A REVIEW OF THE REGULATORY FRAMEWORKS AND ENVIRONMENTAL IMPACT ASSESSMENT PROCESS IN NIGERIA

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Abstract: There are no doubts that oil spill incidents create serious environmental problems and challenges in Niger Delta, Nigeria. Available records indicate that approximately 6%, 25%, and 69%, of total oil spilled in the Niger Delta area, were on land, swamp and offshore environments respectively.

The findings, supported by a significant part of the data, indicated that the problems of EIA process and implementation are attributed mainly to the lack of experience, education and funding, and the ingrained perceptions of those involved. An important insight that has resulted from the research is an awareness of the existence of more than one EIA system in Nigeria as a result of an uncoordinated attempt of Nigerian policy makers to imitate the EIA evolutions of the US and the UK. As indicated, the EIA decree (1992) is fashioned after the US NEPA Act, covering all sectors of the economy, while the Town and Country Planning Decree (1992) is patterned after the UK Town and Country Planning Regulations 1988, which covers planning development activities and specifies town planners as the principal environment assessors.

The activities of the Niger-Delta Development Commission (NDDC) and NOSDRA should be closely monitored and supervised by the Federal Government, as this will ensure transparency, honesty and fairness to all the communities.

Finally, unless the government and oil companies change their basic attitude towards Environmental Impact Assessment the conflict and mistrust will continue, thereby slowing the development of both the Niger Delta and the country. Proactive approaches will therefore need to be considered, including active intervention by government Agencies in charge of enforcing the regulations, operations and monitoring of the oil industry. It is clear that the environmental impacts of projects and policies are no longer considered as inconsequential or secondary to decision-making for development, EIA is now recognized as an integral part of the project cycle, and projects will invariably require that environmental issues are properly addressed using EIA or a similar methodology. The identification at an early stage of environmental impacts contributes not only to project appraisal, but also project design that incorporates the necessary mitigation, and counter measures.

Keywords: Electricity, Distribution, Database, DISCOs, GENCOs, Kosobo

Introduction

One of the main achievements of the United Nations Conference on Sustainable Development (UNCSD) dubbed the _Earth Summit‘ in Rio the adoption of Agenda 21, a blueprint of environmental principles, policies and actions required to be taken by all countries into the 21st Century. A key supporting instrument of Agenda 21 was the Rio Declaration on the environment, a set of principles to guide environmental conduct.

The Federal Government of Nigeria enacted the Environmental Impact Assessment (EIA) Act No. 86 of 1992 as a demonstration of their commitment to the Rio Declaration. Prior to the enactment of the EIA Act in Nigeria, project appraisals were limited predominantly to feasibility studies and economic-cost-benefit analysis. Most of these appraisals did not take environmental costs, public opinion, and social and environmental impacts of development projects into consideration.

The EIA Act is unique in some respects. Firstly, it is the first of its kind in Nigeria. Secondly, it makes EIA mandatory where proposed projects or activities are likely to cause significant environmental effects. Thirdly, Environmental Impact Assessment, unlike other environmental laws, is proactive in nature. It is meant to prevent,

reduce or mitigate the negative effects of projects or activities on the environment before the commencement of such projects/ activities.

The EIA Act gave the Federal Ministry of Environment the implementing mandate and requires that the process of EIA be mandatorily applied in all major development projects right from the planning stage. This ensures that likely environmental problems, and including appropriate mitigation measures to address the inevitable consequences of development, are anticipated prior to project implementation and addressed throughout the project life cycle.

Nigeria's application of EIA and implementation

Nigeria's adoption of EIA was initiated dumped by an Italian company in Koko, of the then Bendel State, now Edo State, in 1987. The nation suddenly rose together to demand a viable law that will safeguard and protect the environment from abuse and abandonment. In view of this EIA is conducted in Nigeria involving nine steps starting with EIA processes, EIA studies/ report preparation, the EIA review process, in-house reviews, public review, review panel, mediation, EIA approval, EIA mitigation. As fallows;

EIA procedures and legislative requirements

In Nigeria, the Federal Environmental Protection Agency (FEPA) was initially in charge of EIA before the Department was moved to the Ministry of Environment with the principal legislation Decree 86 of 1992 of December, 1992 (Federal Republic of Nigeria, 1992a), which made EIA mandatory for both public and private sectors for all development projects. It has three goals and thirteen principles.

The goals are

•Before any person or authority takes a decision to undertake or authorize the undertaking of any activity that may likely or significantly affect the environment, prior consideration of its environmental effects should first be taken.
•To promote the implementation of appropriate procedures to realize the above goal.

•To seek the encouragement of the development of reciprocal procedures for notification, information exchange and consultation in activities likely to have significant trans-state (boundary) environmental effects Before the enactment of Environment Impact Assessment (EIA) Decree 86 in Nigeria, analysis of the environmental and socioeconomic impacts of major development projects were to a large extent scanty or in some instances nonexistent. Spurred by growing environmental awareness in many parts of the world, recognition of EIA as a tool for better environmental protection and management at the national level became evident in the early 1980s, starting with the Fourth National Development Plan (1981–1985). This plan proposed the development of environmental impact statement (EIS) on feasibility studies for all projects (private and public) and stipulated that an EIS should include plans to mitigate adverse environmental effects of a project. Also, for the first time in Nigerian development planning, a section on environmental planning and protection was included. The need for EIA was reiterated at a seminar on environmental awareness for national policy makers organized by the then Federal Ministry of Housing and Environment in 1981 (FMHE, 1982). Similarly, various national documents on environment, construction, and agriculture policy recognized the use of EIA as a strategy for achieving sustainable development. Many academicians wrote of the need for EIA, and grassroots- producing areas. Consequently, some form of EIA studies started around the mid-1980s in the oil industry. Related developments were observed in land use planning and development permit approval in states such as Lagos and Bendel (Olokesusi 1992a). Nonetheless, there was never a systematic, legal and institutional framework for EIA until the promulgation of Decree No. 86 of 1992. This Chapter will further assess the EIA legislation and procedure in the light of the projects that have been subjected to full EIA from 1995 to 2010 and also application in oil and gas industry. Appendix 1 (list of EIA in oil and gas industry from 1995-2011).

Legal requirements for EIA

In most countries of the World the process and procedures are similar but the implementation and or enforcement vary in accordance with how seriously a nation views environmental issues. In Nigeria, Federal Environmental Protection Agency (FEPA) Decree No. 58 of 1988 aptly can be described as the forerunner of the 1992 EIA law. This is because Section 5 of FEPA Decree No. 58 charges the Agency with the responsibilities of (1) environmental

protection and management; (2) setting environmental guidelines and standards, and (3) monitoring and enforcement of compliance with environmental measures. Decree No. 86 was enacted by FEPA, after which a - Guideline

Agency in August 1994 (FEPA 1994). The Agency organized two seminars in October 1994 and February 1995 to review the decree and raise awareness of it. The EIA Decree requires that a proponent, whether in the public or approval before proceeding with a project. Section 63(1) of the decree def physical work that a proponent proposes to construct, operate, modify, decommission, abandon, or otherwise carry out or a physical activity that a proponent proposes to undertake or otherwise carry out.
The EIA Decree defines environment to mean the —c
(a) Land, water, and air, including all layers of the atmosphere;

(b) All organic and inorganic matter and living organisms; and

(c) The interacting natural systems that include components referred to in paragraphs (a) and
This definition encompasses the socioeconomic and biophysical attributes of the environment. According to Section 4, EIA is expected to cover at least the following matters:

(a) A description of the proposed activities;

(b) A description of the potential affected environment including specific information necessary to identify and assess the environmental effect of the proposed activities;

(c) A description of the practical activities, as appropriate;

(d) An assessment of the likely or potential environmental impacts of the proposed activity and the alternatives, including the direct or indirect, cumulative, short-term and long-term effects;

(e) An identification and description of measures available to mitigate adverse environmental impacts of proposed activity and assessment of those measures;

(f) An indication of gaps in knowledge and uncertainty, which may be encountered in computing the required information;

(g) An indication of whether the environment of any other state or local government area (LGA) or areas outside Nigeria is likely to be affected by the proposed activity or its alternatives; and

(h) A brief and nontechnical summary of all the information provided.

The EIA report—which is expected to include proposed measures to be undertaken by a proponent to mitigate or ameliorate the negative environment effects—to be submitted to the Agency for approval. If approved, an environmental assessment statement and certificate of approval will be issued by the Agency. Penalty for contravention of Section 4, i.e., noncompliance, is either a fine or imprisonment, but not both. For an individual, the penalty is a fine of up to N100, 000 ($750.00) or a 5-year jail term. In the case of corporate bodies, penalty is a fine not less than N50, 000($355.00) but not more than N1.million ($8,500.00). FEPA categorizes EIA study activities into three categories; the chart (Figure 2.1) shows the category 1-3 classification.

Category 3 activities are those with beneficial impacts on the environment or the community.

Category 2 activities (unless within the Environmentally Sensitive Area) full EIA is not mandatory.

Category 1 activities require full and mandatory EIA, either listing or an Initial Environmental Evaluation (IEE) system is used to determine projects requiring full EIA. The minimum requirement of an EIA report includes not only the description of the activity, potential affected environment, practical alternative, and assessment of likely or potential environmental impacts, but also identification and description of the mitigation measures, indication of gaps in knowledge, notification of trans-state adverse environmental effects (if any) and a brief non-technical

summary of all the above information.

Impartial and written FEPA decisions indicating mitigation measures based on a detailed examination of environmental effects identified in the environmental impact assessment (after an opportunity within an appropriate period had been given to the stakeholders and the public for their comments) is made available to interested person(s) or group(s). It provides, where necessary, that potentially affected States or Local Government Areas are notified.

Regulatory framework and EIA process in Nigeria

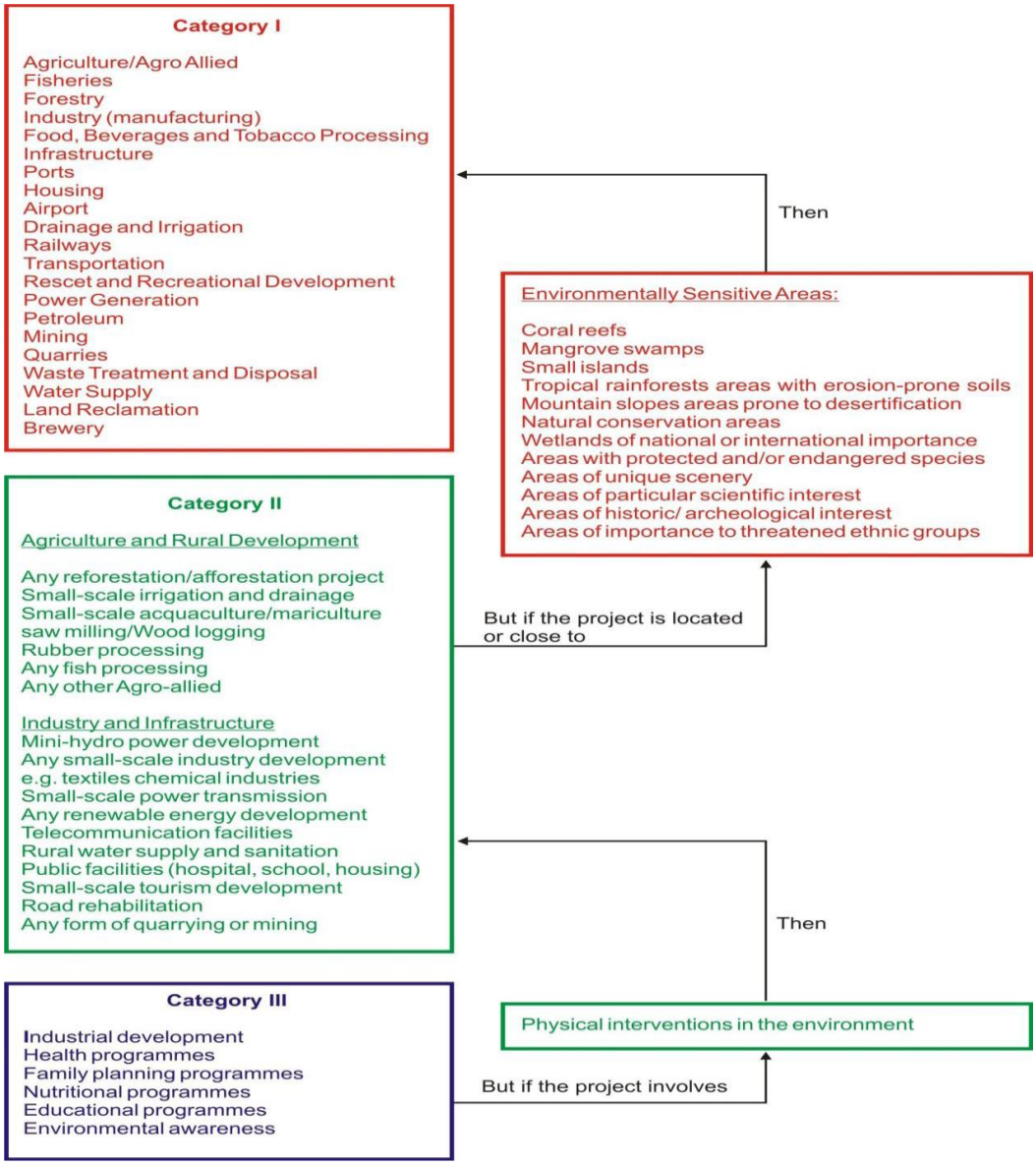


Figure 3.1: Flow-chart showing categories 1 to 3 (Olokesusi, 1998

Type of Development	Minimum Size or Capacity
1. Agriculture	
(a) Land conversion from forest to agricultural production	500 hectares
(b) Resettlement of families	100 families
(c) Development of agricultural estates	500 hectares
2. Airport	
(a) Construction of airports	2,500 metres
(b) Airstrip in state and national parks	All
3. Drainage and Irrigation	
(a) Surface areas of dams, man-made lakes	200 hectares
(b) Virgin forest drainage	100 hectares
(c) Wet land drainage	100 hectares
(d) Irrigation schemes	5,000 hectares
4. Land Reclamation	
(a) Coastal reclamation	50 hectares
5. Fisheries	
(a) Fishing harbours	All
(b) Harbour expansion leading to 50% increase in fish landing	All
(c) Clearing of mangrove swamp forests	50 hectares
6. Forestry	
(a) Conversion of hill forest land to other land uses	50 hectares
(b) Logging of forest land in water reservoirs or catchment areas	All
(c) Conversion of mangrove swamps for industrial, housing, or agricultural use	50 hectares
(d) Clearing of mangrove swamps on islands near national parks	All
7. Housing	
(a) Housing development	50 hectares
8. Industry	
(a) Chemical plant production	100 tons/day
(b) Petrochemical	All sizes
(c) Non-ferrous primary smelting - alluminium	All sizes
- copper	All sizes
- other products	50 tons/day
(d) Nonmetallic - cement	30 tons/hour
- lime	100 tons/day
(e) Iron and Steel - iron ore	100 tons/day
(Required raw-materials) scrap iron	200 tons/day
(f) Ship yards - dead weight tonnage	5,000 tons
(g) Pulp and paper industry	50 tons/day

(*continued*)

Type of Development	Minimum Size or Capacity
9. Infrastructure	
(a) Hospital with recreational facilities	50 hectares
(b) Industrial estate for medium heavy industries	All
(c) Construction of expressways	All
(d) Construction of national highways	All
(e) Construction of new townships	
10. Ports	
(a) Construction of ports	All
(b) Expansion of ports by 50% capacity	
11. Mining	
(a) Mining of materials in new areas	250 hectares
(b) Processing of ore, aluminum, copper, gold, or tantalum	50 hectares
(c) Sand dredging	
12. Petroleum	
(a) Oil and gas field development	50 kilometers
(b) Construction of off-shore pipelines	
(c) Construction of oil and gas separation, processing, handling, and storage facility	60,000 barrels
(d) Construction of oil refineries	
(e) Production depots for storing petrol, gas, or diesel	
13. Power generation and transmission	
(a) Stream generated power stations	10 megawatts
(b) Dams and hydroelectric power schemes	
(i) dams over 15 meters high	40 hectares
(ii) reservoirs with a surface area	
(c) Construction of combined cycle power stations	400 hectares
14. Quarries	
Quarrying aggregate of limestone, silica, granite, and other solid minerals near residential, commercial, and industrial developments	
15. Railways	
(a) Construction of new routes	All
(b) Construction of branch lines	All
16. Transportation	
Construction of rapid transport projects	

(continued)

Type of Development	Minimum Size or Capacity
17. Resort and Recreational Development (a) Coastal report facilities of hotels (b) Hill station resort (c) Tourist of recreational facilities on islands and national parks	50 hectares or more
18. Waste Treatment and Disposal Incineration plants, sanitary landfills, and waste water treatment plants, etc.	50 hectares or more
19. Water supply (a) Construction of dams, impounding reservoirs (b) Ground water development for industrial agricultural or urban water supply	200 hectares or more

Source: FEPA (1992).

Nature and scope of EIA in Nigeria

The Niger Delta of Nigeria is the richest part of the country in terms of natural resources; however the environment is not well studied or understood as pointed out by numerous researchers such as Bourn (1992). In spite economic growth and sustainable development, the region is, and continues to remain, an unstable state. It is under increasing threat from rapidly deteriorating economic conditions and social tensions, which have remained largely unaddressed by current and past policies. General policies that ignore complex details, while often appropriate at central planning levels, should by necessity be adapted to local conditions before implementation (Ascher, 1990). The degree of disaffection which has been generated by the lack of development in the resource rich areas has reached critical levels.

The major industrial activities within the Niger Delta area are mainly oil-related. Therefore, projects requiring environmental assessments are mainly field developments, flow stations, pipelines and flow line network installations, drilling activity, etc. While the environmental assessments of these oil-related activities are a recent development, their main focus until of late was the impact on the natural environment, with little or no regard to the communities within the immediate vicinities of these projects.

The increase in environmental awareness which has swept through the Niger Delta, concentrating on oil pollution has tended to generate very high feeling with, very often, some political undertones. While environmental assessment has become a major policy issue, the social conflicts which now frame an effective assessment include, but are not limited to, the Land Use Act of 1978, which deprived or rendered communities landless in terms of economic rent, or by environmental degradation in the form of oil pollution. Perhaps in an attempt to forestall further environmental degradation in the Niger Delta in particular and in the general Nigerian environment, an Environmental Policy was enacted. Therefore, 1988 marked a watershed with the enactment of Decrees 42 and 58, regulating harmful wastes management and establishing the Federal Environmental Protection Agency (FEPA).

While the law tries to find answers to the framework of EIA studies, one other law is in place which severely limits its effectiveness; the Land Use Act of 1978. The most comprehensive piece of legislation ever enacted in Nigeria on land issues, it divested individuals or communities of different forms of land ownership and tenureship that existed before its enactment. This law negates communal territorial right to land, and hence adds to the tension in the Niger Delta, The petroleum industry in particular, whose activities are concentrated in the Niger Delta, although under the same regulatory framework, is supervised directly by the Department of Petroleum Resources (DPR) of the

Petroleum Ministry. The DPR 1991 Environmental Guidelines and Standards for the Petroleum Industries Nigeria provides detailed statutory requirements to which the oil and gas industry is supposed to adhere. Part VIII, Section A (Environmental Impact Assessment Process), Articles 1.3 and 1.6 require that EIA study be conducted before exploration and operations in order to protect and prudently enhance the environmental resources for a better environment for man. Article 1.4 gives the applicable regulations and makes the preparation of an EIA report mandatory.

The DPR's environmental guidelines and st abatement procedures under which the EIA process is expressly stated. As one of two tools being used to protect and preserve–the other Nige being an Environmental Evaluation (post-impact) Report (EER) –the Environmental Impact

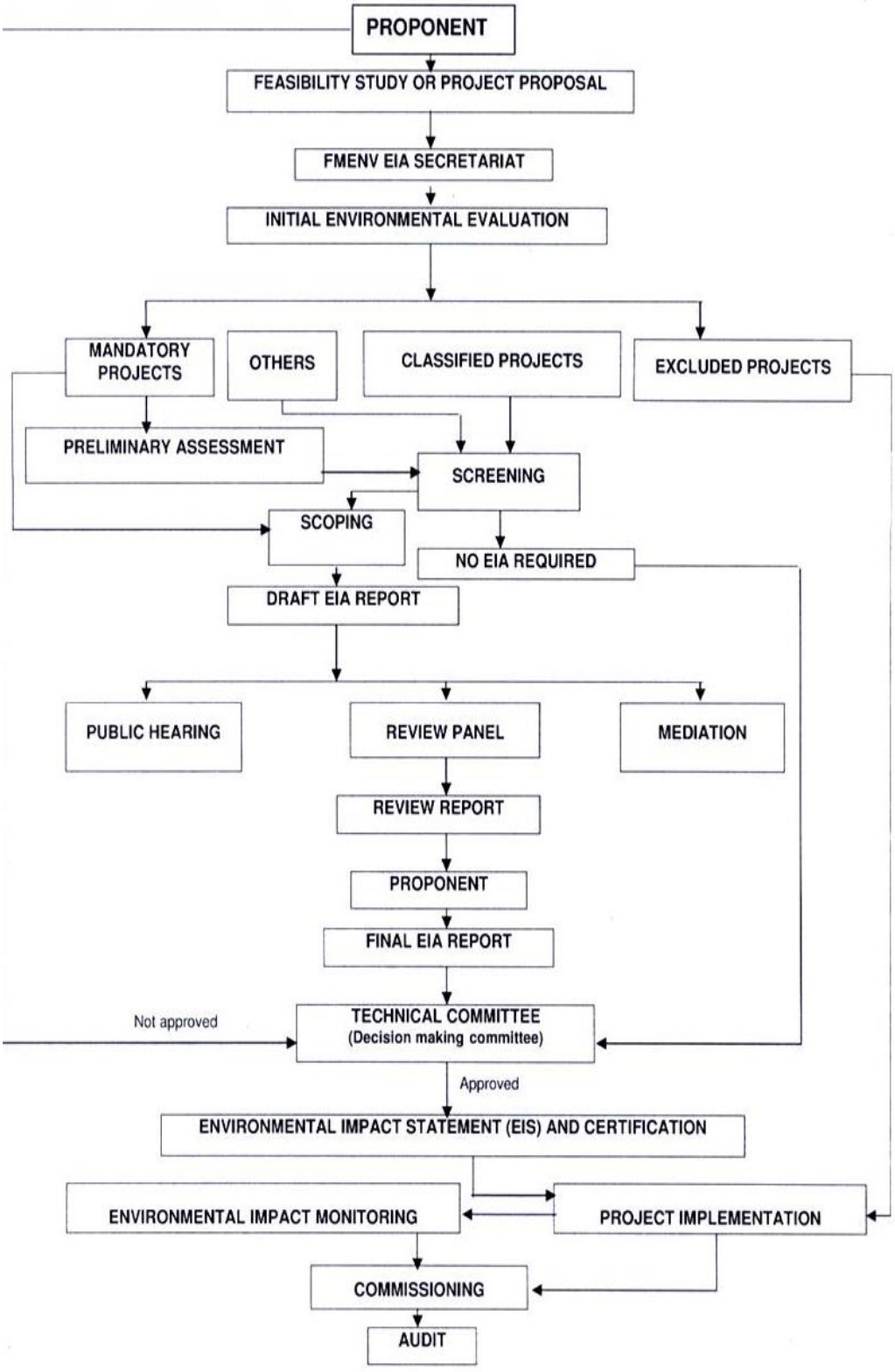
Assessment process and Report is being vigorously pursued and implemented in Nigeria. The systematic process to be followed in preparing the report starts with a project proponent/operator determining the preliminary assessment of impacts through a screening process before an initial report is submitted to DPR. It is only when significant impacts are
identified for a project or activity that full EIA studies and report preparation is commissioned. Draft EIA reports are expected to be accepted by the regulators within 21 day of submission. Such studies and reports are supposed to be handled by persons or parties who possess a certificate of eligibility issued by the regulators themselves. EIA reviewers are expected to be competent individuals.
The EIA process and procedure do not however end with the DPR alone, there is a strong collaboration with Federal Ministry of Environment, and together the two national bodies have the authority to present all EIAs to the public for hearings and comments. Public presentations of EIAs are usually implemented by displaying such reports in designated centres/zonal offices for a period also of 21 days for the public to review and offer comments on any aspect of the EIA report. Comments of significance are incorporated in final EISs (Environmental Impact Statements). Figure 2.2 shows a flow chart of EIA procedures in Nigeria.

The DPR documents, Environmental Guidance Standards (EGS), have provisions for procedures to be followed in collecting and analyzing samples and regulating parameters of interest. Unfortunately there are no comparable guidelines for socioeconomic (social impact assessment) studies.
By necessity, Social impacts Assessments (SIA) are conducted simultaneously with EIAs. However, few companies have determined explicit guidelines for conducting SIAs, and as a result the majority of industry social assessments provide only a limited description of potential impacts and the range of alternative management practices available to a company.

While it is widely acknowledged today that _social analysis'integrated project planning, the process of devising appropriate techniques for social analysis is still ongoing, although the SIA Guidelines / Manual of the SIEP released in 1996 tries to streamline methodologies for conducting SIAs in the oil and gas industries.

While some of the lessons of EIA are applicable, others are not, and SIA in particular represents a novel and far more complex domain. Specifically, while SIA must be concerned with the potential consequences of a project for a given human population and its way of life, it is necessarily concerned as much with the possible implications of that social environment for the success of the project itself. For unlike the natural landscape, human behaviour does not conform to simple rules (Ross, 1994).

Regulatory framework and EIA process in Nigeria



Part of EGASPIN and the other legal /administrative framework governing EIA in Nigeria. Thus, EIA has become a standard practice in environmental and project planning on some major exploration and project development activities (Agha, Irrechukwu, and Zagi. 2002).

Regulatory regime

In Nigeria the main regulatory bodies are the Federal Ministry of Environment and the Department of Petroleum Resources (DPR) under the Federal Ministry of Petroleum Resources. However this arrangement is causing a lot of confusion and contributed to duplication of process. The Institutional set-up and legislation related to environmental management of the oil and gas industry in Nigeria have evolved over the past 50 years and are very complex. The long history of environmental problems caused by oil spills also gives the Nigerian judicial system and some government agencies a prominent role on how it deals with penalties and punishments for environmental and oil-related offences and crimes, as well as with compensation claims for victims.

Federal Ministry of Environment

In Nigeria the Federal Ministry of Environment is the sole Government Agency mandated by law to conduct EIA in both oil and gas sector and any other project that require EIA; but for some reasons that are not clear DPR also carried out in-house EIA studies strictly on oil and gas. Environmental Impact Assessment offers great opportunities for the achievement of sustainable development in Nigeria. However, one of the major constraints for the effective implementation of EIA as a central tool for sustainable industrial development is that the EIA is seen differently from technical feasibility studies. The approach, however, by the Ministry is more detailed and rigorous. It involves both the States and Local Council concerned and also ensures adequate participation of the communities and the general public.

Department of Petroleum Resources

The present day Department of Petroleum Resources started as a hydrocarbon section of the Ministry of Lagos Affairs in the early fifties. It is the first statutory Agency set up to supervise and regulate the petroleum industry in the country. At the time, it reported to the Governor-General. Later, the section was upgraded to a Petroleum Division within the then Ministry of Mines and Power. The Division, in 1970, became the Department of Petroleum Resources (DPR). In 1971, a new body, called Nigerian National Oil Corporation (NNOC) was created to engage in commercial activities in the petroleum industry with the Department continuing to perform the statutory supervision and control duties in the oil industry.

The DPR was in 1975, constituted into the Ministry of Petroleum Resources (MPR) after energy matters were excised and transferred to another arm of government. Through the proclamation of Decree 33 of 1977, MPR and NNOC were merged to form the Nigerian National Petroleum Corporation (NNPC). This was in a bid to optimise the utilization of the then scarce local manpower resources in the public sector of the industry. The Decree also created the Petroleum Inspectorate as an integral part of the Corporation and granted it a semi-autonomous status; with its Head reporting to the Minister of Petroleum Resources, who also doubled as Chairman of NNPC. The Petroleum Inspectorate continued to regulate the industry but was barred by the Decree from engaging in any commercial transactions or being involved in the commercial decisions of the Corporations.

In 1985, a new Ministry of Petroleum Resources (MPR) was again created, while the Petroleum Inspectorate remained in the corporation and retained its regulatory functions. On the 23rd of March 1988, with the commercialization of NNPC, the Petroleum Inspectorate was excised from the corporation, due to the non-commercial nature of its functions, and merged with the new MPR to form its technical arm. The DPR continued to oversee all the activities of companies licensed to engage in any petroleum activity in the country, with the objective of ensuring that national goals and aspirations are not thwarted, and that oil companies carry out their operations according to international oil industry standards and practices. It keeps records and other data of the oil industry's operations and informs Government about all activities and occurrences in the petroleum industry.

The Department of Petroleum Resources (DPR) under the Federal Ministry of Petroleum Resources plays a key role in regulating and enforcing environmental law in Nigeria. The DPR regulation _Environmental Guidelines‘an (EGASPIN), first issued in 1992 and reissued in 2002, forms the basis for most environmental

regulation of the oil industry.

In 1999, the Federal Ministry of Environment was formed, followed in 2006 by the establishment of the National Oil Spill Detection and Response Agency (NOSDRA). Both of these Institutions base their operations on the DPR Environmental Guidelines and Standards. There are also Departments at the State Ministries of Environment and Water Resources both dealing with the management of environmental issues. Local government bodies do not have an official role in either environmental management or regulation of the oil industry in Nigeria, but have some involvement with both issues because of their physical presence _on the ground'.

Legislative requirement (ACT No. 86 of 1992)

The EIA Act gave the Federal Ministry of Environment the implementing mandate and requires that the process of EIA be mandatorily applied in all major development projects right from the planning stage to ensure that likely environmental problems, including appropriate mitigation measures to address the inevitable consequences of development, are anticipated prior to project implementation and addressed throughout the project life cycle. The objectives of the EIA Act of 1992 among others include:

I. The establishment of the environmental effects of proposed activities before a decision is taken to embark upon them.
II. Promotion of the implementation of appropriate policy in all Federal land, States, and Local Government areas, consistent with all laws and decisions making processes through which these goals in (1) above may be reached.
III. It encourages the development of procedures for information exchange, notification and consultation between Agencies and persons when proposed activities are likely to have significant effects on boundary or trans-state or on the environment bordering towns and villages.

The EIA Act further prescribes that all Agencies, Institutions (whether public or private) except exempt by the Act, shall, before embarking on proposed projects, apply in writing to the Federal Ministry of Environment so that subject activities can be quickly identified and environmental assessment applied as the activities are being planned. The Act made provision for all stakeholders, including Agencies, public, experts, NGOs, communities, etc, to be notified, consulted and/or given the opportunity to make comments on the EIA of a project prior to approval or disapproval.

Regulatory process and procedure

Before any project is implemented in Nigeria certain processes and or procedure must be followed, particularly if the projects requires mandatory EIA studies and should follow the following steps;

1) *EIA processes, involves*:

- The submission of project proposal to The Federal Ministry of Environment for screening to determine the need or otherwise for EIA.
- The vetting of Terms of Reference (TOR) for the EIA studies to ensure that only significant issues (impacts) are studied in the EIA, a site verification exercise may be required to aid this process.
- Submission of draft EIA report for review.
- Review of draft EIA report.
- Submission of final EIA report, which addresses all the issues from the review exercise.
- Decision making by the Federal committee Ministry and the of Hon. Minister.
- Certification (issuance of Environmental Impact Statement (EIS) and certification).
- Mitigation and compliance monitoring to ensure compliance with all stipulated mitigation measures and project specifications in the projects EIA report.

2*) EIA studies / report preparation*. EIA studies and report preparation are the responsibilities of the project proponent. In the course of preparing an EIA report of a proposed project, both the primary and secondary stakeholders should be consulted. The objective of such consultation is to identify early in the EIA process the

concerns of stakeholders regarding the impacts of the proposed project in order to address such issues during the actual study and to reflect such comments in the projects.

3) *The EIA review process.* In line with the EIA guidelines, a draft EIA report submitted to the Federal Ministry of Environment by a proponent is evaluated by the Ministry to establish the type of review to be adopted. There are different forms of reviews, depending on the nature, scope, anticipated impact, risks, etc that may arise in project planning and implementation, and an EIA report may be subject to any or a combination of these reviews. The types of review are an in-house review, public review, panel review and mediation.

4) *In-house reviews.* All draft EIA reports forwarded to the Ministry are reviewed in-house to assess how far issues raised in the Terms of Reference (TOR) have been addressed and to determine if the draft EIA reports are suitable for public review (if necessary). If the in-house review finds that the issues in the report do not merit putting it on public display, the review process may be terminated at the in-house review stage. Some projects (e.g. those that fall under category III of the EIA Act) may be- reco house panel of experts.

5) *Public review (public display).* In accordance with the provisions of section 25 of the EIA Act, interested members of the public are given the opportunity to participate in the EIA review process through comments on project reports that are put on display. Such displays are usually done for a 21 working day period at strategic locations. Notices of such venues of display are usually published in the national and relevant State daily newspapers and information about such display are complemented with further announcements on the relevant State electronic media. Often the venues of displays include the local government headquarters, where a project is located, the State Ministry of Environment or Environmental Protection Agency(s), the Federal Ministry Lagos and the headquarters, Abuja. Comments received from the display venues are forwarded to the Federal Ministry of Environment headquarters for collation and evaluation preparatory to the review panel meeting for the project.

6) *Review panel.* After the conclusion of the public display exercise, the Federal Ministry of Environment may decide to set up a review panel to review the draft EIA report depending on the sensitivity or significance of the comments received. The review panel meetings are held in the public so that stakeholders can utilize this opportunity to put forward their views and concerns for consideration. The choice of members of the review panel depends on the type of project, its scope as well as the ecosystem to be affected. However, the chairman of the affected local Government(s) and the Commissioner of Environment of the project location are always included in the panel.

7) *Mediation.* When a project is likely to cause significant adverse effects that are immitigable, or public concerns about the project warrant it, such a project is referred to the Federal Ministry of Environment Ministerial Council for subsequent referral to mediation. For a mediation to be set up, Ministerial Council would have been convinced that the parties involved are willing to participate in the mediation and to abide by its decisions.

8) *EIA approval.* After the submission of a satisfactory final EIA report, the Federal Ministry of Environment may decide to set a number of conditions for the approval of the implementation of the project. Such conditions usually include a statement that mitigation measures highlighted in the projects EIA report shall be complied with.

9) *EIA impact mitigation monitoring.* The legal requirement for impact mitigation monitoring in the EIA process are stipulated in Sections 16 (c), 17 (2) (c), 37 (c), (1), 40 (1) (a) (2), 41(1) and 41 (2) of the EIA Act as well as Section 11 of the EIA procedural guideline (1995).

Environmental impact monitoring is designed to monitor the environmental management plan, and concerns during project operations. It is also designed to assess the extent to which commitments contained in EIA reports are reflected during the various phases of project development and operations.

Impact mitigation monitoring exercises are conducted to assess the degree and effectiveness of the mitigation measures proffered in an EIA report. Hence, relevant documents, in-house monitoring records as they affect the project, the project implementation schedule, as well as all other documents to support the environmental good housekeeping of the project are scrutinized and verified. The objectives of EIA impact mitigation monitoring is to:

- Check that mitigation measures are implemented as appropriate.
- Determine whether environmental changes are as a result of project developments and/or natural variation.
- Monitor emissions and discharges at all stages of project development for compliance with regulatory standards.

- Compare effluent quality/quantity with design specifications and statutory standards.
- Determine the effectiveness of Environmental Management Plans, Environmental Monitoring Plans and especially the mitigation measures to predicted impacts and to also act as a feedback mechanism towards the improvement of the EIA evaluation and approval process.
- Determine duration of identified impacts.
- Create a data bank for future development of predictive tools.

Environmental interactions.

The main oil related statute in Nigeria is the Petroleum Act 1969. The promulgation of the Act repealed the colonial Mineral Oils Ordinance, the main piece of petroleum legislation until 1969. While the Act was a creation of the post–colonial State, it largely confirmed provisions of the colonial oil legislation. As Atsegbua (1993) observed, provisions related to the assignment and revocation of oil licenses as well as the rights and powers of license holders remained much the same as under colonial rule (see chapter 1). The government or the community has little or no power in terms of environmental impact assessment or enforcement; the companies are virtually in charge of overseeing any environmental concern. Oil mining leases (OMLs) were merely granted for 20 years. In addition, the oil company was obliged to relinquish one-half of the area of the lease ten years after the grant of an OML. This new provision encouraged a faster rate of exploration because oil company managers were aware that they would have to relinquish part of the area and were likely to speed up exploration (Atsegbua, 1993). But in the process the environment is always left to suffer any negative consequence that may arise during or after exploration activities (Table 3.1

Potential Environmental Impact of oil Production Activities

Production Activity	***Potential Environmental Impact***
All activities	Loss of vegetation/arable land
	Hydrological changes
	Disturbance of communities/flora/fauna
	Waste pits in the field
	Oily waste burned in the flare pit
Well operations	Soil, water pollution
	Disturbance of communities/flora/fauna
Flow lines, pipelines	Soil, water pollution
	Disturbance of communities/flora/fauna
Flow stations	Ambient air quality
	Acid rain
	Soot/heavy metal deposition
	Pollution/fire affecting flora
	Soil/surface water pollution
	Disturbance of communities/flora/fauna
Terminals	Soil/surface water pollution

	Disturbance of communities/flora/fauna
	Poor ambient air quality
	Ozone depletion (fire fighting agents)
	Soil, water, air pollution
	Waste problems
	Soil pollution.
Source: van Dessel (1995)	

Case studies

Oil companies have been operating in Niger Delta, Nigeria for the past decades without accurate information on how they conduct their environmental studies, it is therefore informative to look at some case studies on how they conduct EIA throughout project life cycle, and this will give an insight into whether the EIA is conducted in accordance with the regulations.

Case study 1

Mobil Producing Nigeria Unlimited (MPN), in a joint venture (JV) partnership with the Nigerian National Petroleum Corporation (NNPC), intends to conduct a seismic survey designated Nigeria JV Priority Ocean Bottom Cable (OBC) 3D Survey over portions of oil mining leases (OMLs) 67, 68, 69 and 70. The Priority OBC Survey areas shall cover a total of 1600 km2 andare within portions of MPN's e Etim/Edop/Asasa and Oso oil and gas fields, offshore Akwa Ibom State, Nigeria.

The proposed survey was designed specifically to significantly improve the delineation of the existing fields and discovered undeveloped potential, and identifies new near-field wildcat and exploration opportunities. The proposed seismic campaign may potentially impact on the ecological components of the offshore environment and the socio-economic profiles of the immediate coastal communities. In line therefore with the statutory requirements of the Federal Ministry of Environment (FME) and the Department of Petroleum Resources (DPR) on environmental management in Nigeria, MPN has conducted an Environmental Impact Assessment (EIA) of the proposed project and the findings are documented in a report.

EIA Objectives

The EIA of the proposed seismic survey project is being carried out in order to:

- Characterize the environment thereby identifying the resultant hazards (Including social) associated with the Seismic Survey.
- Identify recommendations to eliminate/mitigate the magnitude and significance of the hazards and effects and thus assess control options.
- Recommend control techniques to eliminate or lessen the severity of the effects and to manage the hazards.
- Recommend plans and procedures to manage the consequences and recover from exceptional events.
- Identify existing and expected environmental regulations that will affect the seismic survey and give advice on standards and targets.
- Identify any potential environmental issues and concerns which may affect the Survey.
- Recommend an Environmental Management Plan (EMP) for the duration of the Seismic Survey including compliance, monitoring, and contingency planning.
- Provide the basis for consultation with regulatory authorities, the public and other stakeholders.

Project Alternatives

The project alternatives considered include the seismic survey options includes seismic refraction, reflection surveys, and seismic techniques options (2D or 3D). The no project option was also considered and evaluated. The considerations were based mainly on economic and technical feasibilities as well as safety, health and environmental risks. The decision to proceed with the survey project was informed by the overwhelming socio-economic benefits to the government and people of Nigeria in general and Rivers state in particular. The seismic reflection option was chosen as it is suitable for marine application and ensures unique data quality acquisition with high depth of penetration. Also, the decision to apply 3D was informed among others by its direct imaging of stratigraphic heterogeneity and geologic structures including faults, fracture networks and channels. Implementation based on environmental consideration. Other choices made (such as recording with OBC linked to buoy and swath survey geometry) were based on proper technical consideration.

Project description

Offshore seismic surveys involve the use of high energy noise sources operated in the water column to probe below the seafloor. Almost all routinely used seismic sources involve the rapid release of compressed air to produce an impulsive signal. These signals are directed downwards through the seabed, to be reflected upwards again by density or velocity discontinuities within the underlying rock strata. This will have a direct impact on the ecology and environment. Overall, the proposed seismic survey operation will follow the sequence summarized below.

Ambient air quality and noise

Results of field measurements indicated that the ambient concentrations of air pollutants CO, SO_2, NO_2, hydrocarbon gases (C_xH_y), and H_2S at all sampling stations were below their various detection limits. Also, the concentrations of suspended particulate matter 9SPM) ranged between 10 $\mu g/m^3$ and 144 $\mu g/m^3$ while the ambient noise levels as recorded from the survey vessel ranged between 41.7 and 52.7 dB(A) and 48.2-58.9 dB(A).

Fisheries

The common fisheries resources within the study area include fin fish, shrimps, crabs and periwinkles. Most residents' fish within 5 km of the shore, with some ranging as far out as 20 km. fishing is often conducted from dugout canoes. Methods employed vary with the situation and season, but include beach seining, gill-net fishing, cast-net/dragnet fishing, basket trap fishing, and hook and line fishing. Fish species caught and fishing yields vary with the season. Fin fish, shrimp, and crab fisheries yield greater harvests during the dry season, whereas the periwinkle fishery peaks in the rainy season.

Seabirds

The most commonly identified Nigerian coastal/nearshore birds include pelicans, egret, purple heron, greater flamingo, pintail duck, white-fronted plover and curlew.

Marine Mammals and Reptiles

Almost 30 species of marine mammals, mostly dolphins or whales, are commonly thought to exist in the Nigerian offshore waters. Also reported to occur in estuaries, swamps, rivers, and shallow coastal waters of Nigeria is the African manatee. Among the reptiles, only sea turtles have been found to occur in small numbers in Nigerian waters.

Socio-economic profile of the coastal communities

The proposed survey area traverses East and West Operating Areas, offshore Rivers State. The nearest shoreline from the survey area is approximately 27 kilometers south of the Rivers State and approximately Terminal 34 (QIT).

The people of the coastal communities nearer to the operational area are predominantly farmers and fishermen, but are also involved in traditional occupations such as trading, hunting, wood carving, arts and craft, raffia works, etc. Cassava is the main food crop planted, although it is fast becoming a commercial endeavour. Other commonly grown crops include: yams, cocoyams, plantains/bananas, vegetables (especially fluted pumpkin) and some perennial tree crops such as bush mangoes (uyo), star apples (udara), pears (eben), raffia palm trees (eyop).

The most common diseases in this area, according to the community health survey, in order of frequency are; malaria, acute and bloody diarrhoea, pneumonia, measles, hepatitis, filariasis, tetanus, sexually transmitted diseases including a few suspected HIV/AIDS cases, tuberculosis, anaemia, otitis media, skin diseases (bacterial and fungal), and poor oral hygiene was common among the children population.

The most important living resources within the project area are fin fish (pelagic and demersal), and shellfishes (shrimps, crabs, lobsters, and molluscs) which presents high potentials for commercial exploitation by the industrial sub-sector while the most important non-living resources are oil and gas, which constitute an estimated 90% of Nigeria foreign exchange earnings. Activities related to exploration and exploitation of these resources includes fisheries, transportation, surveillance, military strategic activities and scientific research.

Impact assessment and mitigation

The assessment of potential and associated impacts of the proposed project has been carried out using approved guidelines and standard procedures. The significant impacts of the proposed project on the environment and the corresponding mitigation measures are summarized below:

- Provision of a clear image of the subsurface geology, reservoir characteristics to be used for oil and gas exploitation. This will increase precision to target reservoir and reduce waste generation during drilling activities.
- Economic/financial empowerment to seismic contractor by provision of contract.
- Collision with other vessels and smaller boats as well as offshore fixed structures (e.g. well head, platforms, risers etc.) during adverse weather conditions.
- Risks of pirates/militant attack along mobilization route leading to personnel injury/death.
- Possible damage to existing pipeline network within the field due to entanglement during deployment of OBC leading to oil spills and consequent degradation of aquatic environment.
- Vibration shock/scare and resultant change in behavioural patterns/death of aquatic fauna (seabirds, fishes, plankton, etc) from air gun energy (noise/vibration) etc.

Environmental management plan

An environmental management plan have been developed to ensure that the mitigation measures proffered for the significant associated and potential impacts of the proposed 3D seismic data acquisition in JV-wide acreage are effectively and systematically carried out. Consequently, the plans and guidelines developed including MPN plans and programmes are as follows:

- Guidelines for seismic operation.
- Guidelines for mitigation measures.
- Monitoring plan.
- Waste management guidelines.
- Emergency preparedness plan.
- Auditing.
- Decommissioning plan.

Conclusion

The EIA of the proposed Nigeria JV-wide seismic survey has been carried out and the findings documented. The

study was carried out in line with the statutory requirements for environmental protection in respect of oil and gas industry projects in Nigeria. That is in order to ensure that potential environmental; social and health impacts of the proposed projects are fully assessed formally and thus provide necessary data/evidence that will form the environmental impact statement (EIS) of the project. The EIA report has therefore documented the existing environment of the area, potential and associated impacts of the project environmental aspects, and cost effective mitigation measures for adverse impacts. A management plan has also been put in place to assure environmental sustainability of the project. Successful implementation of this project will beneficially and significantly impact on the national economy by improving the delineation of the existing fields and discover undeveloped potential, as well as identifying new near-field wildcat and exploration opportunities for further oil/gas reserves exploitation in the JV area. This will contribute

towards meeting the nation‘s overall oil and gas growth of direct or indirect job opportunities for Nigerians.

Case study 2

Total Exploration & Production Nigeria Limited (TEPNG) plans to develop the USAN Field (OML 138), offshore Nigeria, through the implementation of a drilling and production programme. An Environmental Impact Assessment (EIA) report is prepared in order to comply with Nigerian and international legislation addressing the offshore petroleum industry.

The preparation of the EIA has been performed following the Environmental Impact Assessment Act No. 86 of 1992 enforced by Federal Ministry of Environment, Housing and Urban Development; Environmental Guidelines and Standards for the Petroleum Industry in Nigeria (EGASPIN 1991, Revised 2002) issued by the Department of Petroleum Resources (DRP) and also to comply with Total Corporate and TEPNG standards. The EIA is said to be in compliance with all the environmental laws, regulations, international conventions/agreements and policies.

Project overview

The USAN oil field lies in OML 138 in water depths ranging from 730-850m. It is located approximately 65 miles/100km South of Bonny. The distances to the main existing or future infrastructures are: 100 km South of Bonny LNG terminal; 60 km south of another field (OML 99, operated by TEPNG); 90 km to the North-East of AKPO field (OML 130, operated by TUPNI). USAN will be developed with 42 subsea wells (23 producers, 10 gas injectors and 9 water injectors) connected to the FPSO (Floating Production and Storage Operation) via 2 production loops, 2 water injection lines and 1 gas injection line. Cumulative flow line and riser will commence in QI 2009.

Scope of the environmental assessment

The Environmental Impact Assessment is the process of assessing the potentially significant impacts of the selected project options on the natural and social environment, and identifying measures that will permit the minimization and mitigation of these impacts. The main purpose of impact assessments is to identify key issues early in the life of a project to assist Authorities and EPNL management in the decision making process so that potentially adverse or beneficial impacts can be addressed before final approval is made. The objective of this EIA is primarily to perform a detailed screening of potentially significant and adverse environmental impacts.

Environmental impact assessment

The study approach for this EIA is as follows:

- Desktop research of existing literatures and survey reports.
- Identification of sampling locations –Establish Transects
- Three site-specific Environmental Baseline Surveys (EBS) of the USN filed area carried out by accredited consultancy firms.
- Laboratory analyses and in situ measurements.
- Collation of results/impact identification and evaluation.

- EIA report preparation/production.

Biological and physical environment

Two Environmental Baseline Surveys (EBS) of the USAN field area were carried out in April 2013 (wet season) and May 2013. A complementary EBS was conducted in May 2013. The baseline reports show that the area is pristine and typical of the Gulf of Guinea. The sediment at the project location is mainly clay. The benthic community comprises polychaetes, molluscs, starfish, jellyfish and crustaceans. The dominant benthos is polychaetes with good diversity. The coastline is characterized by the presence of sandy beaches, areas of mangrove swamps and estuaries. Marine life to be found in the coastal area includes shellfish and fish of local commercial importance. Some dolphins, turtles and whales, which are considered as endangered species, are known to pass through the project area.

Socio-economic environment

The USAN Field is located in the deep offshore area, which statutorily belong to the Nigerian Federation and not any coastal community or state. Nevertheless, a survey of the socio-economic settings of the coastal communities showed that they comprise of fishing settlements, characterised by a rapidly growing population with family sizes averaging 10 to 12 people. Social infrastructural facilities are generally lacking, e. g., no electricity, potable water supply, good roads, educational facilities, etc. The housing standard is generally very low.

Key environmental issues

Marine sediment and benthic communities

Marine sediments and benthic communities are expected to be principally affected by the drilling and construction activities. The sediment and benthic communities in the immediate vicinity of the discharged drilling cuttings will be impacted by the physical smothering of cuttings containing 5% oil on cuttings. The use of drilling fluids with low toxicity and high biodegradability will ensure negligible toxic effects. There may be physical disturbance of the sediments during drilling and anchoring of the surface facilities. These will be localised and short-term. Production operations are not expected to have any noticeable effect on the marine sediment.

Water quality

Drilling and production installation will be expected to a have a temporary detectable impact on water quality. The impact will affect only a localised area in the immediate vicinity of the discharges. The sources of impact comprise the wastewater discharges from the drilling and installation vessels. All discharges are expected to be in compliance with the Nigerian legislation.

Marine biological resource

The impact of the drilling and normal operational discharges on the pelagic environment will be essentially from the discharge of the treated drill cuttings and from the discharge of treated produced water. An impact from deck drainage, sewage and sanitary discharges is expected to be negligible given the low levels of discharge. Pelagic fish species and other vertebrates are highly mobile and will move away should they encounter unfavourable water conditions. Impacts on the pelagic environment from production operations are expected to be negligible.

Atmosphere

The major sources of atmospheric emissions from the normal operation of the USAN development are the processing facilities. The main atmospheric emissions are Green House Gas (GHG) emissions which are estimated at 16.57 kt CO2 eq./Mboe average for the project life which is good performance. These emissions will result from gas flaring during the first six months following start-up of the facilities, and from the fuel gas consumption required for the power generation and for the gas compression. However, the GHG emissions of the project can be considered as negligible when compared to world-wide emissions, and will

represent a moderate contribution to TEPNG'to the Total Group's emissions.

Hazardous and non-hazardous waste

Since chemicals and other hazardous materials are in common use in the oil industry, there is an inherent potential for spillage and consequent damage to the environment. The measures taken with in regard to oil spillage may be applied to chemicals and hazardous materials spillage. The potential for impact given proper facilities and design and good operating practice is considered minimal. There is limited potential for impact from solid wastes generated by the project as the wastes will be transported to shore to Government accredited treatment facilities.

Odour noise and light

The oil and associated gases produced from the project contain zero sulphur and consequently will not incur detectable odour. The potential for venting and fugitive releases exist; however, volumes will be small and unlikely to cause and odour problem. Noise impacts may occur during drilling and installation activities, however, these will be short term and transient. Similarly, noise levels during normal operation will be low. A key factor in considering noise impact is that the project area is remotely located offshore away from people and removed from any sensitive environmental areas.

Socio-economic impact

There will be a positive economic impact from the development project due to increased revenues and increased direct and indirect employment. As the field is located offshore there will be no direct effects on the local onshore population. The overall socio-economic impacts From EPNL's activities are reported and evaluated within EPNL Coastal Development Plan.

Summary of significant impacts and their mitigations

Beneficial Potential Impacts

The beneficial impacts that are expected from the USAN project include:

- Increased revenues from sales of oil.
- Enhancement of the realisation of the Nigerian local content goals.

Adverse Potential Impacts

The anticipated environmental impacts that shall arise from the proposed USAN development projects include the following:

Impact on air quality

The impact on air quality are expected to arise from diesel combustion from marine engines, power generators, flaring of fluids during well testing/clean up production operations, logistic support activities, and decommissioning and abandonment. With the exception of production emissions and decommissioning activities which are expected to be moderate, all other impacts on air emission shall either be negligible or minor and short-term

The mitigation measure to be adopted for air quality impacts includes the following:

- Regular maintenance of equipment and monitoring of diesel oil quality.
- The need for fired heaters has been avoided by adopting the use of waste heat recovery units. The units are installed in the gas turbines.
- Retro-fitting with low NO_x burners after five years of operation.
- A flaring philosophy of zero HP gas flaring during normal operation shall be adopted. Associated gas is partially used for power generation, and the rest re-injected.
- The oil storage tanks on the FPSO shall be equipped with an HC blanketing system linked to a Vent Gas

recovery system which routes vent gas from the cargo tanks to the gas processing system.
- Overheads from TEG re-boiler shall be routed to the process (and not vented).
- Compliance with MARPOL 73/78 Annex VI –prevention of air pollution from ships.

Impacts on benthic communities and Seabed contaminated/disturbance

Impacts are expected during drilling operations and these may result from discharge of drill cuttings, cement slurry, and effects of chemical additives. The potential impacts of drill cuttings and chemical additives might be major, while that of cement slurry may be negligible. Seabed contamination/disturbance is expected due to impacts associated with drilling, anchoring, installation of SPS and UFR during construction and their removal during decommissioning. Such impacts range from moderate to minor and mostly short-term.
Mitigation measures to avoid impacts on seabed/benthic organisms have been put in place and they include the following:

- Cuttings shall be dumped at sea after treatment at oil content lower than 5% oil on cuttings.
- Only Water Base Mud or Synthetic Base Mud with high biodegradability and low toxicity shall be used.
- Suction pile anchors shall be used to avoid anchor drag.

Observation from case studies

It is not surprising that most developing country EIA systems, which are generally at an early stage in their development, fail to meet the evaluation criteria specifically tailored for developing countries by the World Bank. Both case studies have some resemblance to the requirements suggested by World Bank, since they were designed to test international good practice and to safeguard countries with weak EIA systems from organizations that might take advantage of such countries. While there are many variations between developing countries (Glasson et al., 1999), these weaknesses are similar to those reported in the EIA systems in South Africa (Wood, 2002), in various Mediterranean countries (George et al.,2001) and in Egypt, Tunisia and Turkey (Ahmad and Wood, 2002). While the importance of wealth in determining environmental awareness can hardly be exaggerated and the EIA systems in many developing countries have many shortcomings, Glasson et al. (1999) have optimistically noted that, —…emerging EIA s existing systems, and adapting EIA techniques to their own needs.‖ Abaza development of EIA in developing countries should not be seen in isolation. Improving EIA practice was only one element of the way forward, because actions such as developing legislation, rising awareness, improving data systems and providing opportunities for public participation were also crucial. Spooner (in Donnelly et al., 1998) believed that the priority for improvement in EIA lay not in the production of further EIA guidelines but in training, institutional re-organisation and improved communication. Sankoh (1996) and Briffett (1999) felt that developing country EIA had to be simplified to become more flexible. There are therefore several urgent issues that were not addressed by both Case Studies in the EIAs by oil companies. Such as need for research on both substantive (methodological) and procedural (including effectiveness) issues of EIA:

- Training and capacity building in EIA.
- Diffusion of EIA experience.
- Appropriate EIA of requirements policy and integration
- Increased political will.

CONCLUSION

There are no doubts that oil spill incidents create serious environmental problems and challenges in Niger Delta, Nigeria. Available records indicate that approximately 6%, 25%, and 69%, of total oil spilled in the Niger Delta area, were on land, swamp and offshore environments respectively. Vandalisation of oil pipes and storage facilities by organised criminal gangs is the major factor responsible for on-shore oil spill incidents in the Niger Delta region. Oil spillage has led to pollution of drinkable water, destruction of the ecosystem, and death of marine fishes and animals in the Niger Delta. Lack of strict compliance to existing environmental protection rules and regulations, with the inability of governmental and non-governmental agencies to enforce these laws, have contributed to the pollution of the ecosystem of the Niger Delta. Numerous laws and guidelines exist in Nigeria for controlling oil pollution in the country.

This study has investigated and analyzed the role of EIA in the management of the Nigerian oil and gas industry. The purpose of the research has been to evaluate the role of the Nigerian government Institutions on EIA regulations and implementation, evaluate the present EIA successes and failures, performance or non-performance of the regulatory Agencies, and the role of various stakeholders in EIA processes, application, and implementation.

This research includes an in-depth literature review of the nature and composition of Nigeria's EIA system from the early 1950s constructed an understanding of the complex and overlapping legislation by reviewing the regulatory framework on EIA application and implementation. It traced why inadequate legislative provisions and lack of legal enforcement may thus lead to social tension in the Niger Delta region where oil is produced, with resulting attacks against the oil companies. The analysis of the responses to the survey by the stakeholders elucidated the constraints and opportunities that are faced by both the government and the oil industry in Nigeria on environmental issues. The findings, supported by a significant part of the data, indicated that the problems of EIA process and implementation are attributed mainly to the lack of experience, education and funding, and the ingrained perceptions of those involved. An important insight that has resulted from the research is an awareness of the existence of more than one EIA system in Nigeria as a result of an uncoordinated attempt of Nigerian policy makers to imitate the EIA evolutions of the US and the UK. As indicated, the EIA decree (1992) is fashioned after the US NEPA Act, covering all sectors of the economy, while the Town and Country Planning Decree (1992) is patterned after the UK Town and Country Planning Regulations 1988, which covers planning development activities and specifies town planners as the principal environment assessors. The third EIA system, operated under the Petroleum Act, is an evolution from the 1969 Petroleum Regulations under the DPR; apparently the petroleum se environmental regulatory duties to the Federal Ministry of Environment (FME), and this has resulted in an unnecessary duplication of the duties of the Ministry. The necessity of operating three dissimilar EIA systems in Nigeria is certainly very questionable, since the three systems are not mutually compatible.

Based on the evidence from this research, the two organizations that are in charge of EIA (FME and the DPR) have specified scoping as a mandatory stage in their respective procedural guidelines. Under the guidelines of these systems, it is specified that a team comprising of personnel in the proponent organisation, other stakeholders and regulators, should usually carry out scoping. In practice, however, stakeholders are not always present as stated in the discussion chapter.

Respondents indicated that both the FME and DPR contain post-decision and implementation monitoring and audit provisions in their respective procedural guidelines (FEPA, 1995; EGAS, 1999); through these are non-binding regulations. On the other hand, the EIA process of the town planners does not currently include any provisions for a post-approval implementation monitoring and audit; this loophole in the system allows certain organization to escape some part of the audit. This observation is supported by the Case Studies described in Chapter 3, where there is no post-approval audit in both cases.

It is evident from the survey that the procedural guidelines of the FME and the DPR require examination of alternatives to the project in the EIA process and report. In practice, consultants rarely identify any alternatives. Examination of alternatives if identified is considered desirable, but is hardly ever included by consultants in EIAs. It is relevant to consider that the stakeholders 'king of post – consent continuous audits offer the greatest opportunity in solving some environmental issues. Inclusion of all stakeholders will significantly improve the quality and acceptability of the EIA process. The FME and DPR have provided technical guidance on the content of ESs in the form of procedural guides, but no comprehensive best practice technical guides similar to the UK DoE (1994) have yet been provided. On the other hand, no procedural manuals regulate EIAs conducted by the town planners/estate surveyors; although each State Environment Ministry provides its individual format for the drafting of EIAs. The format is almost invariably different from that operated by the Local Government Councils. Public sector EIA enforcement is low because Government Agencies do not acknowledge the EIA controlling Agencies; regarding them as non-governmental Agencies that should not be allowed to exercise powers over them. They have consequently continued to refuse the carrying out of EIAs for their projects, even when significant environmental impacts are apparent.

From the discussion chapter it is clear that knowledge and experience within the government organizations is lacking, requiring EIA training not just for government officials (including senior officials who require an understanding of the EIA process), but also for environmental consultancies, universities and research institutes.

Courses, as in the developed world, need to be multidisciplinary and focused on the practical and operational aspects of EIA rather than on the theoretical aspects of EIA (Biswas, 1992).

Development aid Agencies and financial institutions have great potential for bringing about effective EIA in developing countries, particularly those without national EIA requirements. However, this potential has not yet been fully realised because aid Agencies and some financial institutions have been slow to impose EIA requirements on recipients, and even slower to enforce consistent compliance with their own requirements.

The research methodology used in the survey has allowed the investigation to quantify the hierarchy of information from all stakeholders. This allows the quantitative assessment of the extent of the practical impediments in the routine operations of the EIA process, application, and implementation in Nigeria. It is evident in the survey that the Department of Petroleum Resources (DPR) and the National Oil Spill Detection and Response Agency (NOSDRA) have differing interpretations of EGASPIN. This is enabling the oil industry to close down the remediation of pollution well before the contamination has been cleaned-up.

It is clear that the Nigerian Government Agencies concerned with EIA lack qualified technical experts and resources. In the seven years since NOSDRA was established, so few resources have been allocated to that Agency it has no proactive capacity for oil-spill detection. In planning their inspection visits to some oil spill sites, the regulatory authority is wholly reliant on the oil industry for logistical support.

The lack of accountability was a feature of the views of the respondents. In order to ensure effective EIA in Nigeria‘s oil industry an Ministry of Environment should ensure that those responsible are held to account under the law whenever a major oil spill incident pollutes the ecosystem. For example this was the case with the British Petroleum spill in the Gulf of Mexico, in the United States. Many respondents felt that the Federal Government should step up its campaign against pipeline vandals by prosecuting all people caught in this criminal act. The activities of the newly set up Niger-Delta Development Commission (NDDC) and NOSDRA should be closely monitored and supervised by the Federal Government, as this will ensure transparency, honesty and fairness to all the communities.

The Federal Government should enforce strict rules for the quality and operation of local oil tankers that can be found in the Nigerian coastal and inland waters; it is noted that a new sabotage law has just being passed. The responses in the questionnaires clearly indicated that some respondents, particularly NGOs, lack a proper understanding of the coastal ecology, and are therefore unable to fully understand the significance of the impacts generated by oil spill incidents.

The questionnaires included useful and considered comments and suggestions on improving the environmental monitoring and management systems in Nigeria. For example, the Federal Government in conjunction with other Government Agencies and other non-governmental Agencies should work with the newly launched Nigeria Sat-1 Agency. Images from the satellite and other satellites in orbit could be used for managing oil spill incidents in the country. Establishment of regional spill response centres along the coastlines, and the use of data collected with an airborne system will help in managing oil spill problems in Nigeria, and also check any claims by oil companies performing their environmental responsibility according to the laws.

Another issue the government has to seriously deal with is a campaign to bring to an end the illegal oil-related activities of tapping into oil wells and pipelines, and transporting crude oil for illegal refining. This illegal extraction of oil locally referred to cause of major spills and subsequent environmental damage.

One of the alternative approaches in solving issues of environmental degradation in the Nigerian oil-producing regions would be a comprehensive environmental and social survey. More detailed research into the effect of oil operations and impacts on the community should be considered, since this virtually absent in the current EIA process. Most importantly a field study could examine the motivations of villagers when engaging in conflict with oil companies. Issues discussed could include the Nigerian society and their lack of political opportunities. In the context of oil-related contamination, a field study could highlight barriers to justice as perceived by community members.

The role of EIA on the Nigerian oil industry can never be separated from the conflicts in the oil communities and

has significance beyond academic interest. The challenge is undoubtedly very complex and there is the possibility that the cycle of violence in the Niger Delta cannot be broken. If judged by past experience, it is unlikely that a mere increase in the financial contributions to the oil-producing areas will lessen or eradicate discontent. Given the demands of the anti-oil protesters, any policy measures will have greater financial control over oil resources for the local people, a significant reduction of the adverse impact of oil operations, and a meaningful development programmed for the oil-producing areas. Therefore any administration will have to engage in a meaningful dialogue with all of the major stakeholders and interest groups in the region by;

- Allocating a percentage of all project costs for environmental and sustainable development initiatives in the region.
  - Regular public consultation and reporting on environmental and social performance of industry activity
  - Proper EIA training of the entire government organisation involved in EIA, and constant engagement with stakeholders in the field.
- Creating a single government body that will be solely responsible for conducting EIA process, procedure and implementation.
- Involving honest and dedicated staff for greater transparency.

Finally, unless the government and oil companies change their basic attitude towards Environmental Impact Assessment the conflict and mistrust will continue, thereby slowing the development of both the Niger Delta and the country. Proactive approaches will therefore need to be considered, including active intervention by government Agencies in charge of enforcing the regulations, operations and monitoring of the oil industry. It is clear that the environmental impacts of projects and policies are no longer considered as inconsequential or secondary to decision-making for development, EIA is now recognized as an integral part of the project cycle, and projects will invariably require that environmental issues are properly addressed using EIA or a similar methodology. The identification at an early stage of environmental impacts contributes not only to project appraisal, but also project design that incorporates the necessary mitigation, and counter measures. Equally important, as part of the EIA, is the development of an Environmental Management Plan (incorporating monitoring) In this context, not only must the planning for environmental impacts be robust, but the proposed countermeasures must be soundly conceived and properly affected. In developing economies, these resources may be difficult to sustain, given that they are not obviously 'productively' used. However, the evidence of environmental damage caused by the short-sighted approach of both oil companies and the government is now too overwhelming to be ignored.

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