

## **Environmental Impact Assessment (EIA) and the Mining Sector in Nigeria**

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### **Abstract**

This study has examined Environmental Impact Assessment (EIA) and the mining sector in Nigeria. The study has appraised the importance of EIA, the processes and application of EIA in the mining sector in Nigeria. The study has shown that the introduction of EIA in the mining sector is a recent development aimed at reducing the impacts of mining on the environment. The study equally showed that despite the importance of EIA to mining activity, there are few instances of EIA application in mining activity in Nigeria. Some of the challenges include high cost of EIA, EIA takes long time to complete, dearth of baseline information that will be used to assess the environmental impacts of the projects, lack of commitment to implementation of EIA among others. Based on the findings. The study recommends the need to develop the capacity of the Mines Environmental Compliance Department, political will to enforce compliance to the EIA Act, improvement in EIA guidelines and the processes, harmonisation and coordination of the activities of the agencies involved in conduct of EIA and improvement in the quality of industrial and medical laboratories for environmental quality and standard analysis in Nigeria.

**Keywords:** Compliance, EIA, Enactment, Environment, Mining sector and Scope.

### **Introduction**

The increasing challenges posed by human activities (mining inclusive) have become a source of concern in recent times. Human beings depends on the resources in the environment for their life support and existence. In the process of exploiting these resources, damages are caused to the environment. To protect the environment from damages resulting from human activities, many nations have enacted legislation to protect the environment.

Environmental Impact Assessment (EIA) is one of the legislation put in place to protect the environment from human activities. EIA first started in the United State of America in 1969 and spread to Canada, Europe, South East Asia and later to developing countries. EIA is contained in Principle 17 of Agenda 21 (agenda for the 21<sup>st</sup> century) of the United Nation Conference on Environment and Development (UNCED). This conference was held between 3<sup>rd</sup> to 14<sup>th</sup> June 1992 in Rio de Janeiro, Brazil. The use of EIAs as part of a rational decision making process started in the 1960s. It entails a technical evaluation of projects that will inform objective decision making. EIA was enacted as a law in the United State

of America National Environmental Policy Act (NEPA) in 1969. Since then, EIA has evolved increasingly and has spread to many countries around the world.

In Nigeria, National Council on the Environment at its meeting in 1990 resolved that EIA is an indispensable prerequisite for the effective implementation of the National Policy on the Environment. Following this resolution, the Nigerian government promulgated the EIA legislation in 1992. The EIA Act No. 86 of 1992 makes EIA a mandatory activity for development projects in Nigeria that is likely to have adverse impact on the environment. The environmental regulations which operated in the petroleum industry before this resolution were progressively developing from reactive control measures to proactive EIA system. This was followed by the release of Environmental Guidelines and Standards for the Petroleum Industry in Nigeria (EGAS) in 1991. In 1992, it became clear that EIAs would be required in all sectors of the economy. This led to the development of two distinct legislations (in addition to the one already operating in the petroleum industry), making it three (3) separate Environmental Impact Assessment systems in the country. This was made necessary by the precarious situation at that time (i.e. the Koko waste incident and pressure from international community) as well as the country's ability to develop its own EIA legislations following the experience of developed countries such as the USA and Canada. More often, we are interested in curative measures of managing the environment rather than preventive measures. EIA is a preventive tool of environmental management, used to forestall the occurrence of environmental problem from human activities.

Before the advent of EIA Act in the country, project evaluation was limited to feasibility studies and economic-cost-benefit analysis. Most of these project evaluations did not take environmental cost, public opinion and social and environmental impacts of the projects into consideration. In accordance with the EIA regulations, all public and private projects likely to negatively affect the environment must be subjected to the EIA process conducted by the Ministry of Environment, including oil and gas production and mining activities.

Mining activities constitutes significant challenges to the environment. Mining activities generates large volumes of materials such as waste rock, tailings, acid mine drainage, airborne dust and other contaminants, which are deposited on land and in the air and water (Widerlund *et al*, 2014). As a result of this, increasing attention is being paid to mining activities as well as development of stringent environmental regulations in the sector. Thus, mining is one of the development activities where environmental impact assessments and permits are required to address any negative impacts, and promote the adoption of environmentally benign production processes. Unfortunately, in Nigeria, up to now mining activities have systematically escaped environmental control.

Recognizing the potentials of the sector to cause serious environmental degradation, strategies regarding the implementation of policy directives in mining development included mandatory preventive EIA, minimization of environmental damages and risks, prescription of regulation and standards specific for mining wastes, and promotion of legal

small-scale mining activities. This notwithstanding, the strategies are yet to be implemented. Although the EIA decree has been in existence since 1992, it was only recently that a mining project prepared an EIA study and applied for an environmental certificate. Development of environmental regulations, mining effluent and waste management standards have just been included as an activity of the Sustainable Management of Mineral Resources (SMMR) project, following the provisions of the Nigerian Minerals and Mining Law recently approved (February 2007).

Mining activities comprised in the EIA study mandatory list include the following:

- i. mining of materials in new areas where the mining lease covers a total area in excess of 250 ha
- ii. ore processing, including concentrating for aluminium, copper, gold or tantalum
- iii. sand dredging involving an area of 50 ha or more; and
- iv. quarrying of aggregate, limestone, silica, quartzite, sandstone marble and decorative building stone within 3 km of any existing residential, commercial or industrial areas. Category II project list includes “any form of quarrying or mining”.

In February 2007, the Senate of Nigeria approved the Nigerian Minerals and Mining Bill to cater for among other things, environmental issues related to mining activities. This led to the establishment of the Mines Environmental Compliance Department within the Ministry of Solid Minerals Development (MSMD) and the State Mineral Resource and Environmental Management Committees. The department ensures that prospective holders of mining leases and permits submit to it all EIA studies and mitigation plans required under environmental laws and regulations before commencing its activities. This ensures that mine title holders conduct their mining activities “in an environmentally and socially responsible manner”, such as: maintain and restore mining land in safe state from disturbance and in compliance with applicable environmental laws and regulations.

### **Concept of EIA**

Environmental Impact Assessment (EIA) is a process through which environmental impacts (biophysical, social and economic) potentially resulting from a proposed project, are identified and assessed (early in the project planning phase). EIA is also an assessment of the potential positive or negative impact that a proposed project may have on the environment, alongside with the natural, social and economic aspects. The International Association for Impact Assessment (IAIA) defines an environmental impact assessment as “the process of identifying, predicting, evaluating and mitigating the biophysical, social, economic and other relevant effects of development undertakings before major decisions are taken and commitments made”. EIA can also be regarded as the formal process through which a proposed activity that is capable of affecting the environment greatly by way of social and economic costs is evaluated with a view to appraising its impacts, alternative

approaches and developing measures to prevent or mitigate the negative impacts (George & Susan, 2002). EIA involves a systematic process for identifying, predicting and evaluating potential impacts associated with a development project. EIA process must proffer mitigation measures to avoid, reduce or minimize the anticipated negative impacts on the environment, public health and property and may highlight the foreseeable positive impacts. EIA is multidisciplinary in nature and requires the inputs from relevant environmental field of study such as engineering, Biology, Agriculture, Geography, Soil Science, Hydrology, Geology etc.

The EIA Act makes it mandatory to conduct an EIA in respect of any proposed development project. EIA is a tool for achieving sustainable development. It specifically places a restriction on commencement of any public or private project without prior consideration of the likely environmental effects. It further provides that projects on the mandatory study list, which includes mining, are expressly prohibited from being carried out without the National Environmental Standard Regulations and Enforcement Agency (NESREA) taking a decision or issuing an order that the project can be carried out with or without conditions.

EIAs have emerged as a result of the environmental challenges of energy, mining and economic developments. As Hunter *et al* argue, 'one of the primary reasons for conducting EIAs is to inform the public of the proposed projects and to engage them in a meaningful dialogue about the potential benefits and environmental and social costs of a proposed activity' (Hunter *et al*, 1998).

The main objective of the EIA is to ensure that potential environmental impacts are foreseen at the appropriate stage of project design and addressed before any decision is taken on the project. The mitigation measures may include identifying possible alternative site, project, process design, as well as the option of not proceeding with the proposed project. EIA is not a one-off process which terminates in the production of a report on the possible effects of the project and associated mitigation measures. It also deals with monitoring the construction and operational phases, and this continues till the project is decommissioned. The post-closure care is also an integral part of the EIA process.

The Environmental Impact Assessment (EIA), Decree No. 86 contains provisions for the screening of projects according to impact potential, including listed activities for which mandatory EIA preparation is required.

- i. Category I projects will require a full Environmental Impact Assessment (EIA).
- ii. Category II projects may require only a partial EIA, which will focus on mitigation and environmental planning measures, unless the project is located near an "Environmentally Sensitive Area" (ESA in which case a full EIA would be required).

- iii. Category III projects are considered to have "essentially beneficial impacts" on the environment, for which an Environmental Impact Statement (EIS) will be prepared by the FMENV.

A full EIA is required for projects that are considered to have potential significant adverse impacts that may be sensitive, irreversible and diverse. Such impacts are likely to be comprehensive, broad, sector-wide, or precedent-setting. Impacts is considered to occur from a major component of the proposed project and affect the area as a whole or an entire sector. Some of the Category A projects may include the following:

- Construction of dams and reservoirs;
- Forestry production projects;
- Industrial establishment usually large-scale and industrial estates;
- Large scale irrigation projects, drainage, and flood control works;
- Land clearance and levelling works;
- Mineral development (including oil and gas);
- Construction of port and harbour;
- Reclamation and new land development;
- Resettlement and all projects with potentially major impacts on people;
- River basin development;
- Thermal and hydropower development; and
- Manufacture, transportation, and use of pesticides or other hazardous and/or toxic materials (Federal Ministry of Environment, 2006).

Category B projects are projects that considered to most likely have adverse environmental impacts that are less significant than category A impacts. Oftentimes, only few if any of these impacts are irreversible. However, the impacts of such projects are not as sensitive, numerous, major, or diverse as in the case of category A impacts. In this case, remedial measures can be more easily designed to mitigate the impact. Thus, preparation of mitigation plan suffices for many category B projects. Few category B projects would have a separate environmental report; most may be discussed in a separate section of the project preparation or feasibility study. Examples of Category B projects are:

- agro-industries (small-scale);
- electrical transmission;
- aquaculture and mariculture;
- irrigation and drainage (small-scale);
- renewable energy;
- rural electrification;
- tourism;
- rural water supply and sanitation;
- watershed projects (management or rehabilitation); and
- rehabilitation, maintenance, and upgrading projects (small-scale).

An EIA or environmental impact assessment is normally not required for Category C projects because the project is unlikely to have adverse impacts. Professional judgment finds the project to have negligible, insignificant, or minimal environmental impacts. Category C projects might include:

- education,
- family planning,
- health,
- nutrition,
- institutional development,
- technical assistance, and
- most human resource projects.

However, it is important to note that there are exceptional cases where EIA is excluded for some projects. Thus, EIA is not required in the case of the following:

- a) Project with non or minimal environmental effect;
- b) Projects to be carried out during national emergency for which temporary measures have been taken by the Government;
- c) Projects to be carried out in response to circumstances that, in the opinion of the agency, the project is in the interest of public health or safety.

### **Scope of EIA**

The scope of EIA is the full description of the proposed project which include the following;

- A description of the proposed activities.
- A description of the potentially affected environment including specific information necessary to identify and assess the environmental effect of the proposed activities.
- A description of the practical activities as appropriate.
- An assessment of likely or potential environmental impacts of the proposed activity and alternatives, including the direct or indirect, cumulative, short-term and long term effects.
- An identification and description of measures available to mitigate adverse environmental impacts of proposed activity and assessment of those measures.
- An indication of gaps in knowledge and uncertainty, which may be encountered in computing the required information.
- An indication of whether the environment of any other state or LGA or areas outside Nigeria is likely to be affected by the proposed activity or its alternatives and
- A brief and non-technical summary of all the information provided.

## **Process of EIA**

The EIA process is the various stages a project undergoes from proposal to approval for implementation, resulting in the issuing of an Environmental Impact Statement (EIS) and certificate.

### **Stages of EIA**

#### **a. Project proposal**

This is the first stage of the EIA process. At this stage, any proponent intending to undertake any major development project shall notify FMENV in writing by the submission of a project proposal. The project proposal shall include all relevant information available, including a land use map in order for it to move to the next stage which is screening. It also requires the completion of the relevant form (EIA Notification Form) and payment of N10,000.00.

#### **b. Screening**

Screening is the process used to determine whether a proposed project or activity requires an EIA and, if so, what level of environmental review is necessary. It includes project site visit and initial environmental examination to assign the project into one of the three categories: I (full mandatory EIA), II (partial EIA) or III (no further environmental study required); the EIA division has ten working days for the initial examination and for informing the proponent of his project category (screening report).

#### **c. Scoping**

Whenever an EIA is required, scoping exercise is carried out by the proponent to define the terms of reference, indicating the significant impacts and alternative to be addressed in the EIA study; a public hearing may be conducted at this point depending on the public interested in the project; terms of reference are discussed with the EIA Division staff who define the final scope of the required EIA. The exercise is to ensure that all significant impacts and reasonable alternatives are addressed in the intended EIA.

#### **d. Draft final EIA report**

Proponent (through a consultancy firm) undertake the EIA study according to the approved terms of reference, and proceed to consultation with stakeholders and affected communities, documenting consultation events and results, and in time presenting the draft EIA report to the division; six months is the average duration of this phase;

#### **e. EIA review process**

After receiving EIA draft report, the division undertakes an in-house review and determines one of the three forms of external review: (i) panel review, by a group of panelists chosen by the Permanent Secretary from the EIA consultants list registered in the Ministry; (ii) public review, comprising public display of EIA report for a period of at least 21 working

days in sites accessible to interested parties, followed by a one or two-day sitting for discussion; information to the public is made by newspaper advertisement and invitations.

#### **f. Final EIA report**

Elaboration and submission by the proponent of the final EIA report incorporating issues raised during the review process, and defining conditions of project implementation (monitoring, mitigation and follow-up programs, audit procedures etc.);

#### **g. Technical committee/decision making**

Decision-making, comprising the issuance of both an environmental impact statement (EIS), in a maximum delay of one month of the receipt of the final EIA report, and the respective certificate, by the environmental authority;

#### **h. Project Implementation**

After certification, project implementation follow-up from site preparation to commissioning in accordance with all the stipulated mitigation measures as contained in final report is made by the EIA division.

Project proponents pay for all costs involved in the EIA process, in the form of processing and certification fees: an initial processing fee of a fixed amount, and a final charge assessed by taking into account all process incurred expenses.

#### **i. Mitigation compliance monitoring**

The FMENV during the implementation of the project, shall monitor the progress of the project from site preparation to commissioning to ensure compliance with all the stipulated mitigation and project specifications.

#### **j. Environmental auditing**

This is a periodic assessment of the positive and negative impacts of the project by the agency staff with a view to improving the EIA process.

#### **Responsibilities of Mine Title Holders**

- i. Before embarking on any mineral workings or extraction, holders of mining leases have to submit to the Mines Environmental Compliance Department all EIA studies and mitigation plans required under environmental laws and regulations.
- ii. Every holder of a mineral title shall: minimize, manage and mitigate any environmental impact from his activities; and rehabilitate and reclaim disturbed mining land to its natural state or to such state as specified in the pertinent regulations.
- iii. Every holder of a mining title shall present to the Mines Environmental Compliance Department an environmental impact statement approved by the



Federal Minister of the environment, and the correspondent environmental protection and rehabilitation program, in respect of his exploration or mining operation.

### **Compliance to EIA Regulations in Mining Sector**

Mining is an environmental disruptive activity because it disrupts the land, atmosphere (air) and water bodies among others. Mining activities have oftentimes been considered as synonymous with environmental disturbances. Each of the mining cycle activities is associated with the environment. The mining technologies used have to comply with the environmental standards adopted in countries with strict regulations since much of the market potential for metals and minerals are found there. Furthermore, Hilson (2000) argues that while multi-national mining companies often use the same environmental standards independent of where they are operating, this is not likely to be true for small companies in the developing countries like Nigeria. Small local mining operations in poor countries are likely to be the ones primarily affected by, and benefitting from, a lack of stringent environmental regulations. However, small mining companies are also more often dependent on credit, so this is likely to be particularly prevalent in regions and countries in which International Banks, development organizations etc. are not pushing for increased environmental conduct (Rémy, 2003).

Although no systematic survey has been made on the level of project compliance with EIA requirements, common opinion at the EIA division is that the majority of activities implemented in the country since 1995 have not been subjected to the EIA process. Mines and quarries, ports, airport, railway, housing and transportation projects have been kept away from the EIA legal requirements, as well as most public projects listed as mandatory EIA activities (infrastructure, transportation, ports, railways and housing). Only 25% of drainage and irrigation, water supply and waste treatment projects did comply (Dayo *et al*, 2002). However, almost all food, brewery, beverage and tobacco processing, petroleum and major power generation projects did.

An indicator of the poor level of compliance is the number of registered and certified EIA projects. In 2002, a paper presented at the 20th IAIA meeting scored a total of 139 projects submitted to the EIA process from 1995 to 2002 at the Ministry of Environment, of which 82 for oil and gas development, but none for mining activities (Dayo *et al*, 2002). In 2006, as at September 55 projects were certified and EIA approvals granted (Federal Ministry of Environment, 2006).

### **Challenges of EIA**

Although the Act requires the completion of EIAs before a variety of projects can proceed, there is a general perception that EIAs are seldom carried out in Nigeria. A 2007 study by Yusuf and others found that in the mining sector 'there had been zero submission of EIAs', despite huge investments and the fact that mining had been taking place in many parts of the country for decades (Yusuf *et al*, 2007). The challenges therefore include;

- i. Lack of political will and commitment on the part of the government to enforce environmental standards.
- ii. Scarcity of baseline information against which the environmental impacts can be assessed.
- iii. Non-implementation, or lack of commitment to implementation of EIA reports. The result is that operators carry out EIAs to satisfy the dry letters of regulatory provisions for the purpose of obtaining operational permits.
- iv. EIA activities takes a long time to complete. Therefore, many project proponents and governments at different levels see EIA as a waste of time. Many therefore try to avoid it.
- v. The conduct of EIA is very costly. It is not every business that can afford the conduct of EIA especially small and medium enterprises.
- vi. Conflict over EIA jurisdiction and mandates between Ministries of Environment and Mining and between Federal and State governments etc.
- vii. Poor quality of industrial and medical laboratories for environment quality and standard analysis in Nigeria and most developing countries. This makes it difficult to come up with data and investigation reports that is acceptable to most international organizations.

## **Conclusion**

This study has examined Environmental Impact Assessment (EIA) and the mining sector in Nigeria. The paper has appraised the importance of EIA, the processes and application of EIA in the mining sector in Nigeria. The study has shown that the introduction of EIA in the mining sector is a recent development aimed at reducing the impacts of mining on the environment. The study equally showed that despite the importance of EIA to mining activity, there are few instances of EIA application in mining activity in Nigeria. Some of the challenges include high cost of EIA, EIA takes long time to complete, scarcity of baseline information against which the environmental impacts can be assessed, lack of commitment to implementation of EIA among others. The study concludes that there is need for greater commitment by both government and its agencies in enforcement of the provisions of the EIA laws.

## **Recommendations**

Based on the findings, the following recommendations are suggested;

- i. There is a need for stronger foundation of EIA practice through training for practitioners,  
guidance on EIA practice and continuing research.
- ii. There is need to develop the capacity of the Mines Environmental Compliance Department of the Ministry of Solid Minerals Development (MSMD) and the State

Mineral Resource and Environmental Management Committees to enable them adequately enforce compliance to EIA in the mining sector

- iii. There is need for Government to develop the political will to enforce compliance to the EIA Act. Without the political will, not much can be achieved.
- iv. There is need to improve on the EIA guidelines and the processes involved so as to reduce the time and cost involved in conducting EIAs in the country.
- v. There is need to harmonised and coordinate the activities of the agencies involved in conduct of EIA. The multidisciplinary nature of EIA leads to overlap in responsibilities of agencies involved. Proper coordination will minimise conflict and improve compliance to EIA regulation.
- vi. There is need to improve the quality of industrial and medical laboratories for environment quality and standard analysis in Nigeria. This will greatly improve the quality and reliability of data generated from investigation reports and make it acceptable to international organizations.

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