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ENVIRONMENTAL IMPACT ASSESSMENT – GENERAL PROCEDURES

Philip Juma Barasa,
Kenya Electricity Generating Company Limited
P.O Box 785, Naivasha
KENYA
pbaraza@kengen.co.ke

ABSTRACT

This paper discusses the application of Environmental Impact Assessment (EIA) as a tool for decision making. The role of the EIA procedure in the decision making process is so crucial that carrying out the procedure is legally required in order to issue a particular decision. The paper focuses on the general procedure of carrying out EIA in nations with applicable legislation. In these nations, EIA has increasingly become recognized not merely as a regulatory tool, but as a positive process that can improve development initiatives and help to focus on, and realise, the long-term benefits of sustainable development. The key role in the procedure is played by environmental protection bodies, the project proponent and the community likely to be affected by the project. The information provided is based on review of pertinent literature and the over eight (8) years hands-on experience of the Author in conducting EIA studies in Kenya.

1. INTRODUCTION

The most useful tool for understanding and managing the impacts of a particular project is Environmental Impact Assessment (EIA). The term EIA describes a procedure that must be followed for certain types of projects before they can be given 'development consent'. The procedure is a means of drawing together, in a systematic way, an assessment of a project's likely significant environmental effects (Department for Communities and Local Government, 2000). EIA is thus a procedure that identifies, predicts and evaluates potential impacts of a proposed project or activity on the environment as well as describing means of mitigating significant impacts prior to major decisions or commitments being made (Sadler, 1996; Common Ground, 2005; UNEP, 2008). It provides a clear, impartial and transparent basis for efficient decision-making and eliminates stumbling blocks that would have been caused by unforeseen adverse environmental impacts of the project (Government of Rwanda, 2006). Development projects may not only have environmental impacts but may also have social, cultural and economic effects, which can be analyzed through, a Social Impact Analysis (SIA). Decision makers often undertake EIA and SIA at the same time, defining the “environment” and “environmental impacts” broadly to include social and cultural aspects of development (UNEP, 2006). From a social standpoint, EIA incorporates interests of public and private stakeholders, residents and communities in the planning and approval process of projects (Government of Rwanda, 2006). EIA cannot be divorced from SIA of the project, hence the latter is considered as a key dimension of the EIA process (FAO, 2012). The integration of economic, social and environmental concerns in the development process in a balanced way ensures the attainment of sustainable development.

EIA aims to eliminate or minimize negative impacts (The United Republic of Tanzania, 2001) by designing and incorporating appropriate prevention, mitigation, management and monitoring measures in the project cycle (FAO, 2012). EIA and the Development Planning Process are complementary. For this reason, when effectively synchronized, coordinated and administered, they form the major elements for development control which ensures the optimization of sustainable economic and social development in tandem with natural resources conservation and preservation (McCalla, 1994). The role of the EIA procedure in the decision making process is so crucial that carrying out the procedure is legally required in order to issue a particular decision. The EIA procedure is not just the EIA report submitted by the project proponent –it is a whole process in which all the interested parties may participate. The key role in the procedure is played by environmental protection bodies, the project proponent and the community likely to be affected by the project (Wiszniewska, et al, 2002).

Well functioning institutions and appropriate regulatory frameworks and procedures are important prerequisites to the effective application of EIA (Economic Commission for Africa, 2005). The three central elements of an EIA are as follows (UNEP, 2008):

i. The establishment of environmental, socioeconomic, cultural and public health baseline data for the project site before construction;
ii. The prediction and evaluation of potential – direct and indirect – environmental, socioeconomic, cultural and public health impacts of the proposed project; and
iii. The identification of appropriate alternatives and mitigation measures to avoid, minimize, remediate or compensate for any environmental, socio economic, and public health impacts resulting directly or indirectly from the project.

EIA arose out of the pollution and unnecessary degradation of natural resources caused by rapid population growth, industrialization, agricultural development and technological progress (UNEP, 2006). The foundations of the Environmental Assessment (EA) process were established by the United States (US) through the enactment of the National Environmental Policy Act (NEPA) in 1969 (Sadler, 1996). The EA process had two major purposes: ensuring that decision makers are making informed choices regarding impacts on the environment and opening the process to citizen involvement (World Bank, 2011). NEPA has proven to be one of the most widely imitated statutes. Since its enactment, it has served as a template for domestic EIA legislation in more than 130 nations around the globe (Kersten, 2009).

The high level meeting of the African Ministerial Conference on the Environment (AMCE) on EIA in Durban June, 1995 was a landmark event in the development of EIA in Africa. The meeting set down an agenda for capacity building in EIA and identified the promotion of EIA capacity building, based on the use of African expertise and institutions, as a priority action (Economic Commission for Africa, 2005). The use of EIA as a tool for evaluating the impacts of a proposed project has gained more acceptance as the actual or potential problems produced by development projects become more evident and the need for ensuring environmental sustainability increases (McCalla, 1994).

2. OBJECTIVES OF EIA

The overall objective of EIA is to ensure that environmental concerns are integrated in all development activities in order to contribute to sustainable development (Republic of Kenya, 2002). Through scientific analysis and stakeholder involvement, a good EIA process helps the project proponent to identify the critical social and environmental issues associated with a project, and ensure that positive impacts are optimized and negative impacts are minimized and mitigated (World Business Council for Sustainable Development, 2005).

The specific objectives are to (Government of Rwanda, 2006; World Bank 2011; Republic of Kenya, 2002):

a) identify potential environmental impacts of proposed projects;
b) assess the significance of identified impacts;
c) assess the relative importance of the impacts of alternative plans, designs and sites;
d) propose mitigation measures for the significant negative impacts of the project;
e) generate baseline data for monitoring and evaluating how well the mitigation measures are being implemented during the project cycle;
f) present information on the impact of alternatives;
g) present results of the EIA in such a way that they can guide informed decision-making;
h) improve the local community understanding of the whole project hence increasing trust between the project proponent and the local community;
i) enhance responsibilities of relevant parties in the development process;
j) avoid costs and delays in implementation of projects that would arise from unanticipated environmental problems;
k) facilitate pollution management through its link to environmental standards by identifying if the proposed investment or development project satisfies applicable environmental standards or needs, and mitigating impacts to comply with standards;
l) enhance public participation and engage stakeholders to inform decision makers of different views;
m) allow the gathering of information on environmental quality and provide an opportunity for expression and discussion of diverging opinions; and
n) provide a useful framework within which environmental considerations and design development can interact.

3. GUIDING PRINCIPLES OF EIA

The key principles that guide EIA are as follows (Republic of Kenya 2000; 2002):

i. The principle of intergenerational and intra-generational equity;
ii. Precautionary principle;
iii. Polluter-pays principle;
iv. The principle of public participation;
v. The cultural and social principles traditionally used in the management of the environment and natural resources; and
vi. The principle of international co-operation in the management of environmental resources shared by two or more states.

4. INTERNATIONAL INSTRUMENTS ON EIA

International instruments governing EIA process include the following:

4.1 Espoo Convention of 1997

The Convention on EIA in a Transboundary Context ("Espoo Convention") is the most comprehensive international agreement on EIA. It entered into force in 1997 and as at November 2005 it had 41 parties (UNEP, 2006).

4.2 Principle 17 of UNCED Rio Declaration of 1992

Environmental Principle 17 of the 1992 United Nations Conference on Environment and Development (UNCED) Rio Declaration states that "EIA, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority" (UNEP, 2006; Sadler, 1996). This principle thus endorses the institutionalization of EIA at the national level as a decision-making instrument for proposed activities that are likely to have significant adverse impact on the environment (Economic Commission for Africa, 2005).

4.3 Aarhus Convention of 1998

The Aarhus Convention gives the public the right to obtain information on the environment, the right to justice in environmental matters and the right to participate in decisions that affect the environment. This right includes the right to request and obtain information and an obligation upon states to collect and disseminate information. The convention also provides for the right of access to the courts in environmental matters, ensuring that decisions relating to participation and access to information may be challenged (UNEP, 2006). The Aarhus Convention provides the framework for good practice by defining the basic procedure for public participation and specifying the types of decisions to which it should apply (Department of the Environment, Transport and the Regions, 2000).

5. PUBLIC PARTICIPATION IN THE EIA PROCESS

Public participation entails a wide range of activities that can range from providing information, through consultation to direct involvement of the public in aspects of the decision-making process (Common Ground, 2005). A key element in participatory development is the ability to identify stakeholders, their needs, interests, relative power and potential impact on project outcomes (African Development Bank, 2001). Social analysis techniques and methods can be used in identifying stakeholders, their needs, aspirations and concerns regarding the project (World Business Council for Sustainable Development, 2005).

6. GENERAL EIA PROCEDURES

The steps included in EIA are similar across many applications and include (UNEP, 2006):

i. Screening;
ii. Scoping;
iii. Impact analysis;
iv. Mitigation and impact management;
v. Reporting to catalogue and track the results of EIA;
vi. Review of EIA report and decision making; and
vii. Implementation and follow-up.

The process is summarized in Figure 1 below:

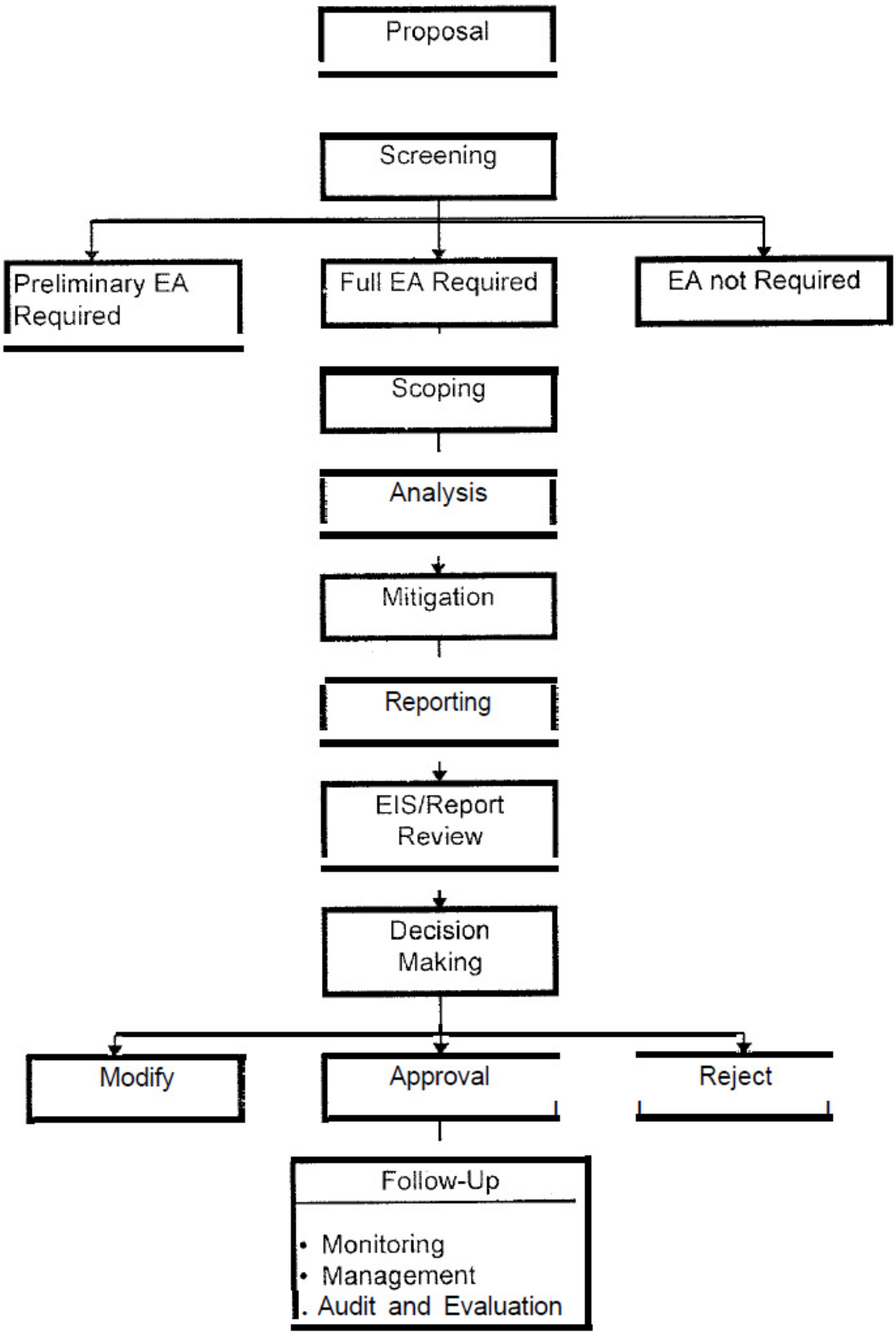

FIGURE 1: General EIA Procedures, (Sadler, 1996).

6.1 Screening

Screening is the process by which a decision is taken on whether or not an EIA is required for a particular project (UNEP, 2008; Republic of Kenya, 2002). The decision is based on a set of developed guidelines or criteria (McCalla, 1994). Screening tools include positive lists that identify activities that require EIA; negative lists that identify activities that are excluded from EIA; expert judgments; or a combination of lists and expert judgments. Screening could also include analysis of impacts and risks, such as in the United States, where EIA applies to investment activities that can pose significant negative impacts (World Bank, 2011). The screening procedures can be broadly classified into two approaches: a standardized approach, in which projects are subject to or exempt from EIA defined by legislation and regulations; and a customized approach, in which projects are screened on a case by case base, using indicative guidance (UNEP, 2008).

Screening is carried out by the Competent Authority and the outcomes are threefold (United Republic of Tanzania, 2001):

- Requirement for full EIA study;
- Requirement for preliminary assessment; and
- No EIA requirement.

6.2 Scoping

Scoping is the process of determining the content and extent of the EIA studies (Common Ground, 2005). Scoping procedures may vary considerably in different states. For example, scoping may either be carried out to fulfil a legal requirement or as good practice in EIA, or it may either be undertaken by the competent authority or by the project proponent (UNEP, 2008). Scoping is the foundation for effective EIA study and involves input of relevant stakeholders. It is the role of the developer through EIA experts to undertake scoping (Government of Rwanda, 2006, United Republic of Tanzania, 2001).

The purpose of scoping is to determine the following (Sadler, 1996):

i. Information necessary for decision making;
ii. Important issues and concerns (interests);
iii. Significant effects, factors and alternatives to be considered;
iv. Conditions and the expected output of an EIA study i.e. Formulate a detailed terms of reference (tor) for carrying out EIA study; and
v. Appropriate boundaries of an EIA study.

6.3 Impact Analysis

This is the phase where potential impacts of the proposed development are identified, analysed and their significance predicted (Common Ground, 2005). Where possible, an EIA should try to predict all potential impacts, including those directly and indirectly related to a project, as well as cumulative impacts with other projects or activities, and transboundary effects (UNEP, 2008). Evaluating the significance of environmental effects is perhaps the most critical component of impact analysis. The interpretation of significance bears directly on project approvals and condition setting (Sadler, 1996). Both positive and negative potential environmental impacts of the given project should be evaluated. For this reason, impact analysis necessitates an interdisciplinary approach, covering different natural and environmental science disciplines (UNEP, 2008).

The EIA shall identify, describe and assess, in each individual case, the potential direct or indirect impact of an intended project on the following (Government of the Republic of Montenegro, 2005):

i. Human life and health;
ii. Flora and fauna;
iii. Land, water, air, climate and landscape;
iv. Material assets and cultural heritage; and
v. Mutual relations of elements listed above.

The following general criteria should be taken into account when examining potentially significant adverse effects (UNEP, 2008):

i. Nature of impacts (direct/indirect, positive/negative, cumulative, transboundary);
ii. Time span (short/medium/long term, permanent/temporary, frequent/seldom);
iii. Extent (geographical area, size of affected population/habitat/species);
iv. Magnitude (severe, reversible/ irreversible);
v. Probability (high/medium/low probability); and
vi. Possibility to mitigate, avoid or offset significant adverse impacts.

6.4 Mitigation and Impact Management

This phase entails developing measures to avoid, reduce or compensate for negative environmental effects. However, all mitigation efforts should focus first on how to avoid social and environmental impacts in the initial stages of planning. This has much greater beneficial effect than remedial action later (World Business Council for Sustainable Development, 2005). At the more detailed level of the process, alternatives may also merge into mitigating measures, where specific changes are made to the project design or to methods of construction or operation to 'prevent, reduce and where possible offset any significant adverse effects on the environment (European Commission, 2013).

In the context of EIA, an Environmental Management Plan (EMP) must be produced, describing the proposed mitigation measures and preventive actions to be taken during the various phases of the project life and to ensure that risks are effectively mitigated and/or reduced to acceptable levels. The EMP will also specify the environmental or social monitoring arrangements during project implementation (which may result in further adaptive management measures being applied) and any capacity development necessary to support these measures (FAO,2012). An EMP should be elaborated to ensure the ongoing assessment and review of the effects of the proposed project during construction, commissioning, operation, maintenance, and decommissioning. It thus builds continuity into the EIA process and helps to optimize environmental benefits at each stage of project development (UNEP, 2008).

6.5 Reporting

Because EIA should provide a basis for decision making, the information generated during the study must be presented in a manner that is clear enough to take an informed decision on the project subjected to EIA. Many agencies establish registers for consultants, or technical specialists, or firms that carry out EIA and prepare related reports (World Bank, 2011). The EIA report must not be of scientific character and it should be understandable by people who are not particularly familiar with specific technical issues or who are involved in environmental protection matters. Therefore, the requirement of including the summary of the EIA report in a non-specialized language is so crucial (Wiszniewska et al, 2002). The executive summary sums up the essential points and results of the EIA in a concise and non technical manner. It is a crucial part of the EIA – in fact, it is often the only part of the comprehensive document that decision makers and the general public will read (UNEP, 2008).

6.6 Review of EIA Report & Decision Making

The review of the EIA report is usually carried out by one or a combination of the following: the technical staff of the EIA administrative institution; an intergovernmental committee; a multi-stakeholder committee; and external reviewers depending on the complexity of the study and expertise available (Economic Commission for Africa, 2005).

Information gathered during the procedure should constitute sufficient grounds, with relation to environmental protection, to issue the decision whether and in what way a particular project may be carried out (Wiszniewska et al, 2002). The competent authority will form its own judgment on the proposed project based on the EIA report, the analysis of stakeholder interests and statements from collaborating agencies, and decide on approval or rejection of the proposed project. The competent authority through the Review Committee may recommend that (McCalla, 1994):

i. The EIA is inadequate and requires further investigation, in which case it will refer the EIA back to the developer for further investigation within a specified period;
ii. Further public consultation is necessary;
iii. The development should not proceed for specified reasons; and
iv. The development proceed subject to certain conditions.

The competent authority will typically impose conditions if the project is approved, such as mitigation measures, limits for emissions or environmental standards to be observed (UNEP, 2008).

6.7 Implementation and follow-up

Implementation follows if the proposed development is approved and it entails implementation of the EMP for construction, operation and in some cases, decommissioning of the project by the developer. Follow-up involves the following (Sadler, 1996):

i. Monitoring to check actions are in compliance with terms and conditions, and impacts are within the ranges predicted;
ii. Management to address unforeseen events or unanticipated impacts; and
iii. Audit/evaluation to document results, learn from experience, and improve EIA and project planning.

Environmental monitoring during project implementation will provide information on the environmental impacts of the project and the effectiveness of mitigation measures. This will permit evaluation of the success of mitigation and allow corrective action to be taken when needed (FAO, 2012). Monitoring activities can be categorized into the following three groups (Republic of Kenya, 2002; World Business Council for Sustainable Development, 2005):

(a) Baseline Monitoring: This is where a survey of basic environmental parameters is conducted in the area surrounding the proposed project before construction begins, so that subsequent monitoring can assess changes in those parameters over time against the baseline;

(b) Impact and Mitigation Monitoring: This is done to compare predicted and actual (residual) impacts and hence determine the effectiveness of mitigation measures; and

(c) Compliance Monitoring: It aims to check that specific regulatory standards and conditions are being met e.g. in relation to pollution emissions.

7. CONCLUSION

EIA ensures the integration of economic, social and environmental concerns in the development process in a balanced way thus contributing to sustainable development. For this reason, the use of EIA as a tool for evaluating the impacts of a proposed project has gained more acceptance as the actual or potential problems produced by development projects become more evident and the need for ensuring environmental sustainability increases. EIA is tailored to the specific project and to the legal requirements, environmental and social conditions where the proposed project is situated hence ensuring that potential impacts are adequately addressed at the local level. However, EIA has little value unless follow-up is carried out because without it the process remains incomplete and the consequences of EIA planning and decision-making will be unknown.

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