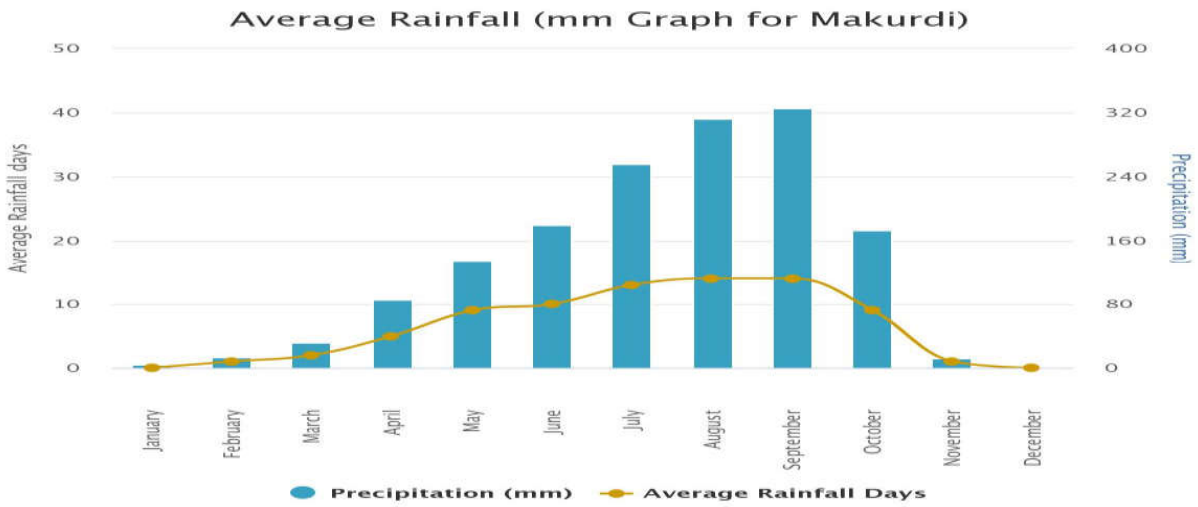


Figure 5 Average Temperature and Precipitation in Makurdi (Source: WoldWheatheronline.com)

4.1.2 Geology of the sub-project area

The geology of Makurdi town is cretaceous and consists of fluviodeltaic sediments with well-bedded sandstones which are of hydrogeological significance in terms of groundwater yield and exploitation (Kogbe et al., 1978). It is characterized by undulating terrain with gentle slopes, and provides evidence of sparse vegetative cover, sandy, clayey silt derived from sandy stones and shale. Figure 4 shows the geological map of the project area

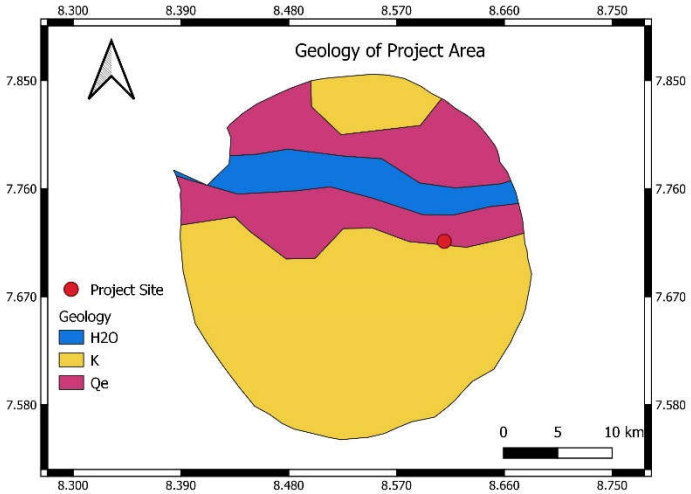


Figure 6 Geological Map of Makurdi (Source: study team)

4.1.3 Topography, Relief and Drainage

The project area has a generally low-lying topography. The surface elevation ranges between 50 – 200m above sea level (fig. 7). It is drained by River Benue and its tributaries which flow in a southern direction and empties into the Atlantic Ocean after joining the Niger River at Lokoja.

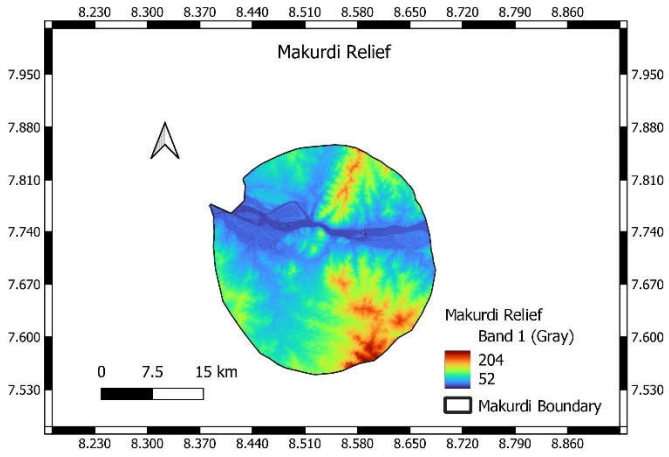


Figure 7 Makurdi Topography (Source: study team)

4.1.4 Vegetation/Fauna Resources

The vegetation of the area of influence of subproject is consistent with the guinea savannah. It generally consists of grasses, shrubs and herbs. Trees found in the area are majorly economic trees and a variety of ecstatic trees planted within houses and along fences to beautify the houses. Some economic trees observed in the area include, oil palm, mango and citrus.

The fauna resources of Makurdi like other urban areas have declined due to the impact of urban expansion on habit removal and fragmentation. The high consumption of bush meat has also been reported to affect wildlife population in Makurdi (Malik, Richard and Jerry, 2019). Therefore, the ESMP will introduce measures to protect fauna resource in the design of the CEFTIC complex. Some of the identified fauna resources in Makurdi include birds species where Ogwumah, Iwar and Ogonna (2009) observed about 28 species of birds during the raining season in Makurdi and report that they respond significantly to changes in habitat. Also, Makurdi maintains a small zoological garden where Yager, Okpnachi and Tyowua (2019) reported a high concentration of

megafauna and macro fauna with insect as the dominant. However, away from the zoological garden, the fauna diversity is relatively low including in the project site.

Figure 8 vegetation at the project site

Figure 9 Assessment of project sit

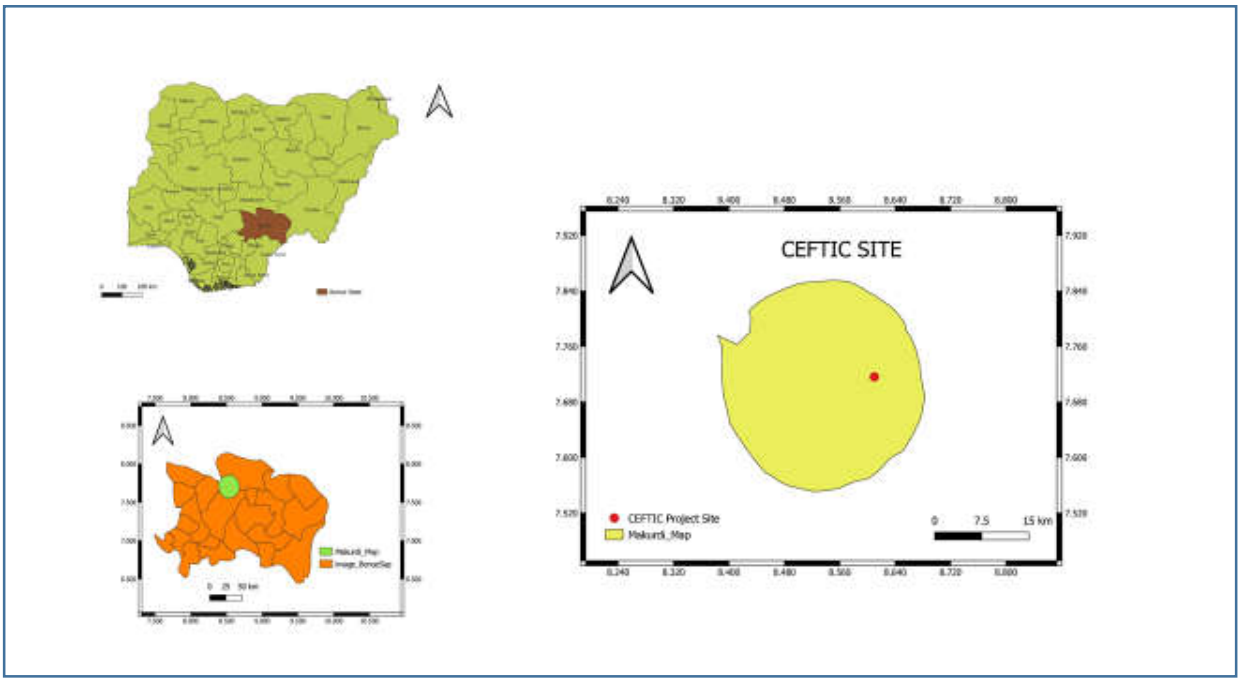


Figure 9: Project site with Benue and Nigeria insert (Source: study team)

Figure 10: Google map location of project site (Source: study team)

4.2 Environmental Quality Assessment

4.2.1 Soil quality

The soils of the project site and surrounding assessed at the depth of 0-22cm and 22-58cm indicates that the soil is generally sandy and clayey. The average pH of both top and sub soil ranges from 5.6 - 6.8 indicating moderately or weakly acidic.

4.2.2 Water Quality

Groundwater samples were collected from hand-dug wells in the project community including the project site. Analysis of the concentration of metals indicated elevated concentrations of Cadmium, Lead, and Manganese with values (Table 1) above the Nigeria Industrial Standard's acceptable limits (SON, 2015). Microbiological analysis shows a high level of E. Coli (0.0402) in the water which equally higher than Nigerian acceptable standard (SON, 2015).

Table 2 Result of Water analysis

Parameters		Cd	Bp	Cr	Mn
Project Site		0.0132	1.6713	0.0428	0.2418
WHO		0.01	0.10	0.05	0.05

Figure 11: field collection of water for analysis

4.2.3 Air Quality

An on-site measurement of the air quality and noise level at the CEFTIC project site was conducted to generate baseline data for determining the impact of project's activities on the environment during implementation. Measurements were taken at three locations within the project community including on the site, near the highway and round the chief's house using MSA ALTAIR® 5x Multi Gas detector. The result (table 2) showed all major parameters were below the Federal Ministry of Environment's standards (NESREA, 2014B).

Table 3 Result of Air Quality

S/N	Location	O2 (%)	CO	Nox (ppm)	SOx (ppm)	H2S (ppm)	VOC	SPM (Ug/m3
1.	Project site	23.04	0.09	0.13	0.06	00.0	-	2.0
2.	Near road high way	20.6	1.0	0.16	0.08	00.0	-	20.5
3.	Around Community leader's house	22.02	00	-	-	00.0	-	10.4

Federal Ministry of Environment's standards.	-	10	25/113ppm	0.01 Ppm	-	-	600

4.2.4 Ambient Noise Level

Noise level was measurement using the EXTECH (Model 407750) Digital Sound Meter. Data was collected from the same sites as indicated in the preceding section indicated in table 3. The average value for the measurement was 45.55. this is below the standard allowable limit of 90Dba for n 8 hours by the Federal Ministry of Environment (NESREA, 2009).

Table 4 Result of Noise levels

S/N	Sampling Station	Mean Noise (dBA)
1.	Project site	28.3
2.	Road side (high way)	36.6
3.	Around Community leader's house	26.2
Federal Ministry of Environment's standards.		90 for 8 hours

4.3 Socio-demographic Analysis

4.3.1 Population

The estimated population of Makurdi town where the project is to be implemented is estimated to be 433,000, projected from the 2006 National Census with a growth of 3%. The town is dominated by the Tiv people considered as the indigenes. Other indigenous Benue ethnic groups found in Makurdi are the Idoma, Igede and the Etulo. There are small populations of Ibos, Hausas and Jukuns who have settled in Makurdi for many years to carry out trade and fishing respectively.

The population of Makurdi town is composed of 48.7% female and 51.3% male. The population is generally young with about 62% of the population falling between 20-49 years old and less than 1% of the population is above 70 years. Based on the composition, there is no remarkable difference in the population of males to females in the project community, it shows a low ratio (1.1:1) of the males to the female population.

There is lack of statistics on the vulnerable population in project area, however, the women, children and Persons Living With Disabilities (PLWD)constitute the vulnerable population in the project's area. Policies to address the needs of these category are made and managed centrally at the State level. The Ministry of Women Affairs is specially set to lead the implementation of

relevant policies to address the needs of the vulnerable population. Some of the policies are derived directly from the federal government. The state policies include education for the PLWD, vocation training provision of various supports. There are also protection laws like the Prohibition of Violence Against All Persons Law and Child Rights law.

4.3.2 Socio-political and Cultural Organization

Makurdi town doubles as the state capital and local government headquarters of Makurdi local government area**.** As the state capital Makurdi town is a multi-cultural settlement because of the influx of different groups and tribes to take advantage of its commercial and political activities. The presence of two universities and other institutions of higher learning has significant influence on its social-cultural diversity. The local government is made up of 10 wards comprising of Bar, Agan, Central Ward, Clerk Ward, North Bank I and II, Mbalagh, Fiidi, Agan and Walomaiyo. The proposed CEFTIC complex is to be sited at fiidi settlement from which the fiidi ward derives its name.

4.3.3 Economic activities/situation

The project area is dominated by people who are engaged in formal jobs working with the public or private sectors. They have 70% formal education which indicate high literacy rate. The project town is considered as administrative because majority of the working populations are engaged in government work especially in the civil service.

There are very few industries mostly on producing on a small scale and a few economic activities in Makurdi. Micro scale business are dominant, those commonly located near the project site include provision stores, tailoring centres. others are dry cleaning and hair dressing services and there is a soya oil processing factory. The site has the Nigeria Air force's tactical command headquarters within 200 meters and it is generally very well secured.

4.3.4 Housing, Basic infrastructure and living environment

A report by Ukula (2022) suggest the housing in Makurdi fall below the majority of the quality determinants. Affordability is also low with majority of residents unable to access descent housing. Areas around the university are crowded while new layouts have better quality housing and new buildings. Makurdi town is linked to the National grid and served by the Jos Electricity Distribution Company. The quality of power supply in the town has improved progressively and it is at its all-time best. The town enjoys well connected urban roads, most of the major roads are paved and of good quality. However, the town does not have an effective water supply, it relies on an old distribution network that serves only the old part of the town including Highlevel, Wadata, some parts of Wurukum and Ankpa quarters. Even at that, the supply is not regular and sometimes is not supplied in months. All the new layouts are not reticulated and residents rely on private water supply efforts to access water especially by using hand dug wells and boreholes. Private business owners use water tankers to collect water directly from the water board on a fee and

supply to homes and organizations. Fiidi settlement where CEFTIC complex is sited is not reticulated and the community depends on hand dug wells and boreholes as sources of water.

Chapter 5: Assessment of Potential Adverse Environmental and Social Impacts

5.1 Methods and techniques used in assessing environmental impacts of the project

The potential environmental impact of the project on the area of influence was assessed using checklist approach. The method is an effective tool recommended for low-risk typology (Canter, 2010)[3]. It involves the use of a checklist to relate the project activities to the components of the environment based on the existing environmental conditions. It includes site visits/ transect to take a view of the physical and social components of the environment of the project's site. The observed baseline conditions are then logically matched on the checklist on a decision is taken.

5.2 Methods and techniques used in assessing Social impacts of the project

A survey was conducted to assess the social impact of the project on the community. A questionnaire was used to acquire socio–demographic data about the community. The questionnaire was administered on all households within 300 meters radius of the project site. A total of 67 households were surveyed and the data was analyzed to determine the socio-demographic characteristics and socio-economic characteristics of the community.

5.3 Potential Adverse Environmental and Social Impact

The construction works will be implemented on the land Benue State University Management has donated to CEFTER as such there is no involuntary resettlement, acquisition of land, relocation, compensation, loss of physical and economic assets, and /or loss of livelihoods.

However, the proposed project is expected to have positive and negative impacts on the project community. It would have high positive environmental and social impacts within its area of influence as it would provide an opportunity for industrial-linked training, improved food quality, reduce postharvest waste and increase income of farmers, support agricultural value chain development and provide job opportunities and livelihood sources for many people, lead in capacity development and generate manpower for especially for local industrial development.

In terms of the negative environmental and social impacts, it is expected that they would be largely localized in spatial extent owing to the size of the project and its location within less sensitive environmental areas. They could be generally contained through the implementation of specific appropriate mitigation measures.

5.4 Methodology for identifying and evaluating impacts

The following methodology was used for identifying and evaluating the impacts:

[3] Canter L. W. (2010). Environmental Impact Statement. McGraw-Hill, Inc, New York, 2nd Edition.

• **The impact's duration:** this took into account how the impact will last, whether it will be temporary or permanent. Temporary impacts are largely considered reversible and could last for only a few days, weeks, or months while permanent impacts are largely irreversible.

• **The scope of the impact:** this looks at the spread of the impact and considers it on the bases of whether it is regional, local, or site-specific. It is regional when a large population of the region is affected, and when it only affects a small portion of the study area, the extent is considered local. However, it is site-specific when it is felt in a small and well-defined space.

• **The impact's intensity:** The intensity of impact is classified as Strong; average and Low. It is considered strong when it is associated with a significant modification of the components; Average, when it causes moderate disruption in the use of its components but is not irreversible, it is classified as average and Low or weak when it does not jeopardize some of its usage or characteristics.

• **Impact severity:** This can be severe, moderate, or minor. A significant impact is one that has far-reaching environmental consequences that cannot be easily mitigated. When an impact falls within the accepted legal limits and threshold, it is considered moderate. Because of the significant environmental impact, these consequences can be mitigated through specific mitigations. When an impact can be mitigated with little or no effect, it is considered as minor.

5.5 Identification and assessment of impacts by project phase

5.5.1 Project Activities of Environmental and Social Concern

Activities of potential environmental and social impact identified with the proposed project are outlined under three (3) major phases of project activities: Pre-Construction, Construction, Operation.

5.5.2 Pre-Construction phase impacts

During the pre-construction phase, the potential negative and positive impacts will arise from project design and land preparation and will be as follows;

Negative Impacts

- Occupational Health & Safety and traffic/public Safety Issues
- Non inclusive architectural design (not incorporating the needs of PLWD)

Key mitigation measures

- Public and stakeholder consultation during site selection and preparation and validation of studies.
- Quality control and implementation of validation procedures for environmental studies and their dissemination.
- Regular supervision of the building sites by environmental experts.

Positive Impact

- Income to consultants/experts
- Following of standard procurement procedures and principles will enhance this impact.

5.5.3 Construction phase impacts

The risk during the construction will be most prevalent within the site and its community. The following significant impacts are identified;

Negatives impacts

- Debris from demolition of abandoned uncompleted structure
- Loss of vegetation and impacts on fauna.
- Effects on the local microclimate
- Soil pollution, disturbance and erosion.
- Air quality deterioration.
- Vibration and noise nuisance.
- Generation and disposal of solid waste (vegetal/soil).
- Hygiene, health and safety of workers
- Risk of work accidents and occupational diseases
- Risk of spread of COVID19, respiratory and skin infections
- Public safety issues
- Risk of grievance and conflict

Positive impacts

- Increased and improved economic activities around the project site
- Temporary employment opportunity, business opportunity

5.5.4 Operation phase

During the operation phase, the operation of the processing machine and energy and water use, raw materials and packaging may impact the environment but will low due to scale of operation and limited within the project site. The negative impacts likely to occur may be due to:

Negative impacts

- Waste generation and disposal
- Fire hazards
- Emission of bad odours
- Noise from machinery
- Vibration
- Water extraction for factory processes
- Early degradation of the building due to misuse and lack of maintenance
- Public health and safety
- Occupational health and safety
- gender-based violence and sexual harassment
- Risk of spread of COVID19, respiratory and skin infections
- failure to take account of vulnerable people (disabled students, etc.)

- risk of grievance and conflict
- oil leaks
- laboratory waste

Positive impacts

- Improvement of the aesthetics of the community
- development of green spaces around the building
- Increased economic activity around the community
- Improved learning opportunity for students
- employment opportunity, business opportunity
- Asset on the higher education system at national level
- Provision of processed foods to the public
- Achievement of the CEFTER objectives

Table 5 Negative impacts

Project Phase	Source of Impact/Activity	Components of the Environment	Environmental Impact	Mitigation measures
Pre-Construction Phase	Project design	People living with disabilities(PLWD)/ Physically challenged persons	Non inclusive architectural design	Design should include the needs of physically challenged persons for access and use of facilities.
	Site preparation and mobilization to site	Workers, Public	Occupational health and safety, public issues	Public and stakeholder consultation during site selection and preparation and validation of studies.
	Supply of poor quality materials	Public/ CEFTER	Occupation safety/ financial and time wastage	Pretest materials and follow-up before supply
	Demolition of old abandoned structure on the site of the project	Soil	Generation of debris, excavation of the ground and vibration	

		Air	Dust and particles release in the atmosphere Noise	
	Clearance of vegetation for the preparation site for construction	Vegetation	Loss of vegetation and impacts on fauna.	Restrict activity to area required for construction
	Excavation works, clearing of the topsoil, levelling and other ground works will expose and loosen soil making it susceptible to erosion.	Soil	Soil pollution, disturbance and erosion.	
	Loading, haulage and dumping of construction aggregates as well as cement handling will generate dust that can affect the air quality. Dust particles can be blown from the site through winds.	Construction and institutional workers, Ambient air environment	Air quality	Spread area with mist, fence project site and use PPE
	The operation of onsite concrete mixers, movement trucks delivering materials, carpentry and welding works will generate noise and vibration.	Construction Workers and members of community, Ambient air environment	Vibration and noise nuisance	Use of PPE, regular maintenance of equipment, avoid construction activities on important community event days.
	The use of heavy construction equipment,	Construction workers and Artisans	Risk of work accidents and	Use safety guidelines, install safety

	excavation works, working at height may cause injuries to artisans when proper safety inductions are not done.		Occupational diseases	and warning signs around the project site and use PPE
	Excavated materials are likely to form the bulk of waste to be produced from the construction activities. Removed vegetation as well as cement papers, food wrappers, used sachet water plastics and domestic refuse from food vendors who may be selling on the site will generate a lot of waste.	Soil	Generation and disposal of solid waste	Implemented waste management plan, engage a licensed waste management agent to manage waste
	Interaction of workers on site through work activities may create the avenue for the spread of COVID19, respiratory and skin	Construction workers and Artisans	Risk of spread of COVID19, respiratory and skin infections	Implement covid-19 guidelines for construction site
	Influx of workers	Project community	Risk of crime	Liaise with community and create a security plan
	Movement of trucks on routes leading to the site may hinder traffic movement of persons and institutional vehicles	Public, workers	Traffic disruption and accidents	Avoid activities during rush hours, install traffic signs and use designated U-

				turns on the main road
	Construction and excavation activities, movement of equipment, material handling and lifting, dust generation, open trenches pose a threat to workers and artisans on the project site.	Construction Workers	Occupational health and safety	Install warning and safety sings and regularly brief workers on safety practices
	Movement of equipment and transportation of construction materials such as sand, stone, chippings, reinforcements, cement through the university may pose traffic safety concerns. Possible over speeding of construction vehicles and equipment is a major cause for concern due its potential cause of accidents.	Public, road users	Public safety issues	Engage only licensed drivers, regularly maintain vehicles and train workers on traffic safety
	Grievances and conflicts on sites may disrupt work activities that could ultimately lead to project delays	Construction workers	Risk of grievance and conflicts	Apply grievance redress mechanism in handling all grievances
Operation phase	Disposal of soil and waste from the building.	Community	Waste management disposal	Apply waste management plan for the project

	Irregular maintenance of horticultural works and surrounding fauna which may lead to the breeding grounds for mosquitoes and other reptiles like snakes.	Public	Public Health safety	Regular supervision of dedicated staff and provision of needed resources for maintenance
	Internal and external cables that are not properly buried can lead to electrocution. Construction debris that are still on site after project has been completed.	Workers and employees	Public health and safety	Regular supervision of dedicated staff and provision of needed resources for maintenance
	Poor cabling works and lack of fire furniture i.e., smoke detectors, fire extinguishers.	Workers and community	Fire hazards	Apply safety plan and provide safety equipment in all units
	Lack of proper ventilation of waste lines for W.Cs and installation of sanitary accessories such as bottle traps for basins leading to the emission of bad odours	Community, Employees	Emission of bad odours	Include controls in engineering design and build according to engineering specificaiton
	Poor maintenance of building i.e., painting, replacement of damaged fittings etc. that will lead to fast deterioration of the building.	Building facility	Early degradation of the building due to misuse and lack of maintenance	Use quality paints and follow maintenance standard

	Gender-based sexual advances involving intimidation and outright abuses	Employees	Gender-based violence and sexual harassment	Apply code of conduct for all staff and workers
	Poor initial design to incorporate the account of vulnerable and disabled students	Accessibility	Failure to take account of vulnerable people (disabled students, etc.) risk of grievance and conflict	Validate design with stakeholders and incorporated concerns to include provisions for the physically challenged
	Soil pollution due to the generation of waste and its management	Soil,	Waste generation Erosion and overflow of drainages	Implement waste management plan
	Withdrawal of larger volumes of water for factory processes like washing, mixing etc.	Ground water, Community	Increase in water stress	Adopt water-conserving process, recycle water and support the community with boreholes by way of corporate responsibility
	Processing of different products will generate other dours	Air quality	odours and	Use fume control equipment
	Generators and other processing machines will generate fumes that will be discharged into atmosphere	Air quality	fumes from generators and machines	Regularly service generators and use fume control equipment

Table 6 Positive Impacts

Project Phase	Source of Impact/Activity	Components of the Environment	Environmental Impact	Mitigation measures/optimization
Pre-construction	Procurement of a consultant/ expert	Public	Income to the consultant/experts	use of standard procurement procedure/principles
Construction	Influx of workers	Public/Project community	Increased and improved economic activities around the project site	Observe community norms and implement code of conduct for construction workers. Implement convid-19 protocol for construction site
	Engagement of construction workers	Public	Temporary employment opportunity, business opportunity	Employment of workers should follow standard procedures
Operation	Landscaping, planting aesthetic plants and beatification	Public/ CEFTER	Improvement in environmental quality	Comply with engineering design and maintain facility
	Production and sale of products/ presence of workers and students	Public/ CEFTER	Income generation/ increase in commerce and economic activities	Ensure standard management principles and keep the site operational
			Provision of processed foods to the public	Keep supply regular
	Engagement of Students on SIWES	Students/ CEFTER	Improved learning opportunity for CEFTER students	Ensure access for all students
	Completion, handover and use	Public	Asset on the higher education system at national level	Allow access for use and benefit for other learners around the country
		CEFTER/World Bank	Achievement of project objectives	Maintain and keep the facility in continuous use

The Chapter 6: Environmental and Social Management Plan (ESMP)

6.1 Impacts and Mitigation Plan

The Environmental and Social Management Plan is presented in Table 4 showing; Activities, identified adverse impacts, mitigation measures and corresponding indicator(s). Mode of measurement, corresponding cost of mitigation, monitoring indicators, frequency, cost, as well as responsibilities for implementing these measures.

Table 7: Environmental and Social Management Plan

S/N	Activity	Impact	Proposed Mitigation measure/ action	Responsible person	Cost of mitigation (NGN)	Parameter to be measured	Method of measurement	Monitoring indicator	Frequency	Monitoring Cost (NGN)	Responsibility
Pre-Construction phase											
	Design	Lack of consideration of PLWD	Consult widely and review design Design should include the needs of physically challenged persons for access and use of facilities	Physical Planning Department	200,000	Architectural design of the complex	Review of architectural designs	Non inclusion facilities to	Once each During project design and construction and operation	300,000	Safeguard Officer
	Mobilization of materials	Accidents and delays	In compliance with national regulations the contractor will ensure that the site is properly secured and related traffic regulated. This includes but is not limited to; • Signposting, warning signs, barriers, site will be visible and the public warned of all potential hazards • Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities (supply of materials etc)	Contractor	200,000 50,000	National Environmental Health and Safety guidelines/ Public health Clearly defined construction site. Appropriate signposts installed at required positions.	Visual observation	Delays and traffic build-up extending to the major road	Weekly Monthly	200,000 5,000	CEFTER Safeguard Officer

			during rush hours • Avoid driving against traffic to quickly access the project site from the express road. Vehicles must use the U-turn at the airport junction to access the site. • Slow vehicles carrying construction material within the project area down • Regularly inspect and maintain all equipment • Improve the quality of the major access road to site especially by filling up the depression at the junction, expanding the width and levelling sides to prevent accidents and delays.		300,000				Once	5,000	
		Degrading of air quality with dust and gases due to the movement of heavy-duty trucks	Spread dusty path with water and ensure adequate maintenance and servicing of trucks to reduce the emission of gases	Contractor	50,000	Air quality parameters (CO, NO_2, SO_2, CO_2	On-site measurement of air quality and visual observation	Federal Ministry of Environment safety limits	Weekly	100,000	Benue State Ministry of Environment

		Noise and vibration	Select and use vehicles/equipment with lower sound power levels. Install suitable mufflers on engine exhausts and compressor components. Enforce appropriate speed limit to reduce vehicle noise levels.	Contractor	40,000	Noise levels	On-site measurement	Noise must not exceed recommended limits by the Federal Ministry of Environment (90 dBA) for an 8-hour period	daily	100,000	Safeguard officer Benue State Ministry of Environment
		Supply of poor quality materials with potential to cause structural failure	Ensure appropriate materials are recommended and adhere strictly to the recommendations	Contractor and suppliers	120,000	Quality control test	Evaluation according to recommended specification	Design specifications	Before procurement and supply	50,000	CEFETER Safeguard officer
Construction Phase											
	Site Clearing	loss of biodiversity	Clearance of vegetation should be restricted to portions required for construction while protecting other areas not taken up for construction. Efforts should be made to replant vegetation (suitable local species) in appropriate positions within the facility Equipment should be regularly washed down to avoid transporting seeds of invasive species or plant diseases Soil stabilization activities must be promoted	Contractor	50,000	Biodiversity survey	Visual observation	Diversity and available number of species Protected vegetation and replanted local species	Monthly	200,000	Contractor Safeguard officer

		Occupational accidents and injuries to workers and risk to community health and safety	warning signs, barriers, site will be clear and the public warned of all potential hazards	Contractor	100,000	Accidents and safety records Reports of accidents and injuries	Visual observation	National Environmental Health and Safety guidelines	Weekly	50,000	Contractor / Safeguard officers
		Generation of waste (vegetation) material	Waste materials should be properly collected and disposed in an approved site. Where possible vegetation material should be used as animal feed	Contractor	30,000	Development and implementation of waste management plan	Visual observation	Records of waste material collected on site Presence of waste materials on site or at unapproved sites	Daily	20,0000	Safeguard officer

		Erosion and over flow of drainages	Control erosion pathway along the site by constructing the drainages along the street bordering the site on the North and West	Contractor	50,000	Engineering design	Observation	Availability of drainages Statements from members of the community	Quarterly	120,000	Safeguard officer
	Influx of workers	COVID -19 transmission	Apply NCDC recommended protocol in the site including use of minimum PPE and washing of hands by workers on site and regular check of body temperature. See Annex 12 on COVID-19 guidelines	Contractor	300,000	NCDC COVID-19 guidelines	Site observation	Availability of COVID-19 prevention equipment and use of hand washing; records of temperature checks	Daily	50,000	Contractor Safeguard Officer

		Increased rate of economic activities in the community	Maximize local benefits of the operation particularly by favouring local procurement of goods, services and labour Actively attempt to fulfil local employment demand without fueling unrealistic expectations of high employment and economic opportunities Labour recruitment should occur in an objective and transparent manner	Contractor	no extra cost	Employment records	On-site Assessment	No of workers engaged from the community	Weekly	50,000	Contractor Safeguard Officer
		Pressure on existing Water Sanitation and Hygiene (WASH) services	The contractor shall provide safe drinking water for construction workers all the times The contractor shall provide safe mobile latrines for construction workers separated and clearly differentiated according to gender with the waste collected by a licensed operator and managed offsite at licensed facility Provide information to construction	Contractor	250,000	Benue State Water Sanitation and Hygiene policy	On-site assessment	Provision of adequate WASH services and separated for Males and Females Use of a licensed waste handler	Weekly	100,000	Safeguard officer Benue State Ministry of Environment

			workers on the use of the latrines.								
		Security challenges due to increase in human-police ratio	Use competent personnel to provide security Design a security strategy for the complex to include community members and concerns of the Nigeria Air Force which has its Tactical Command Headquarters around the project site	CEFTER security heard/ community leaders	200,000	Security Plan	Interviews	Community perception	Weekly	100,000	Safeguard officer

		Gender-Based violence lence and Violence against Children	Commitment / policy to cooperate with law enforcement agencies investigating perpetrators of gender-based violence; Information and awareness raising campaigns for community members, specifically women and girls; Enforcement of laws on sexual violence and human trafficking. Include in the bid document and also in the contract the need for contractor to draft and sign the following: Company's code of conduct for prevention of GBV and VAC; Manager's code of conduct for prevention of GBV and VAC Individual's code of conduct for prevention of GBV and VAC Community and workers' training and community sensitization on GBV/VAC;	Contractor Safeguard officer	150,000	Compliance with the Violence Against All Persons Law of Benue State Compliance with Benue State Child Protection Law	Community perception, interviews and observations	.	weekly	100,000	Safeguard officer Contractor
	Building work	Increase in noise and vibration	Develop working schedule for activities with high noise levels between 08:00am - 5:00pm During operations, the engine covers of generators, and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible Select 'quiet' construction equipment and working methods Use ear protection for workers	Contractor	40,000	Noise level	On-site measurement	Recommended limits by the Federal Ministry of Environment (60 dBA) for an 8 hour period Noise levels and workers using PPE	daily	100,000	Ministry of Environment and Safeguard officer

			Keep proper records of complaints in the complaints register								
		Occupational accidents and injuries to workers and risk to community health and safety	Develop and implement a project-specific Occupational Health and Safety Plan (OHSP). OHSP to include but not limited to: - Prohibition of drug and alcohol use by workers while on the job. - Provision of adequate first aid, first aiders, PPE, signage. - Use only trained personnel - Restriction of unauthorized access to all areas of high-risk activities - Provision of specific personnel training on worksite OHS management	Contractor	300,000	Application of the OHSP (Annex 6) No of cases reported	On-site assessment	Compliance with Factory Act, 1990 Compliance with ISO 14001 Occupational Health & Safety Standards	Weekly	150,000	Contractor
		Degrading of air quality by the discharge of dust	Demolition debris shall be kept in controlled area and sprayed with water mist to reduce debris dust During pneumatic drilling/wall destruction dust shall be suppressed by ongoing water spraying and/or installing dust	Contractor	50,000	Federal Ministry of Environment limits	On-site measurement of air quality and visual observation	Air quality parameters and vehicle maintenance records	Weekly	100,000	Environmental officer Benue State Ministry of Environment

			screen enclosures at site The surrounding environment shall be kept free of debris to minimize dust and accidents Prohibit transporting material with overloaded trucks to avoid fly offs Properly cover truck containers with plastic covers to avoid dust spreads Heavy machines should be maintained to good standard								
		Pollution of groundwater by oil leaks from construction activities	Maintain equipment and machines Establish appropriate erosion and sediment control measures such as e.g. silt traps/ fences to prevent sediment from moving off-site and causing excessive turbidity in nearby water bodies. Paints with toxic ingredients or solvents or lead-based paints will not be used	Contractor	200,000	Permissible water quality standards by the Federal Ministry of Environment	On-site Measurement and Observation	Water quality parameters	Bi-weekly	100,000	Benue State Ministry of Environment and Safeguard Officer
		Solid Waste	Waste collection and disposal pathways and sites will be identified for all major waste	contractor	160,000	National regulation for waste handling	Visual observation	Waste management plan	Weekly	150,000	Safeguard officer

			types expected from demolition and construction activities. Demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers and disposed properly by licensed collectors The records of waste disposal will be maintained as proof for proper management as designed. Whenever feasible the contractor will reuse and recycle appropriate and viable materials								
	Installation of equipment	Increase in noise and vibration	During operations, the engine covers of generators, and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible Selecting 'quiet' equipment and working methods Keeping proper records of	Contractor	150,000	Noise levels	On-site measurement	permissible limits by the Federal Ministry of Environment	Monthly	100,000	Safeguard officer Benue State Ministry of Environment

			complaints in the complaints register								
Operation Phase											
Crosscutting impacts											
	Laboratories	Chemical/ hazardous waste management	Temporarily storage on site of all hazardous or Chemical substances will be in safe containers labeled with details of composition, properties and handling information The containers of hazardous substances shall be placed in a leak-proof container to prevent spillage and leaching The wastes shall be transported by specially licensed carriers and disposed in a licensed facility.	Safeguard Officer	400,000	Chemical/hazardous waste management records Chemical/ hazardous waste storage containers	Observation	National guidelines for management of Chemical and hazardous waste	Quarterly	80,000	Safeguard officer Benue State Ministry of Environment
		Biological Waste	In compliance with national regulations the contractor will insure that research laboratories facilities include sufficient infrastructure for biological waste handling and disposal; this includes and not limited to:	Safeguard officer	400,000	Biological waste management plan/ records	On-site assessment	National guideline for biological waste	Quarterly	300,000	Safeguard officer Benue State Ministry of Environment

			Special facilities for segregated biological waste (including soiled instruments "sharps", and plant tissue or fluids) from other waste disposal; Appropriate storage facilities Use special puncture-resistant/boxes for sharps								
		Deterioration of air quality due to odours	Use of ventilation systems to reduce odour problems. Use extractors and odour-controlling equipment to reduce odours during cooking and baking Maintaining good housekeeping within the factory at all times and adopt good cleaning and work practices. Store waste in closed waste handling receptacles.	Safeguard Officer	200,000	Air (odour)	Number of complaints, On-site testing Records of maintenance for all machines and equipment	Ventilation systems in place Availability of odour control equipment	Monthly	150,000	Safeguard officer

		Large energy demand and use	Use energy-efficient technology Use of rice husk from the milling section as clean fuel instead of coal and diesel in boilers. Recovery of energy by using heat exchangers for cooling. Improve on existing power supply by installation of a dedicated power transformer of adequate capacity for the complex. Utilization of steam and steam condensate in the pre-heating process to minimize the energy requirements and develop and energy efficiency production line Use of natural gas or liquefied petroleum gas (LPG) for heating of baking oven and boilers.	Safeguard officer/ Facility Engineer	150,000	Energy consumption in the facility	Factory assessment	Engineering design Energy purchase	During supply of equipment and quarterly	100,000	Safeguard officer

		Fire hazards	Poor cabling and maintenance	Safeguard officer	200,000	Fire Safety plan Maintenance records	Site based observation	Availability fire safety equipment	Monthly	200,000	Benue state fire service
		Use of large volumes of water for factory processes impacting water quality/ stress	Reduce the amount of water used in production (technology choice and conservation) Provide water to nearby community that is impacted by excessive water withdrawal Reuse of treated wastewater (separated from stormwater systems) to the extent possible.	Safeguard officer / Facility Engineer	350,000	Water demand and use Engineering design	Interview in the community	Community perception Availability of water in the community	Quarterly	100,000	Benue State Environment and Water Resources
		Wastewater /hazardous waste management	The approach to handling sanitary wastes and wastewater from food processing equipment must be approved by the local authorities as applicable.	Safeguard Officer	400,000	National guidelines for handling waste water	On-site assessment	Availability of a licensed waste handler	Bi-monthly	120,000	Safeguard officer Benue State Ministry of Environment

			Before being discharged into receiving waters, effluents from individual wastewater systems must be treated to meet the minimum quality criteria set out by national guidelines on effluent quality and wastewater treatment								
		Pollution of soil and water	Lubricants should be stored in containers / dedicated enclosures with a sealed floor Fuel tanks should be located in dedicated areas with a sealed floor Change of lubricant should be conducted in dedicated areas with sealed floor Discharge of used oil properly at used oil facility	Safeguard Officer	200,000	Soil and water	On-site measurement	Federal ministry of environment presumable limit Equipment maintenance and use oil management records	Monthly	300,000	Benue State Ministry of Environment
		Noise and Vibration	During operations, the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible	Facility Engineer	150,000	Noise levels	On-site measurement	Federal ministry of environment presumable level	Monthly	100,000	Safeguard Officer

	Demobilization of work force										
	Social Economic impacts	Changes in local economics, reduction available working opportunities	Introduce money management capacity building sessions for local members employed by the project so even after project closure, standards of living and local economies may remain high and upbeat.		200,000		Community assessment using interview	Community perception	Once	200,000	Safeguard officer

6.2 Institutional responsibilities for monitoring and implementation of mitigation

Table 8: Institutions and Responsibilities

S/1	Stakeholder	Role and responsibility
1	CEFTER PIU	• Interface with relevant ministries in ensuring due diligence in project implementation • Where infractions are identified, PIU will request contractors to amend and correct the violation. • Receive and supervise the environmental report from the Independent Environmental Consultant (IEC), • PIU's Safeguard Specialist will be in charge of review environmental report and recommend actions. • Cooperate with WB to periodically supervise contractors' activities.
2	Benue State Ministry of Environment	• The ministry will lead the compliance monitoring at the state level. • Lead state- level assessment and participate in external assessment and monitoring of ESMP implementation
3	Other MDAs	• Depending on the area of interest and level of concern in a sector that is affected by the project, particular MDA would liaise, participate in the assessment process and review of the ESMP, provide input and may be required to issue consent where needed. • During implementation, they may monitor specific parameters and enforce standard
4	Federal Ministry of Environment	• Lead initial site visits and advice on screening, scoping, review of draft ESMP report (in liaison with State Ministry of Environment), • Receiving comments from stakeholders, public hearing/ review of the project proposals, and convening a technical decision-making panel arising from the public disclosures,
5	Safeguard Unit of the PIU	• Supervise the implementation of the ESMP to meet all standards and guidelines • Ensure the involvement of all relevant stakeholders including CBOs and NGOs • Conduct mitigation monitoring.
6	Works Contractor	• The Contractor is directly responsible for the implementation of the ESMP during the construction phase of the project.
7	World Bank	• Overall supervision and provision of technical support and guidance. • Recommend additional measures for strengthening the management framework and implementation performance; • Supervising the application and recommendations of sub-project ESMPs.
8	Consulting Supervisor	Supervise the implementation of the ESMP by the Contractors; Review the Contractor's Environmental and Social Implementation Plans (CESMP) to ensure compliance with the ESMP
10	NGOs/CSOs	Assisting in their respective ways to ensure effective response actions, conducting scientific research alongside government groups to evolve and devise sustainable environmental strategies and techniques.
11	Affected Community	Promote environmental awareness. Review environmental and social performance report made available by PMU. Provide comments, advice and/or complaints on issues of non-conformity Attend public meetings organized by the PMU to disseminate information and receive feedback. Identify issues that could derail the project and support project mitigation measures and awareness campaigns.

6.3 Monitoring and Reporting

Table 9 Monitoring and Reporting framework

S/N	Report prepared by	Submitted to	Frequency

1	Contractor	Implementation Supervision Consultant	The Contractor is obliged to report (immediately of certain aspects and monthly with respect to a wider range of aspects) to the implementation supervisor
2	Implementation Supervision Consultant	Safeguard Officer	The implementation supervision Consultant is required to report (immediately or monthly) to the safeguard Officer every week and monthly
3	Community	Safeguard Officer	When the community has any complaint about the subproject safeguards implementation
4	Safeguard Officer	CEFTER Leader	As required by the ESMP framework
5	CEFTER leader	Benue State Ministry of Environment	CEFTER leader will subsubmit reports to the ministry as it may be necessary to fulfil their oversight
6	CEFTER leader	World Bank	Periodic report to the WB as required in the project operational guide

6.4 Implementation Schedule

Table 9: Schedule of Implementations

S/N	Activity Description	Responsibility	Months																	Operation phase
			Pre-Construction phase				Construction phase													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1	Clearance and Formal Disclosure of ESMP																			
2	Inclusion of E&S Requirements in bid documents																			
3	Allocating Budget for ESMP	CEFTER																		
4	Appointing Support Staff for ESMP	CEFTER																		
5	Review & Approval of Contractor's E&S Plans	CEFTER																		
6	Finalization of Engineering Designs	CEFTER																		
7	Mobilization to site	Contractor																		
8	Site Clearing	Contractor																		
9	Construction Phase	Contractor																		
10	Implementation of Mitigation	Contractor /Safeguard Officer																		
11	Supervising ESMP Implementation	Safeguard Officer																		

6.5 Contractual Measures

This ESMP shall be included or otherwise referred to in the construction bidding documents and appended to construction contracts. The technical specifications of the bid documents will clearly state that contractor will comply with the mitigation measures provided in ESMP. The contractor shall ensure adequate budget to meet all provisions of ESMP in the bidding documents. The technical specifications of the bid documents will clearly state that contractor will need to comply with the mitigation measures as provided in this ESMP.

6.6 Measures for Non- Compliance with ESMP

Payments to contractors will be linked to environmental and social performance, measured by completion of the prescribed environmental and social mitigation measures. For any non-compliance causing damages or material harm to the natural environment, public or private property or resources, the contractor will be required to either remediate/rectify any such damages in a timeframe specified by and agreed with the engineer, or pay CEFTER for the cost (as assessed by CEFTER) of contracting a third party to carry out the remediation work.

6.7 Cost Estimate for ESMP Implementation

The indicative cost of implementing the Environmental and Social Management Plan is Sixteen Million, One Hundred and Twenty Thousand Naira Only (**NGN16,120,000.00**).

Table 7 Cost of Mitigation

Table 10: Cost of Mitigation

S/n	Item	Cost Estimate (NGN)
1	Mitigation	5,640,000
2	Monitoring	4,080,000
3	Disclosure	2,000,000
4	Contingency	1,800,000
5	Grievance Redress	3,000,000
	Total	**16,520,000**

6.8 Grievance Redress Mechanism (GRM)

A three level Grievance Redress Mechanism will be established for the CEFTIC Project with Grievance Redress Committees constituted at the university, CEFTER & Village/Community levels to receive, and ensure satisfactory resolution of grievances. These are:

University

- Deputy Vice-Chancellor Admin- Chairman
- Director of Works Chairman
- Environmental safeguards Officer Member
- University PRO
- Representative of NGOs Members
- CEFTER admin officer- Secretary

The Grievance Redress Committee at CEFTER LEVEL:

- CEFTER Leader
- Safeguard Officer
- Representatives of Local CSOs
- Admin officer - Secretary

The GRC at Village/Community Level comprises:

- Community Chairman
- Village Head Member
- Reps of CSOs "
- Religious Leader
- Community elders "

The main functions of the Committee are spelt out below:

- Receive grievances from member of the public;
- Evaluate grievances from affected persons concerning the application to them of the Entitlement Policy;
- Recommend to the Safeguard officer, CEFTER as the case may be, solutions to such grievances from affected persons;
- Communicate the decisions to the Claimants;
- Ensure that all notices, forms, and other documentation required by aggrieved persons are made available in the Local language understood by people
- Make provision for complainants to submit claims without fear of retribution.

Grievance Redress Process

(i)Receive and register a complaint
(ii)Screen and assess the complaint
(iii)Formulate a response (within a specified time frame)
(iv)Select a resolution approach
(v)Implement the approach
(vi)Settle the issues
(vii)Track and evaluate results
(viii)Appeals process
(ix)Monitoring and reporting to project management to detect systemic problems;
(x) Learn from the experience and communicate back to all parties involved.

Expectations when Grievances arise

When local people present a grievance, they generally expect to receive one or more of the following: acknowledgement of their problem, an honest response to questions/issues brought forward, an apology, adequate compensation, modification of the conduct that caused the grievance and some other fair remedies.

In voicing their concerns, they also expect to be heard and taken seriously. Therefore, the company, contractors, or government officials must convince people that they can voice grievances and work to resolve them without retribution.

Chapter 7: Consultation with Stakeholders

7.1 Consultation and Summary of Concerns Raised

Two levels of stakeholder consultation were used in this study. First was during the socio-economic data gathering. A second phase of the stakeholders' involvement was through a stakeholder's consultative meeting. A detailed stakeholder analysis was conducted by the consultant with support of the CEFTER safeguard officer and the Centre deputy leader. The process was useful to generate a list of critical stakeholders who were invited to the stakeholders meeting. The general response of the stakeholders across all the levels of consultation was that the project was a welcomed development. They expressed appreciation for siting the project in their community and expressed hope that the project will bring opportunities to their community. However, it was recommended that the community structure must be recognized in any engagements involving the community. Suggestions were made for mitigation measures and were properly captured in the mitigation plan. The project is sited on an existing property belonging to the university and there are no issues with the acquisition of land.

Table 11: Summary of Stakeholder's Consultation

Date of Consultation: 24/02/2022	
Stakeholders in Attendance: Members of the project community, representatives of government ministries, civil society, Non-governmental Organisations, CEFTER/ University officials,	
Locations where consultations took place: CEFTER Complex	
Language: Consultation was conducted in English language	
Introduction	
▪ **The** Centre leader welcomed all participants to interaction and explained the purpose of the meeting as part of the process of developing the ESMP for the CEFTIC project. He explained that the meeting was heard in the complex but was on the instance of the consultant.	
Highlights	
▪ They expressed appreciable knowledge of the proposed project design and happiness the project was about to commence. ▪ Dr. Ikyo welcomed the consultant and explained the constraints they had in carrying out their work. He explained the reason for the stakeholders' consultations. He stated that the contributions of the stakeholders were highly needed to ensure that all important issues are taken into consideration in the development of the ESMP. Again, he expressed appreciation to the members of the community of the project site for their time and impressive attendance to the meeting. ▪ Representatives of the project community emphasised that members of the community are happy with the project and are looking forward to the good things the project will bring to their community. ▪ The representative of the Urban Development Board called for a full disclosure of activities to be implemented in all phases of the project and the development of mitigations measures to address all environmental and social impacts of the project.	
Stakeholders comments and views	**Response to comments & views**

▪ Noise levels in the community The project is highly appreciated within the community	▪
▪ The street leading to the site is narrow and undeveloped and increased use by construction activities may create challenges for other users	▪ Support the community by surface grading of the street to improve and make it more motorable
▪ Congestion due to the size of the land and the planned structure	▪ The engineers are already mindful of the available space and have designed a fit-for-purpose structure for the complex
▪ High scale chemical use may pollute the environment	▪ There is generally minimal use of chemicals and Hazardous chemicals are unlikely to be used in the complex however, sound waste management practices will be adopted
▪ Waste management issues during construction and operation	▪ Contractor to monitor and evacuate all waste away from the site
▪ Full disclosure of the chemical substances to be used at the factory and their impacts	▪ The ESMP will address that appropriately and identify actions for mitigating the impacts and would be reviewed progressively
▪ Security challenges due to the influx of workers	▪ Work with the community leaders in recruiting workers to avoid the recruitment of ‘bad boys”
▪ Construction workers create social issues like harassing contractor	▪ Make provision for dispute resolution in the community

Chapter 8: Summary and Recommendations

8.1 Summary

This chapter presents recommendations to be undertaken by the SPMU to enhance the achievement of these environmental and social safeguards, while also providing a conclusion to this ESMP.

8.2 Conclusion

The ESMP has provided in detail the mitigation measures for identified potential adverse impacts associated with the various phases of the project, and a monitoring program to ensure compliance. In concluding, with adequate implementation of mitigation measures the impacts will be avoided, reduced or mitigated, and in very few cases they may be offset.

8.3 Recommendations

Generally, the study has indicated that the proposed project will not significantly impact negatively on the existing local environmental, social and health as well as safe conditions.
From the foregoing, the recommendations include the following:

- Carry the community along during project implementation and mobilize them to provide community security for personnel working on site
- Construction works should be carried out in an environmentally sustainable and socially responsible and inclusive manner
- Potential environmental and social impacts of sufficient magnitude that could interrupt the execution of the project were not detected. Although, there were few negative environmental and social impacts that may potentially occur due to the activities associated with the proposed works at both the construction and operational phase but adequate mitigation measures have been provided to address them;
- The proposed intervention work is most desirable because of the obvious environmental and socio-economic benefits. These far out-weigh the negative environmental and social impacts that could arise in the course of implementation

Annexes 1: References

Canter L. W. (2010). Environmental Impact Statement. McGraw-Hill, Inc, New York, 2nd Edition**.**

Egwumah, P.O., Iwar, I.M. and Ogbonna, L.(2009) A Survey Of The Wild Avi-Fauna Within Makurdi Metropolis Of Benue State, Nigeria. *Journal of research in forestry, wildlife and environment. Volume 1 no.1*

Kogbe, C. A. (1978). Origin and composition of the ferruginous oolites and laterites of North-Western Nigeria. *Geologische Rundschau*, *67*(2), 662-674.

Malik, R., Richard, S.D., & Jerry, I.J. (2019). Bushmeat trade and wildlife conservation in Makurdi Metropolis, Benue State–Nigeria. *Journal of Research in Forestry, Wildlife and Environment, 11*, 114-121.

Ortyom, Y.G., Okpanachi, E.J. and Terungwa, T.B. (2017), "Comparative study of fauna species diversity of Makurdi Zoological Garden, Benue State, Nigeria", *International Journal of Development and Sustainability*, Vol. 6 No. X, pp. 2163-2172.

Ukula, F. F. (2022). Evaluation of Housing Quality in Makurdi Town, Benue State. International Journal of Engineering Research & Technology (IJERT), Vol. 11 Issue 07

Annexes 2: TOR

DRAFT TERMS OF REFERENCE TO ENGAGE A CONSULTANT TO PREPARE AN ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) FOR THE CONSTRUCTIONOF CEFTER FOOD TECHNOLOGY INNOVATION COMPLEX (CEFTIC) BENUE STATE UNIVERSITY MAKURDI

A. INTRODUCTION AND BACKGROUND

The Africa Higher Education Centers of Excellence (ACE) Project is a World Bank initiative in collaboration with governments of participating countries to support Higher Education institutions in specializing in Science, Technology, Engineering and Mathematics (STEM), Environment, Agriculture, applied Social Science / Education and Health. It is the first World Bank project aimed at the capacity building of higher education institutions in Africa.

The first phase (ACE I) was launched in 2014 with 22 Centers of Excellence in nine (9) West and Central African countries; Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Gambia, Ghana, Nigeria, Senegal and Togo. The Project aims to promote regional specialization among participating universities in areas that address specific common regional development challenges. It also aims to strengthen the capacities of these universities to deliver high-quality training and applied research as well as meet the demand for skills required for Africa's development.

Based on the initial successes, the World Bank and the French Development Agency (AFD) in collaboration with the African governments, launched the Second ACE Impact Project (ACE II) in 2018 across East and Southern Africa with 24 centres across Ethiopia, Kenya, Malawi, Mozambique, Rwanda, Tanzania, Uganda and Zambia to strengthen post-graduate training and applied research in existing fields and support new fields that are essential for Africa's economic growth.

There are 43 ACEs (25 new ones and 18 from ACE I); 5 Emerging Centers; 1 “top up” centre in Social Risk Management; and 5 Colleges and Schools of Engineering. The new areas include sustainable cities; sustainable power and energy; social sciences and education; transport; population health and policy; herbal medicine development and regulatory sciences; public health; applied informatics and communication; and pastoral production. The second phase (ACE II) also included newly selected centers in Nigeria totaling 17.

Under ACE Impact, the Centre for Food Technology And Research (CEFTER) plans to establish **CEFTER FOOD TECHNOLOGY INNOVATION COMPLEX (CEFTIC)** where students will be trained in modern intensive food processing techniques with focus on controlling post-harveststst losses which is the core mandate of the Centre. The factory will be developed in two sections:

1. The technology modelling, design and fabrication section,
2. The food processing technology section.

CEFTER has had challenges getting standard food industries within Nigeria that have modern food processing facilities for our student’s Industrial Work Experience and practicals, the complex will

therefore be equipped with modern processing facilities like brewing, canning, bottling, corking, milling, drying, and sealing. It will be a source of internally generated revenue (IGR) for the center and a research hub for student's practical experience. The complex will have the following pilot processing sections:

- Yam, cassava and potatoes (tuber) processing
- Water treatment plant
- Yoghurt processing
- Bakery (bread and biscuit)
- Tomatoes and pepper paste processing
- Vegetable oil processing
- Rice processing
- Orange juice Processing
- Animal feed production
- Fruits and grain sorting
- Food analysis laboratory
- Offices
- Technology incubation Centre

This project entails the construction of a complex that contains various sections equipped with the various machines for process of various agricultural products

In compliance with the requirements of the Nigerian EIA Act CAP. E12 L.F.N. 2004 and the World Bank, Safeguard Policies the Centre for Food Technology And Research, Benue State University is proposing to award a contract for the conduct of an Environmental and Social Management Plan (ESMP).

The ESMP will provide an overview of the environmental and social baseline conditions of the proposed project, summaries the potential impacts associated with the proposed construction works and set out the management measures including implementation and responsibilities required to mitigate any potential risks and impacts associated with the activities of the factory.

In addition, the ESMP will be utilized by the contractor, to be commissioned by CEFTER for the sub-project, and will form the basis of site-specific management plans that will be prepared by the contractors as part of their construction methodology before works commencing also taking into cognizance the COVID 19 pandemic and the different measures used in preventing its spread.

B. RATIONALE FOR THE STUDY

The proposed project will involve the construction of a new building to accommodate the factory. Activities associated with the project such as, foundation excavation, cement works, de-vegetation, waste generation etc, will pose negative environmental and social risks/impacts due to the nature of works. Some of the potential negative impacts that would arise during the construction works will include: generation of hazardous, non-hazardous waste, noise/air pollution, vibrations, accident from the movement of equipment and materials to site, occupational health & safety risks, risks associated with labour influx (security threat, gender-based violence in particular Sexual

Exploitation and Abuse due to labour influx, increase in sexually transmitted infections and diseases), grievance and disturbance to physical and cultural resources among others. All these trigger the World Bank's Operational Policy (OP) on Environmental Assessment (OP 4.01) and Physical Cultural and Resources (OP 4.11). In addition, the Nigeria EIA Act mandates that any construction that would have significant impact on the environment must be subjected to an environmental assessment before the commencement of the civil works.

In meeting the requirements of the World Bank Safeguard Policies and the Nigerian EIA Act CAP. E12 L.F.N. 2004, CEFTER, is proposing to engage an experienced consultant who would conduct an Environmental and Social Management Plan (ESMP) to identify the environmental and social impacts associated with this project as well as to proffer mitigation measures to address potential negative impacts.

C. OBJECTIVES OF THE CONSULTANCY

The objective of the study is to prepare an Environmental and Social Management Plan (ESMP) for the proposed **CEFTER FOOD TECHNOLOGY INNOVATION COMPLEX (CEFTIC)**

The ESMP will provide an overview of the environmental and social baseline conditions of the proposed sub-project, summarize the potential impacts associated with the proposed construction works, and set out the management measures required to mitigate potential adverse impacts in a sector-specific Environmental and Social Management Plans (ESMPs).

The ESMP will be utilized by the contractor(s) to be commissioned by the CEFTER in preparation of the required Contractor's ESMP (C-ESMP). which will form the basis of the site-specific management plan, before the commencement of civil works.

The ESMP will be used by the contractor to address all Occupational Health and Safety (OHS) issues and community health and safety issues associated with the proposed construction work.

DESCRIPTION THE PROPOSED SUB-PROJECT ACTIVITIES

The proposed activities associated with the project will involve construction of two factory buildings, car park, an admin building, a security post and male and female toilets. Associated structures and works expected include foundation laying, plumbing, electrical fittings, soak away, universal access to all buildings including toilets, roofing, landscaping, etc to accommodate the factory and all factory activities. Thus the need to assess the level of impacts, and propose mitigation measures is necessary.

The construction works will be implemented on the land Benue State University Management has donated to CEFTER such there will be no involuntary resettlement, acquisition of land, relocation, compensation, loss of physical and economic assets, and /or loss of livelihoods as the project by design cannot finance such activities.

E. SCOPE OF WORK:

The consultant will be mandated to prepare an Environmental and Social Management Plan (ESMP) of the subproject in accordance with national procedures for EIA and World Bank Safeguard Policies that were triggered under the Project. To do this, the Consultant should refer directly to the results of the analyses and recommendations of the Project's Environmental and Social Management Framework (ESMF).

This document should be prepared with a level of detail sufficiently precise to be included in the tender for construction companies, to allow a correct estimate of the costs of these activities and to be part of the specifications of the successful bidder.
The core tasks of the consultant shall include

- Prepare a complete ESMP
- Provide a baseline description of the characteristics of the environment in which the activities of the sub-project will take place.
- Highlight the major constraints that need to be taken into account when preparing the land, construction and during operation.
- Conduct a detailed risk analysis.
- Evaluate the potential environmental and social impacts due to sub-project activities.
    - Determine the significance of positive and negative impacts, direct and indirect impacts and immediate and long-term impacts associated with the sub-project
    - Identify risk mitigation measures.
    - Consider the potential impacts of a project on physical and cultural resources and follow the required procedures.
- Analyze alternative options.
- Identify work supervision mechanisms
- Define the framework of information, consultation and public participation.
- Present institutional arrangements for the implementation of the ESMP as well as reporting systems
- Describe the arrangements for handling complaints and resolving potential conflicts

CONSULTATIONS:
The consultant should carry out consultations with identified primary and secondary stakeholders to obtain their views about the sub-subject. These consultations shall occur during the preparation of the ESMP to identify key environmental and social issues and impacts, and after completion of the draft ESMP to obtain comments from stakeholders on the proposed mitigation/enhancement measures.
ETHICAL REQUIREMENTS
Before undertaking any activity, the Consultant will ensure that She/He understands all ethical considerations related to gender-based violence (GBV) (in particular Sexual Exploitation and Abuse [SEA]). The consultant should not collect any primary data and should NOT conduct interviews or research using SEA survivors and will only make use of secondary sources and data. The objective of this is to minimize harm to women and children

F. ESMP Structures
The ESMP Report shall be presented in a concise format and should not be more than 20 pages containing all studies, processes, analyses, tests and recommendations for the proposed intervention. The report shall focus on the findings, conclusions and any recommended actions,

supported by summaries of the data collected and citations for any references used. The ESMP report will include the following topics:

Preliminary pages

Cover page

Table of contents

List of acronyms and their definitions

Executive Summary

Chapter 1: Introduction

- Introduction to the ACE Project and description of the proposed construction activities
- Rationale for ESMP
- Methodology

Chapter 2: Project Description

- Project Activities and Schedules including expected duration of the construction works

Chapter 3: Biophysical and Socio Economic Characteristics of project area

- Relevant Maps and engineering designs for proposed construction activities.
- Description of the area of influence and environmental and social baseline conditions

Chapter 4: Assessment of Potential Adverse Environmental and Social Impacts.

- Methods and techniques used in assessing and analyzing the environmental and social impacts of the proposed construction.
- Discussion of the positive and negative potentially significant adverse environmental and social impacts of the proposed construction.

Chapter 5: Environmental and Social Management Plan (ESMP), including:

- ESMP table highlighting Activities, identified adverse impacts, mitigation measures and corresponding indicator(s). Mode of measurement, corresponding cost of mitigation, monitoring indicators, frequency, cost, as well as responsibilities for implementing these measures.
- Institutional responsibilities for monitoring and implementation of mitigation
- Monitoring and Reporting
- Implementation schedule
- Contractual Measures
- Measures for Non-Compliance with ESMP
- Cost Estimate for ESMP Implementation
- Grievance Redress Mechanism (GRM)

Chapter 6: Consultation with Stakeholders

- This chapter shall summarize the actions undertaken to consult the groups affected by the construction. The detailed record of the consultation meetings shall be presented in annex to the ESMP.

Chapter 7: Summary and Recommendations

Annexes

Annex 1: References

Annex 2: Terms of References
Annex 3: List of persons met in consultations and summaries of meetings
Annex 4: Summary of World Bank Safeguard Policies
Annex 5: General Environmental Management Conditions for Construction/Civil Works
Annex 6: Project Occupational Health and Safety (OHS) plan
Annex 7: Company Code of Conduct on Preventing Gender Based Violence and Violence against Children
Annex 8: Manager's Code of Conduct on Preventing Gender Based Violence and Violence against Children
Annex 9: Individual Code of Conduct on Preventing Gender Based Violence and Violence against Children
Annex 10: Waste Management Plan
Annex 11: Workers Campsite Management Plan
Annex 12: Safeguard Guidance On Covid-19 Consideration In construction/Civil works projects
Annex 13: Photos

The main text of the ESMP should focus on findings, conclusions and recommended actions, supported by summaries of data collected and citations for any references used in interpreting those data. It should provide a description of the specialist studies undertaken and the report should include a bibliography, maps, photographs, diagrams and any other diagrammatic representation needed to facilitate understanding of the main text, detailed data should be presented in annexes or a separate volume. Unpublished documents used in the assessment should also be included or referenced in an appendix and the location of the originals of such documents indicated.

G. DELIVERABLES AND TIMING:

Inception report: The inception report shall be submitted a week after submission of action plan/commencement of work.

Draft report: A draft ESMP will be submitted for comments between the second and third week after commencement of work. It will identify all the areas, the mitigation measures, and the environmental and social issues associated with the construction, as well as the adequacy of the monitoring.

Draft Final: A draft final will be submitted after making inputs to comments of the draft ESMP.

Final report: The final ESMP Report will take into account all comments and will be submitted four weeks after commencement of work

H. EXPECTED WORK PRODUCT AND DELIVERABLES

Table 1: The study will be completed within 4 weeks.

Activities	Week 1	Week3	Week4	Week5
Submission of Inception Report	X			
Submission of Draft Report		X		
Submission of Draft Final			X	
Submission of Final Report				X

I. RENUMERATION AND PAYMENT SCHEDULES

The consultant will be paid based on negotiations with the CEFTER but shall not exceed 1% of the entire project value.

Table 2: Payment Schedule

S/N	Deliverable	Schedule	Payment	
1	Inception Report	1 week (after contract signing)	20%	
2	Draft Report	2 to 3 weeks (after contract signing)	40%	
3	Final Report	4 weeks (after contract signing)	40%	

J. QUALIFICATIONS OF THE CONSULTANT

- University degree at the Master's level (or equivalent), specialization in environmental sciences or geography or agronomy or development studies or affiliated disciplines.
- At least 5 years of experience conducting environmental studies or environmental assessment of projects or implementing environmental initiatives.
- It is highly desirable that the consultant have experience with working with international development institutions like the World Bank, and on infrastructure related projects.

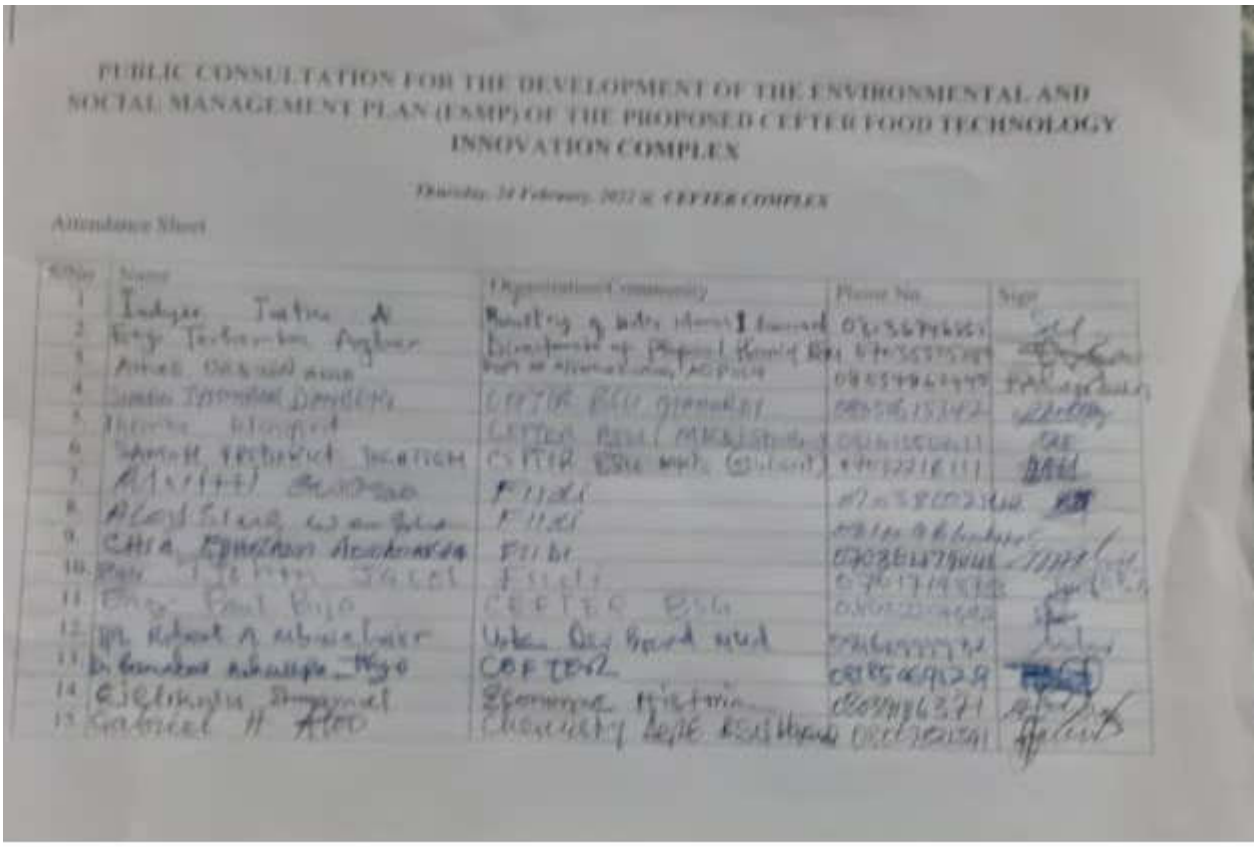
K. CLIENT IMPUTS

CEFTER shall provide to the consultant all relevant/supportive environment reports/documents previously carried out. Land survey report and the interpretation, soil suitability tests and meteorological reports would amongst others be inclusive.

Annex 3: Composition of Study Team

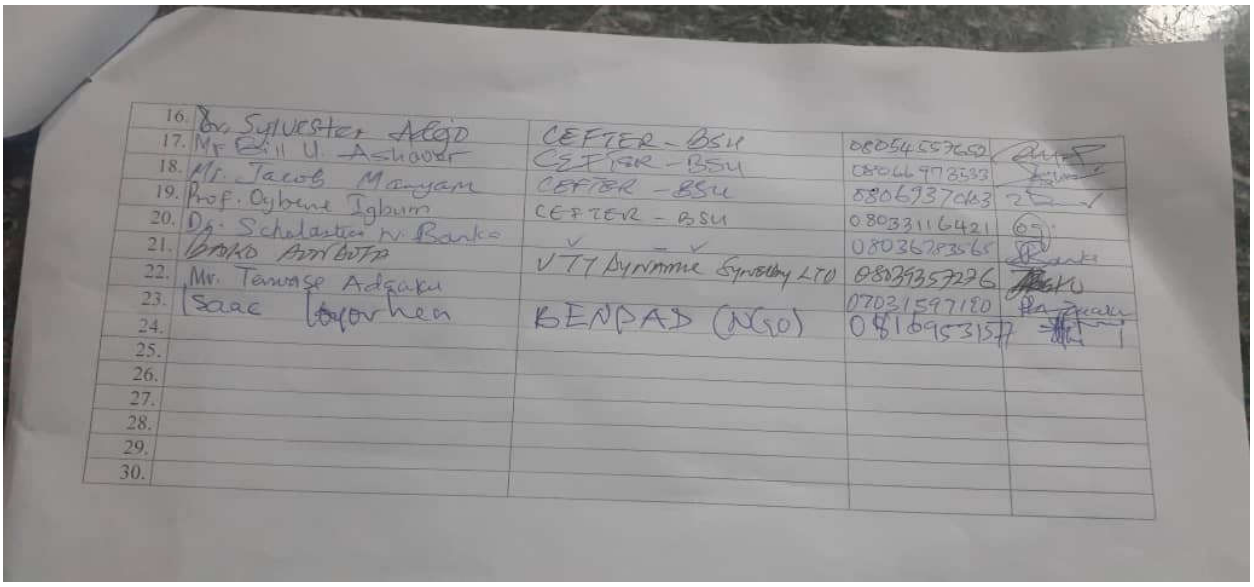
1. Dr. Stephen Hemba	Environmental Consultant
2. Alfred Aondofa Bako	Socio-Economic
3. Engr. Paul Bija	Site Supervision and CEFTER safeguard officer
3. Engr. Agber Geoffrey	Director of Physical Planning, Benue State University
4. Tyokula Mbaihangeve	Environmental Scientist

Annex 4: List of persons met in consultations and summary of meetings



PUBLIC CONSULTATION FOR THE DEVELOPMENT OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) OF THE PROPOSED CEFTER FOOD TECHNOLOGY INNOVATION COMPLEX

Attendance Sheet



16.	Dr. Sylvester Adjei	CEFTER - BSU	08054657652	
17.	Mr Bill U. Ashaver	CEFTER - BSU	08066778533	
18.	Mr. Jacob Maryam	CEFTER - BSU	8066937063	
19.	Prof. Ogbene Igbum	CEFTER - BSU	08033116421	
20.	Dr. Scholastica N. Banka	✓ - ✓	08036783565	
21.	[illegible]	VTT Dynamic Systems LTD	08039357226	
22.	Mr. Tawase Adgaku		07031597180	
23.	Isaac Loporhea	BENDAD (NGO)	08169531577	
24.				
25.				
26.				
27.				
28.				
29.				
30.				

MINUTES OF THE STAKEHOLDERS' CONSULTATIVE MEETING ON THE DEVELOPMENT OF ESMP FOR THE PROPOSED CEFTIC PROJECT HELD ON 24TH FEBRUARY 2022 AT THE CEFTER COMPLEX, MAKURDI

1. Opening prayer
2. Introduction of Participants
3. Remarks by the Vice Chancellor
4. Remarks by the Centre leader (CEFTIC)
5. Presentation of the CEFTIC project to the participants
6. The role of stakeholders in the development of ESMP
7. Group work/ parallel sessions
8. Plenary/ Group presentation and remarks
9. Closing remarks
10. Closing prayer

Prayer

The opening prayer was led by Mr. Chia Ephraim Aondakoo, one of the representatives of the Fiidi Community

Remarks by the Vice-Chancellor

The Vice-Chancellor was represented by the Centre leader Dr. Achakpa he welcomed the participants to the meeting and emphasized the commitment of the University to the highest environmental standards. He maintained that the University is interested that the stakeholders' contribution would help identify impacts and mitigation measures of the project because they are direct to direct the project and their personal contribution would look at the specific issues so that the project starts on a sound footing and the issues would be addressed.

Remarks by the Centre Leader

The Centre leader also went ahead to present his welcome remarks to the participants in his capacity as the Centre Leader. He mentioned that under the World Bank practices, the ESMP is necessary for environmental responsibility. That the process was initiated as part of the necessary requirement for the World Bank's funded projects. He expressed the expectation that the

participation of the stakeholders would lead to the achievement of the goal of environmental responsibility.

Presentation of the subproject

Project Description
This project involves the construction of a complex that will contain various sections to be equipped with different machines for processing various agricultural produce. The proposed activities associated with the project will involve the construction of two factory buildings, car park, an admin building, a security post and male and female toilets. The planned construction will be completed within 18 months. Associated structure and work expected include, foundation laying, plumbing, electrical fittings, soak away, and universal access to all buildings including toilets, roofing, landscaping, etc to accommodate the factory and all factory activities. The factory buildings will be divided into sections and equipped with processing machines for various agro-based products. The complex will have the following pilot processing sections;

1 Yam, cassava, and potatoes (tuber) processing
2 Water treatment plant
3 Yoghurt processing
4 Bakery (bread and biscuit)
5 Tomatoes and pepper paste processing
6 Vegetable oil processing
7 Rice processing
8 Orange juice processing
9 Animal feed production
10 Fruits and grain sorting
11 Food analysis laboratory
12 Offices
13 Technology incubation center

The construction works will be implemented on the land Benue State University Management has donated to CEFTER as will be no involuntary resettlement, acquisition of land, relocation, compensation, loss of physical and economic assets, and /or loss of livelihoods as the project by design cannot finance such activities.

Remarks and discussion
After the presentation of the project to the participants, the following issues were raised:

- Would the size of the available land be enough for the project
- The number of toilets in the building is enough to serve the hygiene needs of the users
- The toilet design and other aspects of the project should be sensitive to PLWD

- The students asked for a demonstration kitchen to be included in the design of the building for demonstration activities.
- Details of the laboratory activities
- Car park facilities based on the design were identified as not enough

Presentation of the Role Stakeholders in the ESMP process

The consultant presented the role of stakeholders in the ESMP process. The presenter took time to explain the use of EIA and ESMP in environmental management. He emphasized the categorization of projects during project screening and detailed issues of the impact of the project and the need for stakeholders as the direct beneficiary of the project. He described the stakeholders as individuals or groups considered to have an interest in or might wish to influence activities of CEFTIC COMPLEX.

CONCERNS FOR THE ESMP

The presentation was followed with the identification of issues of concern by the stakeholders. Both environmental and social issues were raised and mitigations were suggested for each of the issues as presented in the table below.

S/N	Environmental Issue Raised	Mitigation Suggested	Social issue Raised	Mitigation Suggested
1	Noise control	Control noise during the construction and operation	Food and water prices may increase during the project implementation due to influx of workers	Make provision for cafeteria services and support the community with a borehole to improve access to water in the community

S/N	Environmental Issue Raised	Mitigation Suggested	Social issue Raised	Mitigation Suggested
2	The street leading to the site is narrow and undeveloped and increased use by construction activities may create challenges for other users	Support the community by surface grading of the street to improve and make it more motorable	Security challenges due to influx of workers	Work with the community leaders in recruiting workers to avoid the recruitment of 'bad boys"
3	Congestion due to the size of the land and the planned structure	The engineers are already mindful of the available space and have designed a fit-for-purpose structure for the complex	Construction workers create social issues like harassing contractor	Make provision for dispute resolution in the community
4	High scale chemical use may pollute the environment	There is generally minimal use of chemicals and Hazardous chemicals are unlikely to be used the complex however, sound waste management practice will be adopted	Non provision of kitchen for student demonstration in the design	Remodel to provide kitchen within the complex for students activities
6	Waste management issues during	Contractor to monitor and		

S/N	Environmental Issue Raised	Mitigation Suggested	Social issue Raised	Mitigation Suggested
	construction and operation	evacuate all waste away from the site		
7	Full disclosure of the chemical substances to be used at the factory and their impacts	The ESMP will predict and is subject to review.		

Annex 5: General environmental management conditions for construction/civil works

The following guidelines should be included in the contractor's agreements:

- Installation of the work site on areas far enough from water points, houses and sensitive areas.
- Sanitary equipment and installations
- Site regulation (what is allowed and not allowed on work sites)
- Compliance with laws, rules and other permits
- Good Hygiene and security on work sites
- Protect neighbouring properties
- Ensure the permanence of the traffic and access of neighbouring populations during the works to avoid hindrance to traffic
- Protect staff working on work sites
- Soil, surface and groundwater protection: avoid any wastewater discharge, oil spill and discharge of any type of pollutants on soils, in surface or ground waters, in sewers, drainage ditches or into the sea.
- Protect the environment against exhaust fuels and oils
- Protect the environment against dust and other solid residues
- Waste management: install containers to collect the wastes generated next to the areas of activity.
- Degradation/demolition: inform and raise the awareness of the populations before any activity of degradation of goods.
- No waste slash and burn on site
- Speed limitation of work site engines and cars
- Allow the access of Public and emergency services
- Parking and displacements of machines
- Footbridges and access of neighbours
- Signaling of works
- Respect of cultural sites
- Consider impacts such as noise, dust, and safety concerns on the surrounding population and schedule construction activities accordingly;

- Protect soil surfaces during construction and re-vegetate or physically stabilize erodible surfaces;
- Ensure proper drainage;
- Prevent standing water in open construction pits, quarries or fill areas to avoid potential contamination of the water table and the development of a habitat for disease-carrying insects;
- Select construction materials sustainably, particularly wood;
- Control and clean the construction site daily;
- During construction, control dust by using water or through other means;
- Provide adequate waste disposal and sanitation services at the construction site;
- Dispose of oil and solid waste materials appropriately.
- Preserve natural habitats along streams, steep slopes, and ecologically sensitive areas;
- Develop maintenance and reclamation plans and restore vegetation and habitat.
- Sound use of chemicals for termite control during the construction phase.

Annex 6: Project Occupational Health and Safety (OHS) plan

A. Overview

This section describes the Environmental, Social, Health and Safety (ESHS) requirements under the Works Contract. These requirements are to be implemented in accordance with site-specific Environmental and Social Management Plan (ESMP) for the works. The bidder shall prepare its bid to implement all measures necessary to avoid undesirable adverse environmental and social impacts wherever possible, restore work sites to acceptable standards, and abide by any environmental performance requirements specified in an ESMP. The bidder shall address these requirements in its ESHS Management Plans and Implementation Plans and plan to fully take into account specific site ESHS considerations. If there is failure to implement these ESHS requirements in the course of executing the works contract, the employer reserves the right to arrange through the Engineer for execution of the missing action by a third party on account of the Contractor.

B. Pre-Bid Environment, Social, Health & Safety Considerations

Prior to bid preparation, the bidder is expected to assess the Environment; Health & Safety plan specific to the requirements for the work being bided for, taking into account the size and nature of the project as well as the nature and extent of potential Environmental, Social Health and Safety risks.

The Company's assessment must include:

A ''**Hazard Assessment''** of potential hazards associated with the projects being bidded for and formulated prevention control measures to address the identified hazards;

List of equipment and resources required to perform the work in a manner that fulfils ESHS requirements of the works;

Qualifications of Employees with the knowledge and skills to be used in performing the work in line with ESHS requirements;

An understanding of the obligations expected of the Company in order to comply with the applicable Environment, Social, Health & Safety Acts, Regulations and procedures;

A planned schedule for Environment, Social, Health & Safety inspections of the contract sites and facilities;

Plan for reviewing, recording and reporting of Environment, Health & Safety related events that may arise in the Course of the Projects;

Plan for reviewing Environment, Health & Safety performance measurement activities; and

C.1 Minimum Environmental, Social, Health and Safety outcomes

The bidder is expected to demonstrate capacity to produce sound ESHS results in the course of implementing the works in this contract. In general the ESHS measures to be planned shall include, but not limited to, those which will produce the following ESHS outcomes:

1. **Reduction of Pollution Impacts:** All works must be planned and implemented to minimize the effect of dust and noxious gases on the surrounding environment resulting from earth mixing sites, asphalt mixing sites, earth moving activities e.t.c. to ensure safety, health and the protection of

workers and communities living in the vicinity of project activities. All works must be planned and implemented to minimize noise levels emanating from machinery, vehicles and noisy construction activities (e.g. excavation, blasting) for the safety, health and protection of workers within the vicinity of high noise levels and nearby communities. All works must be planned and implemented to prevent oils, lubricants and wastewater used or produced during the execution of works from entering into rivers, streams and channels

2. **Conservation of Natural Resources**: All works must be planned and implemented to prevent and minimize the impacts of quarrying, earth borrowing, piling and building of temporary construction camps and access roads on the biophysical environment including protected areas and arable lands; local communities and their settlements. Such impacts shall be remedied to acceptable standards. Exploitation of natural resources such as hunting, fishing, collection of forest products or any other activity that might have a negative impact on the social and economic welfare of the local communities shall be avoided.

3. **Ensure adequate Waste Management:** All works must be planned and implemented to ensure that construction and other solid waste generated on all construction sites, site yards and workers' camps are properly disposed. Sewage and wastewater from construction camps must also be satisfactorily managed through the provision of proper sanitation facilities on all premises under the works contract

4. **Reduce impact of construction activities on vehicular traffic, pedestrian movement and access within project corridors**: All works must be planned and implemented to offset temporary disruptions to vehicular traffic and human movement. Temporary access facilities (roads, footbridges) shall be done in consultation with the local community especially in important or sensitive environments. They shall also be optimized to guarantee safety and protect users from freak accidents. Traffic management shall be inclusive of all relevant communal, local, state and federal institutions.

5. **Ensure safety of workers and community residents:** All works must be planned and implemented in a way that protects workers and residents of project areas from adverse impacts on their health and wellness. Work areas shall be cordoned off to prevent freak accidents. Workers shall use personal protective equipment such as safety boots, reflective jackets etc. Adequate road signs to warn pedestrians and motorists of construction activities, diversions, etc. shall be provided at appropriate points.

6. **Community Health and Safety:** All works must be planned and implemented in a way that guarantees the control of the spread of communicable diseases attributable to project staff: Workers and local residents shall be sensitized on health risks particularly of AIDS. Stagnant water in uncovered borrow pits shall be treated in the best way to avoid creating possible breeding grounds for mosquitoes, Work yards shall be organized in a way that prevents breeding of disease vectors.

7. **Prohibition of all Forms of Forced of Harmful Child Labour**

The Bidder shall not employ "forced or compulsory labor" in any form. "Forced or compulsory labor" consists of all work or service, not voluntarily performed, that is extracted from an

individual under threat of force or penalty. In the course of the works contract, the firm shall not employ any child to perform any work that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.

8. **Improving capacity for implementation of ESHS on Works Contract**: The Contractor shall provide sufficient training to his own personnel to ensure that they are all aware of the relevant aspects of these ESHS requirements, project ESIA/ESMP, and his own ESHS-MSIPs and are able to fulfil their expected roles and functions. Specific training should be provided to those employees that have particular responsibilities associated with the implementation of the ESHS-MSIPs.

General topics should be: EHS in general (working procedures); emergency procedures; and social and cultural aspects (awareness raising on social issues)

9. **Reduction of impacts of incoming workers:** The works contract shall be planned and implemented in a way that reduces the temporary and permanent effects of incoming personnel into project beneficiary communities i.e Labour Influx Impacts. Measures that will reduce conflict with host communities, reduce pressure on resources, reduce inflations of prices and promote social harmony will be required by the works contractor.

10. **Avoidance of Gender Based Violence (GBV), Sexual Exploitation and Abuse (SEA) and Violence Against Children (VAC):** The works contract shall be planned and implemented in a way that addresses the risk of Gender Based Violence GBV (with zero tolerance), all forms of Sexual Exploitation and Abuse (SEA), Violence Against Children (VAC), Alcohol and Substance abuse. The Bidder shall develop plans to mitigate such social risks at project execution sites. The Codes of Conduct and Action Plan for Preventing Gender Based Violence (GBV) and Violence Against Children (VAC) shall clearly define obligations on all project staff (including sub-contractors and day workers) with regard to implementing the project's environmental, social, health and safety (ESHS) and help prevent, report and address GBV and VAC within the work site and in its immediate surrounding communities

C.2 Other requirements that build on employer responsibilities

11. Avoidance of Impacts on Private Property: Except otherwise addressed by a Resettlement Plan implemented by the employer, the bidder's plan must not include deliberate or accidental damage to private property. Such unplanned damage shall demand repair of the property to the owner's satisfaction and at the contractor's own cost. For each repair, the contractor shall obtain from the owner a certificate that the damage has been made good satisfactorily in order to indemnify the employer from subsequent claims. In cases where compensation for inconveniences, land acquisition, damage of crops etc. are claimed by owner, the Employer has to be informed by the contractor through the SE. This compensation is in general settled under the responsibility of the Employer before signing the Contract. In unforeseeable cases, the respective administrative entities of the Employer will take care of compensation.

12. Protection of cultural heritage: Upon discovery of ancient heritage, relics or anything that might or believed to be of cultural importance during the execution of works, the procedure for

implementing the works contract is required to immediately report such findings through the process established by the employer aimed at protecting such cultural resources.

D. Contractor's Environment and Social Management Plan (C-ESMP)

Within 6 weeks of signing the Contract, the successful bidder shall prepare a C-ESMP to ensure the adequate management of the environmental, social, health and safety (ESHS) aspects of the works, including implementation of the requirements of these ESHS requirements and any specific requirements of an Environmental and Social Management Plan (ESMP) for the works. The Contractor's ESMP (C-ESMP) will serve two main purposes:

- For the Contractor, for internal purposes, to ensure that all measures are in place for adequate EHS management,
- As an operational manual for staff.

To ensure that the contractor is fully prepared for the adequate management of the ESHS aspects of the project, and as a basis for monitoring of the contractor's EHS performance.

The Contractor's ESMP shall provide at least: a description of procedures and methods for complying with these general environmental management conditions, and any specific conditions specified in an EMP; a description of specific mitigation measures that will be implemented in order to minimize adverse impacts; a description of all planned monitoring activities (e.g. sediment discharges from borrow areas) and the reporting thereof; and the internal organizational, management and reporting mechanisms put in place for such.

The Contractor's ESHS-MP will be reviewed and approved by the Client before start of the works.It is expected to be reviewed every six months and every review will be reviewed and approved by the Employer. This review would ascertain that the Contractor's ESMP covers all of the identified impacts, and has defined appropriate measures to counteract any potential impacts.

ESHS Payment Requirements

It is expected that compliance with these conditions is already part of standard good workmanship and state of art as generally required under this Contract. The item "Compliance with Environmental Management Conditions" in the Bill of Quantities covers this cost. No other payments will be made to the Contractor for compliance with any request to avoid and/or mitigate an avoidable EHS impact.

OR

The bidder will cost the delivery of the ESHS requirements as a subsidiary obligation covered under the prices quoted for other Bill of Quantity items. However, provisional sums will be set aside for specific activities such as ESMP Trainings, HIV counselling services/SEA awareness and sensitization as mandatory ESHS outcomes.

Incorporation of Environmental and Social Requirements into Contract Management

The findings of the environmental and social assessment will need to be mainstreamed into the entire process for managing the BRT project. The requirements include the following;

Pre-Award Considerations

Evaluation of the capacity of project bidders for implementation of ESHS requirements: The project proponent will undertake a due diligence on the capacity of potential contractors for the faithful execution of the ESHS requirements of the project. This shall include

A review of the Environmental, Social, health & Safety (ESHS) policy of bidding firms;

Due diligence of the circumstances necessitating the suspension or termination of previous contracts on the basis of non-compliance with ESHS requirements of contracts

A review of the academic qualifications and experiences of key staff proposed to man key ESHS implementation functions by bidding firms

Inclusion of a statement of ESHS requirements into bidding and contract documents: The findings of the environmental and social assessment undertaken will be inserted into the bidding documents in a systematic manner. This will include;

A statement of the outcomes of properly implemented ESHS measures (sampled included in annex)

An inclusion of particular conditions of contract or specific contract provisions to furnish specific considerations such as regulatory limits, target periods to General Conditions of Contract (GCCs) provisions.

Management Strategies and Plans for Identified ESHS Issues: Based on the environmental and social assessment which have been reduced into a concise statement of ESHS requirements of the project, the project proponent will request bidders to propose Management Strategies and Plans to address ESHS issues as part of their bids. The strategies will demonstrate the capacity and knowledge of the bidder to manage the identified risks, if successful

Making provision in the Bill of Quantities (BoQ) of the project: This provision can be made in form of measured work items (in case of engineering mitigation measures) OR lump sum provisions (where the contractor is expected to propose costs based on his methodology) OR provisional sums (in case of mitigation measures which have been studies and costed by the client.

Inclusion of Supervisory Responsibility on ESHS issues into Terms of Reference of Supervision Firm: The proponent will include the qualifications, experience and responsibilities of E&S experts into the Terms of Reference of the Supervision Consultant's team.

Construction Phase

Development Contractors ESMP: The proponent shall request the successful bidder to develop a detailed costed Contractors ESMP based on the Management Strategies and Plans earlier detailed in the bids submitted. The C-ESMP will also contain all sub-plans stated in the environmental and social assessment carried out by the proponent such as the GBV Action Plan, Labour management procedures (LMP) manual, Traffic Management Plan, Occupational Health Management Plan etc with specific details reflecting approved implementation methodology will be prepared and submitted for approval by the contractor.

Mobilization of ESHS Personnel: The contractor shall ensure that all personnel that are to implement the measures described in client's E&S assessment and C-ESMP are available before construction works are initiated.

Training of on-site personnel: The personnel required for all construction and construction support services will be trained on the E&S requirements of the contract before works are launched.

Routine Monitoring of E&S Performance of Contracts: The monitoring plan described in this assessment will be implemented as scheduled. Data on identified monitoring indicators and other indicators that may be considered necessary will be collected by the various responsible persons.

Update of Contractors ESMP: In view of the dynamic nature of social risks of projects, the C-ESMP shall be reviewed and submitted for approval every six (6) months.

Annex 7: Company Code of Conduct for Preventing Gender Based Violence and Violence against Children

Preventing Gender Based Violence and Violence Against Children

The company is committed to creating and maintaining an environment in which gender-based violence (GBV) and violence against children (VAC) have no place, and where they will not be tolerated by any employee, associate, or representative of the company. Therefore, in order to ensure that all those engaged in the project are aware of this commitment, and in order to prevent, be aware of, and respond to any allegations of GBV and VAC, the company commits to the following core principles and minimum standards of behavior that will apply to all company employees, associates, and representatives including sub-contractors, without exception:

The company—and therefore all employees, associates, and representatives—commit to treating women, children (persons under the age of 18), and men with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status. Acts of GBV and VAC are in violation of this commitment.

Demeaning, threatening, harassing, abusive, culturally inappropriate, or sexually provocative language and behavior are prohibited among all company employees, associates, and its representatives.

Acts of GBV or VAC constitute gross misconduct and are therefore grounds for sanctions, which may include penalties and/or termination of employment. All forms of GBV and VAC, including grooming are unacceptable, regardless of whether they take place on the work site, the work site surroundings, at worker's camps or at worker's homes.

In addition to company sanctions, legal prosecution of those who commit acts of GBV or VAC will be pursued if appropriate.

Sexual contact or activity with children under 18—including through digital media—is prohibited. Mistaken belief regarding the age of a child is not a defense. Consent from the child is also not a defense or excuse.

Sexual favors—for instance, making promises or favorable treatment dependent on sexual acts—or other forms of humiliating, degrading or exploitative behavior are prohibited.

Unless there is full consent by all parties involved in the sexual act, sexual interactions between the company's employees (at any level) and members of the communities surrounding the work place are prohibited. This includes relationships involving the withholding/promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex—such sexual activity is considered "non-consensual" within the scope of this Code.

All employees, including volunteers and sub-contractors are highly encouraged to report suspected or actual acts of GBV and/or VAC by a fellow worker, whether in the same company or not. Reports must be made in accordance with GBV and VAC Allegation Procedures.

Managers are required to report suspected or actual acts of GBV and/or VAC as they have a responsibility to uphold company commitments and hold their direct reports responsible.

To ensure that the above principles are implemented effectively the company commits to ensuring that: All managers sign the 'Manager's Code of Conduct' detailing their responsibilities for

implementing the company's commitments and enforcing the responsibilities in the 'Individual Code of Conduct'.

All employees sign the project's 'Individual Code of Conduct' confirming their agreement not to engage in activities resulting in GBV or VAC.

Displaying the Company and Individual Codes of Conduct prominently and in clear view at workers' camps, offices, and in in public areas of the work space. Examples of areas include waiting, rest and lobby areas of sites, canteen areas, health clinics.

Ensure that posted and distributed copies of the Company and Individual Codes of Conduct are translated into the appropriate language of use in the work site areas as well as for any international staff in their native language.

An appropriate person is nominated as the company's 'Focal Point' for addressing GBV and VAC issues, including representing the company on the GBV and VAC Compliance Team (GCCT) which is comprised of representatives from the client, contractor(s), the supervision consultant, and local service provider(s).

Ensuring that an effective Action Plan is developed in consultation with the GCCT which includes as a minimum:

GBV and VAC Allegation Procedure to report GBV and VAC issues through the project Grievance Redress Mechanism (GRM);

Accountability Measures to protect confidentiality of all involved; and,

Response Protocol applicable to GBV and VAC survivors and perpetrators.

That the company effectively implements the Action Plan, providing feedback to the GCCT for improvements and updates as appropriate.

All employees attend an induction training course prior to commencing work on site to ensure they are familiar with the company's commitments and the project's GBV and VAC Codes of Conduct.

All employees attend a mandatory training course once a month for the duration of the contract starting from the first induction training prior to commencement of work to reinforce the understanding of the project's GBV and VAC Code of Conduct.

I do hereby acknowledge that I have read the foregoing Company Code of Conduct, and on behalf of the company agree to comply with the standards contained therein. I understand my role and responsibilities to prevent and respond to GBV and VAC. I understand that any action inconsistent with this Company Code of Conduct or failure to take action mandated by this Company Code of Conduct may result in disciplinary action.

Company name: _____

Signature: _____

Printed Name: _____

Title: _____

Date: _____

Annex 8: Manager's Code of Conduct for Preventing Gender Based Violence and Violence against Children

Preventing Gender Based Violence and Violence Against Children

Managers at all levels have particular responsibilities to uphold the company's commitment to preventing and addressing GBV and VAC. This means that managers have an acute responsibility to create and maintain an environment that prevents GBV and VAC. Managers need to support and promote the implementation of the Company Code of Conduct. To that end, managers must adhere this Manager's Code of Conduct and also sign the Individual Code of Conduct. This commits them to supporting and developing systems that facilitate the implementation of the Action Plan and maintain a GBV-free and VAC-free environment at the workplace and in the local community. These responsibilities include but are not limited to:

Implementation

To ensure maximum effectiveness of the Company and Individual Codes of Conduct:

Prominently displaying the Company and Individual Codes of Conduct in clear view at workers' camps, offices, and in in public areas of the work space. Examples of areas include waiting, rest and lobby areas of sites, canteen areas, health clinics.

Ensuring all posted and distributed copies of the Company and Individual Codes of Conduct are translated into the appropriate language of use in the work site areas as well as for any international staff in their native language.

Verbally and in writing explain the Company and Individual Codes of Conduct to all staff.

Ensure that:

All direct reports sign the 'Individual Code of Conduct', including acknowledgment that they have read and agree with the Code of Conduct.

Staff lists and signed copies of the Individual Code of Conduct are provided to the GCCT and the client.

Participate in training and ensure that staff also participate as outlined below.

Staff are familiar with the Grievance Redress Mechanism (GRM) and that they can use it to anonymously report concerns of GBV or VAC incidents.

Staff are encouraged to report suspected or actual GBV or VAC through the GRM by raising awareness about GBV and VAC issues, emphasizing the staff's responsibility to the Company and the country hosting their employment, and emphasizing the respect for confidentiality.

In compliance with applicable laws and to the best of your abilities, prevent perpetrators of sexual exploitation and abuse from being hired, re-hired or deployed. Use background and criminal reference checks for all employees.

Ensure that when engaging in partnership, sub-contractor or similar agreements, these agreements:

Incorporate the GBV and VAC Codes of Conduct as an attachment.

Include the appropriate language requiring such contracting entities and individuals, and their employees and volunteers, to comply with the Individual Codes of Conduct.

expressly state that the failure of those entities or individuals, as appropriate, to take preventive measures against GBV and VAC, to investigate allegations thereof, or to take corrective actions when GBV or VAC has occurred, shall constitute grounds for sanctions and penalties in accordance with the Individual Codes of Conduct.

Provide support and resources to the GCCT to create and disseminate internal sensitization initiatives through the awareness-raising strategy under the Action Plan.

Ensure that any GBV or VAC issue warranting police action is reported to the client and the World Bank immediately.

Training

All managers are required to attend an induction manager training course prior to commencing work on site to ensure that they are familiar with their roles and responsibilities in upholding the GBV and VAC Codes of Conduct. This training will be separate from the induction training course required of all employees and will provide managers with the necessary understanding and technical support needed to begin to develop the Action Plan for addressing GBV and VAC issues.

Ensure that time is provided during work hours and that staff attend the mandatory project facilitated induction training on GBV and VAC required of all employees prior to commencing work on site.

Ensure that staff attend the monthly mandatory refresher training course required of all employees to combat increased risk of GBV and VAC during civil works.

Managers are required to attend and assist with the project facilitated monthly training courses for all employees. Managers will be required to introduce the trainings and announce the self-evaluations. Collect satisfaction surveys to evaluate training experiences and provide advice on improving the effectiveness of training.

Response

Managers will be required to provide input to the GBV and VAC Allegation Procedures and Response Protocol developed by the GCCT as part of the final cleared Action Plan.

Once adopted by the Company, managers will uphold the Accountability Measures set forth in the Action Plan to maintain the confidentiality of all employees who report or (allegedly) perpetrate incidences of GBV and VAC (unless a breach of confidentiality is required to protect persons or property from serious harm or where required by law).

If a manager develops concerns or suspicions regarding any form of GBV or VAC by one of his/her direct reports, or by an employee working for another contractor on the same work site, s/he is required to report the case using the GRM.

Once a sanction has been determined, the relevant manager(s) is/are expected to be personally responsible for ensuring that the measure is effectively enforced, within a maximum timeframe of 14 days from the date on which the decision to sanction was made.

Managers failing to report or comply with such provision can in turn be subject to disciplinary measures, to be determined and enacted by the company's CEO, Managing Director or equivalent highest-ranking manager. Those measures may include:

- ❖ Informal warning.
- ❖ Formal warning.
- ❖ Additional Training.
- ❖ Loss of up to one week's salary.
- ❖ Suspension of employment (without payment of salary), for a minimum period of 1 month up to a maximum of 6 months.
- ❖ Termination of employment.
- ❖ Ultimately, failure to effectively respond to GBV and VAC cases on the work site by the company's managers or CEO may provide grounds for legal actions by authorities.

I do hereby acknowledge that I have read the foregoing Manager's Code of Conduct, do agree to comply with the standards contained therein and understand my roles and responsibilities to prevent and respond to GBV and VAC. I understand that any action inconsistent with this Manager's Code of Conduct or failure to take action mandated by this Manager's Code of Conduct may result in disciplinary action.

Signature: _____

Printed Name: _____

Title: _____

Date: _____

Annex 9: Individual Code of Conduct for Preventing Gender Based Violence and Violence against Children

Preventing Gender Based Violence and Violence Against Children

I, _____, acknowledge that preventing gender based violence (GBV) and violence against children (VAC) is important. The company considers that GBV or VAC activities constitute acts of gross misconduct and are therefore grounds for sanctions, penalties or potential termination of employment. All forms of GBV or VAC are unacceptable be it on the work site, the work site surroundings, or at worker's camps. Prosecution of those who commit GBV or VAC may be pursued if appropriate.

I agree that while working on the project I will:

- Consent to police background check.
- Treat women, children (persons under the age of 18), and men with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status. Not use language or behavior towards women, children or men that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate.
- Not participate in sexual contact or activity with children—including grooming, or contact through digital media. Mistaken belief regarding the age of a child is not a defense. Consent from the child is also not a defense or excuse.
- Not engage in sexual favors—for instance, making promises or favorable treatment dependent on sexual acts—or other forms of humiliating, degrading or exploitative behavior.
- Unless there is the full consent 18 by all parties involved, I will not have sexual interactions with members of the surrounding communities. This includes relationships involving the withholding or promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex—such sexual activity is considered "non-consensual" within the scope of this Code.
- Attend and actively partake in training courses related to HIV/AIDS, GBV and VAC as requested by my employer.
- Consider reporting through the GRM or to my manager any suspected or actual GBV or VAC by a fellow worker, whether employed by my company or not, or any breaches of this Code of Conduct.
- With regard to children under the age of 18: Wherever possible, ensure that another adult is present when working in the proximity of children.
- Not invite unaccompanied children unrelated to my family into my home, unless they are at immediate risk of injury or in physical danger.
- Not sleep close to unsupervised children unless absolutely necessary, in which case I must obtain my supervisor's permission, and ensure that another adult is present if possible.
- Use any computers, mobile phones, or video and digital cameras appropriately, and never to exploit or harass children or to access child pornography through any medium.

- Refrain from physical punishment or discipline of children.
- Refrain from hiring children for domestic or other labor which is inappropriate given their age or developmental stage, which interferes with their time available for education and recreational activities, or which places them at significant risk of injury.
- Comply with all relevant local legislation, including child's rights laws in relation to child labor.
- Use of children's images for work related purposes. When photographing or filming a child for work related purposes, I must: Before photographing or filming a child, assess and endeavor to comply with local traditions or restrictions for reproducing personal images.
- Before photographing or filming a child, obtain informed consent from the child and a parent or guardian of the child. As part of this I must explain how the photograph or film will be used.
- Ensure photographs, films, videos and DVDs present children in a dignified and respectful manner and not in a vulnerable or submissive manner. Children should be adequately clothed and not in poses that could be seen as sexually suggestive. Ensure images are honest representations of the context and the facts. Ensure file labels do not reveal identifying information about a child when sending images electronically.

Sanctions

I understand that if I breach this Individual Code of Conduct, my employer will take disciplinary action which could include:

- ❖ Informal warning.
- ❖ Formal warning.
- ❖ Additional Training.
- ❖ Loss of up to one week's salary. Suspension of employment (without payment of salary), for a minimum period of 1 month up to a maximum of 6 months.
- ❖ Termination of employment.
- ❖ Report to the police if warranted.

I understand that it is my responsibility to avoid actions or behaviors that could be construed as GBV or VAC or breach this Individual Code of Conduct. I do hereby acknowledge that I have read the foregoing Individual Code of Conduct, do agree to comply with the standards contained therein and understand my roles and responsibilities to prevent and respond to GBV and VAC. I understand that any action inconsistent with this Individual Code of Conduct or failure to take action mandated by this Individual Code of Conduct may result in disciplinary action and may affect my ongoing employment.

Signature: _____

Printed Name: _____

Title: _____

Date: _____

Annex 10: Waste Management Plan

During the construction stage, the Contractor shall prepare a Waste Management Plan before commencement of project works. The Plan shall include:

Water and Wastewater

- A review of the preliminary site drainage design prepared during the detailed design.
- An update of the preliminary design based on the actual construction program and site specific conditions (e.g. the geographical conditions, location of slopes and the nature of construction work).
- Detailed design including drawings, location maps, specifications of drainage collection channels and wastewater treatment facilities.
- Proposed discharge locations and treatment standards.
- A detailed implementation program of the proposed drainage system.
- As part of the design of the site drainage system, surface runoff within the construction site shall be diverted in order to avoid flushing away soil material and the water is treated by device such as sediment trap before discharge.
- Domestic sewage from site offices, toilets and kitchen shall either be collected by a licensed waste collector or treated by on-site treatment facilities. Discharge of treated wastewater must comply with the discharge limits according to Vietnamese legislation.
- A Wastewater treatment device such as a sediment tank can be installed near each of the constructions activities that may generate wastewater. Alternatively, sedimentation ponds can be constructed on-site to settle out excessive suspended solids (SS) before discharging into a discharge outlet.

Solid Wastes

- Waste such as those listed below are expected due to construction activities:
- Surplus excavated materials requiring disposal due to earth moving activities and slope cutting.
- Disposal of used lumber for trenching works, scaffolding steel material, site hoarding, packaging materials, containers of fuel, lubricant and paint.
- Waste generated by demolition abandoned uncompleted building on the project site.
- Domestic waste generated by construction workers, construction campsite and other facilities.
- The above wastes must be properly controlled through the implementation of the following measures:
- Minimize the production of waste that must be treated or eliminated.
- Identify and classify the type of waste generated. If hazardous or chemical wastes are generated, proper procedures must be taken regarding their storage, collection, transportation and disposal. (See Emergency Plan for Hazardous Materials and Chemical Waste Management Plan).
- Identify and demarcate disposal areas clearly indicating the specific materials that can be deposited in each, and

- Control placement of all construction waste (including earth cuts) to approved disposal sites (>300 m from rivers, streams, lakes, or wetlands). Collect and recycle and dispose where necessary in authorized areas all of garbage, metals, used oils, and excess material generated during construction, incorporating recycling systems and the separation of materials.
- The Contractor shall make a commitment to waste recycling and re-use methods inconsideration of the following;
- A method statement on waste recycling, re-use and minimization of waste generation.
- Excavated material shall be re-used on-site or the nearby road segment / other projects far as possible in order to minimize the quantity of material to be disposed of.
- Recyclable materials such as wooden plates for trench works, steel, scaffolding material, site holding, packaging material, etc. shall be collected and separated on-site from other waste sources. Collected recyclable material shall be re-used for other projects or sold to waste collector for recycling, and
- Collected waste shall be disposed of properly through a licensed waste collector.

Pollution Prevention Plan

Emergency Plan for Hazardous Materials

- If the construction site is expected to have or suspected of having hazardous materials(chemicals, asbestos, hydrocarbons, or other similar hazardous materials), the Contractor will be required to prepare a Hazardous Waste Management Plan and Emergency Response Plan to be approved by the Environmental Supervisor. Removal and disposal of existing hazardous wastes in project sites should only be performed by specially trained personnel following national or provincial requirements, or internationally recognized procedures.

The Contractor shall:

- Make the Hazardous Waste Management Plan available to all persons involved in operations and transport activities;
- Hazardous waste (or chemical waste) shall be properly stored, handled and disposed of in accordance with the local legislative requirements. Hazardous waste shall be stored at designed location and warning signs shall be posted;
- Inform the Environmental Supervisor, or Construction Supervisor of any accidental spill
- or incident in accordance with the plan;
- Prepare a companion Emergency Response Plan outlining all procedures to be undertaken in the event of a spilled or unplanned release;
- Initiate a remedial action following any spill or incident; and
- Provide a report explaining the reasons for the spill or incident, remedial action taken, consequences/damage from the spill, and proposed corrective actions. The Emergency Plan for Hazardous Materials shall be subsequently updated and submitted to the PEO for no objection.

Chemical Waste

- During construction there will be a potential for pollution to adjacent habitat areas and watercourses caused by chemical wastes such as spent waste oil, spent lubricant, contaminated soil material due to leakage of hydraulic oil, fuel from construction plant or vehicles, etc.
- The following measures shall be put into place in order to minimize the damage caused by chemical waste:
- All refueling of heavy equipment and machinery shall be undertaken by a service vehicle to prevent any spillage or contamination by chemical wastes such as maintenance oils, lubricants, etc.
- All the fuel and hazardous material storage shall be adequately enclosed to prevent any spillage problems;
- Storm water runoff from open workshops, repair areas, and enclosed storage areas shall be collected and treated in hydrocarbon separation pits/tanks before discharge to drains and waterways.

Maintenance of Construction Equipment

The Contractor shall:

- Identify and demarcate equipment maintenance areas (>15m from rivers, streams, lakes or wetlands). Fuel storage shall be located in proper areas and approved by the PEO.
  Ensure that all equipment maintenance activities, including oil changes, are conducted within demarcated maintenance areas; never dispose spent oils on the ground, in watercourses, drainage canals or in sewer systems, and
- All spills and collected petroleum products shall be disposed of in accordance with standard environmental procedures/guidelines. Fuel storage and refilling areas shall be located at least 100m from all cross drainage structures and important water bodies or as directed by the PEO.

Clearing of Construction Areas

Areas proposed for clearing shall be included in the Vegetation Clearing and Salvage Plan. Only those proposed areas shall be cleared in accordance with the Plan and approved by the Engineering Supervisor. The Vegetation Clearing and Salvage Plan shall consider the existing usage of the project land to allow its existing usage to continue as long as is practicable, without interference with the Contractor's activities. Vegetation shall not be disturbed in those areas not submitted with the Plan.

The following measures shall be implemented:

Landscape, Visual impacts and Re-vegetation

- The requirement of compensatory planting shall be included in the design and project contract. A Master Landscaping Plan and requirements of ecological monitoring or survey during different stages of the project shall be prepared during the design stage that shall be implemented during the construction and maintained during operation.

- Facilities and structures shall be located according to the terrain and geographical features of the project site.
- Restoration, of cleared areas such as disposal areas, stockpiles areas, working platforms and any areas temporarily occupied during construction of the project works shall be accomplished using landscaping, adequate drainage and re-vegetation.
- Existing trees and plants within the construction boundaries shall be tagged to indicate whether the trees are to be retained transplanted or removed. Transplantation of existing trees affected by the project works shall be carried out prior to the commencement of construction.
- Excavations shall avoid damage to the root systems. Mitigation measures are also required to prevent damage to trunks and branches of trees around the site.
- Temporary hoarding barriers shall be of a recessive visual appearance in both color and form.
- Upon completion of the construction, the affected areas shall be immediately restored to their original condition, including the foot path and re-establishment of disturb vegetation.
- At the highly visually sensitive zones, construction may be scheduled where possible at the low tourist seasons.
- Construction trucks shall operate at night when possible and kept cleaned and covered when shipping bulk materials.
- Construction sites shall be surrounded with fence if located at the scenery zones to avoid direct visual sights of the construction sites.
- There shall not be construction camps in scenic areas.
- Random disposal of solid waste in scenic areas shall be strictly prohibited.
- All mixing stations and concrete batching plants shall not be located in scenic areas.
- Use the existing roads as access road if possible to minimize the need for new access roads which lead to damage existing landforms and vegetation.
- Spoil heaps and excavated slopes shall be re-profiled to stable batters, and grassed to prevent erosion.
- Topsoil stripped from the work areas shall be used for landscaping works, and

Site Restoration

- Various activities to be carried out for site restoration are:
- The construction campsite shall be grassed and trees cut replaced with saplings of similar tree species.
- All affected areas shall be landscaped and any necessary remedial works shall be undertaken without delay, including grassing.
- Drains shall be cleared of debris and culverts checked for clear flow paths.
- All sites shall be cleaned of debris and all excess materials properly disposed.
- Oil and fuel contaminated soil shall be removed and transported and buried in waste disposal areas.

- Saplings planted shall be handed over to the community or the CEFTER for further maintenance and watering.

Annex 11: Workers Campsite Management Plan

The nature of work to carried out in the subproject will not require the establishment a Workers Campsite, however, this management plan will apply to the activities of workers onsite during the construction works. The objectives of the Camp Management Plan are:

Avoid or reduce negative impacts on the community and maintain constructive relationships between local communities and workers; and

Establish standards on worker welfare and conditions onsite that provide a healthy, safe and comfortable environment.

Legal Requirements and Grievances

5 The Contractor is required to operate within the parameters of the Nigeria Labour Law and the International Labour Organization guidelines.

6 The World Bank Performance Standards are applicable to CEFTER and its sub projects. Furthermore, the Grievance Redress Mechanism contained in this ESMF is required to be adhered to by the Contractor.

7 Contractor personnel shall conduct regular safety walks and an HSE committee will track performance against requirements stipulated in this plan.

8 The Contractor will also have its grievance mechanism developed for the project.

9 Additionally, Contractor would be required to sign and acknowledge the Code of Conduct and agree to abide by its provisions.

Management and Monitoring

The Contractor shall develop a Contractor Plan which shall, as a minimum, incorporate the site management measures. Since the workers will not be camped but be working and closing every day. The Contractor is responsible for developing area or site-specific procedures for the monitoring program (where necessary) based upon the final design details of the infrastructure

Annex 12: Safeguard Guidance on Covid-19 Consideration in construction/civil works projects

1. Conduct off-site safety trainings to ensure all employees are aware of the job hazards. The emphasis of this training is on the COVID19 awareness.
2. Contractor is to carry out screening of personnel to determine if any of them is sick or showing any COVID19 related symptoms before any of them is allowed into the work site.
3. Proper education of workforce and enforcement of social distancing protocols on site. Effective social distancing practices must be included in the training plan prior to deployment of the workforce to site.
4. Education should include use of tools; Tools and equipment are not to be shared, where possible. Touch points on tools should be properly wiped down with disinfectant prior to hand over to next shift.
5. Workers are to be encouraged to wash hands comprehensively for at least 30 seconds immediately they are about to enter the worksite.
6. In addition, the following social distancing practices can be included in the workers camp:
   a. Break time can be staggered so that not all workers will be away to the canteen or eating area at the same time
   b. Use of the bathrooms and toilets need to be staggered to prevent crowding.
   c. Work hours can also be staggered to ensure no overcrowding
   d. Provision of entry and exit points from workers camp and site to ensure minimum contact during shift change.
   e. Prevention of visits from family and friends from workers camp and work site
   f. Improve access control to and from the workers camp and works site. Consider the use of personal identification cards that should be presented to grant access.
7. Education and enforcement of handwashing, sanitizing and other hygienic practices.
8. A record of who is on the work site and when needs to be available and with the shift supervisor at all times. This is so that in the event of a worker contracting COVID19, these records will be utilized to inform those who may have come into contact with this person (contact tracing).
9. Contractor to create an isolation area within the sick bay that can offer initial response.
10. Sick bay and health officers in the workers camp are to have the phone numbers and contact details of NCDC for confirmed cases that require evacuation from site.
11. Contractor should ensure the regular disinfecting and cleaning of the following surfaces several times a day; tables, chairs, doorknobs, Light switches, phones, toilets, taps and sinks.
12. Remind workforce of need to follow the protocols, especially washing of hands and to keep common areas and tools, clean.
13. When departing the worksite, workers are to:
a. Wash hands properly before departing site
b. Retain PPE on site
c. Maintain social distancing as you depart

Annex 13 Physical and Cultural Resources Plan

CHANCE FIND PROCEDURE (CFP) DURING THE CONSTRUCTION AND OPERATION OF THE CEFTIC COMPLEX

1. INTRODUCTION

This document is to serve as a guide to CEFTER and her contractor(s) during the construction and operation of the CEFTIC complex. The document is to be implemented in the event of a chance find of heritage resources during the construction and operation of CEFTIC complex. The aim of this procedure is to avoid and or reduce risks that may result due to chance finds while considering World Banks ESS8.

2. CHANCE FIND PROCEDURES

The following procedural guidelines must be considered in the event that previously unknown heritage resources or burial sites are exposed or found during the life of the project.

2.1 Initial Identification and/or Exposure

Heritage resources or burial sites may be identified during construction or accidently exposed. The initial procedure when such sites are found aim to avoid any further damage. The following steps and reporting structure must be observed in both instances:

a. The person or group (identifier) who identified or exposed the burial ground must cease all activity in the immediate vicinity of the site;
b. The identifier must immediately inform his/her supervisor of the discovery;
c. The supervisor must ensure that the site is secured and control access; and
d. The supervisor must then inform the relevant CEFTIC project personnel responsible for at least the following portfolios: Site Engineer, Environmental Consultant, and Safeguard officer.

3. Chance Find Procedures: Heritage Resources

In the event that previously unidentified heritage resources are identified and/or exposed during the construction or operation of the CEFTIC Complex Project, the following steps must be implemented subsequent to those outlined under Section 2.1 above:

a. The Site Engineer manager and/or environmental Consultant and Safeguard officer must be notified of the discovery;
b. The Environmental Consultant will provide a guide to ensure that a qualified specialist is assigned to consider the heritage resource, either via communicating with the via telephone or email, or based on a site visit;
c. Appropriate measures will then be presented to CEFTER;
d. Should the specialist concludes that the find is a heritage resource protected in terms of the National Museum and Monument Commission (NMMC), CEFTER will notify NMMC immediately;
e. Based on the comments received from NMMC, CEFTER will provide a Terms of References Report and relevant associated costs if necessary.

4. Chance Find Procedures: Palaeontology

4.1 Isolated Bone Finds

In the process of digging excavations, isolated bones may be spotted in the hole sides or bottom, or as they appear on the spoil heap. By this is meant bones that occur singly, in different parts of the excavation. If the number of distinct bones exceeds six pieces, the finds must be treated as a bone cluster (below).

4.1.1 Response of personnel

The following responses should be undertaken by personnel in the event of isolated bone finds:

Action 1: An isolated bone exposed in an excavation or spoil heap must be retrieved before it is covered by further spoil from the excavation and set aside;

Action 2: The Site Engineer and Environmental Consultant must be informed;

Action 3: The responsible field person (Site Engineer or Environmental Consultant) must take custody of the fossil.

The following information is to be recorded:

- Position (excavation position);
- Depth of find in hole;
- Digital image of hole showing vertical section (side); and
- Digital image of fossil.

Action 4: The fossil should be placed in a bag (e.g. a Ziploc bag), along with any detached fragments. A label must be included with the date of the find, position information, and depth; and

Action 5: The Environmental Consultant is to inform the CEFTER

4.1.2 Response by CEFTER

CEFTER will assess the information and liaise with the NMMC and the Environmental Consultant and a suitable response will be established.

4.2. Bone Cluster

A bone cluster is a major find of bones (e.g. several bones in close proximity or bones resembling parts of a skeleton). These bones will likely be seen in broken sections of the sides of the hole and as bones appearing in the bottom of the hole and on the spoil heap.

4.2.1 Response of personnel

The following responses should be undertaken by personnel in the event of bone cluster finds:

a. Immediately stop excavation in the vicinity of the potential material. Mark or flag the position as well as the spoil heap that may contain fossils;

b. Inform the Site Engineer and the Environmental Consultant; and
c. The Environmental Consultant is to inform CEFTER through the safeguard Officer who must then contact the NMMC contracted to be on standby. The Environmental Consultant is then to describe the occurrence and provide images to NMMC.

4.2.2 Response by NMMC

The NMMC will assess the information. It is likely that a Field Assessment by the NMMC will be carried out. It will be probably be feasible to avoid the find and continue to the excavation farther along, or proceed to the next excavation, so that the work schedule is minimally disrupted. The response time/scheduling of the Field Assessment is to be decided in consultation with CEFTER and the environmental consultant. The Field Assessment could have the following outcomes:

- If a human burial, the appropriate authority is to be contacted. The find must be evaluated by a human burial specialist to decide if Rescue Excavation is feasible, or if it is a **Major Find**.
- If the fossils are in an archaeological context, an archaeologist must be contacted to evaluate the site and decide if Rescue Excavation is feasible, or if it is a **Major Find**.
- If the fossils are in a palaeontological context, the palaeontologist must evaluate the site and decide if Rescue Excavation is feasible, or if it is a **Major Find**.

4.2.3 Rescue Excavation

Rescue Excavation refers to the removal of the material from the "design" excavation. This would apply if the amount or significance of the exposed material appears to be relatively circumscribed and it is feasible to remove it without compromising contextual data. The time span for Rescue Excavation should be reasonably rapid to avoid any undue delays, e.g. one to three days and definitely less than one week. In principle, the strategy during the mitigation is to "rescue" the fossil material as quickly as possible. The strategy to be adopted depends on the nature of the occurrence, particularly the density of the fossils. The methods of collection would depend on the preservation or fragility of the fossil and whether in loose or in lithified sediment. These could include:

- On-site selection and sieving in the case of robust material in sand; and
- Fragile material in loose sediment would be encased in blocks using Plaster-of-Paris or reinforced mortar. A carefully controlled excavation is required If the fossil occurrence is dense and is assessed to be a "Major Find"

4.2.4 Major Finds

A Major Find is the occurrence of material that, by virtue of quantity, importance and time constraints, cannot be feasibly rescued without compromise of detailed material recovery and contextual observations.

4.2.5 Management options for major finds

In consultation with CEFTER and the environmental consultant, the following options should be considered when deciding on how to proceed in the event of a Major Find.

Option 1: Avoidance

Avoidance of the Major Find through project redesign or relocation. This ensures minimal impact to the site and is the preferred option from a heritage resource management perspective. When feasible, it can also be the least expensive option from a construction perspective. The find site will require site protection measures, such as erecting fencing or barricades. Alternatively, the exposed finds can be stabilised and the site refilled or capped. The latter is preferred if excavation of the find will be delayed substantially or indefinitely. Appropriate protection measures should be identified on a sitespecific basis and in wider consultation with the heritage and scientific communities. This option is preferred as it will allow the later excavation of the finds with due scientific care and diligence.

Option 2: Emergency Excavation

Emergency excavation refers to the "no option" situation where avoidance is not feasible due to design, financial and time constraints. It can delay construction and emergency excavation itself will take place under tight time constraints, with the potential for irrevocable compromise of scientific quality. It could involve the removal of a large, disturbed sample by an excavator and conveying this by truck from the immediate site to a suitable place for "stockpiling". This material could then be processed later. Consequently, the emergency excavation is not the preferred option for a Major Find.

5 Exposure of Fossil Shell Beds

5.1 Response of personnel

The following responses should be undertaken by personnel in the event of intersection with fossil shell beds:

Action 1: The Site Engineer and Environmental Consultant must be informed;

Action 2: The responsible field person (Site Engineer / Environmental Consultant) must record the following information:

- Position (excavation position);
- Depth of find in hole;
- Digital image of the hole showing the vertical section (side); and
- Digital images of the fossiliferous material.

Action 3: A generous quantity of the excavated material containing the fossils should be stockpiled near the site, for later examination and sampling;

Action 4: The Environmental Consultant is to inform CEFTER through the Safeguard Officer who must then contact the NMMC. The Environmental Consultant is to describe the occurrence and provide images to support NMMC.

5.2 Response by NMMC

The NMMC will assess the information and liaise with CEFTER and the Environmental Consultant and a suitable response will be established. This will most likely be a site visit to document and sample the exposure in detail, before it is covered up.

6. Monitoring for Fossils

A regular monitoring presence over the period during which excavations are made, by either an archaeologist or palaeontologist, is generally not practical. The site Engineer and workers involved in digging excavations must be encouraged and informed of the need to watch for potential fossil and buried archaeological material. Workers seeing potential objects are to report to the Site Engineer who, in turn, will report to the Environmental Consultant. The Environmental Consultant will inform the archaeologist and/or palaeontologist contracted to be on standby in the case of fossil finds. To this end, responsible persons must be designated. This will include hierarchically:

a. The Site Engineer who is going to be most often in the field;
b. The Environmental Consultant for the project;
c. The Project Manager

7. CONCLUSION

The Chance Find Procedure presented in this document serves as policy for the accidental discovery of heritage resources and burial sites. Based on the definitions provided within this document and the proposed lines of communication, CEFTIC Complext project will be able to mitigate the accidental discovery of heritage resources and burial sites throughout the various phases of the project.

Annex 14: Photos stakeholders meeting with representatives from Urban Development Board, Makurdi, Ministry of Water Resources, the Host Community, Civil Society Organizations, BSU Community etc.

CENTRE FOR FOOD TECHNOLOGY AND RESEARCH
BENUE STATE UNIVERSITY, MAKURDI

VVTDS Nig. LTD

Sir/Madam,

The Benue State University (BSU) Makurdi plans to develop a complex on her plot of land (formerly Bongos Ikwue) close to you to be used as Food Technology and Innovation (CEFTIC) Complex. The project involves the construction of a factory complex that will be equipped with modern processing facilities like brewing, canning, bottling, corking, milling, drying, sealing and a research laboratory. It is the interest of the University and her partners to understand the impact the proposed project may have on you and or your community.

VTT Dynamics Nigeria Limited is providing service, and responsible for coordinating and gathering this information, for mitigation planning and management process. We request you to kindly support the process by answering the attached questionnaire.

Thank you

Stephen Hemba PhD
VTT Dynamics Nig. Ltd

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) OF THE PROPOSED FOOD TECHNOLOGY AND INNOVATION (CEFTIC) COMPLEX SOCIAL IMPACT ASSESSMENT (SIA) AND MITIGATION PLANNING

QUESTIONNAIRE

Location/Community/Settlement: ----------

Section A: Respondent's Socioeconomic Data

1. Sex
1.1. Male
1.2 Female

2. Age
2.1 10 – 19years
2.2 20 – 29years
2.3 30 – 39years
2.4 40 – 49years
2.5 50 – 59years
2.6 60 – 69years
2.7 70 and above

3. Marital Status
3.1 Single
3.2 Married
3.3 Divorced/ Separated
3.4 Widowed

4. Total size of household:……..

5. Age and Sex structure of household members

Age (years)	Male	Female	Total		
0 – 4					
5 – 12					
13 – 19					
20 – 49					
50 – 69					
70 +					

6. Status of Respondent
6.1 Traditional Ruler
6.2 Church Leader
6.3 Family Head
6.4 Union Leader
6.5 Government official
6.6 Other (specify)

7.0 How long have you lived in this Community?
7.1 0 – 5years
7.2 6 – 10years
7.3 11 – 15years
7.4 16 – 20years
7.5 Above 20 years
7.6 Since birth

8. What is your religion?
8.1 Christianity
8.2 Islam
8.3 Traditionalist
8.4 Atheist

9. Level of Education
9.1 Primary school
9.2 Secondary school
9.3 Vocational / Technical school
9.4 Tertiary school
9.5 No Formal Education

10. Occupation
10.1 Farming
10.2 Fishing
10.3 Technician / Artisan
10.4 Trading
10.5 Business / Contractor
10.6 Civil Servant
10.7 Retired
10.8 Student / Apprentice
10.9 Unemployed
10.10 Others (Specify):…….

11. Level of Weekly Income (Naira)
11.1 1,000 – 10,000
11.2 11,000 – 20,000
11.3 21,000 – 30,000
11.4 31,000 – 40,000
11.5 41,000 – 50,000

11.6 51,000 – 60,000
11.7 61,000 – 70,000
11.8 71,000 – 80,000
11.9 Above 80,000

12. If trading, what do you trade in?
12.1 Household consumables
12.2 Food only
12.3 Medicine/drugs
12.4 Any other (specify)……

13. Where do you carry out your trading activities?
13.1 In this community
13.2 Outside this Community
13.3 both

14. What has been the performance of your trading activities?
14.1 growing
14.2 Decreasing
14.3 The same

15. If decreasing, what do you think is responsible? (State)
15.1:……
15.2:……
15.3:……...

SECTION B: SOCIAL IMPACTS

16. What period of the day/ week is important to your community for:
16.1 Socialization……..
16.2 Recreation……
16.3 Community meetings (if any) ……..
16.4 Worship……

17. What are the important Health challenges in your community?
17.1 ……

18. Name (if any) the sacred/ important recreation sites in your community (indicate)
18.1 …….
18.2 …….
18.3 …….
18.4…….

19. List the environmental problems in the Community?
19.1 Flooding
19.2 Waste water
19.3 Solid waste
19.4 Air pollution

19.5 Noise
19.6 Others (specify)……..

20. How do you consider the availability of housing in this community to meet the demand of people who prefer to be resident here?
20.1 Very adequate
20.2 Adequate
20.3 Inadequate
20.4 Very inadequate

21. Related to your answer in 26 what are the specifics responsible for your answer?
21.1 Quality of houses
21.2 Quantity of houses
21.3 Age of buildings
21.4 Cost of offer/ charges

22. What is your opinion of power supply in your community?
22.1 Very good
22.2 Needs improvement
22.3 Poor
22.4 Very poor

23. What is your opinion of solid waste services in your community?
23.1 Very good
23.2 Needs improvement
23.3 Poor
23.4 Very poor

24. Is the road network serving your Community adequate for your commuting needs?
24.1 All the times
24.2 Only during Weekends
24.3 Not during festivals
24.4 Not in the mornings
24.5 others (specify)

Section C: Relationship with University

25. Which of these Universities to you consider closest to your Community?
25.1 University of Mkar
25.2 University of Agriculture
25.3 Benue State University (BSU)
25.4 University of Nsukka
25.5 Federal University Wukari
25.6 Others (specify)

26. What have you gained personally from the University (ies) closest to your Community?
26.1 Employment
26.2 Admission for children/ward or relative

26.3 Academic Resources
26.4 None

27. If none, what personal benefit do you expect from the University (ies)?
27.1 Employment opportunities
27.2 Admission for Children/ward or relative
27.3 Academic Resources
27.4 Provision of scholarship
27.5 Others (specify)……

28. What has your community gained from the University closest to it?
28.1 Employment Opportunities
28.2 Admission for Children/Ward or relative
28.3 Healthcare facility/center
28.4 Academic resources
28.5 Improvement in Education
28.6 None
28.7 Others (specify)

29. If none, what would do you expect the University (ies) to do for your community?
29.1 Employment opportunities
29.2 Education / scholarship
29.3 Provide health care
29.4 Provide Academic resources
29.5 Others (specify)……..

30. What do you think about the location of the Food Technology and Innovation (CEFTIC) Complex on the University's available land in your community?
30.1 Support / welcome development
30.2 Poor idea/ not supported
30.3 Good location for a research Centre
30.4 Not a good location
30 I don't care about it

31. What industry related social problem does your community experience?
31.1 Traffic congestion
31.2 Noise
31.3 indiscriminate dumping of waste
31.4 Cult wars
31.5 increased air pollution
31.6. Alcoholism / prostitution
31.7 Others (specify)

32. How would you describe the present level of security of your community?
32.1 Very adequate
32.2 Adequate
32.3 Inadequate

32.4 Very inadequate

Thank you very much for the responses