EVALUATION OF HEALTH IMPACT ASSESSMENT IMPLEMENTATION PROGRAMME: CASE STUDY OF NIGERIAN ENVIRONMENT

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ABSTRACT

Health impact assessment (HIA) provides useful information on existing health services, their capabilities and the health status of the local communities, which is otherwise often unavailable. This paper shows that the HIA provides a unique opportunity for the generation of useful health indicators and exposes health inequities, particularly in poor economies where the health information necessary as a planning tool is largely lacking. It also highlights opportunities for the enhancement of the positive aspects of development projects by incorporating practical and realistic health goals into the project environmental management plan beyond mere project impact mitigation. In Nigeria, HIA is usually applied to projects and, by exposing existing health inequities in project communities, provides the necessary tool for development proponents to act to provide or improve health services and to implement health promotion activities. Based on HIA experience in Nigeria, this paper highlights the deficiencies in national legislation with regards to HIA/EIA (environmental impact assessment) integration and a number of learning points are discussed. Firstly, a complete health baseline is critical to the understanding of project impacts; analysis must be broad-based, considering existing health determinants. Secondly, community

stakeholders and proponents may modify the implementation of health mitigation measures and should be seen as collaborators in the assessment process. Thirdly, strong HIA recommendations can influence a project design. A greater participation of the health sector in EIA is required to enhance HIA utilization.

1.0 INTRODUCTION

A public health engineer is responsible for designing tools and systems or developing new policies and procedures that help prevent others from being sick or injured. Health impact assessment (HIA) is a very important decision-making tool in development and health planning (Bos 2006). For HIA to achieve its full potential as a tool for promoting public health, particularly in developing countries, there is the need for enabling legislation, adequate health information (baseline) and a complete analysis of health determinants. HIA is commonly defined as a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population. It is designed to inform and influence decision-making and to reduce health inequalities.

Health Impact Assessment (HIA) has been identified as one of a limited number of methods that are available to address the social and environmental determinants of health prior to implementation of proposed policies, plans or projects designed to maximise future health benefits and minimise risks to health.

Development projects at all levels have a potential impact on health. A pointer to the magnitude of the influence of environmental factors on the health of human populations is the recent data from the World Health Organization (WHO), which estimated that over 25% of the burden of

human illnesses worldwide can be attributed to modifiable environmental conditions (Frumkin *et al.* 2004, Pruss-Ustun and Corvalan 2006). Evidence in the literature has shown consistently that major development projects can have far-reaching and long-term impacts not only on the physical environment but also on the health and well-being of the surrounding communities (Birley 1992, Hunter *et al.* 1993, Birley *et al.* 1998, Abah 2003, Bos 2009).

Environmental impact assessment (EIA), a tool that ensures a systematic approach for identifying and managing the effects of development, is used by many governments all over the world to safeguard the environment (Kwiatkowski and Ooi 2003). In Nigeria it is a mainstream and statutory requirement used as a tool to balance environmental considerations with sustainable development (Federal Ministry of Environment, 1999). Another tool that is gaining wide acceptance as a planning tool to address health concerns of development projects is the HIA (Birley 2002, Abah 2003). It seeks to assess the health effects of development projects and to safeguard and enhance human health.

There are two essential characteristics of an HIA:

- It seeks to predict the effects of a specific action on human health and to inform policy; and Decision-making for the prevention or mitigation of negative health effects (Parry and Stevens 2001, Kemm 2003).

HIA is therefore a critical tool for effectively integrating health impact concerns in the environmental assessment process.

In Nigeria and some other poor countries, major development projects are taking place in areas of low socio-economic development and less than optimum health status (United Nations Development Program 2010). These projects, many of which are subjected to EIA, influence not

only the physical environment but also lifestyles, culture, employment, income, access to housing, sanitation and social organization, all of which are important determinants of health and well-being. Integration of health concerns in the EIA process is thus a key tool to harness public health benefits that present themselves at project planning, design and implementation stages (Bos 2009). One of the greatest challenges of the Nigerian Government today is therefore to find ways of supporting economic development that enhance health and well-being without adversely impacting the environment (National Planning Commission 2004, UNEP 2011).

The paper reviews the regulatory framework for EIA in Nigeria and the challenges of integrating health into EIA. Drawing on the author's experiences of integrated EIA studies in Nigeria, it also demonstrates the role of HIA as a tool for addressing health concerns in projects. Finally, the lessons learnt from practice are discussed to highlight the value of adequate baseline data acquisition and its utilization in impact assessment and impact mitigation.

2.0 LITERATURE REVIEW

The main legal instrument for HIA in Nigeria is the Nigerian National Policy on the Environment. One strategy proposed by this policy is to 'ensure that health impacts constitute a major component of environmental impact assessment of development projects' (Federal Ministry of Environment 1999). In the author's experience, however, this policy appears to be only advisory. Human health assessment is regulated within the larger EIA planning and permit schemes (Federal Ministry of Environment 1999).

The implementation of EIA in Nigeria is facilitated through publication of EIA procedural guidelines that contain a systematic and semi-comprehensive approach to the conduct of EIA and details about the stages of the EIA process, including categorization of projects into classes I II and III (FEPA 1995). This guideline neither mentions health nor describes any procedure for

integrating health in the EIA. As a consequence, HIA is not fully understood and thus not fully utilized by development companies, regulators and policy-makers in Nigeria. It is therefore unlikely that the important role that HIA and the integrated EIA process will play in the economic, social and health development of the local population, particularly as a mechanism to institutionalize a cross-sectorial approach to addressing health concerns in national policy and project management, has been fully realized (Bos 2009, Bhatia and Wernham 2008). This point is particularly important given the huge challenges associated with meeting basic requirements for healthcare (National Population Commission 2008) and the health Millennium Development Goals (United Nations Development Program 2011), and the fact that Nigeria is currently ranked 156 on the UNDP Human Development Index (United Nations Development Program 2010), a composite scale that is used to rank countries by their level of human development and is computed based on life expectancy at birth, adult literacy rate, mean years of schooling and income.

2.1 Integrated impact assessment

The need to integrate health into EIA has been proposed by several notable HIA authorities for about 20 years (Birley and Peralta 1992, Birley *et al.* 1998). An integrated EIA, which combines health, social, economic, cultural and psychological well-being as well as the physical, biological and geochemical environments, provides a holistic understanding of the complex interrelationships between humans and the natural environments (Kwiatkowski and Ooi 2003).

The experience with integrated impact assessment in Nigeria is largely limited by the absence of an integrated impact assessment framework – a tool that gives national guidance on the integration of health and socio-economic impact assessment within an EIA (Kwiatowski and Ooi, 2003). Notwithstanding, multinational corporations such as the Shell Group have completed a number of integrated EIAs since the publication of minimum health standards (Shell Petroleum Development

Company of Nigeria 2002). Although this may seem to suggest that regulation by itself may not be the only strategy for good EIA practice to emerge, it can be argued that good legislation is more likely to engender wider use of HIA by industry as it is well known that the motivation by development proponents to conduct EIA stems from 'litigation, fear of litigation and fear of adverse publicity' (Steinemann 2000).

Initial challenges with integrated impact assessments in Nigeria include the use of models that tend to suggest three separate assessments (Birley 2003; Birely, 2007) with the major disadvantages of huge time resource requirement and difficulties with the alignment of three overlapping but fundamentally and methodologically different data sets. A better approach (because it is simpler to use) is illustrated in Figure 1. Here it can be seen that the individual components of the assessment were centrally coordinated beginning at the stage of scoping. At this initial stage decisions were made regarding data requirements to be considered in the respective baseline assessments. By way of an example, would indoor air quality be assessed by the health team or by the bio-physical team, or would housing conditions be assessed by the social (SIA) or health team? The outputs of the bio-physical and social baseline studies were often inputs to the health baseline, and so there are likely to be cross references that must be taken into consideration. All three teams should preferably work together in a workshop setting at the end of field data acquisition and the results of the baseline studies should form a core ingredient for the impact analysis. A good approach is for all of the sub-teams to come together prior to impact assessment and define the environmental sensitivities that are likely to be impacted by the project based on their understanding of the baseline environment. This has the advantage of ease of interpretation of impacts and cross-cutting issues can be dealt with in a common way (Federal Ministry of

Environment 2005). Figure 1 shows integrated EIA/HIA based on field experiences in Nigeria. Figure 2 also indicates EIA Components based on health, social and natural Environment.

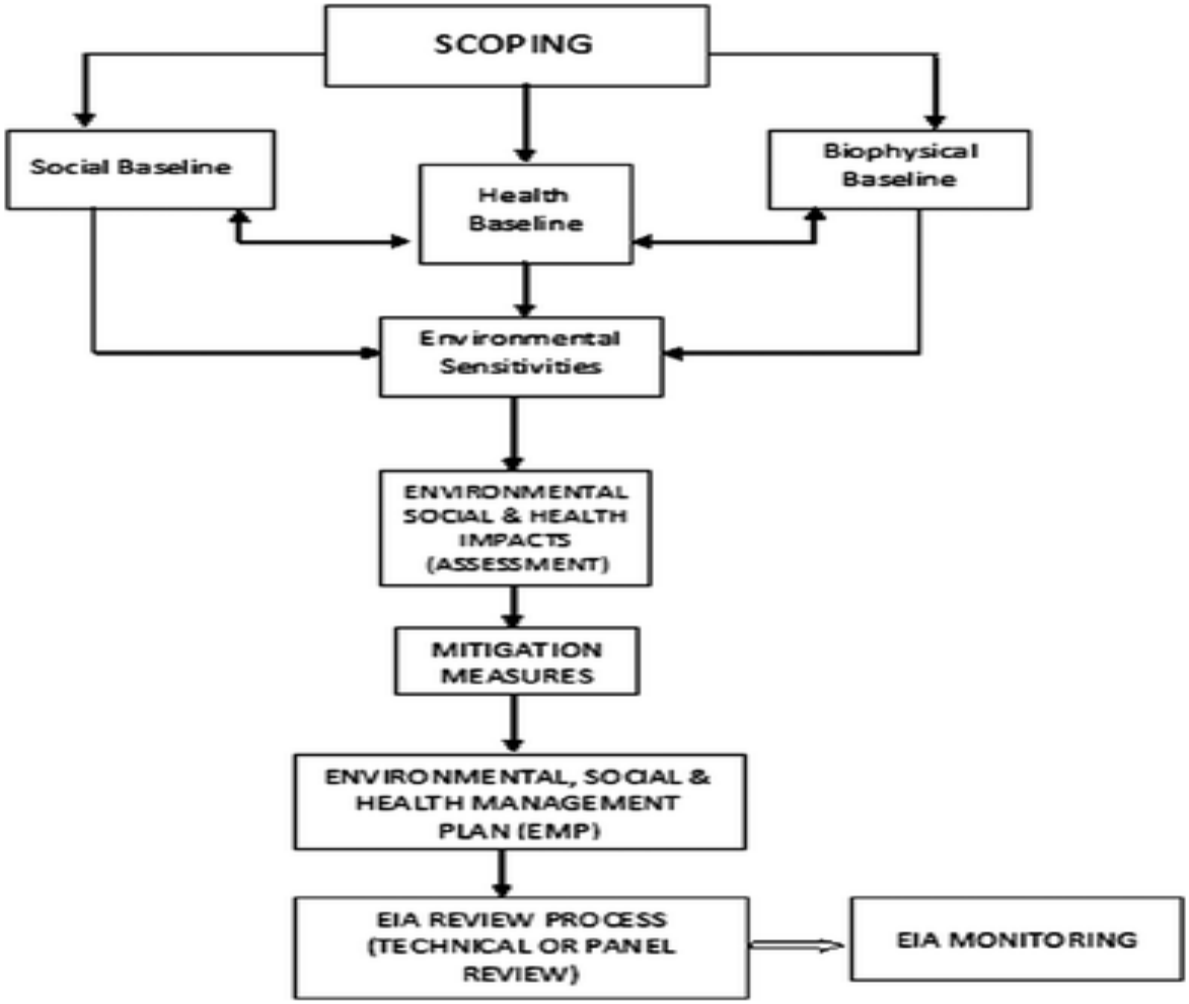

Figure 1 - Integrated EIA/HIA based on field experiences in Nigeria

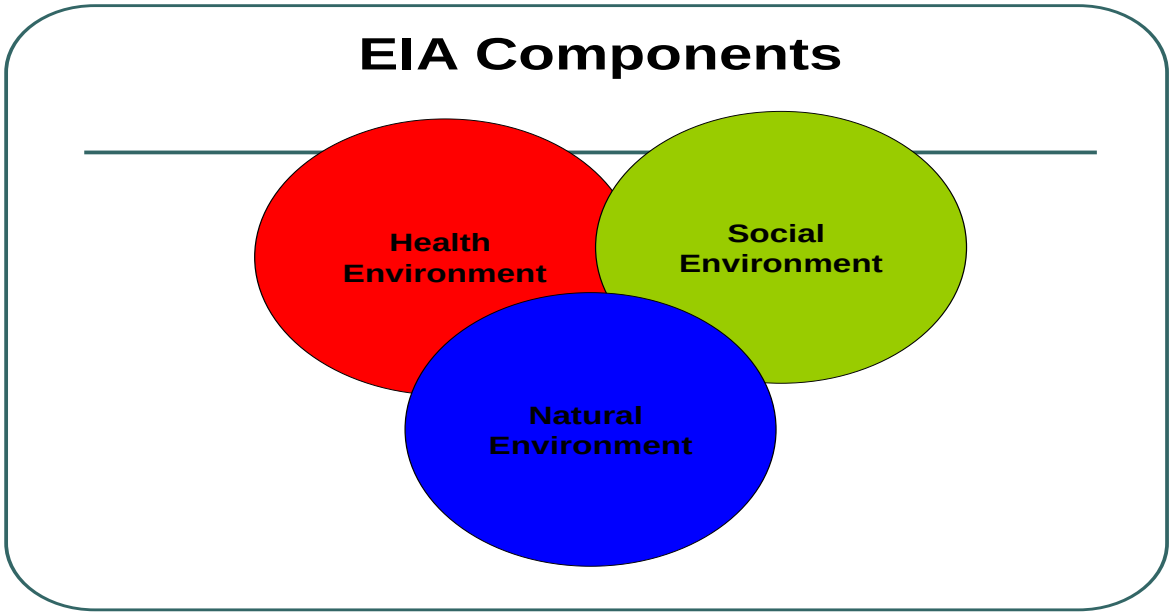

Figure 2 - EIA Components based on health, social and natural Environment

3.0 Integrated HIA/EIA: examples from practice

Guidance for integrated HIA/EIA in Nigeria has largely been provided by oil companies, particularly the Shell Petroleum Development Company (2002). The application of HIA methods and procedures and how health is dealt with in the larger EIA is thus largely influenced by this historical perspective. An important benefit of the Shell approach is the overcoming of the shallowness of health issues in EIA and the broadening of the perspectives according to which relevant health issues are addressed, bearing in mind the shortcomings with data reliability and competence (personal observation). It is important to note that in Nigeria EIA/HIA is primarily focused on projects rather than policies of the government, and thus generally industry-driven, particularly the oil and gas sector. For instance, according to K. Odusanya (personal communication, 6 May 2006), of the 218 EIAs processed by the FMENV between 1995 and 2006, 164 (75.2%) were in the oil and gas sector.

This contrasts with the situation in many European Union nations where independent HIA may be conducted to ensure healthy public policy or programmes (Department of Health 2003, European Commission 1999). Therefore contrary to the assertion in the literature that HIA of projects is uncommon and that few people or organizations have the competence to carry out HIA for capital projects (Satin and Stock 2010), on the ground in Nigeria the existing competencies are mainly in the context of project HIA. As stated earlier, these projects are located mainly in poor communities with inadequate healthcare. Proper application of the HIA/EIA will thus serve as a powerful tool to address health problems whose burden may otherwise be worsened by the project.

This paper draws on the author's experiences from the three projects (case studies) described below to demonstrate that integrated EIA with a competent HIA component provides a mechanism for the improvements in public health in the project area. These case studies were selected as early examples of integrated EIA and do not necessarily represent EIA/HIA practice in Nigeria. They were assessed on the basis of the key HIA findings such as the application of a broad-based health baseline in the analysis of health impacts and mitigation measures and the way in which these findings were utilized by the project to promote public health goals.

3.1 How integrated HIA/EIA can promote public health.

Examples from practice includes

Case study 1: seismic data acquisition and exploratory appraisal of a Project in Akwa Ibom State:

This project, located in Mbo local government of Akwa Ibom state, Nigeria (Federal Ministry of Environment 2008), demonstrates a number of ways by which an integrated EIA can promote public health goals. The proponents of the project carried out an integrated impact assessment prior to the commencement of the project. The main findings from the HIA included destruction of

vegetation that served as medicinal plants, a source of household energy (firewood) and income. These findings corroborated concerns expressed by stakeholders during consultation and EIA scoping. The baseline study also indicated that malaria was responsible for the highest number of morbidities in both adults and children. The lifestyle of the people was characterized by having multiple sexual partners in about 47% of the study population and condom uptake was relatively poor. The project proponents implemented the recommendations of the HIA: to provide insecticide-treated nets to its workers and organize HIV/AIDS awareness campaigns in collaboration with the State AIDS Control Agency. These measures contributed to the enhancement of public health in the project area and reflect the role of HIA in addressing health problems, particularly in developing countries where health indices remain less than desirable.

Case study 2: Eremor Field Development Project:

The EIA for this project, which is the drilling of an oil well, predicted that the project was likely to result in significant levels of turbidity of the main river in the project area owing to dredging of the slot leading to the oil well head. The locals depend on this river for their water supplies. Other health impacts identified in the EIA included a significant increase in morbidity from communicable diseases such as malaria and sexually transmitted diseases, mainly from the anticipated influx of oil workers and camp followers (Federal Ministry of Environment 2006).

Mitigation measures for potential infectious disease transmission between oil workers and villagers were mainly limited to prompt treatment of malaria and provision of support services for malaria and the HIV control programme of the Government. Implementation of these measures will contribute to improvements in public health.

Case study 3: Eneka Landfill Project:

The upgrading of a waste dump site in Eneka, Port-Harcourt, Rivers state, Nigeria (Federal Ministry of Environment 2007) elicited serious health concerns from nearby communities and stakeholders, particularly on issues related to odour, fire outbreak and methane emission. As a result, the EIA scope required the assessment of these aspects leading to project design modification.

The project proponents were asked by regulatory authorities to modify two key components of the project design: the leachate collection system and the location of the proposed compost facilities. These project modifications were a direct consequence of the detailed health assessment that was fully integrated into the EIA. Figure 3 indicates generic model for the determination of baseline health status.

Figure 3: Generic model for the determination of baseline health status

By complementing available health data, the HIA serves as a valuable resource and planning tool for project managers and public health administrators. The utility of the integrated EIA as a health-promotion tool will be greatly enhanced if public health authorities play a statutory role and thus are encouraged to own the outcome and apply same process to their planning and policies.

3.2 A broad view on impacts is required

Assessment of impacts entails the identification of the project's likely effects on health and well-being. Direct effects are often work-related and include injuries to the workforce, noise, air and water pollution, while indirect effects are mainly due to the influx of people and labour migration, leading to the creation of squatter settlements and their associated water and sanitation problems along with myriad other social problems, such as an increase in social vices (crime and prostitution), inflation, etc. In resource-poor communities, there already exist a gap in terms of social amenities and availability of health services. An additional burden from these indirect impacts attributable to the project may thus potentially worsen an already compromised health status. On the other hand, employment opportunities created by the project could improve the standard of living and the ability to pay for food and health services, thus serving as an indirect investment in healthcare.

3.3 Mitigation measures and their implementation

From the case studies above, two key areas readily come to mind: the extent and context within which the impacts were considered by the HIA/EIA team and the level of implementation of mitigation measures by the proponents (Table 1). Implementation of mitigation measures to address health effects based on a strict definition of health impacts arising from the index project may not adequately address stakeholder concerns and can often lead to conflicts. This is largely because, as pointed out earlier, most oil and gas developments in Nigeria are taking place in

resource-poor communities, particularly in the Niger Delta region where long-term deprivation, environmental degradation and poverty pre-exist (UNEP 2011). Implementation of mitigation measures must therefore not assume this narrow perspective otherwise it may be difficult to secure the much-desired social licence to operate, which is the acceptance and goodwill of the local communities.

3.4 Implementation of mitigation is influenced by existing health determinants, and community stakeholders

Project proponents may not always implement HIA mitigation as prescribed in the EIA. The case of Eremor FDP provides useful practical lessons. Critical analysis will show that, although the EIA recommendations for the mitigation of water pollution appear to be adequate in 'legally' mitigating the project impact, which is essentially limited to the duration of the dredging works, the approach adopted by the project, which was influenced by community stakeholders, theoretically guarantees sustainability of water supplies beyond the project impact.

Furthermore, if community members are involved in the restoration of the broken-down borehole, then some level of economic enhancement and promotion of community ownership of the project is to be expected, both of which are driving forces for sustainability. Another issue is the choice by the proponents to build a doctor's quarters as mitigation for infectious diseases. The HIA had reported that the only healthcare centre in the community did not have a doctor, which the locals attributed to the absence of a suitable accommodation. The absence of a doctor and the state of the doctor's quarters were clearly not direct project impacts, but nonetheless critical health determinants.

Two vital lessons can be learnt here. The first is the high level of rigorous and practical considerations required in making recommendations, which underscores the need for expertise and

experience. In line with earlier arguments, this is only possible with a more complete baseline health assessment. The second lesson is the power of communities and stakeholders to 'negotiate' the implementation of mitigation measures. Project proponents and community stakeholders must therefore be viewed as collaborators in integrated HIA/EIA for a successful outcome.

4.0 RESULTS

A key component of the HIA is the determination of the baseline health status of the people affected by the project, which comprises two key inter-related components: surveys for baseline health data and surveys for determinants of health. Generating useful data to adequately articulate the baseline health status of communities impacted by major projects has remained a major challenge in Nigeria (Abah 2003, Abah *et al.* 2006). This is mainly due to the absence or paucity of reliable health and surveillance data and the problem of low capability amongst existing health services, further diminishing the reliability of available health data. To overcome these challenges, it is necessary to carry out comprehensive health surveys and cross-sectional studies.

Some of the main benefits of HIA are:

i. It can extend the protection of human health and reduce the burden of ill health.
ii. It can enhance the coordination of action to improve health across various sectors.
iii. It can promote greater equity in health.
iv. It offers the potential to reduce the costs (transferred to the health care sector) of treating the health consequences of non-health policies that have been overlooked during planning and development.

What is involved in doing a HIA?

Each HIA is uniquely determined by local conditions, such as:

- The status and complexity of the policy, programme or project.
- Whether the HIA is to be undertaken before, during or after decisions on the policy, programme or project are made.
- The likelihood of health impacts occurring.
- The scale and severity of the impacts.
- The resources available.
- The quality of the evidence base and availability of data.
- Locally determined health priorities and targets.
- Whatever the approach, it should be rigorous, systematic and transparent.

5.0 CONCLUSION AND RECOMMENDATION

In conclusion, HIA provides a unique tool for the health sector to positively influence developments and to utilize the opportunities provided by projects for the reduction of disease burden in developing countries. Its utilization in Nigeria is likely to be enhanced by statutory provision for integrated EIA that guarantees the full involvement of the health sector with the requisite training and experience. A greater participation of the health sector is required to promote the utilization of HIA as a tool for achieving health goals in resource-poor countries.

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