CHAPTER ONE

INTRODUCTION

1.1 Background Information

The Federal University, Otuoke (FUO), in Bayelsa State, Nigeria, is one of nine new federal universities established by the Federal Government of Nigeria in February 2011. FUO was set up to assist the Federal Government in its drive to improve the quality of further education and extend opportunities to university education in Nigeria and the Niger Delta Region in particular. The scope of the project includes the construction of a main entrance gate/security, start-up campus (Phase 1), university commercial centre, engineering and maintenance centre, garden park including existing water features, sports and recreation, a central car park for the academic and administration core, research park, teaching core, undergraduate and post-graduate accommodation, golf course, senior staff housing, Vice-Chancellor's lodge and guest cottages and associated infrastructure as the main campus site, on 200 hectares of land. The university's administration and management services are presently operating from a temporary site located within Otuoke community.

Education is or should be the cornerstone of most countries drive towards sustainable development particularly at a time of volatile and fast changing trends in the global economy and the challenges that face Nigeria as it strives to move away from a predominantly Oil and Gas centred towards a more diversified industrial and commercial base. By investing in education, governments, corporations, communities, NGOs and individuals help prepare young people for the challenges ahead.

Education in Nigeria is overseen by the Ministry of Education while the local authorities take responsibility for implementing policy for state-controlled public education and state schools at a regional level. The education system is divided into Kindergarten, primary education, secondary education and tertiary education (the 6-3-3-4 system).

Institutions of higher education or the tertiary institutions provide the final stage of formal education, which takes a minimum of 4 years, completing the 6-3-3-4 educational system. However, professional courses last

longer; Medicine and Dentistry, for instance, last for 6 years. Institutions offering higher education include universities (both Federal and State universities), polytechnics (both Federal and State polytechnics), universities of technology (owned either by the Federal or State governments), universities of agriculture, numerous colleges of education and privately owned institutions. The Government has a majority control of university education. The country has a total number of 128 universities registered by NUC among which Federal and State Governments own 40 and 38 respectively while 50 universities are privately owned.

The proponent for the development of the permanent campus is the Federal University, Otuoke (FUO), in Bayelsa State, Nigeria. It is one of nine new federal universities (Dutse, Dutsin-Ma, Kashere, Lafia, Lokoja, Ndufu-Alike-Ikwo, Otuoke, Oye-Ekiti, Wukari) established by the Federal Government of Nigeria in February 2011. The mission of the Federal University, Otuoke is the generation, dissemination, enhancement and application of knowledge. The vision of the Federal University, Otuoke (FUO) is to gain and maintain a reputation as a world-class university that challenges all its students to achieve the highest levels of intellectual and personal growth, to promote sustainable development, as well as contribute purposeful and ethical service to the nation and mankind. The core values of the University are Learning, Integrity, Knowledge, Excellence and Service (L-I-K-E-S).

The University presently has two academic faculties, which are Humanities & Social Sciences and Science (Engineering & Technology). These aim to promote world-class and cutting-edge research in Energy & Environmental Science, Engineering and Technology, Marine Science, Human & Social Dynamics as well as Business Management & Entrepreneurial Studies. The University's starting student population of about 200-300 students, in September 2011, is expected to grow gradually to a maximum size of 6,000 students over a 10-15 year period.

In compliance with directives from the EIA Act 86 of 1992 of the Federal Ministry of Environment, The Federal University Otuoke has undertaken an Environmental Impact Assessment (EIA) study of FUO's proposed construction of a permanent site.

1.2 OBJECTIVES OF THE EIA

The objectives of the EIA study are to:

- Determine the baseline conditions of the environment (biophysical, socio-economic and health);
- Determine and evaluate the potential significant positive and significant negative impacts of the Permanent site activities on the identified environmental sensitivities as well as the interactions between the sensitivities in relation to the biophysical, socio-economic and health aspects of the receiving environment;
- Proffer cost-effective mitigation measures for the negative impacts, and where possible, enhance the positive impacts that will further assure the environmental and social sustainability of the project;
- Integrate the opinions and views of all stakeholders particularly host communities into the project in order to ensure that the construction project is both environmentally and socially sustainable;
- Develop an appropriate and cost effective Environmental Management Plan (EMP);
- Incorporate the recommendations of the EIA process into detailed project decisions.

1.3 SCOPE OF THE EIA

The general scope of the EIA covers all the activities that constitute this project. It will outline the techniques and methodologies to be used in generating data, including the description of the data sources. The following broad categories are covered:

- Literature review;
- Baseline data acquisition; (meetings, consultations, sampling, public forum)
- Identification, quantification and evaluation of potential impacts;
- Determination of appropriate mitigation and enhancement measures;
- Environmental management plan;
- Consultation/stakeholder engagement;
- Report preparation.

1.4 Project Location

The proposed FUO permanent site is located in Bayelsa State, one of the 36 States of Nigeria. The State is bounded on the South by the Atlantic Ocean, to the North and East by the Rivers State, and to the West by the Delta State. Bayelsa State is currently made up of 8 local government areas, one of which is Ogbia LGA which is the home of the Otuoke Community where the new University campus is situated. Ogbia Local Government Area one among eight (8) LGAs in Bayelsa State (Brass, Ekeremor, Kokokuma/Okpokuma, Nembe, Ogbia, Sagbama, Southern Ijaw and Yenagoa, its capital.).

The campus will be developed on a 2,000,000 square meters (200 hectares) site, on land donated by the indigenes of Otuoke Community in Bayelsa State. The site is geographical located at Latitude N04^0 47' 32.7'' and Longitude E0060 19' 31.4'' and is situated in the heart of the community along the Otuoke – Kolo Road. The land area proposed for the campus development is traditionally is a farming area and forest.

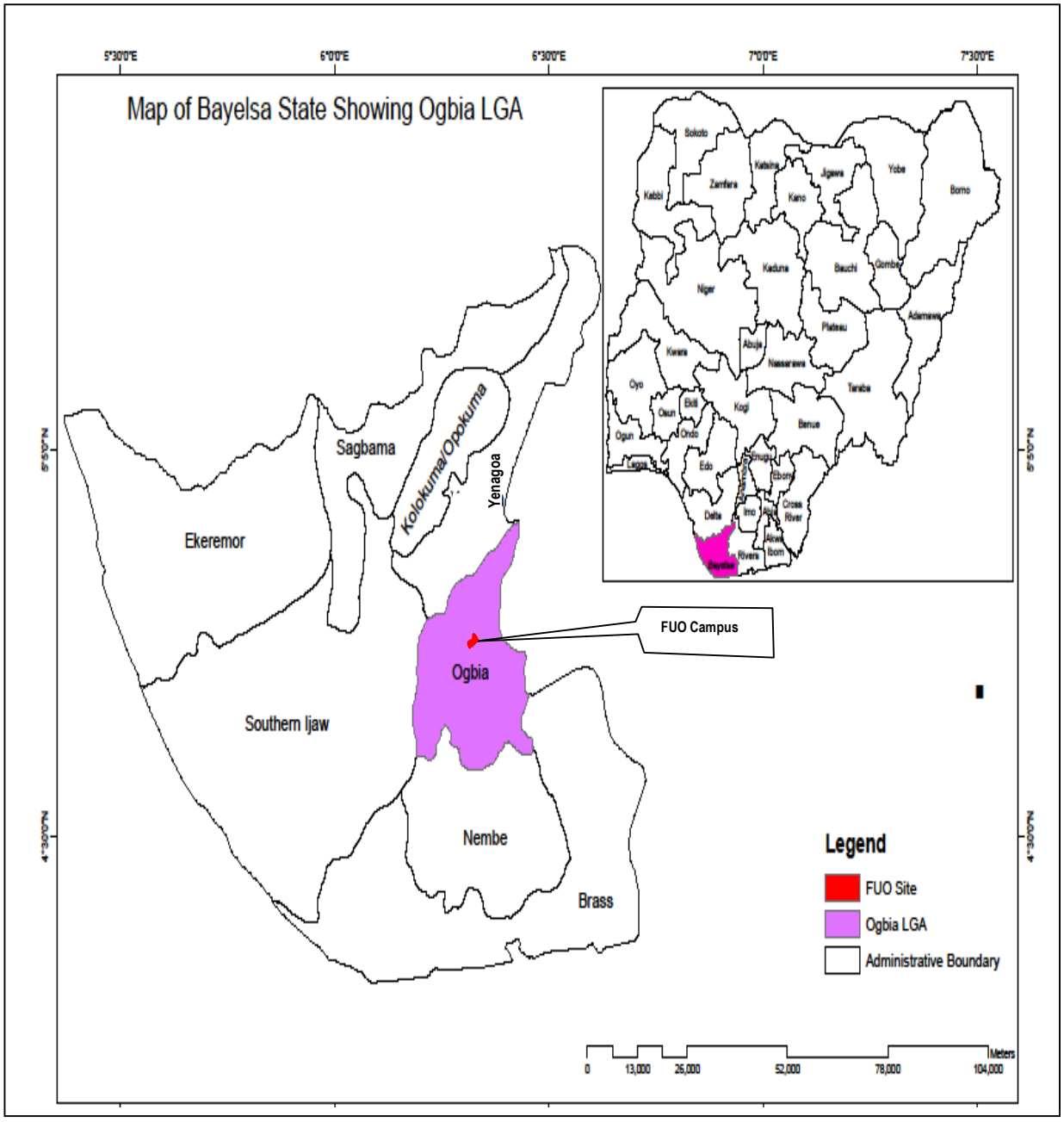


Figure 1.1: Map of Ogbia LGA in Bayelsa State Showing Position of FUO Project Site.

1.5 Administrative and Legal Framework

This section presents a review of relevant statutory requirements for the proposed construction of the permanent site of FUO. The EIA is being carried out not only to satisfy statutory requirements, but also to demonstrate FUO's standards, policies, good practices and commitment to conserving the environment.

The information contained in this section is a summary of relevant Federal Government laws and regulations, relevant Bayelsa State Government Edicts, International conventions/agreements/ regulations and standards.

1.5.1 Federal Regulations / Guidelines

1.5.1.1 The Environmental Impact Assessment Act CAP LFN E12 2004

The Environmental Act makes EIA mandatory for all new major public and private projects in Nigeria. It sets out to:

- Consider the likely impacts and the extent of these impacts on the environment before embarking on any project or activity;
- Promote the implementation of appropriate policy in all federal lands consistent with all laws and decision making processes through which the goal of this Act may be realized; and
- Encourage the development of procedures for information exchange, notification and consultation between organizations and persons when the proposed activities are likely to have significant environmental effects.

The Act gave specific powers to the then FEPA, now Federal Ministry of Environment (FMEnv) to facilitate environmental assessment of projects. In September 1995, the Federal Government of Nigeria issued the EIA Sectoral Guidelines for Oil and Gas Industry Projects. The Guidelines are intended to assist in the proper and detailed execution of EIA studies of oil and gas projects in consonance with the EIA Act. The EIA Act is

the fundamental legislation on which further environmental actions on any given project are given appropriate consideration.

1.5.1.2 National Environmental Protection (Effluent Limitations) Regulations (S.I.8) of 1991

This regulation makes it mandatory for industries generating wastes to install anti-pollution and pollution abatement equipment on site. The regulation is specific to each category of waste generating facility with respect to limitations of solid and liquid discharges or gaseous emissions into the ecosystems. Appropriate penalties for contravention are also specified in the regulation.

1.5.1.3 National Environmental Protection (Pollution Abatement in Industries Producing Waste) Regulation (S.I.9) of 1991

The National Environmental protection (Pollution Abatement in Industries Producing Waste) Regulation of 1991 regulates the release of toxic substances, requirement for pollution monitoring unit, machinery for combating pollution and contingency plan by industries. It also provides that industries producing wastes should submit lists and details of chemicals used by such industries to FMEnv as well as permissible limits of discharge into public drains.

1.5.1.4 Federal Ministry of Environment (FMEnv) National Guidelines for Environmental Audit in Nigeria 1999.

Guidelines prepared by Federal Ministry of Environment to assist operators, environmentalists and other stakeholders to conduct effective environmental compliance audits.

1.5.1.5 FMEnv Procedural Guidelines (1995)

In compliance with its mandate, FEPA issued the EIA Procedural Guidelines and Sectoral Guidelines for Oil and Gas Projects in 1995. The Procedural Guidelines also indicate the steps to be followed in the EIA process. Annex C contains the EIA writing format as required by FMEnv. The guidelines are intended to assist in the proper and detailed execution of EIA studies of projects in consonance with the EIA Act.

1.5.1.6 FMEnv Guidelines and Standards for Environmental Pollution and Control in Nigeria (Act Cap 131 LFN)

The FEPA Guidelines and Standards for Environmental Pollution Control in Nigeria Part I, Chapter 2 contains the water quality guidelines for industry. Section 2.2 of the chapter states requirements for water and wastewater monitoring. The Ministry requires that industries monitor their effluents in-house while FMEnv will also cross-check the effluent characteristics to ascertain the degree of compliance with the guidelines.

Contained in Chapter 3 are interim gaseous emission and ambient air quality limitations. Section 3.1 of this chapter states "Guidelines for emission limits from stationary sources represent maximum allowable levels of pollutants from a site, process, stack, vent, etc. with the objective of achieving a desired air quality". The prescribed emission limits depend on social and political considerations.

Emission limits for particulates and for specific pollutants from stationary sources are also given. Section 3.2 pertains to ambient air standards and states: "Since emissions from industries and other sources have impact on ambient air, it is of utmost importance to prescribe guidelines for safe levels of air pollutants tolerable to humans, aquatic organisms and vegetation". Guidelines for Nigerian ambient air limits for conventional pollutants and specific substances in the air are listed.

In Chapter 4 sets out the noise exposure limits for Nigeria. This chapter states that industrial or workplace noise arises from occupational exposure of workers to noise from industrial machines or exposure of neighbourhood population to noise from factories nearby. The regulations highlight the importance of noise control, as most industrial estates exist alongside or close to residential areas.

The FEPA Guidelines and Standards for Environmental Pollution Control in Nigeria (Part II) contains the guidelines for the management of solid and hazardous wastes and provides interim permissible limits as protective measures against indiscriminate discharge of particulate matter and untreated industrial effluents into lakes, rivers, estuaries, lagoons and coastal waters. Chapter 1 of the guidelines is a description of the characteristics and criteria of various types of dangerous wastes and the toxicity limits for various waste types. Chapter 2 sets out the requirement for any person responsible for a spill or discharge into the environment except when such release is otherwise permitted under the provision of "FEPA Guidelines".

1.5.1.7 The National Environmental Protection Management of Solid and Hazardous Wastes Regulations (S.I.15, 1991)

Stipulate the objectives and designation of dangerous wastes in Nigeria.

1.5.1.8 Forestry Law, CAP 51, 1994

The Forestry Act 1958 which was amended as the Forestry Law CAP 51 (1994) prohibits any act that may lead to the destruction of or cause injury to any forest produce, forest growth or forestry property in Nigeria. The law prescribes the administrative framework for the management, utilization and protection of forestry resources in Nigeria, which is applicable to the mangrove and other forests of the Niger Delta.

1.5.1.9 Land Use Act of 1978

This law was enacted on 28th March, 1978, principally to facilitate the availability of development land to individuals, groups, institutions and governments. The law provides for the granting of statutory rights of occupancy over urban land and of customary rights of occupancy over rural land. Both types of rights require that certificates of occupancy are issued as confirmation of these rights.

Furthermore, the law specifies the maximum sizes of land which may be granted to each applicant for various reasons: these include set areas for crop farming (500 ha.); livestock grazing (5,000 ha); quarrying of building materials (400 ha). The law forbids the surrender or alienation of rights of occupancy or even the certificates conveying those rights, except under very stringent conditions.

In addition, when a holder of a statutory right of occupancy dies, the land he had held, or the rights thereto, shall not be subdivided, except with the consent of the Governor. Indeed the law vests the land of each State in the Governor of the State to hold in trust and administer for all Nigerians.

1.5.1.10 Public Health Law – CAP 103 of the Laws of Eastern Nigeria (1963)

This law is still in force. It provides that a medical officer of health shall have the powers to inspect areas in search of nuisances and otherwise to enforce the power vested in him related to public health (Section 6). Amongst others, the following shall be deemed to be nuisances:

(a) Any premises in such a condition as to be injurious to health;
(b) Any premises which are so dark or so ill-ventilated or so damp or in such a condition of dilapidation, as to be dangerous or prejudicial to the health of the persons living or employed therein;
(c) Any premises which contain rat holes or rat runs or other similar holes or which are infested with rats, or in which the ventilating openings are not protected by gratings in such a manner as to exclude rats therefrom; and,
(d) Any premises certified by the health officer to be so overcrowded as to be injurious or dangerous to the health of the inmates (Section 7).

1.5.1.11 The Endangered Species (Control of International Trade and Traffic Act, No. 11 of 1985)

The Decree (now Act) specifies that the "hunting or capture of or trade in the animal species specified in Schedule 1 of this Decree (being animal species threatened with extinction) is absolutely prohibited", and that no person shall hunt, capture, trade in or otherwise deal with animal species specified in Schedule 2 of this Decree (being animals though not necessarily now threatened may become so unless trade in respect of such species is controlled) except he is in possession of a licence issued under the Decree. Regarding hunting and fishing, the law prohibits the following methods:

(a) Any method likely to cause mass destruction of wild animals;
(b) The use of drugs, poisons, poisoned weapons or poisoned baits;
(c) The use of mechanically propelled vehicles for hunting;
(d) The use of fire;
(e) The use of fire arms capable of firing more than one round at each pull of the trigger;
(f) Hunting or capture at night; and
(g) The use of missiles containing detonators.

Section 5 of the law also specifies penalties for contraventions of the law.

1.5.1.18 National Environmental Standards and Regulation Enforcement Agency (NESREA) Act 25 of 2007

This National Environmental Standards and Regulation Enforcement Agency was established with the responsibility to ensure the regulated community complies with all environmental laws and regulations in Nigeria.

1.5.2 State Regulations

- Bayelsa State Forestry Edict 1998 Rivers State Environmental Protection Agency Edit No. 2 of 1994
- Bayelsa State Pollution Compensation Tax Edict 1998
- Bayelsa State Environmental and Development Planning Authority Edict 1998.

1.5.3 International Conventions and Guidelines

1.5.3.1 International Union for Conservation of Nature and Natural Resources (IUCN) Guidelines (1996)

The World Conservation Union – IUCN Red List of Threatened Animals provides taxonomic, conservation status and distribution information on species that have been evaluated using the IUCN Red List categories. This system is designed to determine the relative risk of extinction and the main purpose of the red list is to catalogue the species that are regarded as threatened at the global level i.e. at risk of overall extinction. The 1996 red list also included information on species that are categorized as extinct; on species that cannot be assessed because of insufficient data; and on certain species in the lower risk category. Nigeria, as a member of this body, categorizes species using the red list.

1.5.3.2 Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention, 1979)

The Bonn Convention concerns the promotion of measures for the conservation (including habitat conservation especially for endangered species listed in Bonn's) and management of migratory species.

1.5.3.3 Convention on Biological Diversity (1992)

The objectives of the Convention include the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising out of the utilization of genetic resources.

1.5.3.4 Convention Concerning the Protection of the World Cultural and Natural Heritage Sites (or World Heritage Convention, 1978)

The convention sets asides areas of cultural and natural heritage for protection. The latter is defined as areas with outstanding universal value from the aesthetic, scientific and conservation points of view.

1.5.3.5 Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal (1987)

The convention focuses attention on the hazards of the generation and disposal of hazardous wastes. The convention defines the wastes to be regulated and controls their trans-boundary movement in order to protect human and environmental health against their adverse effects.

1.5.3.6 United Nations Framework Convention on Climatic Change (1992)

In order to achieve sustainable social and economic development, energy consumption for developing countries' needs to grow taking into account the possibilities for achieving greater energy efficiency and for controlling greenhouse gas emissions in general. This also includes the application of new technologies on terms that made such an application economically and socially beneficial, determined to protect the climate system for present and future generations.

1.5.3.7 African Convention on the Conservation of Nature and Natural Resources 1968

The countries of the African Union, including Nigeria, undertook to adopt the measures necessary to ensure conservation, utilization and development of soil, water, flora and fauna resources in accordance with scientific principles and with due regard to the best interests of the people.

1.5.3.8 Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973.

It was signed in Washington, D.C., on 3 March 1973 and amended in Bonn, on 22 June 1979, as a multilateral treaty to protect endangered plants and animals. It was drafted as a result of a resolution adopted in 1963 at a meeting of members of the International Union for Conservation of Nature (IUCN). The convention was opened for signature in 1973, and CITES came into force on 1 July 1975. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species in the wild, and it accords varying degrees of protection to more than 35,000 species of animals and plants.

1.5.3.9 International Convention on Oil pollution Preparedness, Response and Co-operation (OPRC) 1990

This convention came into force in 1995. The convention recognizes the serious threat posed to marine environments as a result of oil pollution from ships, offshore facilities, seaports and oil handling facilities. It also focuses on the need to take precautionary measures to avoid oil spills as well as effective combat and corrective action in the case of an oil pollution incident. The OPRC takes into account the polluter pays principle and the importance of international instruments on liability and compensation in case of oil damage. Each party to the convention is required to ensure that ships, operators of offshore units and seaport authorities under its jurisdiction, shall possess oil pollution emergency plans, report without delay any event involving discharge or probable oil discharge at sea, assess the event to determine whether it is an oil pollution incident, and in the event of an established oil pollution incident, assess the nature, extent and environmental consequences, inform without delay all States whose interest are affected or likely to be affected. Each party shall also establish a national system for responding promptly and effectively to oil pollution incidents. This shall include also a national contingency plan for oil spill preparedness and response.

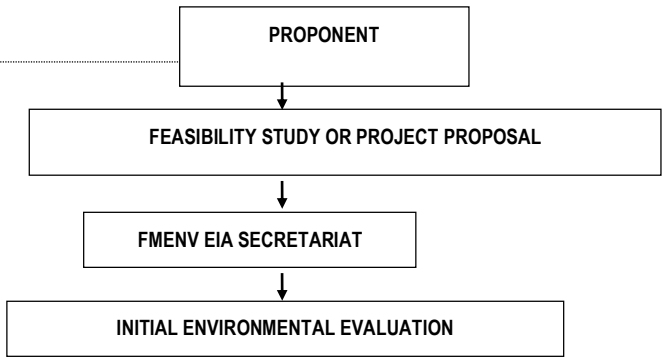
1.5.3.10 International Finance Corporation (IFC), Environmental and Social Standards (Equator Principles) Revised Edition, 2006

IFC's Environmental and Social Performance Standards define IFC clients' responsibilities for managing their environmental and social risks.

1.6 The EIA Premises/ Process

The key premises that affect EIA process were established from the initial stages of the project and have provided the general guidance, framework, and commitment to standards acceptable nationally and internationally. The premises include:

- The area is within the exclusive jurisdiction of the Federal Government of Nigeria. Therefore, Federal laws, including the Environmental Laws apply;
- The construction work and operations of the FUO Campus recognizes the laws and regulations of the Federal Republic of Nigeria as represented by the Federal Ministry of Environment, the State and Local Governments' Environmental Agencies, and that best options will be adopted for the construction execution;
- The construction works of the FUO Campus will be designed and operated to comply with local, national laws and guidelines together with all the international protocols, agreements and conventions which Nigeria is signatory to;
- The agreements and understanding reached with third parties including Government Officials during the course of the EIA process will be respected and honoured;
- Extensive consultations have and will continue to be held with Federal, State, and Local Governments together with the host communities; and
- An Environmental Management Plan (EMP) has been prepared and shall form the cornerstone for managing the significant impacts. The implementation of this plan will be the responsibility of FUO.



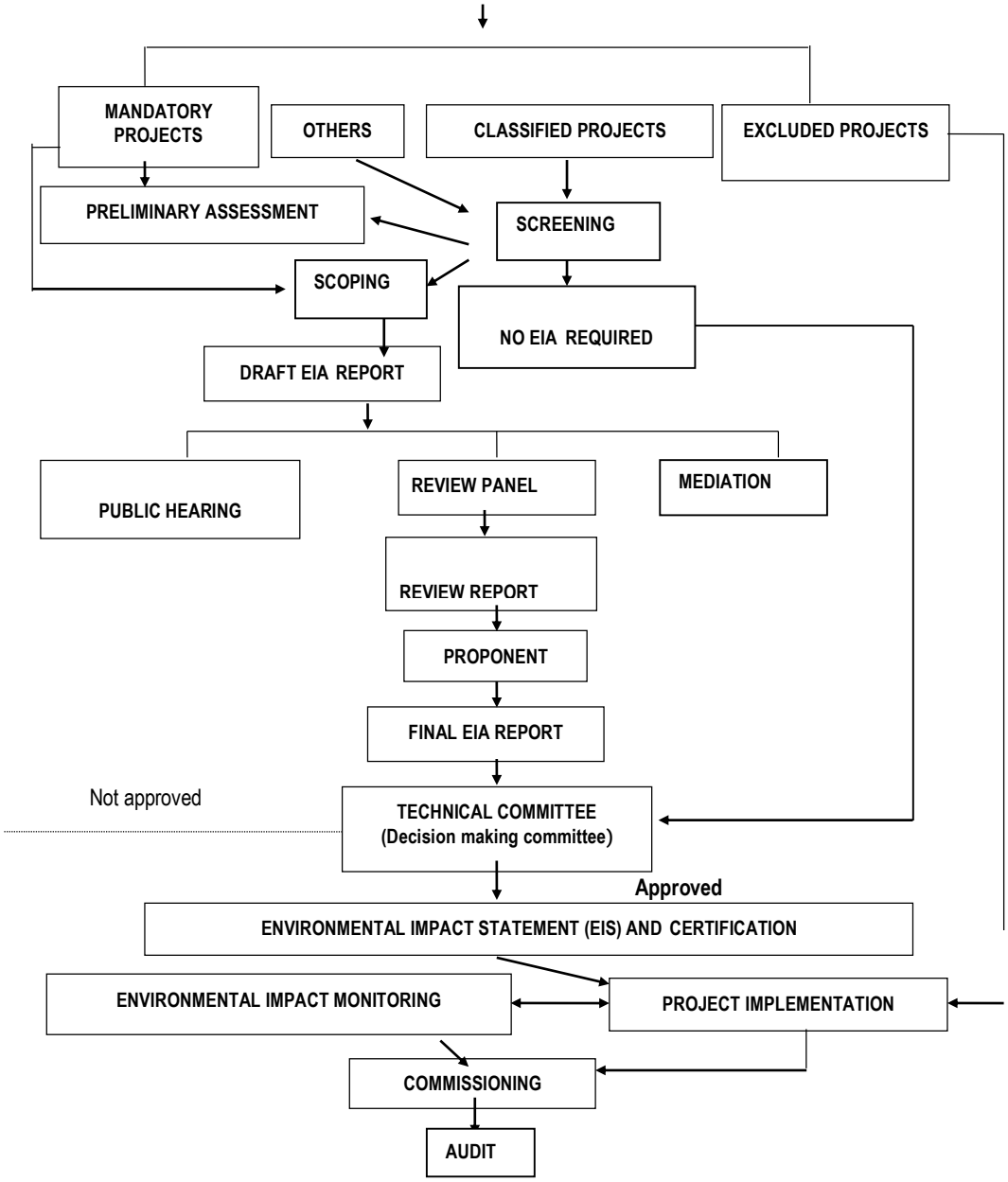


Figure 1.4: Flow Chart of the FMEnv EIA Procedure (Source: EIA Procedural Guidelines, 1995)

1.7 Terms of Reference (TOR)

The Terms of Reference (TOR) for this EIA are based on standard EIA requirements of FMEnv. The EIA establishes the environmental issues that will result from the construction and operation of the proposed facilities within the study area, quantify and evaluate their impacts; suggest and evaluate alternatives with regard to cost effectiveness and environmental friendliness. In addition, it will recommend mitigation

measures and put in place an Environmental Management Plan (Post-EIA). The Terms of Reference (ToR) document for the EIA was approved by FMEnv in February 2013.

1.8 Structure of the Report

The report conforms to International, Federal Ministry of Environmental and Bayelsa State Ministry of Environment reporting format, which is summarized as follows:

- Title Page
- Table of Contents
- List of Tables
- List of Figures
- List of Maps
- List of Plates
- List of Acronyms and Abbreviations
- List of Preparers
- Acknowledgement
- Executive Summary
- Chapter One – Introduction; - Background information, Administrative and Legal framework, Terms of reference, Declaration
- Chapter Two – Project Justification; - Project background, project objectives, need for the project, value of the project, envisaged sustainability, alternatives considered (including no project alternative), development options considered, site selection.
- Chapter Three - Project Description, - Type of project, scope, location, material input/output and by-products, waste generation, technical layout and process, operation and maintenance, schedule.
- Chapter Four – Description of the biophysical, socio-economic and health environment, - Study approach, literature review, baseline data acquisition method and QA/QC, geographical location, field data, climatic conditions, air quality, noise level, vegetation cover characteristics, land use and landscape pattern, ecologically sensitive areas, terrestrial fauna and wildlife, soil studies, aquatic studies including hydrobiology and fisheries, ground water resources, social, economic

and health studies, prediction of changes in the baseline condition without the development in place. Consultation, - Identification of stakeholders, consultation with regulators, consultation with communities, community concerns and observations, and Participatory Rural Appraisal (PRA).

- Chapter Five - Associated and Potential Environmental Impacts, - Scoping, impact prediction methodology, impacts of project activities (site clearing, construction, transportation, excavation, sand filling, etc.), impacts on resource utilisation, process impacts (operation), short term/long term impacts, reversible/irreversible impacts, cumulative impacts, direct/indirect impacts, adverse/beneficial impacts, risk assessment, social impacts, health impacts, etc.
- Chapter Six - Mitigation Measures, - Control technology, compensation, alternative site, alternative route or location, compliance with health and safety hazards requirements.
- Chapter Seven - Environmental Management Plans, - Guidelines for specific project activities, emergency response procedures, mitigation plan, costing of alternatives and budget requirements, monitoring programme (scope, parameters, frequency, location, methodology), auditing and inspection procedures, waste handling procedures, training program, roles and responsibilities.
- Chapter Eight - Conclusions and Recommendations
- References
- Appendices

1.9 Declaration

Federal University Otuoke has proposed to embark on the construction of a Permanent site on a 200 hectare (2,000,000 square metres/ 2 Square Kilometres (km^2)**)** of land.

In the planning, construction and operational stages of this project FUO and the contractors shall:

- Comply with environmental regulations, laws, statues and edicts.

- Adopt appropriate measures to mitigate identified and predicted adverse environmental impacts arising from or associated with the project.