Chapter 8

Environmental Impact Assessment and Public Participation

Introduction

Until the mid-1990s, many development projects in African countries were implemented with limited environmental concerns. The results were catastrophic: severe environmental damage and unsustainable economic development ethics. This chapter is written within the context of the increased consensus on the part of African governments of the need to harness negative environmental impacts associated with development activities. Environmental impact assessment (EIA) must incorporate significant elements of public participation. It is recognised as a set of tools that can enhance good environmental management and governance, so as to make development sustainable. Since public participation is a slippery concept in decision making surrounding EIA, this chapter deliberates considerably on that question. Social and economic development in most developing countries currently represents a dilemma between meeting the basic human needs of an increasing population on the one hand, and conserving declining natural resources on the other. Development activities and policies concerning agriculture, dams and man-made lakes, drainage and irrigation, forestry, housing, industry, mining, power generation and transmission, waste treatment and disposal and water supply, bring about changes in the environment in which they are undertaken. These impacts can be severely adverse if the processes are not well regulated or controlled through improved project selection and more responsive planning and design. EIA is therefore introduced and discussed as a tool to chart a new course of development action, which ensures a balance between biophysical and human environments leading to the presumed state of sustainability.

Analysis of the EIA process is, however, incomplete without an articulation of public participation. Public participation in EIA is a crucial link in achieving its success. It highlights the relationship expected between the various stakeholders who have a direct or indirect interest in a development activity, the impact of which, on the environment, is the subject of examination. Ideally, public participation should be an integral component of the entire EIA process. The critical stages in which this must be undertaken fully are during the scoping phase, during the preparation of the draft EIA statement, and during the review of the draft EIA.

What is Environmental Impact Assessment?

This is probably the question with which most authors begin when addressing EIA within many contexts. Below are selected definitions of what could plausibly constitute EIA.The Southern African Institute for Environmental Assessment (SAIEA 2004:1) defines EIA as 'a process that assesses the impacts of a planned activity on the environment – physical, social and economic – providing decision-makers with an indication of the likely consequences of the development actions'. Therefore, as an integral component of the planning process, EIA enables 'potentially negative impacts to be mitigated (and positive impacts to be maximized) early in the design stages'. Through the EIA process, the developer can enhance the manner in which a project is planned, implemented and, in some instances, de-commissioned. El-Fadl and El-Fadel (2004:553) maintain that 'environmental impact assessment (EIA) was devised as a decision tool in response to grand swell of ecocentric concerns to mediate between the technocentric view of continued development and the ability to create economic growth while overcoming environmental problems'. The government of Zimbabwe defines EIA as 'an assessment of the environmental impacts of an activity, based largely on existing information and some field reconnaissance' (MoMET 1997a:5). To this end, an EIA should be undertaken during the early feasibility studies with the purpose of identifying 'likely impacts, to estimate their severity, to indicate which impacts may be significant, and to indicate what opportunities are available to avoid or minimise negative impacts and enhance potential benefits (MoMET 1997a). Hugo (2004:275) describes EIA as: 'a site specific environmental management tool designed to bring all the relevant detailed information regarding site specific development to light, which encompasses methodologies and techniques for identifying, predicting and evaluating the environmental impacts associated with project developments and actions'.

From the definitions outlined above, the following deductions can be made regarding EIA; that it is:

- a tool used to guide decision-making in ensuring that environmental as well as technical and economic considerations are taken into account
- project and site specific, thus, leading to it being highly contextual
- a process with cyclical and simultaneously linked stages
- supposed to provide monitoring, evaluation and decommissioning facets to a development project
- used to identify both the negative and positive impacts with the intention of mitigating against the negative impacts whilst enhancing the positive impacts
- applicable to both development activities and policies.

EIA is also known by other terms, amongst which: Environmental Assessment (EA), Environmental Impact Analysis (EIA), Environmental Auditing (EA), and Environmental Appraisal (EA). However, for the purposes of this publication we will stick

to EIA. In addition, given our holistic definition of the concept of environment, it must be noted that modern day EIA, by default, encompasses:

- Ecological Impact Assessment (EIA) or Environmental Impact Assessment (EIA) – in their limited nature to cover mainly the biophysical components of the environment
- Health Impact Assessment (HIA)
- Social Impact Assessment (SIA).

In this regard, EIA practitioners and facilitators should always make sure that their teams include expertise from these fields. Other specialists, such as archaeologists, agronomists, environmental economists, planners, geologists and botanists, should always be consulted as per the dictates of the specific proposed development project. Their impact assessment reports will form components of the bigger EIA report.

Stages in the Environmental Impact Assessment Process

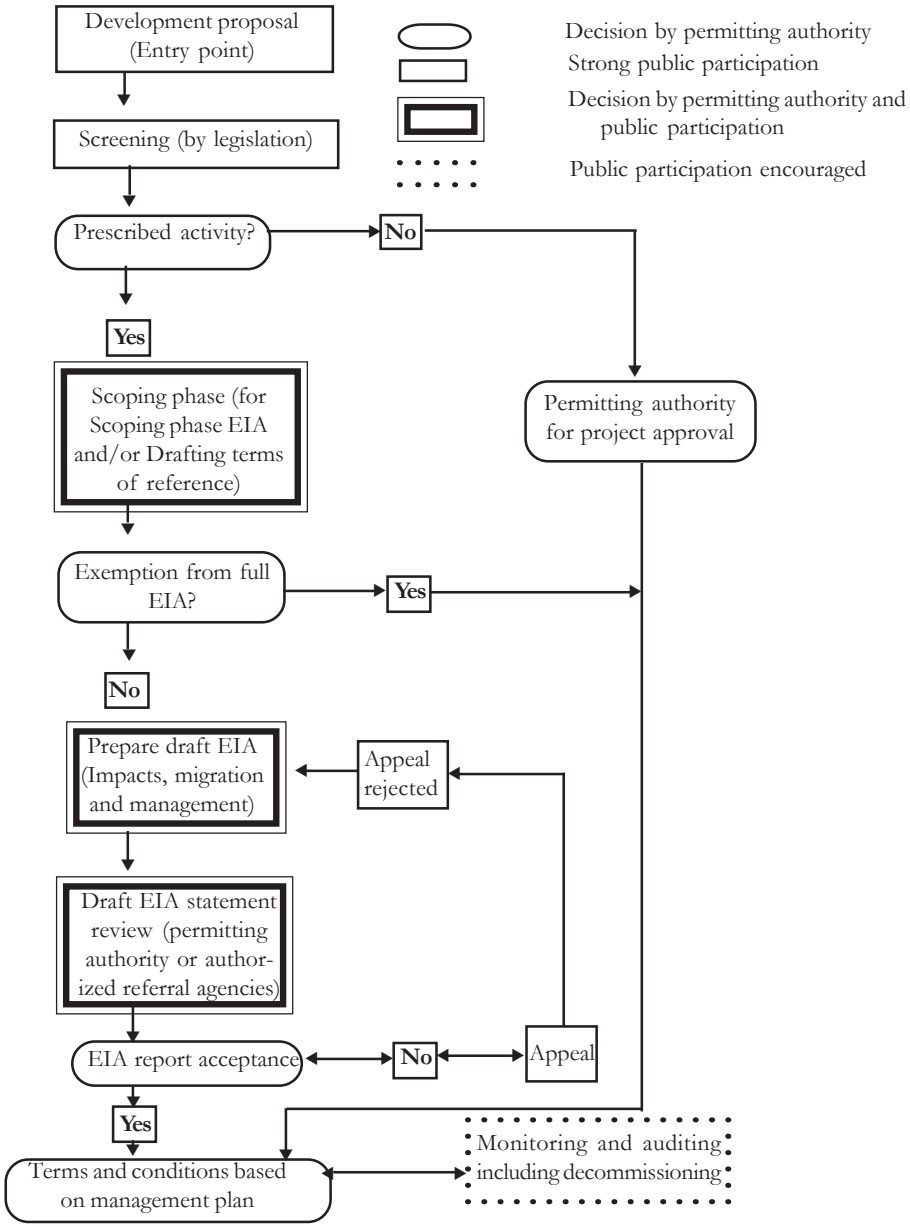
Various EIA models are presented in the literature (Biswas and Geping 1987; Hugo 2004; Weaver 2003). However, common to all these models, and to others not referred to here, is that generic stages are evident. The flow diagram in Figure 8.1 is a representation of the key stages in the EIA process. These stages share a close relationship with the generic stages in the project cycle. It should be noted that emphasis has been placed on linking the entire EIA process to public participation. Public participation in this case is taken to mean the active involvement of informed citizens including among them the disadvantaged, disempowered groups (women, children and the poor), and all other interested and affected parties in the EIA process. This presupposition is echoed in South Africa's EIA regulations that define public participation as the: 'means of furthering interested and affected parties and the public with an opportunity to comment on, or raise issues relevant to, an application for environmental authorisation, the adoption of a policy or guide in…or the compilation of an environmental management framework' (DEAT 2004:7).

Depending on the level of empowerment of the stakeholders in the EIA process through the resources available, such as levels of literacy, trust in governance issues, money, time, transportation and political power, public participation can take place as part of a spectrum that includes information, consultation and collaboration (SAIEA 2005). The views expressed above were also echoed as part of the Earth Summit major principles. Principle 10, for example, stipulates that:

Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided (UN 1992).

In addition, Principle 20 seals the call to involve women. The principle states that 'Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development' (UN 1992).

Figure 8.1: Generic Stages in the EIA Process



From Figure 8.1 the following key stages in EIA can be deduced: screening, scoping, preparation of the draft EIA statement (impact identification, mitigation and management plan); the draft EIA statement review as well as monitoring and auditing (including decommissioning). These and other stages are considered in turn in the next sections, including the manner in which they relate to the project cycle. The interface between the project and EIA cycles need to be carefully explained so as to add value and justification for the need to carry out EIA.

Interface Between the Project and EIA Assessment Cycles

Since there is a close link between the project and EIA cycles, it is inevitable that the constituents and the relationship that exists between these cycles be simultaneously considered. The interface in terms of the stages is summarised in Table 8.1.

Table 8.1: Interface between Project and EIA Cycles

Stage	Project Cycle	EIA Cycle
1	Pre-feasibility	Screening
2	Site selection	Scoping
3	Feasibility and feasibility report	Impact assessment and draft EIA report/statement
4	Board decision and detailed design	Draft EIA statement review and environmental management plan
5	Construction, operation and closure	Monitor, audit and decommission

Pre-feasibility (Screening) Stage

The pre-feasibility phase is the key planning stage. Certain information is known. Such information includes the basic nature of the project (for example, petroleum, irrigation or gas pipe). At times, the general site or group of alternative sites in which the development will take place (sometimes the total land area) is also known. However, at this stage, detailed designs of the proposed development are not available. The EIA activity at this project stage mainly involves screening. Usually, project type lists, which are drawn up by government, are used. Alternatives are considered and analysed. If an EIA is required, then a quick preliminary EIA can be used in consideration of alternatives. A preliminary EIA acts as an early indicator of the impacts that are likely to be significant, and helps identify of environmentally sound alternatives. A major problem with such EIA screening lists is that they do not take into account location, one of the key determinants of the nature of environmental impacts. In addition, what may appear to be a small project at the national level is not necessarily small at the local level. However, putting in place rigid screening criteria might not be the best option, as both the project and its location determine the magnitude and significance of the impact. To address this limitation, a phased screening process is perhaps the best option.

Screening can therefore be understood as a process through which a decision is reached as to whether or not to subject a project to a detailed or full EIA. This definition is, however, more applicable to situations in which legislation does not list or prescribe development projects, or in situations where border-line proposed projects (in terms of EIA requirements by law) are encountered. The screening process usually leads to one of the following decisions being arrived at, that: a detailed or full EIA is required, a limited environmental analysis (or scoping level EIA) is required, or no EIA is required. In screening, the beneficial and detrimental short and long-term effects of each alternative are compared and summarised to facilitate discussion and evaluation by interested and affected parties. Factors determining the necessity of either a scoping level or full EIA include (Hugo 2004; Murray-Hudson 1995) the nature of activity, location of the proposed development and scale (size). For example, activities such as mining, industrial, infrastructure (roads, airports, dams and power lines), agricultural activities and policies (such as resettlement, grazing, green revolution and canals) require either a scoping level, or a full EIA, to be undertaken. Activities planned in environmentally sensitive areas such as national parks, buffer zones and wetlands are subjected to similar treatment. Screening is mostly done using simple checklists for the type of an activity, and lists of environmentally sensitive areas. A checklist consists of a list of environmental parameters to be investigated for potential impacts. Checklists therefore ensure that particular environmental aspects are not overlooked during analysis. A typical screening checklist roughly estimates the likely impacts of the proposed development activity on: land, groundwater (geohydrology), surface water (hydrology), atmosphere, noise, vegetation (flora), animals and birds (fauna), human health and safety, aesthetic and cultural values as well as the socio-economic dimensions; or contains 'yes/no' questions. Two major benefits can be realised from this exercise. Firstly, it highlights potential significant environmental impacts at an early stage when alternatives can still be considered and/or when mitigation measures can be taken. Secondly, it is a cost-effective tool, which helps ensure that substantial financial and human resources are not committed to environmental analysis for development activities with few environmental impacts.

Project Site Selection (Scoping) Stage

At this stage the EIA activities centres on scoping to determine the nature of impacts associated with each possible alternative as well as the extent of the impacts, their significant, whether they are reversible or not, or whether they are direct (primary) or indirect (secondary). The public is heavily involved, and in other countries, a scoping level EIA is undertaken. The terms of reference for the finally selected project site alternative, for the full EIA, are jointly developed by the interested and affected parties or stakeholders.

Once a decision has been made – or is prescribed by law – to undertake a full EIA, the next stage is to determine its scope. The scoping exercise requires lead agencies to undertake an early and open process to determine what should be inves-

tigated, and to what extent. Scoping also helps in dealing with the type of data to be obtained, and methods and techniques to be used and the way in which the draft EIA statement results will be presented. The agencies should achieve this objective through careful consideration of existing information relevant to the assessment, as well as from the organised involvement of other agencies and consultations with the public. Issues surrounding public engagement and participation are considered further later in this chapter. The main purpose of scoping is therefore to identify the significant issues and eliminate the insignificant ones. It has been established that where scoping does not take place, delays in project implementation often occur, along with extra costs, because of time spent assessing impacts that were not identified earlier, and which eventually proved significant. Scoping therefore effectively determines the ToR of the EIA. The major issues to be considered during scoping include: definition of the activity; if not covered during screening, the identification of alternatives for development (e.g., different location or size, environmentally friendly technologies); definition of the planning time horizon; spatial scale (impacts could be *in-situ* or off-site); and coverage of human effects.

Socio-economic as well as political impacts must be incorporated into the EIA, together with their possible direct and indirect environmental impacts. On this basis, social impact assessment (SIA) is now considered an integral part of a full EIA. Impacts come in various forms, which include: significant and insignificant impacts, primary (direct) and secondary (indirect), reversible and irreversible, short term and long term, on-situ and *ex-situ* (on-site and off-site) and non-recurring and recurring (Hugo 2004; Murray-Hudson 1995). Significant impacts are outstanding impacts requiring mitigation, while insignificant impacts have negligible effects, requiring minimum or no mitigation measures. Direct impacts are a direct result of an activity, for example, the relocation of communities due to construction of a dam or a road. Indirect impacts emanate from subsequent effect caused by direct impacts, for example, the loss of business at a village shop after the community consumers had been relocated to allow for construction of a road or bridge. Generally, direct impacts are more easily identifiable than indirect impacts. The direct impacts are usually felt immediately, as compared with the indirect effects, which sometimes set in gradually.

Reversible and irreversible impacts refer to the permanent nature of impacts. Reversible impacts refer to effects that can be reversed by natural means when the project is complete, for example, re-forestation of land where soil has been borrowed and land cleared for construction of a road or dam. In this case, the borrowed areas are back-filled, and indigenous trees and grass planted, to ensure that after a period of time, they appear as natural as possible. Irreversible impacts refer to permanent effects, when the project is completed. A good example is mining, where even after rehabilitation, mine dumps remain visible and dangerous. Irreversible impacts will generally cause permanent damage to the environment.

Short-term impacts occur over a short period of time and are of a finite duration, for example, noise and dust emissions during construction. Long-term impacts

occur for a very long period of time and tend to have effects well into the future, for example, reduced river flow downstream of a dam after the dam construction.

On-site impacts take place directly at the proposed development project location. Off-site impacts are those that occur far away from a project but resulting from the project. Specific impacts are therefore characterised by their extent, or by area affected. An example of on-site impact is noise vibration, and dust caused by traffic movement and blasting at a construction site. An example of an off-site impact is the shortage of a particular drug at a local clinic, due to high incidence of illness requiring the particular drug by construction personnel.

Impacts, which occur only once, are said to be non-recurring. Those which continue to occur are called recurring. An example of a non-recurring impact is the rescue of animals caught by the flooding of Kariba Dam when it filled for the first time. High incidence of seasonal mosquito bites caused by high breeding because of a dam constructed is a recurring impact. Impacts also tend to have negative, neutral or positive effects.

Positive impacts are those that bring a change for the better to a community or the environment. For example, a positive impact is the creation of jobs during construction works. Neutral impacts tend to have no impacts at all and everything continues to happen or go on as if nothing ever happened at all. Negative impacts harm, degrade or impair the ecosystem, health and quality of life of the people who live and work in the affected environment.

The techniques or methods used in achieving impact prediction and assessments in the EIA process differ quite considerably. Such methods do not provide complete answers to all questions, related to the impacts of the proposed projects. Therefore they should be selected based on appropriate evaluation and professional judgement. Higher order techniques should be selected only when those of the lower order fail to achieve the desired detail regarding a particular impact or set of impacts. Hugo (2004:278–85) identifies the following common techniques: *ad hoc* methods, checklists, matrix, composite matrix, networks, flow diagrams or models as well as map overlays and geographic information systems (GIS). Details concerning these methods can be obtained from the referenced author, see for example, El-Fadl and El-Fadel (2004), Murray-Hudson (1995).

Every proposal will bring about positive and negative change to the community in which it is located. Mitigation provides practical ways of reducing adverse impacts on the environment and social life of a community, and enhancing the benefits of the proposal. The implementation of a cement factory near a community poses health risks to the inhabitants of the community while at the same time offers employment opportunities. Mitigation measures might include the installation of efficient dust collectors, which reduce the dust being released to the atmosphere, and/or relocating settlements that are on the side of the factory where dust deposits will accumulate. Mitigation measures are better implemented at the design stage of a proposal, so that the cost of modifying the proposal will not be prohibitive.

Mitigation measures include: avoiding or eliminating adverse impacts by not taking certain actions or steps (avoidance). Limiting the degree, extent, magnitude or duration of adverse impact by reducing the size/scale of the proposal and its implementation (minimisation). Rectifying adverse impacts by repairing or enhancing the affected resources (rehabilitation or restoration which is an extreme form of rehabilitating). Compensating for loss with substitute similar resources (replacement). Typically, mitigation measures should be put in place at four generic levels in project implementation: planning, construction, operation and decommissioning stages. Mitigation measures for a water development project such as a dam during the construction phase include (MoMET 1997b):

- timing to avoid dry season discharge if possible
- timing and extent of changes in river flow adjusted to minimise disruptions, problems
- demarcation of zonation of tree clearance
- timing to minimise herbaceous plant cover
- bank stabilisation if practical
- importation of cooking/heating fuel when appropriate
- exportation of solid waste when practical
- representatives on a long-term basis in order to identify any possible remedial action
- land use planning in area of resettlement
- monitor trends in demographics, health, education, employment, crime, etc
- control of aquatic macrophytes
- health education
- reconcile recreational fishing with inshore netting and subsistence line fishing
- fisheries management plan (pelagic/inshore/recreational).

Compensation is also considered a form of mitigation, used for certain social and economic impacts, where the loss of assets, or access to resources by individuals or communities, are replaced with cash payments or alternative assets or resources. Compensation is a form of mitigation used in specific socio-economic impacts where loss of asserts or access to resources by individuals or communities may be compensated for in cash, or through the provision of alternative resources. This is a very difficult process. It is usually impossible to give full or 'fair' compensation. In many instances it is even difficult to identify those deserving compensation. The process of compensating the affected is slow, even though the impacts may be felt immediately. In assessing and evaluating compensation for lost assets or resources, the following points should be borne in mind:

- evaluation of the value of the assets or resources that will be lost from implementing the proposal

- identify the individuals or communities that should be compensated for the loss
- examine the most equitable method of compensation. The method adopted should be acceptable to all parties, and it should be such that it is self-sustaining to the beneficiaries (open-ended commitments from the proponent to the beneficiaries should be avoided)
- the cost of compensation should be incorporated into the economic analysis of the entire proposal
- the compensation plan and how it will be implemented must be outlined in the environmental management plan (EMP) which should be part of the EIA document.

It is inevitable that clear policy guidelines must be developed at either the project specific or the national level to compensate those affected and these guidelines should ideally be fair, equitable and timely. Such procedures are normally statutory. In Botswana, compensation guidelines for payment in lieu of lost land, trees, crops, structures and other fixed assets are provided by the Ministry of Local Government, Lands and Housing for use by land boards and others who require them. In Zimbabwe, the Ministry of Agriculture and Resettlement has guidelines for assessing the value of land and other assets when it desires to designate a farm for resettlement.

Project implementation usually alters the environment in one way or another. Such alterations may bring changes with certain effects. An impact often results from a change and its effects. A suitable example is the discharge of industrial effluent into a river, which reduces the amount of oxygen dissolved in water (change) resulting in fish dying (effect) affecting fishermen economically (adverse impact). Monitoring the implementation of the environment management plan becomes critical.

Findings of the full EIA exercise are presented in the form of a draft EIA report (statement). The draft should capture the following items and format: project title that identifies the type of project proposed (i.e., a multi-purpose dam, and its general location); executive summary written in a non-technical language that also includes a set of major recommendations about the way forward, including mitigation measures against negative impacts if necessary; project proponent; project description to include, but not necessarily limited to, the description of the project in terms of raw materials, processes, equipment and products, maps, flow diagrams and photographs (where applicable) and a summary of the technical, economic and environmental features essential to the project, description of existing environment to include discussion on conditions, in qualitative and quantitative terms, of the biophysical and human environments before the implementation of the project, spatial boundaries within the environment that is under consideration, and environmentally sensitive areas; project options; environmental impacts; mitigation measures; management plan (including decommissioning), key sources of data and information and list of references.

Feasibility and Feasibility Reporting (Draft EIA Statement Preparation) Stage

All EIA work should be done at this stage. It can be very expensive to do an EIA after the design stage of the project is over as the EIA may recommend a change in the whole concept or design. Post-design EIA may also lead to project cancellation after a lot of resources would have already been committed. The EIA should thus be seen as a means of prevention (anticipation) rather than cure. In as much as a project design can be forced to change due to insights drawn from the ongoing EIA study, the reverse is also true. A project design can sometimes change due to economic or engineering aspects leading to a re-orientation in the draft EIA statement preparation. It is therefore necessary for teams from both activities to be in constant and continuous liaison if the activities are to run smoothly.

Board Decision/Detailed Design (EIA Statement Review/ Management Plan) Stage

At this stage the proponent, government or donor agency makes a decision about the economic viability of the project. EIA results are considered concurrently. Approval is followed by an application for authorisation by a developer to a local or central government agency. In this way, EIA plays an important role in decision-making.

After the draft EIA statement is ready, it must undergo a detailed review process. The quality of the draft EIA statement must be such that it is of an acceptable standard (especially in the eyes of the public) and that it properly reflects the projects performance in terms of sustainability (particularly in the eyes of the permitting authority that is in many cases the government or donor). The general objectives from reviewing the draft EIA report are to: objectively evaluate the draft EIA report in relation to the ToR of the study and the quality of the findings obtained, assess the views of all stakeholders on the findings, enable decision-makers to arrive at final decisions on how to proceed with implementing the proposal, and ensure strong commitment to the implementation of the environment management plan. It is advisable that the review of the draft EIA report be done by an independent body, different from the consultants that carried out the studies and the proponent interested in achieving the implementation of the project. It is only at this point that the review can be presumed objective in assessing the quality of the data gathered, the theoretical models used for prediction of impacts, and the conclusions.

The results from the review process usually take one of these four forms: (1) complete rejection of the draft EIA – on the basis that it did not adequately cover the scope of the study or address the ToR; (2) approval of the draft EIA statement subject to major modifications – simultaneously leading to the approval signal for the development; (3) approval of the draft EIA statement subject to minor modifications and (4) approval of the draft EIA statement without any amendments – which is very rare. The last three options mean that the development project will

also simultaneously be implemented as proposed. However, the developer or subcontracted EIA experts may wish to appeal against the first two outcome decisions from the review process, as these mean that more information on impacts and mitigation for the proposed development project will be needed.

After review, the draft EIA is finalised into a manual for managing the environmental aspects of the development activity. Usually, an agreement (letter of acceptance or permit) between the development proponent and the EIA authority is signed and bound together with the final EIA statement. This agreement shows acceptance of the findings and, more importantly, enshrines the environmental management plan that outlines significant mitigation against adverse impacts. Without such a commitment, the EIA statement may simply be shelved and its recommendations ignored.

Construction, Operation and Closure (Monitor, Audit and De-commission)

Writing in the early 1990s, Kakonge (1993) identified a number of constraints on implementing EIA in Africa. Problems most noticeable then (and probably today) included inadequate environmental legislation, inappropriate institutional framework for coordinating and monitoring government activities, shortage of qualified manpower, inadequate financial resources and lack of public awareness of the need for EIAs, see for example Tarr (2003). A lot of negative impacts are likely to emerge during project implementation – its construction and operation.

Without proper monitoring and auditing, the final EIA statement may turn out to be merely a document for obtaining a permit to implement the proposal. Monitoring is required to assess whether the predicted impacts materialise, and what their severity might be. The feedback from monitoring allows for modifications in the activity and/or appropriate mitigation. Monitoring should be properly focused on (Hugo 2004; Murray-Hudson 1995): checking for the occurrence of the most important predicted environmental impacts, checking whether the mitigation measures are effective, and provide early warning about unexpected environmental impacts. Monitoring should be done at all phases of the development project. Running concurrently to monitoring is environmental auditing. An environmental audit, similar to a financial audit, assesses the performance of the development proponent. This is done in terms of the requirements specified in the final EIA statement; thus, this is specifically a compliance audit (Hugo 2004). Ideally, an independent body should do the auditing. Such an independent body could be a consultant, a representative from a regulatory body, an NGO or an informed member of the public. Both the monitoring and environmental auditing phases in EIA are linked to de-commissioning. Depending on the nature of project, de-commissioning might take three forms: ongoing, end of life or both. De-commission ensures that the environment is rehabilitated after the conclusion of operations. This is common for mining pits, landfill sites, road construction borrow pits or even dried water boreholes. The responsibility of decommissioning lies with the proponent or major beneficiaries of the project. As such, the likely costs of de-commissioning should be predicted with reasonable

accuracy during the feasibility stages so that financial arrangements are made. Decommissioning resources should also be clearly indicated in the environmental management plan from the final EIA statement.

Stakeholders in the Environmental Assessment Impact Process

Stakeholders in the EIA process are of two major types: (1) those directly affected by the proposed development project (affected parties) and (2) those indirectly affected by the proposed development project (interested parties). The group of affected parties comprises the developer(s), as well as other beneficiaries in terms of aspects such as employment, improved standard of living, increased commercial activities and improved health. The other affected parties are those negatively impinged on in aspects like relocation, lost land, increased noise, pollution and traffic congestion, depending on the nature of the project. However, to identify those that will be indirectly impacted (either positively or negatively) by the proposed development project may be more difficult, and to a large extent, will be subjective. For instance, surrounding communities in which a cement manufacturing plant is located may be indirectly affected in the areas of employment opportunities and the pollutant plume from the smoke stacks. For this reason it is considered good practice to broaden the participation of persons or group of persons to include anyone who has an interest or could be marginally affected by the proposal. Other stakeholders include government (in most cases as permitting authority), environment NGOs, EIA experts and donors.It is not usually possible to involve every member of a community in a full public consultation and participation process, but it is usual to consult with representatives of the community. It is important is ensuring that those chosen for the public participation truly reflect diversity of opinion in the community. Care is required to ensure a fair and balanced representation of all views, and that the views of the poor or minority groups are not suppressed in favour of the more influential or wealthy.

EIA Legislation: Policies and Frameworks

The EIA legislative framework in Africa has improved significantly since the 1990s. At the international level, soft laws such as the Rio Declaration provide the platform for the development of EIA policies and laws. Principle 17 of the Rio Declaration states that 'Environmental impact assessment, 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' (UN 1992).

At the Southern African Development Community (SADC) level, the 1996 'SADC Policy and Strategy for Environment and Sustainable Development: Toward Equity-led Growth and Sustainable Development' provides the basis for implementing Agenda 21 within the region's context (SADC 1996; SADC 2003). By 2003, all countries in SADC had either specific EIA policies and/ or framework laws in place (Tarr 2003). Table 8.2 summarises these policies and laws as well as other relevant issues concerning responsible institutions and capacity.

Table 8.2: EIA Legislation, Institutions and Capacity in Southern Africa

Country	EIA policy	Specific EIA law	Responsible institution	Capacity (6/2002)	No. of EIAs done by (6/2002)
Angola	None	Environment Framework Law, No.5, 1998	National Directorate for Environment, Ministry and Urban Planning and Environment	5 professionals	No statistics available
Botswana	National Conservation Strategy, 1990 – not strictly EIA	In progress	National Conservation Strategy	4 professionals	16 completed between 1985 and 2001
Lesotho	National Environment Policy, 1996	Environment Act, No.103, 2001	National Environment Secretariat, Ministry of Environment, Gender and Youth	3 professionals	No statistics provided
Malawi	National Environmental Policy, 1996	Environmental Management Act, No.34, 1991	Ministry of Natural Resources and Environmental Affairs	3 professionals	35 completed between 1998 and 2002
Mauritius	National Environment Policy, 1990 National Environmental Action Plan, 2000	Environmental Protection Act, No. 34, 1991	EIA Division, Ministry of Environment	7 professionals supported by environmental police	Over 800 application lodged between 1993 and 2000 but nor result on the outcomes
Mozambique	National Environmental Management Programme, 1996 – not strictly EIA	Framework Environment Law, No.20, 1997 EIA Regulations, No.76, 1998	National Directorate of EIA, Ministry of the Coordination of Environmental Affairs	8 professionals	No statistics available
Namibia	Environmental Assessment Policy, 1995	Environmental Management Bill, in progress	EIA Unit, Directorate of Environmental Affairs, Ministry of Environment and Tourism	2 professionals	82 completed between 1980 and 2001
Seychelles	None	Environmental Protection Act, No.9,1994 EIA Regulations,	EIA Unit, Ministry of Environment (located in the Office of the President)	9 professionals	No statistics available

Swaziland	Environment Action Plan, 1998 – not strictly EIA	Swaziland Environment Authority Act, No. 15, 1992 Swaziland Environmental Audit, Assessment and Review Regulations, 2000	Swaziland Environment Authority	9 professionals	An average of 2 completed each moth
Tanzania	National Environmental Policy, 1997	Environment Management Bill	National Environmental Management Council (located in the Office of the Vice-President) and local authorities	Unknown	An estimated 26 completed since 1980
Zambia	National Conservation Strategy, 1997 – not strictly EIA	Environmental Protection and Pollution Control Act, No.12, 1990 (as amended Act No.13, 1994)	EIA Directorate, Environment Council of Zambia	5 professionals	134 project briefs completed since 1997, of which 23 resulted in full EIAs
Zimbabwe	Environmental Impact Assessment Policy, 1994 National Conservation Strategy, 1987	Environmental Management Act, No., 2002	EIA Unit, Department of Natural Resources, Ministry of Environment and Tourism	9 professionals	196 completed since 1995

Source: Compiled and updated from SAIEA 2003:333–5.

Most EIA legislation in Africa prescribes projects for EIA. In Nigeria, EIA legislation, the Environmental Impact Assessment (EIA) Decree No. 86, was enacted in 1992 (Olokesusi 1998). Projects are screened using six criteria: the project magnitude, extent or scope, duration and frequency, associated risks, significance of impacts and availability of mitigation measures associated with impacts identified. In Zimbabwe (MoMET 1997a), new development proposals and substantial additions, expansions and improvements or re-construction of existing activities are prescribed as requiring EIA. The same criteria are used in Egypt and Tunisia (Ahmad and Wood 2002). In Egypt, EIA requirements are covered under Law No. 4 on Environmental Protection 1994, whilst the EIA Decree No. 362 1991 regulates EIA in Tunisia (Ahmad and Wood 2002).

Development projects requiring an EIA in Zimbabwe are prescribed based on the type of development rather than its size (Government of Zimbabwe 2002; MoMET 1994). In addition, the government can, from time to time, prescribe development activities, policies and programmes for EIA. Activities likely to affect environmentally sensitive areas such as national park estates, wetlands, *dambos* and *vleis*, productive agricultural land, national monuments and important archaeological and cultural sites are also prescribed for EIA. The full list of prescribed development activities includes, agriculture, dams and man-made lakes, drainage and irrigation, forestry, housing developments, industry, infrastructure, mining and quarrying,

petroleum, power generation and transmission, tourist and recreational development, waste treatment and disposal as well as water supply.

In Egypt (Ahmad and Wood 2002), the prescribed projects are arranged into three categories: the 'black list', 'grey list' and 'white list'. Projects that require a full EIA fall under the category 'black list'. Those falling into the 'grey list' require the developer to supply considerable EIA information that will be accompanied by an environmental screening form B to enable the authority to make an informed decision as to whether a full EIA will be required or that only a limited scale (scoping level EIA) is undertaken. 'White list' projects require the developer to complete the environmental screening form A, for which only the basic project data is needed. Table 8.3 provides a comprehensive summary of the status of EIA legislation in selected North African countries.

Table 8.3: Summary of EIA Legislative Status in Selected North African Countries

Legislative parameter	Country			
	Algeria	Tunisia	Egypt	Morocco
Year enabling legislation enacted	1983	1988	1994	2003
Legal provision for EIA	Legislation & regulations	Legislation & regulations	Legislation & regulations	Legislation & regulations
Status of EIA regulations	Legislated	Legislated	Legislated	Legislated
Provisions for appeal	None	None	Legislated	None
Specification of time limits	None	Legislated	Legislated	None
Competent authority for EIA	Yes	Yes	Yes	Yes
Review body for EIA	Yes	Yes	Yes	Yes
Specification of sector responsibilities	Yes	Yes	No	Yes

Source: Modified according to El-Fadl and El-Fadel (2004:560, 562).

From the many prescriptions as to which proposed development projects require full EIA, scoping EIA or no EIA, and details of content and procedures, South Africa's 2004 EIA regulations can be considered to be the most comprehensive. Authorisation of projects for EIA is dealt with under chapter three of the EIA regulations. The chapter (made up of sections 7–21) stipulates content and procedure (DEAT 2004) for: applications; assessment of applications; screening and considerations of screening reports; scoping and consideration of scoping reports and plans of full EIA study; contents of specialist EIA reports and their procedures; contents of draft environmental management plans; consideration of draft EIA reports and issuing of environmental authorisation; and decisions of competent authority and transfer of environmental authorisations. The EIA regulations also assign lower and upper limits to certain problematic proposed development projects, both in terms of screening and/or full EIA requirements. Projects that need screening only are listed under Section 22 and fall within Category I. Those requiring full EIA are listed under Category II in Section 23.

Public Consultation and Participation in EIA

Kakonge (1998) links good governance to EIA. In his view, environmental conflicts can be resolved through the use of EIA. In this respect, EIA draws heavily on the

principles of good governance: information, transparency, accountability, responsibility and participation (see for example Global Reporting Initiative 2002; IDSA 1994; IDSA 2002). Good governance presents a huge challenge to African governments, particularly accountability and transparency. As such, public consultation and engagement during EIA processes has always been limited. For example, there is no open or legislated public engagement in EIA processes in Egypt and Tunisia (El-Fadl and El-Fadel 2004). However, although varying in the levels and stages of engagement, almost all the EIA legislative framework in southern Africa makes provision for mandatory public participation and consultation in EIA (Tarr 2003). Public participation and consultation is not a direct and easy process. Readers should be warned that it is more of an art than a science. Expertise needs to be developed to facilitate public participation in EIA processes, more so, in a manner that is not viewed as encroachment on issues of governance by many politicians of the land.

Initiatives are already underway to build expertise to facilitate public participation in EIA, especially in Southern Africa. The southern African Institute for Environmental Assessment (SAIEA), a non-profit organisation with its head office in Namibia has implemented the Calabash Project to promote public participation facilitation in EIA. A pioneer group of about twenty-five experts mainly from southern Africa undertook a two-day course in public participation facilitation in EIA in Windhoek, the capital city of Namibia in May 2005. The project is funded by the World Bank. Among the participants who were from outside the SADC region were those from Kenya, Ethiopia and Cote d'Ivoire.

The SAIEA identifies four key areas that need attention in terms of public participation in EIA. These include limited capacity, political interference, participation rights and lack of experience and confidence (SAIEA 2005). Since governments are constrained in their capacity, their ability to guide and decide on EIA is compromised. On the other hand, high level political heavy weights are reported to influence decisions regarding particular EIA, especially those in which they have direct interest. Furthermore, the public, particularly those in Africa, are largely unaware of their rights in terms of EIA procedures.

This is rendered more complicated still by variances in understandings of democracy, participation and good governance across the continent, an aspect magnified by diverse religious beliefs and patterns of colonialism. Public participation processes are still an emerging feature, in which there is a lack of experience and confidence in them. After all, there are many other pressing issues that might require 'real participation' such as the need to have descent housing, HIV/Aids and poverty reduction.

Public participation is required virtually in every stage during the EIA process, or rather, at every stage when a decision has to be made about the proposed development. However, for clarity, the following are the key stages in which the public must be engaged without compromise: the scoping phase, impact identification and mitigation, and during the drafting of the EIA statement review.

Ideally, the public should also be involved during EIA monitoring and the ultimate de-commissioning of the project. However, since resources will not permit this type of engagement, capacity should be built to empower the public to carry out these activities outside the main EIA process. In fact, it is during the EIA implementation and decommissioning stages that a number of short cuts are undertaken. leading to severe negative environmental damage, as some developers will be well aware of the fact that no one will be monitoring them effectively. However, there is a need to realise the benefits and constraints of public participation as well as to ensuring adequate participation, as summarised below.

Outcome of full public participation include:

- offering all the stakeholders a sense of commitment and ownership of the proposal
- allowing for views and values which otherwise may have not been considered to be brought to bear on the proposal
- ensuring that the final proposal is the optimal one, representing the best compromise of all conflicting interests
- providing an opportunity for the public to influence project planning, design implementation, and operations in a positive manner
- offering increased public confidence in the process of decision making
- providing for better transparency and accountability in decision making
- reducing conflicts through the early detection of contentious issues.

Ensuring successful public involvement means:

- sufficient relevant information must be provided in a form that is easily understood by non-experts. Technical jargon should be avoided
- sufficient time must be allowed for stakeholders to read, discuss and consider the information and their implication
- sufficient time must be allowed to enable stakeholders to present their views
- all issues raised must be addressed and thoroughly discussed
- the selection of dates, venues, and times of meeting should be done to encourage maximum attendance
- gender integration
- good moderation is very essential.

Constraints to full public participation may be caused by:

- limitation of financial resources: Participation may be constrained by the financial situation of local people, because participation requires time away from other tasks and hence loss of income. Cash for transportation and subsistence may have to be provided for the community members that attend meetings
- the wide spread of the rural population and difficult terrains

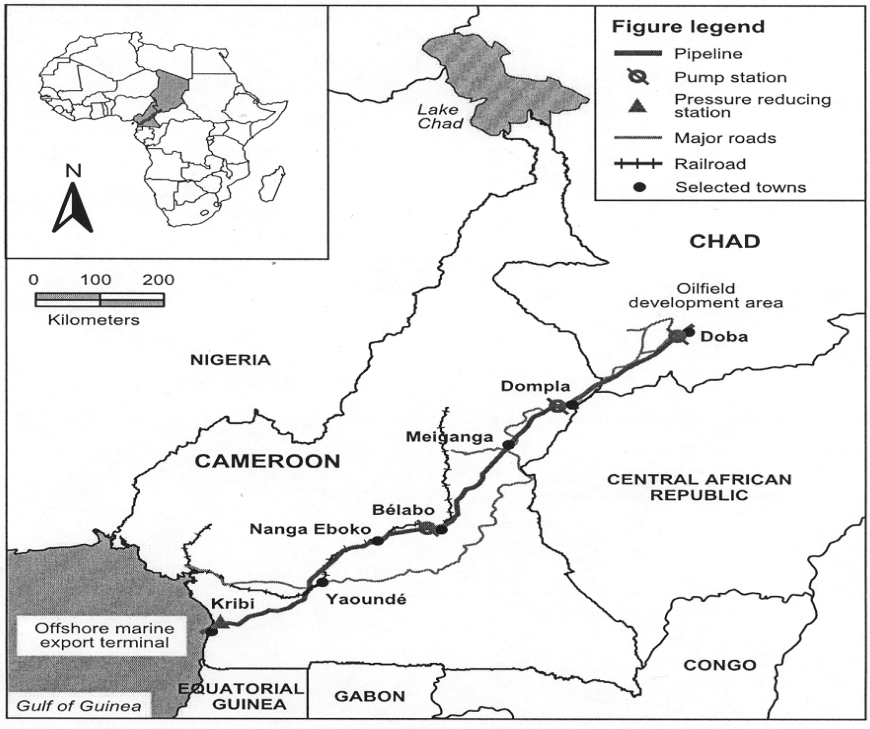
- language and literacy level
- cultural norms: These may limit the participation of some groups, such as women in the participatory process established for the EIA process. In such cases, other options to ensure their participation have to be explored
- Heterogeneity: communities are rarely homogeneous. Although this may constitute a constraint it can, nonetheless, be exploited for the benefit of achieving the best compromise of the conflicting interest and views.

Public Participation: the Case of the Chad-Cameroon Petroleum Project

To help illustrate issues on EIA and public participation, we selected a major investment in Africa, the Chad-Cameroon Petroleum Development and Pipeline Project (Map 8.1). Given its transnational and global nature, the case study presents many challenges and insights regarding EIA and public participation in practice.

From 1993 to 1999, intensive scientific investigations and analysis, as well as public engagement and consultation with interested and affected parties, were done. The findings, amounting to twenty volumes of environmental assessment and environmental management planning documents, were incorporated into the design of

Map 8.1: Chad–Cameroon Petroleum Development and Pipeline Project



Source: Utzinger et al. 2005:69.

the oilfield and pipeline. The project was to develop the oil fields at Doba in southern Chad (at a cost of US$1.5 billion) and construct a 1,070 km pipeline to offshore oil-loading facilities on Cameroon's Atlantic coast (at a cost of US$2.2 billion). The sponsors were Exxon Mobil (the operator, with 40 per cent of the private equity), Petronas of Malaysia (with 35 per cent), and Chevron Texaco (with 25 per cent). The project was projected to result in nearly US$2 billion in revenues for Chad (averaging US$80,000,000 per year) and US$500,000,000 for Cameroon (averaging US$20,000,000 per year) over the twenty-five year production period.

The project started in 1969 when Exxon launched its programmes for oil exploration in Chad and the surrounding countries (Utzinger et al. 2005). In 1975, oil reserves were discovered in the Doba basin of Chad. Due to civil war in Chad, further explorations were halted from 1981 up until 1988. In 1993, Cameroon was brought on board as the site for offshore marine export terminal (Map 8.1). The first oil sales on the global market were recorded in December 2003. Public participation during the EIA process for the Chad-Cameroon Petroleum Development and Pipeline Project was extensive. Thousands of public comments were recorded in the facilitators' notes, videotapes and on the stakeholders' public comment database. Since 1993, about 900 village and community-level public meetings were held in the two countries. In addition to public meetings, over 145 other meetings were set up with local and international NGOs, amounting to over 250 in total. The project also made efforts to consult with organisations that had taken opposing positions to the project on a one-on-one basis. More than 700 copies of the 1997 draft EIA reports were distributed for comment to local and international NGOs, government agencies and the public. The draft EIA reports were in both English and French, the dominant languages used in the two countries. In many circumstances, the draft EIA reports had to be hand-delivered by project representatives together with a brief outlining their contents. To account for accessibility problems, several copies of the draft EIA reports were placed at seventeen public reading locations in the two countries. These were additional to customary locations that included government offices throughout the countries. Such public reading locations received over 13,000 interested and affected parties, who recorded over 9,000 comments in the notebooks provided for the purpose. Social marketing tools (Maibach, Rothschild and Novelli 2002; Nhamo 2003; Shewchuk 1994) such as making announcements through the use of local media, village level public information campaigns, and local leaders appointed as local community contacts, were utilised to raise awareness on where the draft EIA reports could be viewed for comment. The public participation programme was faced with challenges around distances covered by the project, biophysical and cultural diversity. To overcome these obstacles, the project adopted a consultation methodology built around five key principles (or guidelines). The public consultation programme had to: (1) conduct ongoing fact finding meetings, (2) take consultation to the people, (3) evolve the basis of consultation, (4) facilitate consultation with experts, and (5) comply with World Bank guidelines and directives regarding public consultation and participation. The public com-

ments were analysed, and from the process, fifteen basic comment categories emerged. These were ranked as reflected in Table 8.4.

Table 8.4: Summary Categories for Public Comments

Category	Rank (%)
Positive views on project	22
Hiring/job opportunity/employment/training	19
Compensation/resettlement	12
Environmental impacts/pollution/leaks/spills	9
Consultation/participation	9
General project/technical/schedule	8
Project revenue/economics/ownership	6
Roads/construction/infrastructure	3
Socio-economics/cultural	3
Environmental documents	3
Safety/security/sabotage/protection of pipeline	2
Health	1
No direct relation to project	1
Project funding/Bank's role	1
Human rights/civil unrest	1
Total	100

Source: http://www.essochad.com/Chad/Files/Chad/EAESU9.pdf, accessed 1 June 2005.

Positive views indicated support for the project implementation, desire to have the project begin, and appreciation of the public consultation information provided. Issues around employment opportunities revealed that residents had unrealistically high expectations regarding the number of opportunities that the project would create. With regard to migration, the main concern raised was that there was a potential influx of migratory workers to the oilfield development area, an aspect that would result in negative socio-economic impacts to those in the vicinity. The recruitment process was also questioned, as stakeholders raised the concern that it might not be transparent, or might be manipulated along political and tribal lines.

By 2002, 12,701 people were employed; about 75 per cent of whom were nationals of Chad and Cameroon. An estimated 60 per cent of the workers from Chad and Cameroon were employed in skilled and semi-skilled jobs. Another 4 per cent were in supervisory positions. Demobilization of workers no longer needed for pipeline construction in Cameroon reduced employment of Cameroonians by over 900 at the end of the fourth quarter of 2002. While intensive construction at the oilfield facilities raised the employment figure in Chad. Wage payments to Cameroonian and Chadian workers during the fourth quarter of 2002 amounted to about US$5,700,000 and US$6,300,000 respectively.

Clarification was also sought around compensation. Although the government of Cameroon had compensation laws of 1981, these could not give a fair market value to deal with lost crops, including fruit trees. Market values had increased over time and exceeded those stipulated by the law. To this end, the project instituted a system to supplement payments to bridge the gap. In Chad, compensation was at

first tackled on a one-on-one basis. Individual crops were enumerated and compensated based on government rate sheets. However, this was later modified and compensation was calculated on the basis of plot size, an element that would show equity. Community (or common property) compensation was also addressed for loss of bush land affected permanent infrastructure in particular. This came in the form of compensation in kind. Projects that resulted from this form of compensation included the construction of schools, wells, market places, roads, storage warehouses, tree planting and medical assistance.

The need to minimise resettlement was also recorded during the public consultation. As a result of an extensive pipeline routing process, no resettlement was anticipated along the route. However, a few families were to relocate fields as storage yard facilities in Cameroon. However, resettlement was inevitable in the oilfield area in Chad. An estimated 150 households were affected, and the number was significantly reduced by re-designs of the oilfield.

Emerging Issues of Concern

What emerged strongly from this chapter is that the African continent has made significant strides towards addressing sustainability principles through the application of EIA as one of the key decision making tools for approving development projects. Significant gains have been recorded in terms of establishing legislation specifically addressing EIA requirements in various countries. However, the following matters still remain slippery issues with regards to the fine-tuning of EIA procedures in the continent (El-Fadl and El-Fadel 2004; Kakonge 1993; Kakonge 1994; Kakonge 1998; SAIEA 2004).

Public Participation

The public needs to be made aware of their environmental rights. Governments need to open up when it comes to debating issues of good governance so as to encourage participation when it comes to dealing with environmental matters in the EIA process.

Local Government Blackouts

Many local authorities are not directly responsible for EIAs. Yet, most developments are implemented within their jurisdiction. In addition, local authorities have traditionally controlled development through various regional, town and country planning acts, which by their nature had considerable elements of EIA. In this regard, we recommend that efforts be made towards decentralising EIA, permitting authority to local authority assessment so that harmonisation might be worked out between town planning and EIA laws; lastly, to cut red tape.

Harmonisation of EIA Legislation at National, Sub-regional and African Union Levels

There still remain key challenges for African governments to harmonise EIA legislation at all levels. This may culminate into an African Union 'mother' EIA legislative framework. EIA laws at national levels are still highly sectoral. Yet, sub-continental frameworks (i.e., eastern, central, northern, southern and West Africa) can be put in place and eventually fed into one EIA legislative framework within NEPAD or at African Union level as an EIA Convention.

Selective Sectoral Application

Most EIAs are applied to specific development sectors, even to specific projects within the sectors perceived to have severe negative impacts (Tarr 2003). Sectors traditionally exposed to EIA in Africa include mining, petroleum and gas, as well as agriculture (but mainly limited to dams). Agricultural policies seldom receive EIA attention, yet these have the potential to harm the environment. Zimbabwe's 2000 Fast Track Land Reform Programme is one such potentially harmful agricultural programme. Fisheries and tourism projects likewise receive limited attention.

Expertise in EIA

As of June 2002, the whole of SADC had only eighty professionals managing EIA institutions (SAIEA 2004). Most tertiary institutions do not have courses in environmental management in general, and EIA specifically. Furthermore, government departments have experienced a severe 'brain drain' on a national, regional and international scale. Experienced EIA professionals often switch to better paid jobs in the private or NGO sectors. More effort is needed to encourage the establishment of courses in this arena. Resource pooling can assist in utilising the available limited EIA expertise through initiatives that seek to form coalitions between governments, NGOs, the private sector, universities and other research institutions. As is the case with the health sector, the environment and EIA must be prioritised.

Enforcement

Apart from the lack of monitoring and auditing of EIA, most legal documents do not stipulate clear monitoring and auditing procedures for EIAs and the resultant penalties to offenders thereof (Ahmad and Wood 2002). This area needs urgent attention. Regular monitoring is necessary (Tarr 2003) to ensure that developers implement the agreed-upon management plans. South Africa is one country that has taken compliance and enforcement seriously, including the establishment of environmental courts in 2004 (DEAT 2004).

Under-resourced EIA Institutions

Many in positions of authority (politics and business) still consider EIA as another unnecessary hurdle that delays development, job creation and ultimately poverty eradication in the continent. Therefore, there must be continued lobbying, particularly from peers that would realise the benefits of engaging in EIA.

Sectoral Orientation to EIA

EIAs are still undertaken and driven from a sectoral point of view. Hence, many government ministries and departments consider EIA as the sole responsibility of the ministries responsible for environment and tourism. A cross-cutting paradigm should therefore be advocated.

Logistics and Ream Management During EIA Preparation

Drawing from a large-scale EIA for the proposed Dune Mining at St. Lucia in South Africa, Weaver et al. (1996) note that EIA teams need to complement each other, not only technically, but also in purpose. The expectations and approach to the EIA should be mutually understood. All members should be mutually accountable for their joint efforts. Logistical issues, particularly around public participation, are usually seen as delaying the process.

Recognition of Potential Sub-regional EIA Promotion Initiatives

Governments should recognise and resource sub-regional EIA initiatives. One good example is the initiative by the Southern African Institute of Environmental Assessment (SAIEA), an indigenous NGO based in Namibia. SAIEA is dedicated to promoting EIA as a tool to achieve sustainable development and eradicate poverty in southern Africa. Through partnerships, SAIEA has been supporting government, development agencies, other NGOs and the private sector in the field of EIA. Some of the support mechanisms offered by SAIEA include: developing terms of reference for EIAs, independent reviewing, monitoring implementation, training (including hosting student attachments or internships), research and assisting with EIA legislation reform and formulation.

Conclusion

In this chapter, EIA and public participation processes were discussed. Various definitions of EIA and the stages in the generic EIA process were outlined. The stages covered included screening, scoping, impact identification and mitigation, draft EIA review, monitoring, auditing and de-commissioning. The interface between generic project and EIA cycles was also considered. Stakeholders in the EIA process include both the affected and interested parties. EIA legislation, particularly from southern African countries, was documented. The last part of the chapter investigated public

participation with a case reference from the Chad-Cameroon Petroleum Project. In sum, the chapter presents a toolkit for undertaking EIA and public participation.

Revision Questions

1. What is EIA?
2. What are the generic stages in the EIA process?
3. How are the project and EIA cycles related? How does this help to understand the EIA process better?
4. From the text, what is public participation?

Critical Thinking Questions

1. How would you address issues of corruption with regard to the approval of EIAs if you were to be a senior official in one of the government offices responsible for this task?
2. Identify a proposed development project that has failed to take off due to EIA requirements. What EIA issues have been raised by the regulating authority, which led to the delays? How best could you have addressed the concerns stopping the implementation of the development project?
3. Identify and discuss key legislative provisions for EIA and public participation in your country. What challenges exist?

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