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An Assessment of Nigerian Stakeholders' the Perception of Environmental Offset as Mitigation Measures and Its' Implication for Sustainable Industrial Development in Nigeria

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Abstract: An important tool for sustainable development in any country is Environmental Impact Assessment (EIA), and an important component of EIA is impact mitigation. In most cases, certain unwanted impacts of development projects are left without mitigation thereby reducing the gains of such developments. Thus, emerging in current literature is the concept of Environmental offset which provides a leeway for residual impacts of development projects. This study therefore assesses the perception and level of application of the environmental offset strategy by EIA Practitioners and other stakeholders in the mitigation of negative environmental impacts of developments in the Niger Delta, Nigeria as that would have significant implication for sustainable development efforts in Nigeria. The study found out that there is negative perception among the host communities about the suitability of offset as mitigation measure. Even though the EIA practitioners considers Environmental offset as a viable option, its adoption has been marred by the misgiving of the local people. This misgiving could be attributed to the long period of neglect and abandonment which has led to abject poverty in the region and loss of confidence in any institutional frameworks. Thus, this study concludes that the drive towards sustainable Development in Nigeria would remain a mirage unless the local people are properly integrated in the scheme of things.

Key words: Environmental offset, biodiversity, environmental impact assessment, Niger Delta, stakeholders, like-for likes

INTRODUCTION

It is a truism that the growing human population, technological advancement and the quest for modernization have brought a serious conflict between environmental protection and economic development. Thus, the world today is facing great challenge in conserving its' biological wealth and integrity, while at the same time encouraging social and economic development (DEC, 2006). It is against this backdrop that the concept of Sustainable Development which simply put implies balancing economic prosperity with environmental protection and social equity/justice has gain a global prominence in recent times. Similarly, Environment Impact Assessment which is an activity aimed at predicting the actual and potential impact of a proposed development activity on both the biophysical and socio-economic environment and providing mitigation measures for negative impacts has been identified and widely used as a major strategy for achieving the goal of sustainable development.

An important component of Impact Assessment is impact mitigation, which simply means to minimize harm or to make less severe. It is one of the last steps in impact assessment process and flows in hierarchy of: avoid, minimize, rectify, compensate or offset. It is important to note that offset is the lowest in the hierarchy of mitigation measures and considered only when the other options are not feasible. In some cases, offset is not even considered ad a mitigation measure. The fundamental question that arises at this juncture is what is environmental offset?

Environmental offsets therefore, are those conservation activities intended to compensate for the residual, unavoidable harm to the environment and ecosystems caused by development projects as to ensure "no net loss" and "net Gains".

Offsets are intended to ensure that in situations where damage to the environment cannot be avoided or appropriately minimized, other forms of comparable environment can be improved so that a not net loss can be achieved. It can be used as a tool for providing a more flexible and cost effective approach to development, whilst achieving greater environmental outcomes. It could improve a company's social license to operate, increase regulatory goodwill and increase the ability to undertake projects that may not have been possible (Ten-Kate *et al*., 2004). Environmental offset may be required by legislation or provided on a purely voluntary basis. When

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considering a project for environmental approval, many EIA regulators internationally require the proponent to demonstrate adherence to the mitigation sequence of avoid, minimize, rectify, reduce and then utilize offsets as a last resort. It is however important to note that if a project is not acceptable without offsets; it is not acceptable with offset (EPA, 2006). In other words, offset should not be used to enable environmental trade-offs. That is, Environmental offsets are not intended to make proposals with unacceptable impacts acceptable.

The Australian Government defines environmental offsets as 'actions taken outside a development site that compensate for the impacts of that development - including direct, indirect or consequential impacts'. Environmental offsets provide an opportunity to achieve long-term conservation outcomes whilst providing flexibility for proponents seeking to undertake development which will have environmental impacts. They are simply intended be provide another tool that can be used during project design, environmental assessment and implementation to achieve the principles of ecologically sustainable development.

Environmental offsets' are broadly understood to mean actions taken by developers to compensate for the adverse impacts of their developments. Environmental offsets provide compensation for those impacts which can not be adequately reduced through avoidance and mitigation In most developed countries like Australia, the Government is increasingly considering environmental offsets as part of its process of taking a decision on whether to approve proposed actions under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC, 2007).

However, it is unfortunate to note that most impact assessments in Nigeria ignore residual impacts as they are left unmitigated. Environmental offsets as mitigation measure is a complement to the traditional environmental impact mitigation hierarchy of "avoid, minimize, mitigate". Offset is the last option in this hierarchy and only considered when the impact could neither be avoided, minimized nor mitigated. Offsets as mitigation measure is being widely used in America, Australia and Europe as a mechanism to provide for both development and environmental protection. Perception of people about the efficacy of offset as mitigation measure in these countries varies and the perception of Nigerian Stakeholders in this regard would also have serious implication for its adoption for sustainable Development in Nigeria. It is therefore against this background that this study tries to gain an understanding of how this relatively new concept of environmental offset can be used as a working tool in impact assessment and achieving sustainable development in Nigeria. On the premise of the above, it is postulated that Nigerian Stakeholders have negative perception about the workability of Biodiversity offset as mitigation measure. Secondly, the perception would vary among the various stakeholders.

LITERATURE REVIEW

Biodiversity and environmental offsets: Biodiversity simply refers to the diversity of Genes, Species and Ecosystems that constitute life on earth. Article 2 of the Convention on Biodiversity defines it as the variability among living organisms from all sources including inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part of. It includes diversity within species, between species and ecosystems (Ten-Kate *et al*., 2004). Human survival on the planet earth would be almost impossible without biodiversity. It provides us with foods, medicine, raw materials for other goods, income, recreation/tourism facilities; etc. It also provides aesthetics to our physical environment helps in maintaining ecological balance. They are very susceptible to decimation by human activities, in fact, biodiversity is said to be declining worldwide, due to habitat loss, pollution, the spread of exotic species and change in cropping systems.

Purposes and benefits of offset: Environmental offset could simply be defined as actions taken outside of a development site that compensate for the impact of such development (Rounderantz and Skabarck, 2003). The Environmental Protection Authority (2006) defined offset as environmentally beneficial activities undertaken to counterbalance an adverse environmental impact, aspiring to achieve 'no net environmental loss' or 'net environmental benefits' In most international literature, the term offset refers to compensation activities which is a form of mitigation measures. Offsets are intended to ensure that in situations where damage to the environment cannot be avoided or appropriately minimized, through other forms of comparable environment can be improved so that a no net loss can be achieved. It can be used as a tool for providing a more flexible and cost effective approach to development whilst achieving greater environmental outcomes. Offset could improve a company's social license to operate, increase regulatory goodwill and increase the ability to undertake projects that may not have been possible (Hayes and Morrison-Saunders, 2007). Environmental offset may be required by legislation or provided on a purely voluntary basis. When considering a project for environmental approval, many EIA regulators internationally require the proponent to demonstrate adherence to the mitigation sequence of avoid, minimize, rectify, reduce and then utilize offsets as a last resort. It is however important to note that if a project is not acceptable without offsets; it is not

acceptable with offset. Another common argument of offset is that it helps to conserve areas of higher biodiversity values than those being lost. For instance, if a company wants to develop an area of relatively minor biodiversity value, the offset it will undertake could create or protect areas of greater biodiversity value. Biodiversity offset could contribute to ecological corridors as a significant factor in achieving better conservation. Offset could raise the threshold so that companies' conservation activities go beyond on-site restoration, to compensate for the residual damage caused by companies that remains after their basic mitigation activities (DLWC, 2001; Cuperus, 2004).

Categorization of offset: Direct offsets: Direct offsets are aimed at on-ground maintenance and improvement of habitat or landscape values. They may include: long-term protection of existing habitat - including through the acquisition and inclusion of land in the conservation estate, and covenanting arrangements on private land; restoration or rehabilitation of existing degraded habitat; or Re-establishing habitat.

Indirect offsets: Indirect offsets are the range of other actions that improve knowledge, understanding and management leading to improved conservation outcomes. They may include:

- Implementation of recovery plan actions - including surveys
- Contributions to relevant research or education programs
- Removal of threatening processes
- Contributions to appropriate trust funds or banking schemes that can deliver direct offsets through a consolidation of funds and investment in priority areas
- On-going management activities such as monitoring, maintenance, preparation and implementation of management plans etc. (Department of Environment and Water Resources Government Australian, 2007; Ten-Kate *et al*., 2004; EPA, 2006).

Principles for the use of environmental offsets: The Australian Government has identified eight principles for the use of environmental offsets under the EPBC Act. These eight principles will be used to assess any proposed environmental offsets to ensure consistency, transparency and equity under the EPBC Act.

The Australian Government's position is that:

- Environmental offsets should be targeted to the matter protected by the Act that is being impacted
- A flexible approach should be taken to the design and use of environmental offsets to achieve long-term and certain conservation outcomes which are cost effective for proponents
- Environmental offsets should deliver a real conservation outcome
- Environmental offsets should be developed as a package of actions - which may include both direct and indirect offsets
- Environmental offsets should, as a minimum, be commensurate with the magnitude of the impacts of the development and ideally deliver outcomes that are 'like for like'
- Environmental offsets should be located within the same general area as the development activity.
- Environmental offsets should be delivered in a timely manner and be long lasting.
- Environmental offsets should be enforceable, monitored and audited (Department of Environment and Water Resources, Australian Government, 2007)

Concept of like for like: The concept of Like for Like aims at ensuring that the offset activity counter balances the same type of impacted emission or ecosystem. In other words, ecosystem should be alike with respect to the environmental values, vegetation, habitat, species, ecosystems, landscape, hydrology and physical area. In fact, they should serve the same ecological functions and should be within the same bio-geographical (Rounderantz and Skabarck, 2003; EPA, 2006). For instance, if a mangrove ecosystem is destroyed in course of any project development; same type of ecosystem should be developed as an alternative rather than another vegetation. Important to note here is the fact that restoration of an impacted habitat is better preferred than developing a new one because restoration has greater chances of meeting Like for Like ecological function expectations. Ensuring 'like for like' or 'like for better' helps to achieve net gain. The issue here is that mitigation through use of offset ensures that the degraded environment is better than what it was after offset activities. Kike for Dislike is seen as an option where the degraded ecosystem cannot be restored, thus a dissimilar ecosystem is developed.

Constraints to the use of offset: Lack of accurate and sufficient data on the status of biodiversity is one of the major constraints to the use of offset. There is also difficulty in valuation of biodiversity needed to determine both the type of offset required and how comparable/effective the selected offset actually is, especially in regard to ecological functioning. There is yet another problem of time lag between project impact and offset deliverance (DLWC, 2001; Cuperus, 2004). Also, failures in enforcement of compliance may lead to the

failure of the no net loss policy. Also, the creation of a new ecosystem or rehabilitation of a degraded site may take at least a decade before the system is fully functional and stable and this is uncertain. There is also the problem of controversy over the definition of "no net loss" and net gains.

In some cases, the definition applies to only areas, implying that the values, functions, and services provided by the ecosystem are not necessarily compensated. Where monetary compensation is an option to the people, they will choose that at the detriment of the environmental conservation

METHODOLOGY

This study was carried out by the authors in the Niger Delta areas of Nigeria between September, 2010 and Mach, 2011. The region was chosen because of her strategic location and importance in Nigeria's industrial development, being host to the major oil and gas mining activities in the country and plagued with many environmental challenges. The study is a survey design aimed at assessing the perception of the stakeholders in Nigeria (EIA Practitioners, Industry Proponents, Regulatory Agencies and Community Leaders) on the adoption of Offset as mitigation measure to negative Impact of industrial development on the Niger Delta, Nigeria. Thus, using oil and industries as a focus, the author randomly selected 50 EIA Practitioners in the area, 100 respondents from the Oil Industry as Proponents (that is, Shell Petroleum Development Company Limited, TOTAL E&P, Nigerian Agip Oil Company & Nigerian National Petroleum Corporation), 100 respondents from host communities of these companies, 100 from the regulatory Agencies (Federal and State Ministries of Environment, Department of Petroleum Resources and NGOs. Thus, a total of 350 respondents were used for the study as distributed above.

A structured questionnaire based on a Ten-Point likert scale was used to gauge the extent to which the individuals agreed or disagreed with posed statements about the use of offset to mitigate environmental impact. They were also given opportunity to express any concern or criticism regarding the use of offset. The data generated from this survey were analyzed in simply percentages and charts and used to draw conclusion for this study.

RESULTS AND DISCUSSION

Analysis of Table 1 shows that 260 out of the 350 respondents representing 74% of the various stakeholders aware or have knowledge of Environmental offset as a mitigation measure. Thus, it could be adduced that there is high level of consciousness or awareness among the stakeholders about environmental offset as impact mitigation measure.

Table 1: Knowledge of environmental offset as mitigation measure among stakeholders

Stakeholders	No. aware	No. unaware	Awareness (%)
Regulators	83	17	74 %
Proponents	78	22	
Practitioners	45	5	
Host communities	54	46	
Total	260	90	350

Authors' field study (2011)

Table 2: Confidence in the efficacy of offset in mitigation of negative impact

Stakeholders	No. of respondents	Frequency	%
Regulators	100	83	83
Proponents	100	90	90
Practitioners	50	23	46
Host communities	100	34	34
Total	350	220	62.85

Authors' field study (2011)

Analysis of perception of stakeholders about the efficacy of Environmental offset in impact mitigation reveals that 62.85% of the respondents believe in or have confidence in the efficacy of offset in impact mitigation. However, from the Table 2, the perception varies among the various stakeholders. Basically, the host communities do not seem to have confidence in the use/efficacy of offset as on 34% of the sampled respondents indicated that they have confidence in offset as mitigation measure. Similarly, the analysis shows that the practitioners do not seem to have confidence in the efficacy of offset in Nigeria. This result corroborates with Hayes and Morrison-Saunders (2007) and Mmom (2008) findings in their independent studies asserted that host communities and other stakeholders do not have much confidence in the use of offset as mitigation measure. Ideally, offset is a veritable tool in ecological impact mitigation, however, in the case of Niger Delta, the long period of neglect of the people has led to loss of confidence in any government institutional frameworks. Thus, people prefer the immediate benefit especially as it has to do with monetary compensation.

Analysis of Table 3 shows that, 42.5% of the stakeholders believe in the ability of the proponents to comply with offset strategy of like-for-likes, while 27% are neutral and 30.5% do not seem to have confidence in the compliance of proponents in with offset strategy. Instability in the polity in Nigeria creates fears about sustainability of projects. Most times policies and projects change with change in government, therefore ensuring compliance with set policies especially long term ecosystem restoration may not be guaranteed due to inconsistencies in government policies.

Table 4 shows analyses of preference of host communities as regards mitigation option. The analysis

Table 3: Perception of stakeholders about mitigation strategy of like-for-likes

Q. To what extent can we count on Nigerian proponents in complying with offset strategy (like-for-likes)	Great extent	%	Neutral	%	No extent	%
Regulators	50	50	28	28	22	22
Proponents	89	89	11	11	-	
Practitioners	12	24	25	50	13	26
Host communities	7	7	18	18	75	75

Authors' field study (2011)

shows that 78 % of the respondents prefer monetary compensation than ecosystem restoration. This finding tallies with the earlier result of the study by Oyoko (2003) about the use of monetary compensation in ameliorating negative impact of industrial activities in the Niger Delta. In his study, it was discovered that because of the high level of poverty in the area, people prefer immediate gains in terms of monetary compensation to ecosystem restoration which is log term.

As regards stakeholders' perception of offset and time lag as stated in Table 5, 92.8% of them affirmed that in most cases, residual impacts are ignored and never mitigated; 79% noted that it is difficult to define like-for-likes and compare values; 85.7% affirmed that like-for-likes may be difficult in practice, especially in the Niger Delta with land constraints. Also, 84.57% noted that time lag between when impact occurs and offset begins compensating for is an important issue to consider, while 97.1% responded that offset should be put at the same rate at which the impact occurs. The findings above corroborates with that of Hayes and Saunders (2007)in which cases they discovered that most residual impacts are usually ignored and left unmitigated. Similarly, Mmom (2008) in a study of EIA practitioners' perception of the efficacy of Biodiversity offset in impact mitigation affirmed that applicability of like-for-likes is usually a problem in practice especially with the peculiarity of Niger Delta terrain and land constraint.

CONCLUSION

Our study shows that Nigerian stakeholders do not have confidence in the efficacy of offset as mitigation measure. The host communities have more preference for monetary compensation as that seem to be the reliable for mitigation they know. This feeling is not unconnected with the high rate of poverty in the Niger Delta owing to long period of neglect and environmental degradation.

Table 4: Host communities preferred mitigation measures

Mitigation measures	Frequency	%
Ecosystem restoration/ Offset	22	22
Monetary compensation	78	78

Authors' field study (2011)

The implication of this finding is that sustainable industrial development in Nigeria will remain a mirage as long as this negative perception continues. To this extent, there is the need for the proponents in their bid for responsible development integrate ecosystem restoration with monetary compensation along side other sustainable community Development projects.

In conclusion therefore, it is pertinent to state here that without the rationale for seeking environmental benefits or no net loss, the cumulative impact of development would gradually destroy our environmental assets. Residual impacts should not be undermined and in fact, the mitigation sequence must be religiously followed for every project, especially where there is no project alternative and where the site contains entities of inestimable values. Whereas offset is a mitigation option, if a project is not acceptable without offsets, then it is not acceptable with offsets. Offset should not be used to enable environmental trade-offs. It should not be used by developers to permit unnecessary impacts, that is, impacts that could be avoided. There is need for proper enlightenment of the various stakeholders on the benefits of offset use. Thus, industries and other proponents should consider the issues of offset as serious and veritable tool for achieving responsible development as such try to integrate them in the development and planning process. The monitoring agencies should ensure that proponents implement their Environmental Management Plans stated in their reports. Biodiversity and ecological issues should be taking seriously as socioeconomic issues in impact assessment.

Table 5: Stakeholders perception about offset and time lag in impact mitigation

Comments	Frequency	%
In most cases, residual impacts are ignored in impact mitigation in Nigeria	325	92.8
It is difficult to define like-for-likes and compare values	278	79.4
Like-for-likes may be difficult in practice due to lack of comparable land, especially in the Niger Delta with limited land	300	85.7
Time lag between when impact occurs and offset begins compensating for is an important issue to consider	296	84.57
Offset should be put at the same rate at which the impact occurs.	340	97.1

Authors' field study (2011)

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