



THE CHALLENGES OF CONDUCTING ENVIRONMENTAL IMPACT ASSESSMENT IN NIGERIA: FOCUS ON NATURAL GAS FLARING

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Abstract

This article examines the concept of Environmental Impact Assessment (EIA) vis-à-vis the inherent challenges of conducting it and the effect of a major human activity of gas flaring in Nigeria. The idea of EIA presupposes that project developers should be conscious of the impacts which such activities could have on the environment and consider them before embarking on such activities. The conduct of EIA therefore would be to ensure that decision-makers on the environment considered the environmental impacts when deciding whether or not to proceed with a project. It is thus expected that such move which appear and presents as check mechanism and control measure would be challenged. The objectives of the study therefore are to: consider the broad EIA process; observe the effects of gas flaring on the environment; and the steps that should be taken to mitigate the negative effects of gas flaring on the environment. The result of finding in the study reveal that Major Oil Companies, MOC, hardly considered the negative effects which gas flaring have on the environment before, during and after embarking on the activity. Consequently, the study concludes that indiscriminate gas venting and flaring had continued because of weak application of regulations and extant laws on environmental impact assessment.

Keywords: *Environmental Impact Assessment, Natural Gas, Gas Flaring, Sustainable Development.*

Introduction

Environmental Impact Assessment, EIA, which is a formal process of predicting the environmental consequences of human development activities and planning of appropriate measures toward eliminating or reducing the

adverse effects and augmenting positive effects of same, is faced, in its conduct especially on natural gas venting and flaring, with myriads of challenges in Nigeria. These challenges which include: duplication of functions, overlapping responsibilities in the process and procedures guiding the execution of the various impact assessment tasks, serious bottlenecks and bureaucratic confusion, waste of material and financial resources, inadequacies and misinterpretations of the various statutes, absence of effective sanctions, among others, conspires to render the EIA objectives ineffective, thereby giving room to series of environmental problems. To appreciating these inherent challenges in conducting EIA in Nigeria, this paper attempts a critical assessment of the activities of the Federal Environmental Protection Agency, FEPA, as well as that of the Ministry of Environment, MoE, both of which regulates as well as monitors the activities in the environment. The paper also did a juxtaposition of EIA in Nigeria and that of other select countries, both in the developed and developing world with particular reference to gas venting and flaring.

Furthermore, the paper dwelt elaborately on the act of venting and flaring of natural gas, noting specifically government's efforts toward reduction or outrightly phasing off, the place of regulation and the negative consequences of gas venting and flaring on the environment. The major effect of gas flaring on the environment is its contribution to global warming through the emission of greenhouse gas to the atmosphere. Research has revealed that gas flaring is the major contributor to global warming and Nigeria ranks high among world gas flarer.

The Environmental Impact Assessment is mandatory for the construction of LNG facilities. This is issued by the FMoE. A license to establish/construct an LNG plant- is issued by the Minister upon DPR recommendation. A license to operate an LNG plant is issued by the Minister upon DPR recommendation. Approval for plant design specifications, purpose and location is granted by the Minister upon DPR recommendation. A permit to survey a gas pipeline route is issued by the DPR. A license to construct and operate a Gas Pipeline is issued by the DPR. A license to establish an Oil Terminal at site is issued by the Minister of Petroleum. A license to store LNG at site is to be obtained from the Minister. Industrial waste discharge/disposal permit is issued by the DPR (*Adegbite & Sipasi, 2011*). EIA approaches developed to identify, predict and value changes of an action, are reflected in the sequence of activities, steps, as well as on the

range of environmental issues considered. These includes: physical, chemical, biological socio-economic, cultural, landscape values and processes. The development of methodologies to assess impacts depend on, first, the relationships between territorial elements (or characteristics) and the actions; second, the specific measurements and the necessary information to estimate the impacts, and third, the mitigation measures, compensation and follow-up. This is done with a view to: understanding the nature and location of the project and possible alternatives; identifying factors of analysis and assessment objectives; do preliminary identification of impacts and scoping; undertake baseline studies and evolution in the absence of projects, predicting and assessing impacts and alternatives comparison; mitigating and performing monitoring and impacts management.

Gas flaring has been a nagging environmental menace mainly for the enormous contribution it makes on the global space, the human elements of society and the economic life. Government's efforts at mitigating the negative effects have not achieved desired results. Scholars have blamed this failure variously on the sluggish response of MOCs to flare reduction policies, weak regulatory framework, government's dual status of being both an operator (equal player as others on the gas value chain) and regulator at the same time among others. This paper attempts a review of these issues and critically examines the issue of conducting an EIA in the midst of these myriad of challenges.

Literature Review

The main purpose of EIA is to inform decision-makers on the environment of the environmental effects of the scheme on people and the environment, and to minimise the adverse effects of a project within engineering and other constraints. EIA, which is described as an iterative process – continues and develops alongside the design of the scheme, has the following main stages in the assessment before an application. The themes of interest in EIA are: public health, safety and security, occupational health, vulnerable groups, gender, economic organisation and well-being, population growth, cultural and aesthetic values (*Doutora, 2011*).

The EIA Decree No. 86 of 1992 is an additional document with the same aim of protecting the Nigerian environment. It is particularly directed at regulating the industrialisation process with due regard to the environment.

By this Decree, no industrial plan or development activity falling under the FEPA's mandatory list can be executed without prior consideration of the environmental consequences of such a proposed action, in the form of an environmental impact assessment. The Department of Petroleum Resources (DPR), an arm of the Ministry of Petroleum Resources, recognising the national importance of the oil and gas industry sector to the continued growth of the Nigerian economy and realising that the continued exploitation, exploration and production of the oil resources has serious environmental impacts, also decided to set out comprehensive standards and guidelines to direct the execution of projects with proper consideration for the environment. The DPR Environmental Guidelines and Standards (EGAS) of 1991 for the petroleum industry is a comprehensive working document with serious consideration for the preservation and protection of the Niger Delta, and thus the Nigerian environment, in the course of searching for and producing crude oil. The EIA tool is also mandatory for a greater part of the oil E&P activities. But a detailed examination of the various statutes and the framework for the EIA process in particular, and the entire environmental regulatory process in general, reveals that many of the statutes are very much at variance with intentions, especially as they affect the execution of functions. There is duplication of functions and overlapping responsibilities in the processes and procedures guiding the execution of the various impact assessment tasks. Consequently, serious bottlenecks and bureaucratic confusion are created in the process. The result is a waste of resources, financially and materially.

This paper equally examines the regulatory framework for the EIA process, and the inadequacies and misinterpretations of the various statutes, which have often led to delays in the execution of EIAs in Nigeria. There were several sectoral regulations aimed at controlling environmental degradation which were unsuccessful due to the absence of effective sanctions. Economic considerations and fundamental lack of knowledge of interdependent linkages among development processes and environmental factors, as well as human and natural resources, resulted in an unmitigated assault on the environment.

Process and Procedural Framework

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. The term encompasses several stages, namely:

- i. determining if FEPA environmental laws/regulations have been triggered;
- ii. screening a project for potential environmental effects;
- iii. scoping to determine the spatial and temporary dimension of environmental effects;
- iv. carrying out detailed base line studies to determine the environmental condition prior to project implementation;
- v. preparing a detailed assessment report;
- vi. carrying out a panel review of the EIA report if this is necessary; and
- vii. obtaining authorisation/approval, where appropriate.

For FEPA, the Director General/Chief Executive is the responsible officer. The National Procedural Guidelines show practical steps from project conception to commissioning. The steps are:

- i. project proposal
- ii. initial environmental examination (IEE)/preliminary assessment
- iii. screening
- iv. scoping
- v. EIA study
- vi. Review
- vii. decision making
- viii. monitoring, and
- ix. auditing.

The proponent initiates the process in writing to the responsible officer. A notification form is duly completed with all relevant information on the proposal. Using the criteria of:

- i. magnitude – probable severity of each potential impact;
- ii. prevalence/extent and scope – extent to which the impact may eventually extend;
- iii. duration and frequency – is activity short term, long term or intermittent;
- iv. risks – probability of serious environmental effects;
- v. significance/importance – value attached to a specified area; and

- vi. mitigation – measures available for associated and potential environmental effects

FEPA does internal screening (IEE) to determine the project's category under the mandatory study activities list. Where no adverse environmental effects exist, the EIA is issued and the project commences with appropriate mitigation and monitoring measures. Otherwise within ten working days of receipt of the proposal, the screening report is sent to the proponent for scoping and the preparation of Terms of Reference (ToR). The ToR embodies the scope of the proposed EIA study and this is examined and the scope of the study defined accordingly by FEPA. The proponent carries out the study, generally using consultants, and the draft EIA report in 15 copies is submitted to the responsible officer. For this draft report to be complete it must as an annex record the results of public participation in a public form. Within 15 working days of the receipt of the draft report, FEPA concludes evaluation of the draft and determination of the review method which it communicates to the proponent in writing. The four methods are:

- In-house review.
- Panel review (sitting may be public).
- Public review – an elaborate display of the report for 21 working days with appropriate display venues chosen by FEPA for the convenience of the public stakeholders and communities. Through newspaper advertisement FEPA invites interested groups /persons to participate.
- Mediation.

Within one month of the review process, review comments are furnished to the proponent. In this review stage, the public participates only when FEPA's chosen method of review guarantees its participation. The final EIA report, addressing and proffering answers to review comments, is submitted within six months to the responsible officer. At this early stage, and on mutual agreement, FEPA and the proponent set conditions establishing a follow-up program (mitigation, compliance and monitoring plan), a monitoring strategy and audit procedure. A 'no project' decision is communicated to the proponent if the review comments are adverse and/or improperly addressed in the final report and the final EIA report is unsatisfactory. The decision-making body is the FEPA technical committee chaired by the Director General/Chief Executive.

Within one month of the receipt of a final EIA report which has been adjudged as satisfactory, the committee approves and issues the Environmental Impact Statement (EIS) followed by certification by the responsible officer complete with appropriate conditions and with a validity period. Armed with the certificate, the proponent commences the project subject to the conditions and specifications contained in the EIS. If the project is not commissioned within the validity period on the certificate a revised and updated EIA report becomes necessary for revalidation.

The progress of the project is monitored to ensure compliance with all conditions and mitigation measures. Environmental audit, assessing both positive and negative impacts of the project, is carried out periodically. In its exercise of discretionary powers, FEPA refers any project likely to cause significant environmental effects that may not be mitigated (or where public concern about the project warrants it) to the FEPA council for mediation or panel review. The EIA study team usually is a multi-disciplinary panel of experts and the report is prepared using a systematic, interdisciplinary approach incorporating all relevant analytical disciplines to provide meaningful and factual data, information and analyses. The presentation of data should be clear and concise, yet include all facts necessary to permit independent evaluation and appraisal of both the beneficial and adverse environmental effects of alternative actions. The detail provided should be commensurate with the extent and expected impact of the action and the amount of information required at the particular level of decision-making. FEPA certifies consultants and reviewers. Only research institutions and limited liability companies of proven competence are so certified.

Sadly in the oil sector, there is confusion as a result of multiple regulators. The Department of Petroleum Resources and the State Environmental Protection Agencies have enabling instruments which permit them to conduct EIA without limitation. DPR's instrument is its regulation, EGAS 1991, which empowered it to conduct EIA, but there is no legislation so empowering it directly. The States instruments are subject to Federal enactment and other than inordinate show of relevance they are to merely monitor the process for, and on behalf of, FEPA. FEPA should as early as possible inform the relevant State EPA at its secretariat stage.

Gas Flaring (and Venting)

These are two-in-one operations that takes place simultaneously. Gas **flaring** refers to the burning of natural gas for safety reasons or when there is no way to transport the gas to market or use the gas for other beneficial purposes such

as Enhanced Oil Recovery (EOR) or Reservoir Pressure Maintenance (RPM). Technically, *Aghalino (2009)* described flaring as a means of *safely* disposing of waste gases through the use of combustion. He explained that, this is against the backdrop that, associated gas is routinely flared in the course of the production and processing of oil. Experts have explained that, flaring results, because this gas cannot be processed due to lack of the needed infrastructure. In this context, gas flaring is a controlled burning of natural gas that cannot be processed for sale or for use because of technical or economic reasons. Nelson, N. (2015), writing on gas flaring, stated that gas flaring is one of the major environmental issues in the crude oil industry in recent times. Ebrahim and Friedrichs, 2013 cited in Nelson (2015), explained the concept of gas flaring in the following words: “When you drill for oil, you also get gas. In an ideal world, this associated gas would be sold to consumers, or it would be used to generate power and then resold as electricity. But this requires costly investment into pipelines, power plants and other infrastructure. Therefore, in practice, some oil producers opt to sell the oil and burn the gas. This is known as gas flaring”. Gas **Venting** on the other hand

Nigeria currently flares gas that is generated in association with crude oil production. With 18.9bcm gas flaring per annum, the country is considered among top countries in volume of gas flared worldwide. For the past 30years, (ICF International 2006) global flaring levels have remained virtually constant despite efforts made in both the public and private sectors to check the menace. Though flaring has been significantly reduced in the last several years in Nigeria, in absolute terms, there has been virtually no reduction due to increasing oil production. At the same time, some stakeholders in Nigeria have called for a national goal to reduce flaring to zero by 2008 or shortly thereafter. To date, this goal has not been formally adopted by the Nigerian government. The NNPC Joint-Ventures as well as other companies operating in Nigeria are pursuing flaring reduction strategies. Nevertheless, a more proactive approach could be achieved by including carbon finance as a tool to stimulate such strategies.

ICF International (2006) reports further that, a number of major constraints hinder viable flare reduction projects in Nigeria. The main barriers according to it are:

- undeveloped domestic market for gas products (CNG, LPG, fuel methanol, etc)

- low gas and gas product prices;
- lack of gas infrastructure and electricity transmission and distribution;
- difficulty in securing project funding (e.g, gas trunk-lines, power distribution, transmission, generation, fuel supply);
- limited capacity to execute all necessary changes by 2008;
- security issues.

A fundamental factor why both EIA and gas regulatory frameworks have not been able to tackle the challenges of gas flaring is the disposition of MOCs' to the idea of flare reduction and/or phasing off. They have placed their business interests above other considerations.

Methodology

This study utilised both primary and secondary sources of data collection. Primary sources include questionnaire administration and conduct of in-depth interviews. 120 questionnaires, which represents 30% of the population, was administered. However, 100 were retrieved. Select members of affected areas, opinion leaders and civil society organisation members amongst others were interviewed to illicit information on both EIA and gas flaring activities. Secondary sources include published journal articles, books, conference papers, academic reports (thesis), internet sources and statutes. The data collected was analysed with the use of simple tabulation and descriptive statistics.

Discussion on Findings

The result of finding in the study reveal that Major Oil Companies, MOC, hardly considered the negative effects which gas flaring have on the environment before, during and after embarking on the activity. A more stringent government efforts is indeed required to get these oil producers to consider the consequences of their activities (flaring)on the environment. Alternatively, government should see to the implementation of the four planks' provision of its gas section of the National Energy Policy (2003), namely that: the nation's gas resources shall be harnessed and optimally integrated into the national economy, energy mix and industrial process; the nation shall engage intensively in gas exploration and development with a view to increasing the reserve base to the highest level possible; the nation shall put in place necessary infrastructure and incentives to encourage indigenous and foreign companies to invest in the industry, and that the

nation shall put in place necessary infrastructure and incentives to ensure adequate geographical coverage of the gas transmission and distribution network.

Respondents opined that, rather than be interested in the revenue it gets from the proceeds of penalties for flaring, it should seek ways and means of encouraging these MOCs to begin to process gas for the market rather than burning them, knowing full well that flaring is but a last resort. If government can make gas processing infrastructures available for instance, chances are that these whole ideas of flaring would stop permanently because then, it will be able to enforce extant laws, policies and regulations relating to Environmental Impact Assessment.

Concluding Remarks

Consequently, the study concluded that indiscriminate gas venting and flaring had continued because of weak application of regulations and extant laws on environmental impact assessment. Gas flare reduction policies, and by extension those of Environmental Impact Assessment, have not been effective owing to the fact that government has not put necessary infrastructures and incentives in place. The MOCs have continued routine flaring and venting, flouting EIA laws with impunity and unmindful of the effect of gas flaring on the environment because government has not kept its promises and policy goals on the gas value-chain.

Recommendations for Further Research

In the light of the foregoing and considering the effects of gas flaring on the environment, the following points are recommended:

- Gas processing infrastructures should be provided.
- The provision of the said infrastructures should be jointly financed between government and the MOCs
- Government should fast-track the process of substituting oil with gas as foreign exchange earner for the country. When this is done, better attention would be given to gas as a vital resource.
- The oil wells from where the associated gas is routinely flared, should be moved far from where people are living
- There should be a system of welfare for the local communities who are affected by the flaring activity. This can come particularly in the

form of medication, pending when work on the provision of gas processing infrastructures will be concluded.

- The MOCs, at the meantime, should be given an option to comply with EIA rules or relocate from where the lives of people are endangered.
- The DPR other regulatory agencies within the gas value-chain should be strengthened
- The vision and mission statements of the National Gas Policy (2017) should not be jeopardised by the continued flaring activities.

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