STRAIGHTIC ENVIRONMENTAL ASSESSMENT (SEA) RESOURCE DOCUMENT

Introduction to the Process, Principles and Application of SEA

VERSION 4

June 2007

CSIR Report ENV-S-C 2002-073
PREFACE

Preface

The scope of environmental assessment has broadened to include its application to levels of decision-making that are more strategic than the project level. The limitations of project-level Environmental Impact Assessment (EIA) provided the main reason for the development, testing and implementation of Strategic Environmental Assessment (SEA). A number of countries and international agencies have instituted informal or formal processes for SEA. Internationally SEA practice is growing steadily, however, a universal understanding of the concept of SEA and the forms of its application, is still developing.

The widespread benefits of SEA include its application at the local, regional and cross-border level and its integration into the highest levels of decision-making for policy, plans and programmes. Research, training and the sharing of information and experiences is vitally important for the development and consolidation of SEA if it is to function as a tool to aid decision-making which promotes sustainability.

Structure of this SEA Resource Document

This document has been divided in to the following main chapters:

Chapter 1 briefly outlines why, where and when SEA is required.
Chapter 2 gives a detailed discussion of the various principles and approaches to SEA that have been developed internationally.

It should be noted that the development of the course and the SEA Resource Document has not been tailored to meet the specific policy and legal context of a particular country. Rather, it has been designed to provide the course delegate with the background information to be able to understand the purpose of SEA, where it can be applied and the potential benefits it can provide.

Referencing

When referencing this document, it should be cited as follows:

Acknowledgements

The original compilation of this SEA Resource Document was made possible by the Parliamentary Grant from the South African Government to the CSIR for research in the environmental assessment and management field. Case study inputs from Stuart Heather-Clark, Kogi Govender and Yvonne Hong at the CSIR’s Division of Water, Environment and Forestry (Environmentek) are acknowledged. Thanks are due to Alex Weaver for reviewing this resource document.

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This document has been compiled using the knowledge of the authors, other contributors and published information. All sources used have been acknowledged by means of complete references. Although all possible efforts have been made to include useful and reliable information, the CSIR as well as the authors and other contributors cannot assume responsibility for the consequences of use thereof.
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CHAPTER 1: INTRODUCTION TO STRATEGIC ENVIRONMENTAL ASSESSMENT

1.1 INTRODUCTION

Human activities and the environment are inextricably linked (UNEP, 2006) with the environment providing ecosystem services to development and development, in turn, affecting the ability of the environment to provide such services. Ecosystem services are the benefits that human beings obtain from the natural environment (Scholes and Biggs, 2004), such as land for the production of crops, water for drinking and cleaning and wood for housing construction and energy purposes.

Africa’s environment has, however, deteriorated steadily, with poverty being one of the main symptoms of that degradation. High levels of poverty - in combination with increasing instances of climate variability and natural disasters, as well as internal institutional weaknesses in Africa - have made Africans more vulnerable physically, psychologically and economically. Poor economic performance, and weak institutional and legal frameworks, as well as the overexploitation of natural and human resources, contribute to increased human vulnerability.

In 2000, the world’s leaders agreed on 8 goals, the Millennium Development Goals, to address issues related to poverty, hunger, disease, education and gender equity (UN, 2006). These goals are listed in Box 1.1.

In 2006, the UN published a progress report indicating where countries stand in terms of meeting these goals. This report indicated that although the proportion of people living on less than $1 USD per day in Sub-Saharan Africa had declined slightly, the number of people living in extreme poverty had increased between 1990 and 2002 (UN, 2006). Rapid deforestation continues globally, as does the rise in carbon dioxide emissions which affect climate change (UN, 2006).

Box 1.1: Issues that need to be addressed in Africa as a prerequisite for sustainable development

Examples of issues that need to be addressed for sustainable development include:

- “Reducing poverty;
- Improving the state of the environment;
- Improving management systems;
- Reducing vulnerability to adverse environmental changes;
- Promoting regional and sub-regional cooperation;
- Mobilizing additional financial resources; and
- Creating an effective institutional structure to holistically manage the environment on a region-wide basis.”

1 Sustainable development is typically defined according to the Brundtland definition as “meet(ing) the needs of present generations without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development (WCED), In: Lebel and Kane, Foreword, 1990).
Chapter 1: Introduction to Strategic Environmental Assessment

Box 1.2: Millennium Development Goals

The Millennium Development Goals are to:
- Eradicate extreme poverty;
- Achieve universal primary education;
- Promote gender equality and empower women;
- Reduce child mortality;
- Improve maternal health;
- Combat HIV/AIDS, malaria and other diseases;
- Ensure environmental sustainability; and
- Develop a global partnership for development.

It is significant that Africa already has a vision for sustainable development embodied in the newly formed African Union and in the New Partnership for Africa's Development (NEPAD).

NEPAD contains a recognition by African leaders that "a healthy and productive environment is a prerequisite for the New Partnership for Africa's Development" (B4,135). It is also recognised within NEPAD "that a core objective of the Environment Initiative must be to combat poverty and contribute to socio-economic development in Africa" (B4, 136).

Strategic Environmental Assessment (SEA) provides an approach to integrating Africa's socio-economic challenges with the biophysical dimensions of sustainable development.

1.2 EVOLUTION OF SEA

Sadler (2001) describes three stages in the development of SEA:

The formative stage from 1970 to 1989 in which only the United States had SEA systems established. These systems were developed in terms of the National Environmental Policy Act (NEPA, 1969), which requires in terms of Section 102 (2) (c) that an environmental impact statement accompany proposed legislation and major federal actions significantly affecting the environment. Environmental Impact Assessment (EIA) systems in several other countries, such as Australia and Canada, contained elements of SEA and by the end of this period, other countries and certain international organisations started to introduce SEA into legislation. (Sadler, 2001).

The formalisation Stage from 1990 to 2000, in which SEA systems were established in a number of countries, including Canada, Denmark, the United Kingdom, the Czech Republic, Australia and New Zealand. Certain countries in Africa, including Lesotho, Malawi, Mozambique and Zambia also made provision of SEA in policy and/or law (Dalal-Clayton and Sadler, 2005). During this stage the nature of SEA processes became increasingly diversified.

The extension stage from 2001 onwards in which international legislation, such as the European Union Directive on SEA and the UNECE Convention on Transboundary EIA, are likely to significantly advance the adoption of SEA in an increasing number of countries. The European SEA
Directive (Directive 2001/42/EC) came into force in July 2004, stipulating requirements for the development of SEA processes within member countries. The number of African countries that have made provision for SEA in law is also increasing, for example, Botswana promulgated legislation in 2001 and Tanzania in 2004 (Dalal-Clayton and Sadler, 2005; Republic of Botswana, 2005). On a global scale, more than 25 countries and jurisdictions currently have SEA systems in place (Dalal-Clayton and Sadler, 2005).

SEA legislation has been developed in several countries in Africa, while in several others SEA is undertaken on an ad hoc, non-mandatory basis. Examples of SEA legislation in Africa are provided in Section 2.4.4.

The understanding of SEA varies considerably in different parts of the world. These differences are a result of the variation in its scope, comprehensiveness, duration and links to either policy, plans or programmes (Sadler and Verheem 1996; Sadler and Baxter, 1997; Dalal-Clayton and Sadler, 1998; Verheem and Tonk, 2000). The differences also stem from the specific contexts in which SEA is used, e.g. in designing or evaluating policies, plans and programmes (PPPs) or incorporating sustainability principles in PPPs (Verheem and Tonk, 2000). According to Thérivel (1998), there is no single approach to SEA that should be applied in all circumstances. It should be seen as a family of tools rather than one formal process or method (Goodland, 1997; 1998; Buckley, 1998; Thérivel, 1998). Verheem and Tonk (2000) advocate the development of a set of generally accepted SEA principles. Each country, will, however, need to adopt the process and terminology most suitable to their particular context, in a way that is practical and assists in moving towards sustainability goals (Thérivel and Partidário, 1996).

This chapter provides a brief introduction and overview of the concept of SEA. The aim of this chapter is not to be comprehensive, but to rather introduce basic concepts, ideas and thinking on SEA.

This chapter is divided into the following sections:

- What is SEA?
- Why is SEA applied?
- Where is SEA applied?
- What makes SEA strategic?

1.3 WHAT IS SEA?

There is currently no internationally accepted definition of SEA. It is, however, commonly referred to as a process for assessing the environmental consequences of PPPs (Thérivel et al., 1992; Sadler and Verheem, 1996; Thérivel and Partidário, 1996). SEA is therefore a process to aid decision-making (Sadler and Verheem, 1996). The term strategic encompasses a range of types and contexts of decision-making. The desirability of taking the environment into account earlier in the decision-making process has been generally accepted throughout the world (Wood, 2003). Under this broad perspective, SEA encompasses assessments of both broad policy initiatives and more concrete programmes and plans that have physical and spatial dimensions. With this scope and breadth of coverage, one problem becomes immediately apparent. The methods and approaches to be applied in the different decision-making contexts (i.e. policies, programmes and plans) would differ markedly.
However, recognised principles should apply at all levels (Dalal-Clayton and Sadler, 1998). SEA is undertaken at the early stages of PPP formulation, before specific project proposals are developed. Table 1.1 outlines some of the definitions and interpretations of SEA appearing in the literature.

Table 1.1 : Selected examples of the definitions or interpretations of the concept of SEA

<table>
<thead>
<tr>
<th>Source</th>
<th>Definition or interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thérivel et al. (1992:19)</td>
<td>Evaluating the environmental impacts of PPPs and their alternatives.</td>
</tr>
<tr>
<td>Verheem (1992:190)</td>
<td>Under the environmental impact assessment system certain types of plans and programmes are subject to assessment. Often environmental effects will be described in qualitative terms only.</td>
</tr>
<tr>
<td>Sadler and Verheem (1996:27)</td>
<td>SEA is a systematic process for evaluating the environmental consequences of a proposed policy, plan or programme initiatives in order to ensure that they are fully included and appropriately addressed at the earliest appropriate stage of decision-making, on par with economic and social considerations.</td>
</tr>
<tr>
<td>Thérivel and Partidário (1996:4)</td>
<td>The formalised, systematic and comprehensive process of evaluating the environmental effects of a policy, plan or programme and its alternatives.</td>
</tr>
<tr>
<td>Brown and Thérivel (2000:185)</td>
<td>SEA is a process directed at providing a holistic understanding of the environment and social implications of the policy proposal. The intention of SEA is to move PPPs towards sustainable outcomes.</td>
</tr>
<tr>
<td>Rossouw et al. (2000:219)</td>
<td>SEA should be integrated into existing PPP processes. It concentrates on the opportunities and constraints that the environment places on PPPs (development) rather than on the impact (consequences) of PPPs on the environment. This includes the proactive evaluation of the capacity of the environment to sustain various types of development.</td>
</tr>
<tr>
<td>Eggenberger and Partidário (2000:203)</td>
<td>SEA addresses the impacts of PPPs preventatively. It identifies sustainable development opportunities.</td>
</tr>
<tr>
<td>Partidário (2000:657)</td>
<td>SEA is to be conceptualised as a framework, which addresses environmental quality and environmental consequences. SEA is incrementally integrated into policy and planning procedures and practices.</td>
</tr>
<tr>
<td>Partidário and Clark (2000:4)</td>
<td>SEA is a systematic on-going process for evaluating, at the earliest stage of decision-making, the environmental quality and consequences of alternative visions and development intentions incorporated in PPPs, ensuring full integration of relevant biophysical, economic, social and political considerations.</td>
</tr>
<tr>
<td>Dalal-Clayton and Sadler (2005:4)</td>
<td>SEA is currently understood to be a process for identifying and addressing the environmental (and also, increasingly, the associated social and economic) dimensions, effects and consequences of PPP and other high-level initiatives.</td>
</tr>
</tbody>
</table>

The definitions provided in Table 1.1 have a number of areas and issues on which there is convergence or commonality and also where there is divergence. For example, the following common elements between the various definitions can be recognised:

---

*Chapter 1: Introduction to Strategic Environmental Assessment*
It appears that the current body of SEA theory is recognising that the elements for SEA should include that it is:

- Context specific (i.e. that SEA remains flexible according to the nature of the PPP and the decision-making process, as well as whether it is being applied in a developing or developed country context);
- Sustainability-led (i.e. that it acts as a catalyst for the inclusion and strengthening of sustainability principles into PPPs); and
- Integrated (i.e. that all the dimensions of sustainability - social, economic and biophysical - are integrated into PPPs).

1.4 WHY IS SEA APPLIED?

The aim of SEA is to provide decision-makers and affected stakeholders with timely and relevant information on the potential environmental impacts of a PPP, in order to modify the PPP to make it more environmentally sound (Wood, 2003). Like Environmental Impact Assessment (EIA), SEA is a process. Sadler and Verheem (1996) describe the SEA process as a decision-aiding rather than decision-taking tool. The goal of SEA is to integrate social, biophysical and economic aspects into PPPs, to promote sustainable development (Department of Environmental Affairs and Tourism (DEAT), 2000). The aim of SEA is to deliver the
information necessary at the right time, to integrate the concept of sustainability into decision-making. SEA may form the context for the lower levels of planning and provide input into higher, more strategic levels (Rossouw et al., 2000).

In South Africa and internationally, a key motivation for the development and initiation of SEA was to overcome the limitations of project-specific EIA. Table 1.2 summarizes and compares the evolving differences in the way that EIA and SEA is practiced in South Africa. In Figure 1.1 a key difference is illustrated between the application of EIA and SEA in South Africa. EIA identifies the impact of development on the environment, while SEA identifies the environmental opportunities and constraints for development.

<table>
<thead>
<tr>
<th></th>
<th>EIA</th>
<th>SEA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Is reactive to a development proposal</td>
<td>Is proactive and informs development proposals</td>
</tr>
<tr>
<td></td>
<td>Assesses the effect of a proposed development on the environment</td>
<td>Assesses the effect of the environment on development needs and</td>
</tr>
<tr>
<td></td>
<td>(see Figure 1.1.)</td>
<td>opportunities (see Figure 1.1)</td>
</tr>
<tr>
<td></td>
<td>Addresses a specific project</td>
<td>Addresses areas, regions or sectors of development</td>
</tr>
<tr>
<td></td>
<td>Has a well defined beginning and end</td>
<td>Is a continuing process aimed at providing information at the right</td>
</tr>
<tr>
<td></td>
<td>Assesses direct impacts and benefits</td>
<td>Assesses cumulative impacts and identifies implications and issues</td>
</tr>
<tr>
<td></td>
<td>Focuses on the mitigation of impacts</td>
<td>for sustainable development</td>
</tr>
<tr>
<td></td>
<td>Narrow perspective and a high level of detail</td>
<td>Creates a framework against which impacts and benefits can be measured.</td>
</tr>
<tr>
<td></td>
<td>Focuses on project-specific impacts</td>
<td></td>
</tr>
</tbody>
</table>

The concept of a tiered approach to SEA and project-level EIA is widely accepted in South Africa. SEA should provide the overarching context for project-level EIAs. SEA is seen as a higher level tool within environmental assessment and management (Figure 1.2).
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SEA has been recognised in the literature as being a powerful tool that can be linked to sustainability. The purpose of SEA, according to Sadler (2001) is to inform strategic decision-making in support of environmentally sound and sustainable development. The advantages and benefits of SEA are outlined in Box 1.3.

### Box 1.3: Why is SEA applied?

*Sources: Adapted from CSIR (1996), DEAT (2000), Sadler (2001), Stinchcombe and Gibson (2001)*

SEA has the potential to:

- Operationalise sustainability principles;
- Improve the analyses of broad alternatives;
- Facilitate transparency and more effective public participation at the strategic level (i.e. the level of policies, plans and programmes);
- Provide a framework for more effective and efficient EIA;
- Provide a process for integrating sustainability objectives into PPPs;
- Pro-actively inform the development of PPPs;
- Identify the opportunities and constraints which the environment places on development to inform the drafting of PPPs;
- Provide guidelines to ensure that development is within sustainable limits;
- Integrate across areas, regions or sectors;
- Improve the way in which cumulative effects are dealt with in environmental assessment, for example, through the use of thresholds and limits of acceptable change; and
- Enable the maintenance and enhancement of a chosen level of environmental quality.

### 1.5 WHERE IS SEA APPLIED?

The main forms of SEA include policy, programme or plan SEA. Table 1.3 provides a list of possible areas of SEA application.

#### Table 1.3: List of areas where SEA can be applied

<table>
<thead>
<tr>
<th>Decision-making level</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy</td>
<td>International trade agreements, development assistance, international conventions, government policies, transboundary agreements.</td>
</tr>
<tr>
<td>Plan</td>
<td>Spatial and land use plans.</td>
</tr>
<tr>
<td>Programme</td>
<td>Regional development programmes. SEA of particular sectors, e.g. forestry, tourism, industry, agriculture.</td>
</tr>
</tbody>
</table>

### 1.6 WHAT MAKES SEA STRATEGIC?

The strategic nature of SEA is a function of how it is applied (i.e. the process of SEA), its outcomes and its interaction with the decision-making process. The characteristics of SEA that define its strategic nature are outlined in Box 1.4.
Strategic Environmental Assessment Resource Document

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Box 1.4: What makes SEA strategic?


1) **SEA emphasises strategy**

The SEA process can be used to formulate a strategy for action that incorporates sustainability objectives, targets and indicators.

2) **SEA is set within the context of broader visions, goals and objectives**

The ‘integrated’ model or ‘objectives-led’ model of SEA typically includes the identification of a vision of the desirable future. Once a vision is articulated, goals and objectives are defined and alternative means of achieving those goals and objectives are evaluated. The goals, objectives and the alternatives are the means to the end (the end being the desired future).

3) **SEA asks the question: what is the preferred option? (i.e. SEA is proactive)**

The preferred option is the strategic choice or strategic decision. For example, a policy may have a stated preference of renewable energy technologies over fossil fuel or nuclear technologies. EIAs on the other hand consider the impacts of different option alternatives at the project level, rather than at the strategic (i.e., policy, plan or programme) level. EIAs are applied once strategic decisions have already been made (for example the preference for coal-fired power stations).

4) **SEA sets objectives, targets, criteria and indicators for sustainability**

Objectives are the specific aim, purpose, intent or mission that needs to be accomplished. Targets are certain quantified milestones to be reached. They may contain a specified timetable. Criteria are the specific parameters, guidelines or standards that must be met (i.e., the limit of environmental change). Indicators are specific measurables that help track progress towards a target or goal.

**Discussion theme:**

**Key strategic issues**

SEA is a process that can be applied to determine whether Poverty Reduction Strategies will have sustainable outcomes. In many instances, poor people in developing countries depend on natural resources for their livelihood.

Discuss and highlight some of the key strategic issues related to natural resource management for poverty reduction. For example, a key strategic issue could be access to drinking water or access to land for farming.
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2.1 INTRODUCTION

In Chapter 1 some basic concepts concerning the purpose of SEA and when it is applied, were introduced. The purpose of Chapter 2 is to provide a guide for the development of context-specific SEA processes. This chapter begins with a description of SEA principles and thereafter five questions are presented, for consideration in the design of tailor-made processes for SEA. Selected approaches to the issues raised in each question are described. Examples of alternative SEA processes are presented, however, in all cases the original sources should be consulted before use of the material for the formulation and implementation of SEA processes.

This section contains summarized examples only and the original sources should be consulted for detailed guidance.

It is important to note that the selected SEA processes and principles presented in this section, from international SEA practice, are examples only and there are many alternative ways of addressing each question. SEA is a relatively new and emerging practice. Therefore this section aims to provide an initial overview of the type of approaches which are being presented and evolving internationally. Many of these approaches are still in the process of being tested.

2.2 WHAT IS THE OVERALL PURPOSE OF SEA?


- That it relates to the environmental implications of decisions made above the project level;
- That it is an aid to decision-making;
- That it was designed to overcome the constraints of project-level EIA;
- That it aims to expand the focus of plans and programmes beyond a narrow biophysical, social or economic focus to consideration of all three of these dimensions, to promote sustainable development;
- That it aims to deliver, at the right time, the information necessary to integrate the objectives of sustainability into decision-making; and
- It forms the context for lower levels of planning and it provides input into higher levels.

As stated in Chapter 1, there are two main approaches to SEA that influence its purpose. The first is an EIA-based approach that is an extension of project-based EIA to plans and programmes (Partidário, 1999). The second approach involves the application of environmental assessment to the formulation of plans and programmes that are assessed within the context of sustainable development.
The focus of the first approach is on determining the potential environmental impact of plans and programmes, while the second approach has a greater focus on influencing the design of plans and programmes and on achieving the objectives of sustainability. However, in response to the question of whether SEA is an upstream project-based EIA, Thérivel (2000, p187) states that

“Clearly, grafting SEA on to existing PPP formulation procedures will not be achieved by attempting to translate existing project-based EIA legislation, procedures and format, upstream. Thus, new methodologies and procedural requirements, specifically for SEA, will be required. Nevertheless, there are valuable principles, and concepts of project-based EIA that are equally relevant in SEA.”

Despite the general trend towards using SEA in a proactive way for the integration of sustainability into decision-making, in some instances EIA-based approaches may still be required (e.g. if legislated) or be the most appropriate approach.

SEA is also a means of practically implementing legislative requirements for sustainable development. In South Africa, for example, the principle of sustainability is contained in much of the new planning and environmental legislation promulgated (e.g. The Development Facilitation Act No 67 of 1995 and the National Environmental Management Act (NEMA) No 107 of 1998).

SEA is a process that can be used to ensure that the concept of sustainability is operationalised in planning and programme formulation processes.

In summary, the purpose of SEA is to integrate environmental considerations (social, economic, biophysical) into strategic decision-making, to assist in the transition to sustainability.

### 2.3 WHAT ARE THE PRINCIPLES THAT GUIDE SEA PRACTICE?

The International Association of Impact Assessment (IAIA) has formulated a set of Performance Criteria for Strategic Environmental Assessment. The purpose of these criteria is to “…provide general guidance on how to build effective new SEA processes and evaluate the effectiveness of existing processes (IAIA, 2002, Special Publication Series No 1: Strategic Environmental Assessment: Performance Criteria).” The criteria were developed by Rob Verheem from The Netherlands EIA Commission, in consultation with the members of the IAIA SEA Section. Discussions at workshops held in 1998, 1999, 2000 at the IAIA Annual Conferences assisted with the formulation of the criteria. These SEA performance criteria, which were endorsed by the IAIA Board of Directors in November 2001, are listed in Box 2.1.
Box 2.1: Strategic Environmental Assessment Performance Criteria

(Source: IAIA, Special Publication Series No.1: Strategic Environmental Assessment: Performance Criteria, January 2002)

It is stated in the IAIA Performance Criteria that a good quality SEA process “informs planners, decision-makers and affected public on the sustainability of strategic decisions, facilitates the search for the best alternative and ensures a democratic decision-making process. This enhances the credibility of decisions and leads to more cost- and time-effective EA at the project level.”

The criteria for a good quality SEA process are listed below with examples of the meaning of each criteria (for the full list, the original source should be consulted).

A good-quality SEA process is:

- Integrated (e.g. it addresses the relationship between social, economic and biophysical aspects and is linked to relevant policies and, where applicable, to project EIA);
- Sustainability-led (e.g. it facilitates the identification of more sustainable development options and alternatives);
- Focused (e.g. it focuses on the key issues of sustainable development, it is cost and time effective and adapted to the nature of the decision-making process);
- Accountable (e.g. it is subject to independent review and includes documentation of how sustainability issues where included in decision-making),
- Participative (e.g. it informs and involves government agencies and interested and affected parties throughout the process); and
- Iterative (the assessment results are available early enough in the process to influence decision-making and planning).

An example of SEA principles for a particular country is contained in the South African Guidelines for SEA, published by the Department of Environmental Affairs and Tourism (DEAT) in 2000 (Box 2.2). This guideline is currently being revised and a new version which incorporates further learning from practice will be published this year. The principles in the 2000 SEA Guideline, which have been adopted, with small modifications, by the Canadian International Development Agency (Dalal-Clayton and Sadler, 2005), aim to provide the theoretical base for the development of context-specific SEA processes.
Box 2.2: Principles for SEA in South Africa

Source: DEAT, 2000: p15-16

Listed below are the principles contained in the South African Guidelines for SEA published in 2000. Examples of the implications of these principles for the SEA process are provided alongside each principle.

SUBSTANTIVE PRINCIPLES

- SEA is driven by the concept of sustainability – the SEA process aims to integrate the concept of sustainability into plans and programmes.

- SEA identifies the opportunities and constraints that the environment places on the development of plans and programmes – the opportunities and constraints that the environmental resources present for development are identified. These opportunities and constraints are used to guide the formulation of the plan or programme.

- SEA sets the criteria for levels of environmental quality or limits of acceptable change – the levels of acceptable change in the environment are identified (e.g. levels of emissions permitted in an industrial area) and should be informed by scientific information and public view. These levels may already exist in current legislation or country standards.

PROCEDURAL PRINCIPLES

- SEA is a flexible process that is adaptable to the planning and sectoral development cycle – A single SEA process to be applied in all situations does not exist. Each SEA process is designed in a way that is integrated into the relevant process for plan and programme development.

- SEA is a strategic process, which begins with the conceptualisation of the plan or programme – The SEA begins at the earliest stages in the process of plan or programme development, from conceptualisation through the various stages of decision-making.

- SEA is part of a tiered approach to environmental assessment and management – SEA relates to the higher levels of decision-making (e.g. plans and programmes) in order to provide the context for the lower levels (e.g. project level)

- The scope of an SEA is defined within the wider context of environmental processes – SEA considers significant local, regional, national and international linkages.

- SEA is a participative process – The entire SEA process should be informed and enhanced by the public participation process.

- SEA is set within the context of alternative scenarios – the SEA includes the development of alternatives (e.g. scenarios and alternative plan and programme options) in a participatory way.

- SEA includes the concepts of precaution and continuous improvement – In conducting the SEA, a risk-averse approach is used which recognises the limitations of current knowledge about the consequences of decision-making. In conjunction with this, however, a commitment is made to continuous learning and improvement.
**Discussion theme: SEA principles**

What are the principles that should inform the design of context-specific SEA processes in Africa?

**2.4 WHAT PROCESS SHOULD BE FOLLOWED IN UNDERTAKING SEA?**

There is no single SEA methodology that can be applied in all circumstances (Brown and Thérivel, 2000). Each SEA process should rather be tailor-made to achieve its desired outcomes within the context in which it is implemented (Verheem and Tonk, 2000; Brown and Thérivel, 2000; DEAT, 2000). Various approaches to SEA have been developed internationally and as Verheem and Tonk (2000) state, the differences arise from the various contexts in which the SEA processes are used (e.g. in drafting legislation, designing policies and concrete programmes and in either developed or developing countries). In summary, (Verheem and Tonk, 2000: p185):

“No one methodology will apply to all strategic actions and in all socio-political contexts: we must begin to think in terms of an array of SEA tools from which the most appropriate one(s) can be selected to meet the needs of the particular circumstances.”


Although a single SEA methodology cannot be prescribed for all circumstances, factors that would influence the nature of the SEA process, these include:

- The type of policy, plan or programme (PPP) being formulated;
- The different actors involved in the process and their various agenda’s;
- The knowledge requirements and bargaining styles within different sectors;
- The level at which the formulation of the PPP occurs;
- Whether the SEA is being used in the formulation stages of the PPP or in the evaluation stage once the PPP has been developed;
- The time available for the PPP;
- The level of confidentiality required; and
- Whether public or private funds are used for the SEA.

Based on the list above, a brief review of international SEA practice (for example, Verheem and Tonk, 2000; Kjörven and Lindhjem, 2001; Partidário, 1999; Canadian Environmental Assessment Agency, 2000) and SEA experience in South Africa, five questions are identified as an initial guide to the factors which should be considered in the design of context-specific SEA procedures. These questions are listed in Box 2.3.
Box 2.3: Initial guide to the factors that should be considered in the design of SEA processes

1. What type of policy, plan or programme is being formulated?
2. In what way does the SEA relate to the decision-making process?
3. What components of the environment are being considered?
4. Are there any requirements (legislation/principles) that should guide the formulation of the SEA process?
5. What resources (e.g. human and financial resources) are available to conduct the SEA process?

The above is not intended to be a comprehensive list, but rather an initial guide to the factors that should be considered in the design of an SEA process. Through addressing each of the questions listed above, the following section provides examples of the various steps or phases in alternative SEA approaches. The questions are not focused on the substantive content of an SEA process (e.g. what issues or alternatives should be considered) but rather on the process itself and its purpose, extent and interaction with decision-making. In the section that follows each question listed above is expanded upon and examples from current SEA theory and practice are provided to guide the design of context-specific SEA processes.

2.4.1 What type of policy, plan or programme is being formulated?

There are a number of different types of PPPs. For example (Brown and Thérivel, 2000):

- Those that relate to legislative change (e.g. international treaties);
- Green and White Papers;
- Economic policies (e.g. privatization, subsidies, taxation);
- Integrated plans (e.g. national and regional development plans and town plans);
- Sectoral policies and plans (e.g. agriculture, transport);
- Policies or plans for the management of a specific resource (e.g. coastal management and forest management);
- Policies or plans to achieve specific social ends (e.g. equitable access to transport);
- Policies or plans to guide incremental change (e.g. city consolidation); and
- Policies or plans relating to the selection of alternatives (e.g. between various transport routes).

This discussion will focus on two factors that influence the type of decision-making process being undertaken, namely:

- Whether a policy, plan or programme is being formulated; and
- Whether an integrated or sectoral PPP is being undertaken.

(i) Whether a policy, plan or programme is being formulated

The nature of the SEA process will be influenced by whether a policy, plan or programme is being formulated. Whilst acknowledging that these terms mean different things in different countries, Sadler and Verheem (1996) formulated generic definitions, as presented in Box 2.4.
Box 2.4: The 3Ps- A Glossary of Terms
(Source: Adapted from Sadler and Verheem, 1996: p28)

**Policy:**
A general course of action or proposed overall direction that an organisation is, or will be, pursuing and which guides ongoing decision-making (e.g. forestry policy).

**Programme:**
A coherent, organized agenda or schedule of commitments, proposals, instruments and/or activities that elaborates and implements policy, (e.g. Local Agenda 21 programme)

**Plan:**
A purposeful, forward-looking strategy or design, often with coordinated priorities, options and measures, that elaborates and implements policy (e.g. municipal development plans).

**The 3Ps:**
Policies, programmes and plans may have a national (government-wide), sectoral or spatial focus; often these terms are used in a sequential or inter-changeable manner.

In several countries (e.g. The United Kingdom, The Netherlands and South Africa) the process for SEA related to plans is developing separately from that related to policies. This is typically due to the more incremental, political and amorphous nature of the policy-making process.

A good example exists in The Netherlands of a two-tier SEA system which responds to both the more structured nature of most plan and programme formulation processes and the typically more amorphous nature of policy formulation processes. This system is described in Box 2.5.
Box 2.5: The Two-Tier Dutch SEA System


Since 1987, in terms of the Dutch EIA Act, an SEA is required for a number of spatial and sectoral plans and programmes. These include national plans on waste management, land development, the supply of drinking water and electricity production. An SEA is also required for regional plans relating to waste management and the location of new industrial areas and housing. A 'strategic EIA' (SEIA) process was developed for this purpose, which had similar characteristics to the traditional planning process. The SEIA process is therefore structured and participatory, much like the planning process and includes the same characteristics (e.g. full public involvement in scoping and reviewing and the mandatory examination of alternatives). The SEIA procedures are therefore similar to those for project EIA, as they include screening, scoping, compilation of a report, review and monitoring.

Since 1987 more than 40 SEIA’s have been undertaken. Examples include those for: National Waste Management Plans, National Structure Scheme Electricity Production, Provincial Waste Management Plans and Provincial Plan for the location of a new housing area. Verheem and Tonk (2000) state that SEIA works well for the purpose that it was intended, however, it probably would not be very effective in other contexts (e.g. where time is very limited or where processes for decision-making are not open due, for example, to confidentiality reasons).

A different approach to the SEIA process was therefore developed in The Netherlands specifically for the assessment of new legislation with significant environmental impacts. This approach is called the "E-Test" and involves the compilation of an environmental section or paragraph. The E-test was formulated to suit the characteristics of the process by which legislation is drafted in The Netherlands. This process for drafting legislation is an internal process that does not include mandatory public participation and which is based on cooperation between civil servants. Four questions were developed to be asked when compiling the environmental paragraph, these are (Bailey and Dixon, 1999:p264):

- “What are the effects on energy consumption and mobility?
- What are the effects on the consumption and stocks of raw materials?
- What are the effects on waste and on emissions to air, soil and surface water?
- What are the effects on the use of physical space available?”

To enable the E-Test to be client orientated a helpdesk was created and coordination between the environmental assessment and other assessments is required. Selectivity of the approach was promoted by limiting the number of questions to be asked and by only requiring an assessment of selected legislation. The E-test for cabinet decisions was developed as a complementary process to the SEIA process for plans, programmes and sectoral policies.
Sadler (2001) proposes that policy appraisal tools are applied to broad proposals; and that tools based on the requirements of impact assessment are applied to PPPs that have well defined alternatives and that initiate specific projects and activities. This is consistent with the approach adopted in The Netherlands (Box 2.5).

(ii) Whether a regional or sectoral PPP is being undertaken

An SEA may relate to a specific region (e.g. geographical area such as a river catchment area; an administrative area such as a municipality) or to a particular sector (e.g. transport sector, mining sector or forestry sector). Examples of approaches developed to regional and sectoral environmental assessment by the World Bank are briefly introduced in Box 2.6 and Box 2.7.

Box 2.6: Regional Environmental Assessment

(Source: The section that follows is summarized from the Environmental Assessment Sourcebook Update Number 15 (June 1996) compiled by the Environment Department, The World Bank)

In 1989, the World Bank introduced generic guidance on Regional Environmental Assessments (REA) through an Operational Directive on environmental assessment (OP/BP/GP 4.01 – as amended in 1996). Further guidance on regional EA’s is provided in the Environmental Assessment Sourcebook (1991). “The main purpose of REA is to improve investment decisions by bringing environmental opportunities and constraints into development planning at the regional level (World Bank, 1996, p1).” REA is used in the initial stages of planning and aims to influence the outcome of planning processes. This form of SEA relates particularly to a spatial area, which may be defined, for example, in terms of ecological, socio-economic, administrative or demographic factors. REA’s may be used proactively in the planning process through identifying the ecological and socio-economic opportunities and constraints within a region and using this as a basis to determine the most appropriate development from an environmental sustainability point of view. The focus of the REA in this case is on designing a development plan. In other cases, a REA may be undertaken to determine the cumulative impact of a number of activities that are part of a plan that has been developed or which is currently being formulated. The focus of the REA in this instance is on influencing the plan.

The benefits of REA include: facilitating coordination across administrative boundaries and a range of sectors; providing information on, for example, the State of the Environment, that can be used in impact assessment further downstream in decision-making and providing criteria that can be used for the environmental screening of projects in the region.

Experience with REA is described as limited in the World Bank Environmental Assessment...
However, experience at the World Bank and other institutions has shown that REA can assist in the development of sustainable investment strategies at the regional level and in building capacity for environmental management. An example of a REA is one that was undertaken for flood protection in Argentina (Kjörven and Lindhjem, 2001).

The process for undertaking an REA is described in detail in the Environmental Assessment Sourcebook Update No 15 (World Bank, 1996).

**Box 2.7: Sectoral Environmental Assessment**

(Source: The section that follows is summarized from the Environmental Assessment Sourcebook Update Number 4 (October 1993) compiled by the Environment Department, The World Bank)

In 1989, the World Bank introduced generic guidance on Sectoral Environmental Assessments (SEA) through an Operational Directive (OD) 4.00, Annex A: Environmental Assessment (amended in 1991 as OD 4.01). Further guidance on sectoral EAs is provided in the Environmental Assessment Sourcebook (1991). Experience from the implementation of sectoral EAs indicates a number of important benefits of its use, these include, for example: prevention of significant environmental impacts through the analysis of sector strategies and policies at an early stage; increased transparency in the sector-planning process; facilitation of sectoral coordination and strengthening projects through the identification of criteria for environmental analysis and review.

The process for conducting a sectoral EA depends on the context in which it is developed and implemented. However, the World Bank Environmental Assessment Sourcebook Update No 4, October 1993, provides general guidance for a full Sectoral EA.

Examples of Sectoral EA’s include those related to the following (Kjörven and Lindhjem, 2001):

- Ethiopia Road Sector Development Program;
- Nepal Medium-sized Hydropower Development Strategy; and
- The Environment, Industry and Mining Project (EIMP) in Bolivia.

There are a number of World Bank financed projects with components of sectoral EA related to, for example, the following sectors: transport, agriculture and industry (World Bank, 1993).

**Discussion Themes: Regional and Sectoral Environmental Assessment**

- In what way can SEA enhance regional land use planning?
- How can environmental aspects be effectively integrated into regional planning?
- How can SEA enhance sectoral planning or policy processes?
- Should SEA be integrated into the planning of all sectors, including those that do not relate directly to biophysical aspects? Why?
- Do you know of any examples of sectoral...
Strategic Environmental Assessment Resource Document

or regional planning processes that have been particularly effective in integrating social, economic and biophysical issues? How was this achieved?

- What are the challenges to integrating the elements of SEA into regional planning and/or into sectoral policy and planning processes?

2.4.2 In what way does the SEA relate to the decision-making process?

Thérivel and Partidário (1996, p11) provide a useful classification of three general approaches to SEA which relate to the decision-making process differently i.e. the ‘consent-related’ model, the ‘integrated model’ and the ‘objectives-led’ model. It is important, that public participation informs whichever model of SEA is used. An example of public participation in natural resource management in Zimbabwe is provided in Appendix A, Case Study 5.

The consent-related model

In this approach, the SEA informs a formal decision-making stage, which is usually towards the end of PPP formulation, similar to the way in which EIA informs project decision-making (Figure 2.1) (Thérivel and Partidário, 1996).

Examples of forms of this model are used in the United States, the United Kingdom and The Netherlands (Box2.5) \(\text{(ibid).}\) Although this model is effective for PPPs that have a formal authorisation stage, it can lead to project-level, rather than strategic thinking and for this reason, this approach is arguably less “strategic” than others (Thérivel and Partidário, 1996; Thérivel, 2004; CSIR, in press (2007)).

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Sadler (2001) provides step-by-step guidance on SEA practice that draws from both EIA-
based and policy appraisal experience. This guidance is in the form of a “menu of procedures” which should be adapted to the context in which they are implemented and not all steps would be applicable in all circumstances (Sadler, 2001). In summary, this guidance contains the following steps (Sadler, 2001: p22-p24):

- **Proposal:** Establish the need for and objectives of the proposed action – The responsible agency defines the basis for the proposal. This should include the need, purpose and objectives to be achieved.

- **Screening:** Determine if an SEA is required and at what level of detail – Screening can be undertaken by either referring to lists in legislation or guidelines which specify projects that are subject to SEA; or on a case-by-case basis in which all projects are screened to determine whether they are likely to have significant environmental effects and therefore warrant a full environmental assessment.

- **Scoping:** Identify the important issues and impacts that need to be examined – EIA methods and procedures for scoping can be adapted to SEA processes. The scoping process should be applied early in the SEA process and it should be transparent and systematic. The aim of this stage is to focus the SEA on the impacts that are relevant to decision-making and to define the terms of reference for further study.

- **Information:** Assemble environmental information – The general information required in an SEA may be specified in legislation or procedure. The specific information requirements of a particular proposal are clarified during the screening and scoping stages. SEA is typically undertaken against a description of the affected environment.

- **Consideration of alternatives:** Identify and compare the range of alternatives, including a best practicable environmental option – Identify the alternatives that meet the objectives of the proposal and summarise their social, economic and environmental aspects. The do-nothing alternative and the Best Practicable Environmental Option (BPEO) should be included. Methods that can be used when comparing a wide range of alternatives include: multi-criteria evaluation and environmental benefit cost analysis.

- **Impact Analysis:** Identify, predict and evaluate the effects of the proposal and the main alternatives – There is more uncertainty in dealing with impact analysis in SEA and than in EIA. Methods based on indicators can show trends of an impact e.g. increases in habitat loss. Scenario development and trend extrapolation are examples of projection methods. Various modifications of EIA methods (e.g. GIS and impact matrices) have been used, however, a single method is unlikely to be able to address all impacts.

- **Significance:** Determine the importance of the residual impacts, and if appropriate, relate these to other benefits and costs – In order to determine the significance of the predicted and residual impacts, they are evaluated against identified environmental criteria and objectives.

- **Mitigation:** Identify measures to avoid, reduce and offset the main impacts identified – Adverse impacts should first be avoided, then reduced and lastly offset, using appropriate measures. If information is incomplete and there is a risk of large scale, serious or irreversible change, a precautionary approach should be
adopted.

- **Reporting:** Describe the environmental impacts of the proposal and how they are to be addressed – A separate SEA report or statement is typically prepared and made available to the public. The report can range in length and form from, for example, an environmental paragraph to a section in a plan to a separate report.

- **Review of quality:** Check the information is adequate for the purposes of decision-making – The SEA report should be reviewed before submission, to ensure that it provides the information necessary for decision-making. The review can be undertaken by an independent body, the competent authority or an environmental agency.

- **Decision-making:** Approve, reject or modify the proposal with reasons for decision – The final decision-making body then accepts or rejects the proposal, or sets conditions. The decision-making body has an obligation or duty to take into account the results of the SEA (including the public participation). Reasons for the decision should be provided.

- **Monitoring:** Check to see implementation is environmentally-sound and in accordance with approvals – Monitoring of implementation can range from checks to see if the environmental objectives are being met, to a systematic programme to determine the impact of, for example, the policy or plan.

Sadler (2001: p18) lists the following “reality checks” when implementing this guidance:

- “Begin as early as practicable in the process of policy or plan formulation.
- Keep in mind the purpose of SEA to inform decisions not to produce a study.

- Ensure an SEA of a proposal corresponds to its potential environmental effects.
- Focus on the comparison of major alternatives.
- Look to gain environmental benefits as well avoid adverse impacts.
- Build capacity and strengthen process and procedures on lessons of experience.”

**The integrated model**

This approach aims to integrate SEA into the various stages of decision-making (e.g. the formulation of objectives and development of alternatives) (Figure 2.2) (Thérivel and Partidário, 1996). New Zealand and Canada (Box 2.8), are two counties in which this model is generally promoted. In addition, the first DEAT SEA Guideline produced in South Africa in 2000 states that SEA should not be applied separately to the planning process, but integrated into it (CSIR, in press (2007)).

The ‘integrated’ approach to SEA aims to influence the policy formulation or planning process from its initial stages (CSIR, in press (2007). As the SEA is usually not the dominant process, but relies on incorporation into the planning process for its implementation, its form must adapt to that of the planning procedure it is aiming to influence (ibid). A useful approach may be to focus on integrating the SEA principles into the policy or planning process, by asking how these principles can enhance the PPP process, or fill any deficiencies it may have in terms of abiding by the principles of SEA (e.g. effective public participation and/or the integration of sustainability objectives into PPP formulation) (ibid).

Although it can be argued that this approach is not necessarily an SEA as it does not have a very clearly defined “assessment” stage, it can
also be argued that it has the potential to influence the PPP formulation process more proactively through mitigating negative impacts and enhancing positive ones, throughout the planning and design process (CSIR, in press (2007). An example of where the ‘integrated’ approach has been adopted in South Africa is the SEA that was undertaken for the uMhlathuze Municipality (Appendix A, Case Study 2).

Figure 2.2 Integrated Model Source: CSIR, in press (2007).

Box 2.8: Strategic Environmental Assessment in Canada: The 1999 Cabinet Directive

The approach to SEA adopted in Canada contains significant elements of the ‘integrated’ model described by Thérivel and Partidário (1996). The Canadian Guidelines produced by the Canadian Environmental Assessment Agency (2000) require that the analysis of environmental effects is fully integrated into the PPP formulation process and that the decision should include the results of the SEA. Each department and agency is responsible for applying SEA to their own PPPs and are encouraged to develop SEA methodologies that are appropriate to their circumstances. The Guidelines are therefore advisory and not prescriptive.

In terms of the 1999 Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals, departments and agencies in Canada are expected to consider, when appropriate, the potential environmental effects of PPPs. Specifically, an SEA is required under the following two conditions (Canadian Environmental Assessment Agency, 2000: p1):

- “the proposal is submitted to an individual Minister or Cabinet for approval; and
- implementation of the proposal may result in important environmental effects, either positive or negative.”

The Guidelines state that the SEA generally addresses the following questions (Canadian...

1. What are the potential direct and indirect outcomes of the proposal?
2. How do these outcomes interact with the environment?
3. What is the scope and nature of these environmental interactions?
4. Can the adverse environmental effects be mitigated?
5. What is the overall potential environmental effect of the proposal after opportunities for mitigation have been incorporated?”

The SEA principles and process are described in further detail in the Canadian Guidelines produced by the Canadian Environmental Assessment Agency (2000).

The objectives-led model

The ‘objectives-led’ model of SEA sets a framework for future decision-making. This model includes the establishment of sustainability benchmarks, which are then integrated into the various tiers of decision-making (i.e. PPP’s) (Figure 2.1.) (Thérivel and Partidário, 1996). Thérivel and Partidário (1996, p11) note that “The ‘objectives-led’ model represents a rather utopian situation not yet seen in practice.”

Elements of the “objectives-led” model were used in the Port of Cape Town SEA (Appendix A, Case Study 1)

The approach adopted in the 2000 SEA Guidelines for South Africa also included many characteristics of this model, as it involved the development of sustainability objectives, criteria and indicators, against which to assess future alternative plans and programmes (DEAT, 2000). This process is described in further detail in Box 2.9.

Figure 2.3: Objectives-led/sustainability Framework Model

Guidelines for SEA were developed in 2000 by the national Department of Environmental Affairs and Tourism (DEAT) and the CSIR. These Guidelines are not legislated, and reflect an emerging approach to SEA. They are currently being revised in the light of further experience in the practice of SEA and the new version will be published in 2007.

The 2000 Guidelines describe an approach to SEA in which a framework for sustainability is developed to:
- guide future decision-making on an on-going basis (including plan and program formulation); or
- against which to assess existing plans and programmes.

These Guidelines reflect characteristics of both the integrative approach and the objectives-led approach to SEA, described by Thérivel and Partidário (1996). A diagram of the process presented in these Guidelines is shown in Figure 2.4.

The sustainability parameters, which form a framework for the development of plans and programmes, are based on a participatory scoping process (in which a vision and strategic issues are identified); and a situation assessment.

The various stages shown in Figure 2.4 are presented in the Guidelines as “key elements” of an SEA process. It is recommended in the Guidelines that these elements are integrated into existing processes for plan and programme formulation and that the duplication of existing processes is avoided. The emphasis is on adding value to existing processes. The key elements can, however, be used to develop a separate SEA process if this is required in a particular context.

The guidelines were developed “based on a variety of experiences in SEA in South Africa and internationally. However, they need to be tested and refined to reflect a common, evolving understanding of SEA (DEAT, 2000:25).”
Chapter 2: SEA Principles and Process

Page 2-17
Discussion Theme

- How should SEA be linked to decision-making?
- What are the advantages and disadvantages of each of the SEA models listed in Section 2.4.2 (i.e. the consent-related model, the integrated model and the objective-led model)?

2.4.3 What components of the environment are being considered?

The extent of the SEA will be significantly influenced by the components of the environment being considered. The Dutch E-test, for example, relates to the biophysical elements of the environment (Box 2.5). However, the Guidelines for Implementing the Canadian 1999 Cabinet Directive, compiled by the Canadian Environmental Assessment Agency (1999), require the consideration of environmental effects more broadly. Although the environment is defined in biophysical terms, environmental effects are defined in wider terms as follows (Canadian Environmental Assessment Agency, 1999, p12):

“(a) any change that the policy, plan or program may cause in the environment, including any effect of any such change on health and socio-economic conditions, on physical and cultural heritage, on the current use of lands and resources for traditional purposes by Aboriginal persons, or on any structure, site or thing that is of historical, archaeological, paleontological or architectural significance; and
(b) any change to the policy, plan or program that may be caused by the environment, whether any such change occurs within or outside Canada.”

In the South African Guidelines for SEA (DEAT, 2000: p8), the environment is defined in terms of national legislation i.e. The National Environmental Management Act No. 107 of 1998). In terms of this Act the “Environment means the surroundings within which humans exist and that are made up of –

i. the land, water and atmosphere of the earth;
ii. micro-organisms, plant and animal life;
iii. any part or combination of (i) and (ii) and the inter-relationships among and between them; and
iv. the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being (National Environmental Management Act No. 107 of 1998, Definitions (xi)).”

The approach to SEA adopted in these Guidelines involves determining the effect of the social, biophysical and economic environment on development. This reflects the sustainability-led approach promoted in these Guidelines that includes social, economic and environmental aspects.

There are a number of challenges to the implementation of an approach to SEA that involves consideration of social, biophysical and economic effects. These include coordination between various sectors and line departments; and the effective integration of social, economic and biophysical information.
It is argued in this SEA Resource Document that the scope of SEA should include the social and economic dimensions. If SEA is to include biophysical, social and economic dimensions, what are the procedural, institutional and administrative implications?

Relevant legislative requirements or principles concerning SEA are an important input into the design of context-specific SEA processes. On an international scale, the International Association for Impact Assessment (IAIA) has formulated SEA performance criteria “to provide general guidance on how to build effective new SEA processes and evaluate the effectiveness of existing SEA processes (IAIA, Special Publication Series No.1, January 2002).” These criteria were discussed in more detail in Section 2.3 and listed in Box 2.1. Verheem and Tonk (2000) provide an example of how a common set of principles may be used to develop different SEA processes which suit the context in which they are applied. This example shows how a set of principles is interpreted in the Dutch E-test and Strategic EIA process. Two of the nine principles and their interpretations from Verheem and Tonk’s (2000) example are provided in the table below.

To illustrate further how SEA principles may guide the design of context-specific SEA processes, another example is provided in Box 2.10 from the South African Guideline Document on SEA (DEAT, 2000), which shows an interpretation of the principles of sustainability and participation.

<table>
<thead>
<tr>
<th>Principle</th>
<th>E-test</th>
<th>SEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screening</td>
<td>Legislation with potential substantial effects on the environment is listed each year by an interdepartmental working group</td>
<td>Plans and programmes for which an assessment is mandatory are listed in the EIA Decree</td>
</tr>
<tr>
<td>Views of the public</td>
<td>Information becomes available through informal consultation of interest groups (outside the E-test) and public debate in parliament</td>
<td>Mandatory public consultation in both scoping and reviewing stage; for this a minimum of four weeks should be available</td>
</tr>
</tbody>
</table>

**Table 2.1: SEA principles and the Dutch SEA processes**

Source: Verheem and Tonk (2000: p180)
**Box 2.10: Principles of sustainability and participation in the South African SEA Guidelines**  

The interpretation of the principles of sustainability and participation in the South African Guidelines for SEA (DEAT, 2000: p16) is shown below, as examples of how principles can guide the formulation of context-specific processes:

<table>
<thead>
<tr>
<th>Principle</th>
<th>Implications</th>
<th>Key Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEA is driven by the concept of sustainability</td>
<td>The focus of SEA is on integrating the concept of sustainability into the objectives and outcomes of plans and programmes. Sustainability objectives are applicable to the level, scale and sector of the plan or programme; as well as to the environmental resources to be sustained. The sustainability objectives should be developed with the participation of interested and affected parties. Targets and measurement tools are defined to guide development towards sustainability.</td>
<td>How can the concept of sustainability be integrated into different levels of decision-making, within the spatial context of the plan or programme?</td>
</tr>
<tr>
<td>SEA is a participative process</td>
<td>Participation processes are adapted to the specific socio-political context of the plan or programme. The public participation process should inform and enhance the entire SEA process, in particular the scope and sustainability objectives of the SEA</td>
<td>What level and type of participation is most appropriate to enable roleplayers to engage in the process at a level that is appropriate to their needs and resources?</td>
</tr>
</tbody>
</table>

The principle of SEA being driven by the concept of sustainability is operationalised in the SEA process, for example, through the formulation of sustainability objectives, criteria and indicators, as described in Box 2.6.

The principle of participation is operationalised in the SEA process presented in these Guidelines through, for example, the scoping stage. It is stated in the Guidelines that the scoping stage:

“should be informed by effective participation procedures which are applicable to the particular context of the plan or programme. It is suggested that scoping is initially undertaken by a group of key interested and affected parties which plays a coordinating role, for example, through a steering committee. This committee could include authorities, specialists, non-governmental organizations, business and community organisations. This group should ensure that the scoping process, which includes a wider range of interested parties, focuses on strategic issues (DEAT, 2000:17).”
Legislation and policy concerning SEA also exists in certain countries. There are various forms of legal or policy provision for SEA. Sadler (2001: p15) identified four categories and the provision for SEA in various countries is usually based on one these:

1. EIA law (e.g. USA)
2. Planning regulations (e.g. Sweden)
3. Separate administrative order or policy directive (e.g. Canada)
4. Equivalent process of policy appraisal and plan evaluation (e.g. UK).

Examples of SEA legislation in Africa are listed in Box 2.11 below. This is certainly not an exhaustive list, but merely provides an illustration of how SEA has been incorporated into legislation in certain parts of Africa. For a more comprehensive list, see Dalal-Clayton and Sadler (2005).

**Box 2.11: Examples of SEA legislation in Africa**

<table>
<thead>
<tr>
<th>Country</th>
<th>Legislation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botswana</td>
<td>Environmental Impact Assessment Act (2005) makes provision for authorities to require the assessment of programmes and policies, amongst other activities. Section 6 (1) (b) requires that the development of all policies and programmes shall contain, or be accompanied by an SEA.</td>
</tr>
<tr>
<td>Lesotho</td>
<td>An EIA is required for certain planning and policy-making activities in terms of the Environment Act (2001).</td>
</tr>
<tr>
<td>Madagascar</td>
<td>SEA is provided for in Law No 90.033 (1990), which sets a framework for implementing environmental policy.</td>
</tr>
<tr>
<td>Mozambique</td>
<td>A number of programmatic activities require an “environmental impact study” in terms of the country’s EIA regulations (1998)</td>
</tr>
<tr>
<td>Tanzania</td>
<td>Provision for SEA is made in terms of the Environmental Management Act (2004).</td>
</tr>
</tbody>
</table>

In Ethiopia, the World Bank supported an SEA of a national roads program (Kjörven and Lindhjem 2001). Other donors (e.g. The Netherlands) have also been involved in SEA or SEA-type processes in Sub-Saharan Africa (ibid).
Box 2.12: Promotion of SEA in National Policy and Legislation in South Africa

SEA is promoted in policy and legislation in South Africa in a number of ways, which include the following:

- Chapter 5 of South Africa’s National Environmental Management Act (NEMA) No 107 of 1998 makes provision for the development of procedures for the assessment of the impact of policies, plans and programmes.

- The Municipal Systems Act No 32 of 2000 provides the context for municipal planning in South Africa. This Act (Ch5 s25(1)) requires that local authorities adopt a single plan that integrates development plans; aligns the resources and capacity of the municipality and forms the policy framework on which annual budgets are based. The Municipal Planning and Performance Regulations (Ch2, s2(4)(f)) promulgated in 2001 in terms of this Act, state that a strategic assessment must be undertaken of the environmental impact of the spatial development framework contained in the municipality’s plan.

- The White Paper on Spatial Planning and Land Use Management (2001) states that each municipality in South Africa must compile a spatial development framework. This framework should guide and inform all decisions of the municipality related to the use, development and planning of land (Ministry of Agriculture and Land Affairs, 2001). One of the four components of this framework, listed in section 3.2 of the White Paper, is a strategic environmental assessment.

- The role of SEA in the proactive integration of environmental issues into policy and planning is recognized in the White Paper on National Commercial Ports Policy, produced by the National Department of Transport in 2002.

The first regulation of SEA by a multinational body has been promulgated by the European Union (EU) (Kjörven and Lindhjem, 2001). The EU Directive requires the member states to establish mandatory procedures for the environmental assessment of certain plans and programs (PP) (ibid). A summary list of the SEA report requirements is contained in Box 2.13.
Box 2.13: A Summary List of SEA Report Contents Required under the European Union Directive


The SEA Report would need to include, for example:

- “an outline of the contents and main objectives of the plans and programmes, and the relationship with other relevant plans and programs;
- the relevant aspects of the current state of the environment;
- the environmental characteristics of areas likely to be significantly affected;
- any existing environmental problems that are relevant to the policy and program;
- the environmental protection of objectives established at international, community, or member state level that are relevant to the policy and program;
- the likely effects on the environment;
- the measures envisaged to prevent, reduce, and as fully as possible offset any significant adverse effects on the environment of implementing the policy and program;
- an outline of reasons for selecting the alternatives dealt with;
- a description of measures envisaged for monitoring the implementation of the policy and program; and
- a nontechnical summary of the information provided under the above headings (Kjörven and Lindhjem, 2001: p25).”

Discussion theme

SEA is an emerging process that is not widely practised in Africa. Given this fact, what are the comparative advantages and disadvantages of establishing formal legislation and procedures for SEA?

2.4.5 What resources (e.g. human and financial resources and time) are available to conduct the SEA process?

The time and resources (human and financial resources) available for the SEA are important determinants of the nature and extent of the process. Another important consideration is the data available and the demands made by the process in terms of information requirements. The South Africa Guidelines for SEA (DEAT, 2000) contain a principle that
recognizes the concepts of precaution and continual improvement. The implications of this concept is that a risk averse approach is applied in which the limitations of current knowledge about the consequences of decision-making are recognized (DEAT, 2000). However, this approach should be linked to a process of continual learning and improvement, increasing the understanding of sustainability in a region or sector (ibid).

A form of SEA that has been applied in developing countries and which is attractive for its simplicity and speed and which makes minimal use of scarce resources, is the Environmental Overview (EO). Box 2.14 contains a summary of this approach.

Box 2.14: Environmental Overview (EO)


The EO process is based on the United National Development Programme (UNDP) “Handbook and Guidelines for Environmental Management and Sustainable Development” which was published in 1992. This approach to SEA is flexible and adaptable to various contexts. It applies to projects, programs, policies and sectoral activities; as well as to any scale. The “environment” is defined in the context of the EO process as including the “social, cultural, health, and economic dimensions, not just the physical and the biophysical (Brown, 1997: p74).” The EO process can be used as a creative tool in the formulation of a project/program or as a review tool once the project/program has been formulated. Brown (1997, p77) identified four aspects that are critical to the successful application of an environmental overview, these are:

1. “The project/program must be in its draft formulation stages.
2. There must be sequential completion of each of the structured “questions” of the environmental overview.
3. The environmental overview must be undertaken using a broad mix of specialists and others.
4. The process must include modification of the draft project/program, (if required) as an integral part of the environmental overview. “

In the EO process, a number of questions are asked concerning:

baseline conditions for the project/program, and
the project/program’s impacts and opportunities, design options, and operational strategies.

These questions are answered through an interactive process with a range of parties (e.g. representatives from government, NGOs and United Nations (UN) agencies) in a group. The environmental overview can be completed in a day or less. Two sessions are suggested in practice, which are separated by a period in which the information gaps identified in the first session are addressed. If the solutions to the questions are not obvious to the groups undertaking the EO, then the budgets, tasks and human resources to address the problem must be built into the project/proposal planning.

There are a number of other advantages to the EO process, above its speed and simplicity, including that: it blurs the distinction between social and biophysical dimensions of a project/program; it requires participants to step outside of disciplinary boundaries; the range of participants brings a broad range of knowledge to the problem; the process is relatively unthreatening to the proponent if it occurs in the earliest stages of project/program formulation and it provides the right environment for creative thinking. Brown (1997: p85) states that, “The environmental overview works. It captures the interest of participants in developing countries and is seen as an appropriate and realistic tool.”

**Discussion theme**

Hypothetical case study: Four developing countries decide to develop a coordinated strategy for the use of their energy resources (e.g. hydro-power, power using coal fired power station technology and solar-power), to promote electricity development and distribution. This strategy will guide decision-making on the energy options and the process for the development of the strategy will run for five months.

**Scenario 1:** The strategy process is complete and a draft document is produced. You have been commissioned to undertake a SEA of the strategy.

**Scenario 2:** You are commissioned to undertake a SEA to assist in the development of the strategy formulation process. How will the SEA vary in its approach, scope, role and links to decision-making? How will the stakeholder engagement process differ? What are the comparative implications for human resources and finances?

### 2.4.6 Monitoring and Review

Once an SEA process has been fully formulated, its implementation should be monitored and reviewed, in order to facilitate an increasing understanding of the most appropriate approaches to SEA under various circumstances. Monitoring and review should therefore facilitate continual improvement in the effectiveness of SEA processes.
CHAPTER 3 : CONCLUSION

The purpose of SEA is to incorporate environmental considerations into strategic decision-making, to achieve the objectives of sustainability. There are a number of benefits of SEA, these include: its ability to proactively inform the development of PPPs; operationalise sustainability principles; integrate social, economic and biophysical concerns in decision-making and provide a context for lower levels of planning e.g. EIA’s for projects.

SEA is an emerging process within environmental management and a single, “best” approach that is applicable to all circumstances does not exist. On an international level, a number of procedures for SEA have been formulated and these can broadly be divided two categories: those that draw on EIA methods and those that aim to incorporate sustainability objectives into the early stages of decision-making. In theory, a general trend can be identified towards the latter approach and towards the integration of SEA into decision-making. The current emphasis is on the integration of the elements of SEA into PPPs, rather than undertaking SEA as a separate process. In practice, a considerable range of different approaches to SEA can be identified. It is important to note that the SEA process should be applicable to the context in which it is applied. This context is affected by a number of factors that include:

- whether a policy, plan or programme (PPP) is being formulated and the type of PPP (e.g. if it is a sectoral or regional PPP);
- the nature of the decision-making process and the interaction between the SEA process and the decision-making process;
- the components of the environment being considered;
- the principles and legislation that should guide the SEA process; and
- the human and financial resources available to conduct the SEA process.

The consideration of these and other factors can guide the initial steps in designing SEA processes that are tailor-made to suit particular circumstances.

There are a number of challenges to SEA, particularly within the context of integrating sustainability into strategic decision-making. These challenges include defining strategic issues, sustainability objectives, carrying capacity and limits of acceptable change. Limits of acceptable change, for example, should reflect the values of different interest groups in society and processes for the incorporation of these values into SEA are still emerging. Thérivel et al (1992: p127) state that “… the general acceptance of the principles of sustainability and carrying capacity has not been matched by understanding of the mechanisms involved.” Other challenges include overcoming the institutional constraints in addressing the social, economic and biophysical aspects of sustainability issues in an integrated way; and overcoming problems related to a lack of data in certain circumstances.

Through the development and testing of SEA processes that suit the needs of particular contexts, we can start to address these challenges and move closer towards the effective integration of sustainability into strategic decision-making.


CSIR (2002) Strategic Environmental Assessment for the uMhlathuze Municipality: Core Set of Environmental Indicators for the Municipality, Environmentek, Durban, South Africa.


References


APPENDIX A: Case Studies
1. BACKGROUND
The Port of Cape Town is one of South Africa’s largest commercial ports and plays a critical role in the development of the economy of the Western Cape and South Africa. The port is known for its deciduous fruit exports and other frozen products, which form one of the core components of the Western Cape economy. Other core businesses include container handling, ship repair, fishing and bulk oil activities. Some of the port’s secondary business includes hosting local as well as foreign fishing fleets operating in the South Atlantic and South Indian Oceans, fuel bunker supply and as a logistical base for various countries with bases in Antarctica.

Apart from playing an important economic role, the Port of Cape Town is surrounded by a complex social and built environment and situated in a sensitive marine environment. The City of Cape Town envelops the port and is experiencing rapid growth in the form of the Cape Town Convention Centre, various hotels, the Victoria and Alfred Water Front Development and other tourist related developments. The majority of these developments are taking place in close proximity to the port and in many cases adjacent to the port boundaries. The city attracts more than 770 000 overseas tourist per year which forms an important component of the city’s and Western Cape’s economy. The marine environment is sensitive in terms of the marine ecosystems and specific threatened marine birds that it supports. The physical marine processes (e.g. sediment dynamics) are sensitive to port and city developments and beach erosion is evident. Furthermore, there has been pressure on the National Ports Authority to employ responsible corporate governance and respond to social needs, with the added need to report on the triple bottom line performance i.e. social, economic and environmental.

2. INITIATION AND PURPOSE OF THE SEA
The National Ports Authority (NPA) of the Port of Cape Town realised the importance of proactively integrating biophysical, social and economic aspects as part of the port planning process to facilitate more sustainable port development. This, together with the need to improve corporate and social responsibility and triple bottom line reporting, resulted in the National Ports Authority commissioning the CSIR and SAKAZA Communications to undertake a SEA for the Port of Cape Town. The aim of the SEA is to provide a framework to facilitate long-term sustainable port development and operation. The SEA is supported by the White Paper on National Commercial Ports Policy, which states that: “SEA should be used for the proactive integration of biophysical issues with social and economic issues at the policy and planning level” (National Department of Transport, 2002). The SEA process is underpinned by the principles of sustainable development and the deliverables of the study may be measured against these principles.
Research undertaken by the CSIR over the past five years (Heather-Clark et al, 1998, Heather-Clark, 1999, Heather-Clark 2000, Heather-Clark 2002) shows that for South African ports to move toward sustainable development they need to address the following:

- Improve port-city relationships and cooperative decision-making,
- Improve the individual port relationship with its stakeholders including port users, environmental stakeholders and the surrounding local communities,
- Improve environmental management and data collection within the port so that it can be proactively used during the port planning process and to inform future operations through development of well informed environmental management intervention strategies,
- Improve the understanding of how the port impacts on the local communities livelihood and quality of life,
- Improve economic data collection and analysis (local, provincial, national and regional) for consideration during port planning processes,
- Report on triple bottom line performance.

3. SEA PROCESS UNDERTAKEN

The SEA process for the Port of Cape Town broadly followed the process defined in the South African SEA Guidelines, which were published by the South African Department of Environmental Affairs and Tourism in (DEAT, 2000). The SEA process was divided into three distinct phases, namely:

- Phase 1: Scoping Phase;
- Phase 2: Strategic Assessment (specialist studies); and
- Phase 3: Sustainability Framework (Integration).

The overall process is illustrated in Figure 1 and each of the phased are discussed in more detail below.

Phase 1: Scoping Phase

The Scoping Phase of the SEA included the development of a vision for sustainable port development for the Port of Cape Town and identification of strategic issues. Specialist Terms of Reference (ToR) for the detailed investigation of the strategic issues were also drafted as part of the Scoping process. This provided a framework for the implementation of Phase 2 and Phase 3 of the SEA process.

A critical part of the Scoping phase was public participation in defining a vision for sustainable port development and identifying strategic issues. Key stakeholders were actively engaged in defining the vision and identifying the strategic issues through workshops, while general stakeholders were kept informed of the SEA process through the distribution of information sheets, press notices and access to a website. As a result of the importance of the port-city issues and their relevance to sustainable port development (see section on strategic issues: port-city planning, access, sediment dynamics etc), the City of Cape Town Municipality was identified as the most important key stakeholder and was included in a number of additional meetings and workshops. Information obtained from the key stakeholders was analysed and compiled as part of the Draft Scoping Report, which was made available for key and general stakeholder comment, before being finalised and submitted to the National Ports Authority. The Final SEA Scoping Report...
Phase 2: Strategic Assessment (specialist studies)
Draft terms of reference to address the strategic issues were developed as part of the Scoping Phase. Specialist workshops were held to clarify the terms of reference and to facilitate integration between specialist studies. The generic terms of reference for the specialists were as follows:

- Discuss the existing state of the environment
- Identify any apparent trends in the environment
- Identify opportunities and constraints that the surrounding environment may place on future port development (i.e. impact of environment on development)
- Recommend guidelines to overcome constraints and enhance opportunities
- Identify sustainability objectives, targets, thresholds and indicators that will assist with future decision-making and tracking progress towards sustainable development
- Recommend a monitoring programme to monitor indicators

A core part of the specialist studies was to identify specific indicators that can be monitored to assist with tracking the ports progress to sustainable development and to assist with decision-making with regards to future port expansion i.e. use this information in project specific EIAs. Specialist reports were used to compile the integrated Sustainability Framework for the Port of Cape Town.

Phase 3: Sustainability Framework
The specialist studies were used to compile the Sustainability Framework for the Port of Cape Town. The Framework will include the following for each strategic issue: a brief description of the state of environment, opportunities and constraints, guidelines for future sustainable port development and a monitoring programme for key sustainability indicators. Various departments within the Port of Cape Town will be responsible for implementing the actions required to ensure sustainable port development. Some departments within the City of Cape Town will also play a critical role in addressing port-city issue in conjunction with the matching departments within the port. The Sustainability Framework for the Port of Cape Town may be accessed at the following website:

http://www.csir.co.za/portofcapetownSEA
Figure 1: SEA Process for the Port of Cape Town

Project initiation

Specialist Terms of Reference

Vision for sustainable port development

Strategic Assessment

Situation Assessment

Opportunities & Constraints

Objectives, Targets, Indicators & Thresholds

Guidelines & Monitoring

Sustainability Framework
(for future port development)

INTEGRATION

• Situation Assessment
• Opportunities & Constraints
• Objectives, Targets, Indicators & Thresholds
• Guidelines & Monitoring

IMPLEMENTATION PLAN

• Monitoring
• Guidelines
• Sustainability reporting

FUTURE PORT DEVELOPMENT

Implemented through the following:

• Port Development Framework
• Environmental Management System
• Social Investment Programmes
• Stakeholder forums
• Sustainability Reporting

Vision drives the implementation
4. VISION FOR SUSTAINABLE PORT DEVELOPMENT

The vision for sustainable port development was developed through key stakeholder consultation and the review of the National Port Authorities Vision and Mission statements and Environmental Policy. The vision for sustainable port development will drive the implementation of the Sustainability Framework as indicated in the Figure 1.

**Vision for the sustainable development of the Port of Cape Town:**

In support of the National Ports Authorities vision and to promote sustainable port development, the Port of Cape Town will:

1. Have appropriate institutional structures in place to interact with the City of Cape Town and Provincial Government to facilitate informed and efficient decision-making with regards to port-city developments.
2. Have well-structured port user and stakeholder forums to ensure effective and transparent communication that leads to informed action to address issues of concern.
3. Facilitate local, provincial, national and regional economic growth by having and sustaining port systems that facilitate and enable competitiveness in a world-class port system.
4. Ensure the protection of important ecosystems, habitats and biophysical processes to guarantee the conservation of biodiversity within the port boundaries and surrounds.
5. Facilitate appropriate socio-economic development within the port boundaries and surrounds that enhances the local social benefits of the port.
6. Ensure effective use of appropriate tools to integrate biophysical, social and economic aspects into all levels of decision-making, from policy formulation to planning, design, construction and operation (i.e. SEA, EIA, ISO14001 etc).
7. Have well-structured biophysical and social monitoring systems that allow for systematic data collection, storage, and analysis, for use in day-to-day management decisions, as well as future strategic port planning processes and annual sustainability reporting.

5. STRATEGIC ISSUES

Strategic issues were defined, for the purpose of this scoping process, as issues, that if not addressed, will prevent the port from achieving the vision for sustainable port development.

**Strategic Issue 1: Maintenance of marine ecosystem functions and habitats**

Present and future port operations and future port development will have an impact on the marine environment of Table Bay, thereby constraining the port from achieving its vision of sustainable port development.

**Strategic Issue 2: Maintenance of shoreline stability**

The future physical expansion of the port into Table Bay and possible sourcing of fill material from the bay to support such development, may have an impact on the shoreline stability of Table Bay. If this potential impact is significant i.e. could result in substantial amounts of erosion of the coastline, the future long-term development of the port could be constrained.

**Strategic Issue 3: Disturbance of marine archaeology**

The location of shipwrecks within the area of future port expansion (physical expansion, source of fill material, dredge spoil dumpsite) may pose a constraint to future port development. In terms of the National Heritage Resources Act No. 25 of 1999, shipwrecks older than 50 years are classified as National Heritage Sites and a full archaeological investigation may be required before the site can be disturbed.

**Strategic Issue 4: Access corridors to the port**

The restricted access to the port via city, regional and national road and rail routes may prevent the port from achieving its future economic and efficiency goals and
therefore pose a constraint to meeting the long-term sustainable vision for the port.

**Strategic Issue 5: Port-city land use planning issues**

The development of non port-related activities adjacent to the port may place unrealistic operational constraints on port activities and constrain the port from future physical expansion.

**Strategic Issue 6: Institutional arrangements**

The limited formal communication between the higher levels of decision-makers within the city and port may result in a continued mismatch of the needs and expectations of the port and the city. This could constrain future sustainable port-city development, as a result of delays in decision-making and unnecessary conflict.

**Strategic Issue 7: Consideration of local, provincial and national policies, economic data and trends for port planning**

Future port development and infrastructure investment must be informed by regular assessments of local, provincial, national and regional economic growth scenarios of key sectors.

**Strategic Issue 8: Socio-economic impact of port development and operations**

The Port of Cape Town plays a vital role in the socio-economic development of the region as well as the City of Cape Town. The socio-economic impact of the port needs to be maximised through proactive policies.

6. MAIN LESSONS LEARNT

- It is critically important to obtain commitment to the process and the outcomes of the process right from the start.
- Engaging stakeholders in defining a vision and identifying strategic issues is challenging and requires structured facilitation and sufficient background information.
- Specialists require additional coaching to move away from the impact assessment approach (i.e. impact of development on the environment) to the SEA approach of looking at the opportunities and constraints to future development (i.e. impact of environment on development).
- Identifying appropriate indicators and thresholds requires a sound understanding of the surrounding environment.

7. REFERENCES:


Heather-Clark, S. (1999). Integrating environmental opportunities and constraints into Port Planning, Development and Operation. 5th International Conference on Coastal and Port Engineering in Developing Countries, Cape Town, 19 to 23 April 1999.


CASE STUDY 2 – SEA FOR THE UMHLATHUZE MUNICIPALITY

This case study was prepared by Kogi Govender. It is a summary based on the following documents:


CSIR (2002) Strategic Environmental Assessment for the uMhlathuze Municipality: Core Set of Environmental Indicators for the Municipality, Environmentek, Durban, South Africa.


1. BACKGROUND TO THE UMHLATHUZE MUNICIPALITY

Prior to December 2000, the Richards Bay Transitional Local Council (TLC) and the Empangeni TLC were two separate entities, each with their own vision, goals and development mandate. Following the municipal elections in December 2000, the Richards Bay TLC and the Empangeni TLC disbanded and, together with the surrounding rural and tribal areas, amalgamated to form the uMhlathuze Municipal area. The uMhlathuze Local Municipality is part of the uThungulu District Municipality and is located within the province of KwaZulu-Natal, South Africa.

2. INITIATION OF THE SEA

In 1999, the Richards Bay TLC initiated a process to prepare a sectorally based Strategic Environmental Assessment (SEA). The aim of this SEA was to provide environmental information for strategic planning and decision-making, for the potential future industrial development of Richards Bay. The Richards Bay TLC appointed the CSIR to assist them in this process, which was completed in 2000. Subsequently, the Empangeni TLC appointed the CSIR to complete an SEA for their jurisdiction. This process was completed in January 2001.

In both studies the SEA was initiated by the town planning departments and the drivers of the process were the town planners of the relevant municipalities.

Following the amalgamation of the TLC’s in December 2000, the municipality recognized the need to expand the existing SEAs to include the additional areas that form part of the new uMhlathuze Municipal area (i.e. rural and tribal areas), that had not previously been considered.

A key requirement for this SEA was that it form part of and add value to the Integrated Development Planning process. Integrating the SEA with the Integrated Development Planning process ensured the efficient and effective utilization of the local authority’s resources and avoided the duplication of functions. As the Integrated Development Plan was a legislative requirement, in terms of the Municipal Systems Act No. 32 of 2000, conducting the SEA simultaneously with the Integrated Development Planning process ensured buy-in to the SEA from the councillors, officials and the public alike.
2.1 Integrated Development Planning

In terms of the Municipal Systems Act (No 32 of 2000), all municipalities (i.e. Metros, District and Local Municipalities) are required to undertake an Integrated Development Planning process to produce an integrated development plan (IDP). The IDP is a single, inclusive and strategic plan for the development of the Municipality which (Municipal Systems Act No 32 of 2000, Section 25(1)(a-c):

i. Links, integrates and co-ordinates plans and takes into account proposals for the development of the municipality;

ii. Aligns the resources and capacity of the municipality with the implementation of the plan; and

iii. Is compatible with national and provincial development plans and planning requirements binding on the municipality in terms of legislation.

The Integrated Development Planning process is made up of five core components which are summarized below from the Department of Provincial and Local Government (DPLG) and the German Agency for Technical Cooperation (GTZ) IDP Guide Pack, Guide II: Preparation.

In the analysis phase, the existing level of development is assessed, issues and their causes are identified, as well as the resources available. In the strategies phase a vision for the municipality for the next five years is developed. Objectives and strategies are developed to overcome shortcomings and to ensure that the vision is accomplished within the framework of available resources. The projects phase relates to the design and specification of projects. Financial and human resources are allocated to projects and programmes. The fourth and final phases are integration which ensures that the identified projects are in line with objectives and strategies, available resources and legislative requirements and approval, where the Council after receiving public comment on the document, approves the final IDP.

3. PURPOSE OF THE SEA

The purpose of the SEA was to anticipate and address the environmental consequences of development. The SEA also aimed to integrate the natural environmental concerns into the planning process, at the same level at which social and economic considerations are addressed.

At the time of conducting the SEA, there was no environmental department within the Municipality. One of the aims therefore of the SEA, was to propose a strategic environmental management plan that would guide the environmental manager in performing the environmental management function once he/she was appointed.

4. SEA PROCESS UNDERTAKEN

As the uMhlathuze SEA arose from the existing SEAs conducted for Richards Bay and Empangeni, the SEA process as well as the public participation process for the above two SEAs, will be discussed separately to the uMhlathuze SEA in this case study. The public participation process for the uMhlathuze SEA ‘piggybacked ’ upon the public participation process for the IDP process.
4.1.1 SEA process for the Richards Bay and Empangeni SEAs

The phases for the Richard Bay and Empangeni SEAs are outlined below:

**PHASE 1: PREPARATION OF A PROJECT ACTION PLAN AND TERMS OF REFERENCE**

The purpose of the project action plan was to clearly outline the SEA process to be followed, as well as to outline the key deliverables of the process. The terms of reference that defined the scope of the SEA process are described below.

i. Preliminary environmental scan

The preliminary environmental scan involved a review of all existing environmental information for the study area. It also resulted in the identification of key strategic issues for environmental management. The following environmental characteristics were considered:

- Natural environment:
  - Air quality;
  - Hydrological characteristics of the study area:
    - Ground water
    - Surface water;
  - Biodiversity; and
  - Soil resources of the study area.

- Socio-economic issues:
  - Social processes; and
  - Health issues.

- Infrastructure:
  - Solid and effluent waste management;
  - Access to the study area:
    - Roads
    - Port
    - Rail

- Energy supply; and
- Bulk water supply.

ii. Review of existing plans and spatial policies

Existing plans and policies were reviewed to determine the strategic environmental implications of the development sectors. This resulted in an identification of areas where conflict could occur.

iii. Review of legal and administrative considerations

The policy and legislative review took into consideration the local, provincial and national laws and policies which have a bearing on the strategic environmental management of the study area. The review considered three levels of policy and legislation including:

- Framework policies which are intended to provide broad principles for action, and guide a wide range of other policies and activities (e.g. the Constitution of South Africa);
- Cross-cutting policies which impact on a range of sectors, but which deal with a narrower slice of the environment (e.g. policies on biodiversity, implications of the Demarcation Act (27 of 1998)); and
- Sectoral policies which focus on specific natural resources (e.g. water, air).

The administrative capacity of the Municipality was also assessed. This took into account the responsibilities as identified in the legal and policy review, as well as the capacity and responsibilities of government.
officials at the national, provincial and local level.

**PHASE 2: COLLATION OF BASELINE DATA AND PREPARATION OF A RESOURCE OPPORTUNITIES AND CONSTRAINTS REPORT (ROCR)**

The baseline data that was collected in the preliminary environmental scan was collated, integrated and presented in a Resource Opportunities and Constraints Report (ROCR). The purpose of this stage was to integrate the development options and the resource opportunities and constraints. This was undertaken by considering, at a strategic level, how the resource opportunities and constraints will limit or promote development options.

The structure of a chapter within the ROCR was as follows:
- Situational analysis;
- Information gaps;
- Opportunities and constraints to development; and
- Strategic issues for sustainable development.

**PHASE 3: PREPARATION OF A STRATEGIC ENVIRONMENTAL MANAGEMENT PLAN (SEMP)**

The aim of this phase was to provide a framework for the implementation of environmental evaluation and management in the study area. The opportunities and constraints for the promotion of environmentally sustainable development were identified, within the context of the institutional structures and requirements within the study area. These opportunities and constraints were workshoped with key stakeholders, as well as the officials within the municipality.

Key outputs of the SEMP included:
- A framework for strategic environmental assessment;
- The identification of key strategic issues;
- Information gaps relevant to the study area;
- The preparation of a conceptual framework for decision-making, which included a framework for the development of indicators;
- Legislative and policy considerations for the SEMP; and
- Projects to be undertaken in various sectors of the environment, for environmentally sustainable development.

**PHASE 4: CAPACITY BUILDING AND SKILLS DEVELOPMENT**

This phase involved a training course with key officials who have a responsibility and role to play in environmental management and development within the Municipality.

**4.1.2 Public participation process for the Richards Bay and Empangeni SEAs.**

The public participation process for the SEA was focused on intensive consultation with key representative stakeholders, whilst keeping the broader body of stakeholders informed in writing. In this way, stakeholders were afforded the opportunity to contribute, while keeping the process cost-effective. The circulars sent to the stakeholders were presented in English, as well as translated into Zulu. The process involved the following:

- The identification and registration of stakeholders wanting to participate in the SEA process;
- The advertising of the project in the local newspapers;
- The distribution of a background information document outlining
the SEA process to be followed, as well as the key deliverables;
- Stakeholder workshops to discuss the ROCR and the SEMP;
- The distribution of copies of the above reports to key stakeholders for their comments;
- The creation of a website and the posting of these documents on this website;
- The distribution of feedback letters and circulars to all stakeholders during the course of this project; and
- Capacity building with key officials.

Key deliverables of the SEA:

The key deliverables of this SEA process were:

- A Resource Opportunities and Constraints Report; and
- A Strategic Environmental Management Plan.

4.2 SEA process for the uMhlathuze SEA

The process for the uMhlathuze SEA had to be conducted in conjunction with the IDP process that the Municipality had initiated. In order to ensure integration, the IDP and SEA consultants worked closely together throughout this process.

**Phase 1: (IDP Phase) Analysis Phase**

*Task one: Status quo analysis and preparation of a State of the Environment (SoE) Report*

The objective of this task was to undertake an assessment of the current environmental conditions within the Municipal area. This scan took into account the previous studies, whilst focusing on the areas that had been previously excluded from the SEAs conducted. All aspects of the social, economic and biophysical environment were covered in conjunction with the IDP.

A key component of this Phase was to understand the significant sustainable development objectives, concerns and visions of the community in the Municipality. This was achieved through a questionnaire, which was widely distributed, and a review of the “issues” raised through Environmental Impact Assessments (EIA’s) undertaken in the area.

The information was integrated into a comprehensive understanding of the State of the Environment in the Municipality and the identification of opportunities and constraints in the rural areas. Mainly secondary information was used in undertaking this test, using the best knowledge currently available.

*Task two: Key environmental and development issues*

The information obtained in Task One was used to identify strategic issues for environmental management, based on the technical assessment as well as the community inputs. These issues were identified in order to determine the key issues for attention in the subsequent phases of the study, (including the identification of indicators). The issues included all relevant aspects of the social, economic and natural environment.

**Phase 2: (IDP Phase) Strategies**

*Task one: Setting the strategic context: a definition for sustainable development*

The strategic context was built upon a working definition for sustainable development in the Municipality. The
definition was supported with appropriate principles. This Task was undertaken with the IDP consultants in order to formulate a vision for the Municipality that encapsulates the goals and principles of sustainable development.

**Task two: Criteria for selecting indicators and an appropriate system to organizing the indicators.**

The institutional arrangements for monitoring and reporting on the indicators, were discussed with key Municipality officials. On the basis of these arrangements, the “usage context” was determined. A causal framework for the organisation of indicators was formulated, (i.e. where environmental impacts (pressures) are linked to the state of the environment and to possible management responses).

**Phase 3: (IDP Phase) Projects**

**Task one: Development of indicators:**

The purpose of this task was to establish appropriate indicators for the ongoing planning, assessment and management of activities in the Municipality. This included the identification of biophysical and socio-economic indicators.

A minimum set of environmental indicators were covered (including aspects such as waste management, water quality and air quality) and were based on the key issues raised. Where information on any of the indicators was lacking or inadequate, “proxy indicators” were proposed. The final set of indicators, when measured, will be used to describe the state of the environment in the Municipality.

**Task two: Preparation of a Strategic Environmental Management Plan (SEMP)**

The SEMP provided a synthesis of the environmental opportunities and constraints to development, as well as framework for environmental decision-making in the uMhlathuze Municipal area. The environmental management framework was divided into core components and various activities that the Municipality must undertake were included. The main sections of the SEMP related to:

- **Environmental Management Policy** - The importance of having such a policy in place was described, as well as the steps to developing an environmental management policy. As policy is informed by legislation, a brief overview was also provided of current policies and legislative requirements for environmental management.

- **An environmental management strategy** – This section focused on the strategic issues and projects, and how these can be incorporated into the IDP.

- **Indicators and State of the Environment (SoE) reporting** – The development of indicators and how these can be used for annual SoE reporting was described, as well as the importance of this and how it informs the environmental management framework.

- **Environmental Management Co-operation Agreements (EMCA)** – As there are various stakeholders involved in environmental management within the study area (e.g. industry and organized groups), this section provided descriptive information on EMCAs and how such agreements can be developed and
managed, to facilitate shared responsibility for the environment.

- **Environmental education** – This section focused on the need to promote effective environmental education within the Municipal area and on recommendations for an effective environmental education programme.

- **Environmental management and assessment tools** – This section focused on the hierarchy of tools for environmental decision-making within the Municipality.

**Key deliverables of the SEA:**

The key deliverables of this SEA process were:

- A State of the Environment Report;
- A Core set of environmental indicators; and
- A Strategic Environmental Management Plan.

**4.2.1 Public participation for the uMhlathuze SEA**

The public participation process for the SEA was linked very closely to the IDP process and was conducted at each of the IDP phases. Where the IDP process involved the distribution of information leaflets or circulars, the SEA information was included in these, in order to avoid the duplication of tasks and to ensure integration.

**5. MAIN LESSONS LEARNT**

- Typically, an SEA is conducted at a high level with a lower level of detail than an EIA which is at a lower level with a high level of detail. Therefore, although a framework for environmentally sustainable development is proposed, it is often at a very conceptual level.

Within local government, for example, there is often limited capacity to implement this framework. One of the key recommendations therefore, is that the SEA, whilst providing the framework for environmental management, must also provide an implementation plan that can be implemented by someone with limited or no experience in SEA.

- In order for the SEA process to be successful and for its outcomes to be implemented, the SEA process must be integrated into the currently planning processes.

- As SEA is built upon the principles of sustainability, in certain circumstances it may not be necessary to conduct a full SEA process separating from existing planning or other processes. It may sometimes be more valuable to integrate the principles of sustainability into current planning initiatives, rather than conducting a separate SEA process.

- SEA is a flexible process, as can be seen from the various examples of SEAs conducted. The SEA process can be adapted to suit various needs and requirements.

- By integrating the SEA into the mainstream municipal planning process, buy-in to the SEA was promoted.
CASE STUDY 3 – SEA FOR THE SASOL SECUNDA OPERATION

(This case study was prepared by Yvonne Hong. It is a summary based on the document entitled: A Strategic Environmental Assessment (SEA) for Sasol, Secunda, CSIR Report No. ENV-P-C 2000-074, Environmentek, Pretoria, South Africa).

1. INITIATION OF THE SEA

Sasol’s Secunda operation is a complex myriad of industrial and mining activities. The operation has three main components, namely: the mining operation (supplying about 100 000 tons of coal per day); the synthetic fuels operation and downstream chemical industries. Each of these principal components can be further divided into multiple activities, many of which have the potential to impact on the environment. Given the complexity of the activities and the magnitude of the operation, ongoing management of these environmental impacts is problematic. To add to the complexity, a number of EIAs are required on an ongoing basis. The CSIR had already conducted two EIAs for Sasol in Secunda. These were the Medium Term Gas Expansion (MTGE) and Sky-High projects. Linked to the Sky-High project was the Natural Gas Expansion (NGE) project. For all of these, permits had to be sought from various authorities.

Sasol and the CSIR both realised that EIA is inadequate as a planning tool and it was for this reason that an SEA was proposed for Sasol Secunda’s Mining and Industrial Operations. The purpose of the SEA was to provide an environmental perspective that can be incorporated into Sasol’s business planning process.

Typically SEA is conducted for a region in order to provide a development planning framework, but it was unlikely that this would happen in the immediate future for the area in which Sasol Secunda’s Mining and Industrial Operations take place. This, however, did not preclude Sasol from embarking on their own SEA in order to ask and answer the strategic questions regarding environmental opportunities and constraints to the continued growth of the company.

2. PURPOSE OF THE SEA

The SEA had the following two, related purposes:

1. To provide a development planning framework that could be used by Sasol for an early assessment of their development planning; and
2. To use this same development framework to negotiate EIA exemption on a range of small-scale developments.

3. SEA PROCESS UNDERTAKEN

3.1 The methodology

The methodology used for the Sasol SEA is illustrated in Figure 1. An important characteristic of the methodology was its impact focus. By impact focus is implied a focus on impacts such as adverse health effects, land degradation and soil acidification; as opposed to a media focus such as air pollution or water pollution.
3.1.1 The footprint

The first problem encountered was one of scale. If the environment is being assessed rather than a particular development, what should the spatial extent of the assessment be? The scale of the impact was defined as the likely sphere of influence of Sasol’s activities, in respect to the given impact and this has been labelled Sasol’s ‘footprint’.

3.1.2 Desired developmental state

Before attempting to define impact limits, it was necessary to define the development thinking and planning within each of the impact footprints. The development thinking in turn provided an indication of likely changes in environmental pressures into the future. This is important if the development planning framework is to span a reasonable planning period (about twenty years).

3.1.3 Levels of acceptable change

The limits that are so critical to the SEA can be defined in a number of ways. As indicated above, the desired developmental state was taken into account in defining such limits and for this reason the term ‘levels of acceptable change’ was used. Planning for industrial expansion, for example, as opposed to planning for a growth in the tourism industry, will result in different levels of acceptable change. In addition a balance has to be found between conservative (protective) levels and the practicality of attaining such levels, again in keeping with the requirement of a longer-term planning period.

The levels of acceptable change (LAC) are those levels beyond which a further exacerbation of a given impact becomes
unacceptable. Terms like *assimilative capacity*, *thresholds*, *carrying capacity* are also sometimes used to describe this concept. Although environmental standards or guidelines are often used to define LAC, there are two important principles that need to be upheld in formulating LAC. Firstly the LACs should be appropriate to the desired developmental state. In other words, if tourism is a desired developmental objective then the LAC will be much stricter than if industrial development were the desired developmental objective.

Secondly the LAC should be a function of the existing state of the environment. Here, for example, if the footprint is a water scarce area then the LAC will be quite different to that of a water rich environment. Therefore, the approach that was used in the SEA, was one of formulating an overall impact objective and then defining the required state of the variables that influence that objective.

### 3.1.4 The existing environmental state

Once the levels of acceptable change were defined, the existing state of the environment was described, using the variables that were used to define the levels of acceptable change.

### 3.1.5 Distributive capacity

Distributive capacity refers to the degree to which the environment can withstand further impact without significant deterioration and can be both positive (it exists) and negative (where the existing state is worse than the levels of acceptable of change). The distributive capacity is simply the difference between the defined levels of acceptable change and the existing state of the environment.

#### 3.1.6 Sasol's contribution

The two final steps in the process relate to the possible use of, or responsibility for, the distributive capacity. This requires an understanding of the degree to which the existing state of the environment is a function of Sasol’s activities. This link between the state of the environment and Sasol’s activities was defined as ‘Sasol’s contribution’.

#### 3.1.7 Users’ rights

If distributive capacity exists, an opportunity for further development is suggested. If such an opportunity exists, then the question that follows is “who can make use of that opportunity?” It is that question that invokes the users’ rights debate. In other words, if distributive capacity exists, who can use it and under what circumstances? In terms of users’ rights, the question as to who bears responsibility for remediation or amelioration of the impact, where distributive capacity is negative, is also asked.

### 3.2 The overall philosophy

The SEA was therefore conducted as a series of consecutive steps, each of which addressed a different component of the methodology. The overall philosophy of the SEA is illustrated in Figure 2.
3.3 Workshops

At the end of each stage of the SEA, e.g. determining the footprint, a workshop was held to discuss the specialists’ findings. Participants included the specialists, the SEA project managers, Sasol (environmental and commercial departments), and various stakeholders. These stakeholders were, inter alia, from the various government departments, the Chamber of Commerce, Eskom, Highveld Steel and Vanadium and Highveld Ridge Transitional Local Council (TLC).

4. MAIN OUTCOMES

4.1 Specialist studies

Specialist studies were conducted for six strategic impacts:

1. Human health;
2. Water resource protection;
3. Resource use (water, hydrocarbons, land);
4. Socio-economics;
5. Macro-economics; and
6. Biodiversity and land potential.

These impacts were identified during a process involving a select group of people, who had been involved in environmental management activities for Sasol. Drawing particularly on the impact assessments, an anecdotal listing of environmental issues was drawn up. Criteria that would help differentiate between ‘strategic’ and ‘operational’ issues were established and used to define so-called strategic issues. In essence those impacts which were deemed to have a bearing on the decision-making process were described as ‘strategic’. The studies were conducted following the overall philosophy of the SEA. Thus each specialist study defined an impact footprint, identified levels of acceptable change and so on. A separate study was commissioned to assess and describe the desired developmental state in the different footprints.
4.2 Indicators

During the course of the SEA a variety of indicators were identified for each of the impacts assessed. These indicators are summarised in Table 1.

<table>
<thead>
<tr>
<th>Strategic Impact Category</th>
<th>Impacts</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human health</td>
<td>Respiratory disease</td>
<td>• Ambient sulphur dioxide and nitrogen oxide concentrations in air</td>
</tr>
<tr>
<td></td>
<td>Carcinogenicity</td>
<td>• Ambient benzene concentrations in air</td>
</tr>
<tr>
<td></td>
<td>Neurological</td>
<td>• Ambient toluene concentrations in air</td>
</tr>
<tr>
<td></td>
<td>Anoxia</td>
<td>• Ambient carbon monoxide concentrations in air</td>
</tr>
<tr>
<td></td>
<td>Gastro-intestinal</td>
<td>• Magnesium and nitrate concentrations in water</td>
</tr>
<tr>
<td>Water resource protection</td>
<td>Ecosystem function and structure</td>
<td>• Water class – as defined in the National Water Act (Act 36 of 1998)</td>
</tr>
<tr>
<td></td>
<td>Basic human needs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other resources</td>
<td></td>
</tr>
<tr>
<td>Resource use</td>
<td>Scarcity</td>
<td>• Percentage mining land rehabilitated</td>
</tr>
<tr>
<td></td>
<td>Efficiency</td>
<td>• Water use per ton of product/turnover generated per ton of product</td>
</tr>
<tr>
<td></td>
<td>Pollution load</td>
<td>• CO₂ emissions</td>
</tr>
<tr>
<td>Macro-economic</td>
<td>National economic growth</td>
<td>• Percentage contribution to GDP</td>
</tr>
<tr>
<td></td>
<td>Regional economic growth</td>
<td>• Percentage contribution to GGP</td>
</tr>
<tr>
<td></td>
<td>Inflation buffering</td>
<td>• Percentage contribution to current accounts in the basic chemicals sector</td>
</tr>
<tr>
<td>Socio-economic</td>
<td>Permanent employment</td>
<td>• Percentage jobs created/Gini coefficient</td>
</tr>
<tr>
<td></td>
<td>Houses as homes</td>
<td>• Single gender mine hostels</td>
</tr>
<tr>
<td></td>
<td>Safe environment</td>
<td>• Service expenditure per capita</td>
</tr>
<tr>
<td></td>
<td>Initiative and knowledge</td>
<td>• Growth in services and infrastructure</td>
</tr>
<tr>
<td></td>
<td>HIV Status</td>
<td>• Percentage HIV prevalence in workers</td>
</tr>
<tr>
<td>Biodiversity and land potential</td>
<td>Wetland quality and function</td>
<td>• Number &amp; area of wetlands</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Species composition e.g. survival rates of tadpoles or invertebrate diversity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Respiration rates of sediments</td>
</tr>
<tr>
<td></td>
<td>Area of natural grassland habitat</td>
<td>• Area of undisturbed &amp; rehabilitated grassland, protected &amp; unprotected</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Degree of connectedness or fragmentation of natural areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Species composition of rehabilitated grassland type</td>
</tr>
<tr>
<td></td>
<td>Species and genetic diversity</td>
<td>• Population densities of selected top level predators (e.g. Raptors)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Population densities of selected RDB listed plants, birds, mammals &amp; invertebrates</td>
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<tr>
<td></td>
<td></td>
<td>• Change in species composition</td>
</tr>
<tr>
<td>Agricultural productivity</td>
<td></td>
<td>• Soil pH (measured at selected monitoring sites)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Area of land subsided</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Other indicators include area of land with insufficient vegetation cover (in natural vegetation only), changes in ploughing ability and annual yield of surrounding farms</td>
</tr>
<tr>
<td>Future land-use options</td>
<td></td>
<td>• Percentage of land under each type of land use</td>
</tr>
</tbody>
</table>
Although a report was written detailing the objective, philosophy, methodology and findings of the SEA, it was felt at the outset, that reports are not useful as a planning tool. For this reason, a sustainability model was developed which took into account economic growth, social benefits and impacts on the environment.

If the economic growth and social benefits are collectively described as ‘benefits’ and impacts on the environment described or reflected as ‘costs’, then sustainable development for Sasol could be described arithmetically as:

\[(\text{benefits} - \text{costs}) > 0\]

In other words, provided the benefits generated by Sasol exceeded the costs borne by the environment, then development would be deemed sustainable. It is recognised, of course, that this statement cannot hold true because there are limits on the costs that can be borne by the environment before unacceptable degradation occurs. These limits were defined earlier as the levels of acceptable change (LAC).

A development planning framework for Sasol's Secunda activities can be constructed, by combining all of the indicators that have been derived for each of the impact categories. Proposed developments can then be plotted on the graphs to assess the degree to which they contribute to or detract from sustainable development.

The one remaining issue was to address the problem of the multiple combinations of indicators that are possible. Apart from having to evaluate the combined effect of all the combinations, choices would also have to be made regarding which combinations were more important and which were less so. It is envisaged that these combinations will be presented to the decision-making authorities, who will offer their perspectives on which of the combinations are important from a decision-making point of view. These inputs will be used to modify the combinations presented here. Once the exercise has been completed, Sasol will be able to use the combinations to assess at an early stage of their development planning, the degree to which proposed developments are congruent with the principles of sustainable development.

5. MAIN LESSONS LEARNT

$ SEAs can benefit companies, and not only government, in their future business planning.

$ Meeting information requirements can be logistically very difficult. These requirements should therefore be requested timeously. A central point for data requests and handling is a good idea even if some specialists are located in different areas.

$ An SEA, such as this one, requires a project leader who can provide direction throughout the study. It would not have been as effective if there had been a change of leadership during the study.

$ Periodic workshops should be held to keep track of progress. For this SEA, workshops to discuss the findings of the various stages worked well. People were given the opportunity to comment and these comments could be incorporated into the study, without the risk of having to re-work large sections of the study at the end, under time constraints.

$ Informal meetings between the project leader and individual specialist teams also serve to keep the studies on track.
1. INITIATION OF THE SEA PROCESS

Local government in South Africa is a key role player in the transformation of this country’s distorted and inequitable settlement and development patterns. It is within this context that the focus of planning and environmental management has shifted away from the traditional control of spatial land use and development activities, towards the goal of facilitating sustainable development. The planning and environmental management systems in South Africa aim to optimise the use of scarce resources and limited capacity in a strategic, holistic and integrative manner. Integrated Development Planning has been introduced to provide a framework for the developmental role of local government. A central aim of the IDP Process is to assist municipalities in moving towards sustainability. South Africa’s national Department of Environmental Affairs and Tourism (DEAT) has supported local sustainability by facilitating the development of processes such as Strategic Environmental Assessment (SEA) and Local Agenda 21. A national process was initiated by DEAT to strengthen and support sustainability as an integral part of the Integrated Development Planning process.

2. PURPOSE FOR STRENGTHENING SUSTAINABILITY IN EACH PHASE OF THE IDP PROCESS

Key elements or actions were identified for the strengthening of sustainability at each phase in the formulation of an Integrated Development Plan (IDP). Furthermore, processes were identified which can provide information to assist the municipality in including these key elements as part of their IDP process. For effective integration and strengthening of sustainability in the planning process, the following questions were asked at each stage of the planning process:

1. What does this phase of the IDP process involve?
2. How can sustainability be strengthened in this phase?
3. What processes could assist in obtaining and/or presenting this information?

3. THE INTEGRATED DEVELOPMENT PLANNING PROCESS

The broad phases of the IDP process are outlined below (Figure 1). (The source for the full and detailed IDP process is: IDP Guide Pack : Guide III: Methodology; Department of Provincial and Local Government (DPLG) and the German Agency for Technical Cooperation, 2001:23).
4. PROCESS REQUIREMENTS FOR STRENGTHENING SUSTAINABILITY IN AN IDP

Three levels of integration were needed to ensure effective incorporation of sustainability objectives into an IDP (Figure 2). For full integration and effective governance to occur, three areas need to be strengthened namely: (1) policy and legislation; (2) institutional capacity; and (3) methods. Policy is required to provide the administrative and political impetus to strengthen integration and sustainability in planning. Combined with this is the necessity of providing the institutional capacity and co-ordination to effectively manage and administer the process. Clear and user-friendly methods should also be provided to assist planners and other specialists to achieve full integration of economic, social and biophysical objectives.
5. INTEGRATION OF SUSTAINABILITY AND IDP

It is the intention that the environmental process should not be separate to the IDP process but rather integrated into it. The environmental process, should be adapted to the specific planning process which is being undertaken. This can be accomplished by identifying elements of environmental planning which will add value to the planning process and therefore should be incorporated into it (Figure 2). The proposed process of how sustainability may be integrated into the IDP process is provide below.

Figure 2:
6. MAIN OUTCOMES AND LESSONS LEARNT

The process described in this case study provided an initial input into strengthening sustainability in the IDP process. A draft national framework document was produced that can be applied by municipalities to their own specific context. For example, the issues, strategies, projects and indicators identified in the IDP process, should reflect the local conditions and vision of a desirable future in each specific municipality.

It was suggested that the elements and actions proposed in this process be incorporated into municipal IDPs, in a manner that is appropriate to their financial and human capacity. The selection of actions to be taken to strengthen sustainability should be applicable to local priorities and conditions.
1. Introduction

Public participation encourages people to take more responsibility for their actions and for governments to address environmental issues more explicitly and more effectively (UNEP, 2000). Public participation in environmental decision-making is on the increase in Southern Africa and is one way in which the contentious issue of trade-offs is being dealt with. In southern Africa, the issue of trade-offs has come into focus in the clash between the need to make a living and to conserve biodiversity. In many cases the need to feed a growing and largely impoverished and undernourished population has been seen as more urgent than the need to conserve biodiversity (Biggs et al., 2005).

In some countries innovative ways of dealing with the problem have been found through the involvement of the public in natural resource management. There has been privatisation of conservation in countries like Namibia and South Africa where legislation has made it possible for private landowners to use and to manage wildlife on their land. This resulted in a conversion from cattle and sheep farming to game farming which was more profitable and enabled the conservation of indigenous wildlife, through trophy hunting and later nature-based tourism. In Namibia, this initiative has been extended to lands under communal management and communities have established conservancies to manage natural resources, mainly wildlife (Barnes et al. 2001). The Community Based Natural Resource Management initiative in Namibia has been considered a success as it has been able to simultaneously deliver economic benefits to communities and conserve wildlife.

The Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) initiative of Zimbabwe is another example of a successful public participation scheme. The programme has received international recognition as an innovative approach for the devolution of natural resource management to local communities. The Campfire programme was launched in communal areas on the periphery of national parks or game hunting areas where crop and livestock farming were coming into conflict with wildlife. Here, sustainable community-managed use of wildlife, mainly trophy hunting, was able to generate more income than the other major forms of livelihood. The income generated was distributed amongst community members. Although the programme initially focussed on wildlife, other natural resources are now also included. This discussion of the CAMPFIRE Programme focuses mainly on wildlife management as this has been most successful.

2. Historical background

It is important to understand the history of wildlife management in Zimbabwe in order to place the CAMPFIRE programme into context. Zimbabwe gained independence from Britain in 1980. Under colonial rule, all wildlife belonged to the state and wildlife management was centralized and controlled by the state. At the same time, areas for African settlement were demarcated in the most agriculturally marginal dry areas under a system of ‘Native Reserves’, now called ‘Communal Lands’. Private land ownership was not allowed in these areas. These marginal lands were home to a variety of wildlife,
but the people who lived in these areas were denied legal access to the wildlife. These people, however, paid the costs of living in close proximity to wild animals such as attacks and loss of life, crop and dwelling damage and livestock losses due to predation. The people responded by poaching and governments of the day viewed this as a threat to the wildlife resource base.

The centralised system of wildlife management faced numerous problems. The arm of state which was responsible for wildlife management, the Department of National Parks and Wildlife Management (DNPWM) faced a legitimacy crisis as it was perceived as following a law and order approach whose main focus was policing without concern for the needs of people (Maveneke, 1996). In addition, the system lacked sufficient funds and personnel to police illegal utilization of wildlife resources particularly in communal areas. Policing was also costly, inefficient and incapable of controlling the illegal off take (Matzke and Nabane, 1996).

Attempts were made to reform the system and deal with the legitimacy crisis of DNPWM. The 1975 WINDFALL Programme, was one such attempt. The main emphasis of the programme was on the return incomes earned from the disposal of problem animals to local government at district level for implementation of development projects approved by DNWPM. The 1975 amendment of the Parks and Wildlife Act transferred effective control over wildlife on private lands from the state to land holders who could now benefit from wildlife. The Act did not change the lot of residents of communal areas where private land holding did not exist. These attempts did not succeed as rural people were not really included in decision-making and implementation (Murindagomo, 1990). A tool was thus needed to address conservation in places that were managed under common property regimes.

3. The evolution of CAMPFIRE

CAMPFIRE evolved as a response to the numerous problems of the centralized wildlife management system (Matzke and Nabane, 1996). CAMPFIRE emerged as a new approach to natural resource conservation through the empowerment of local people. It sought to obtain the voluntary participation of communities and to introduce a system of ownership with defined access rights to natural resources for communities resident in target areas. According to Murombedzi (1991), CAMPFIRE assumes that conservation and development goals can be achieved by creating collective tenure over wildlife resources in communal areas. The rationale of CAMPFIRE is based on the notion that people controlling or living in areas with wildlife resources ought to gain benefits from the wildlife that their lands produce on a sustainable basis. These communities are encouraged to make responsible decisions about and act to conserve them as a matter of enlightened self interest. The thinking was that people will invest in environmental conservation if they can utilize these resources on a sustainable basis for their own benefit. This thinking is espoused in the principles of CAMPFIRE (Martin, 1996) which are:

- For rural communities to appreciate wildlife, benefits and appropriate incentives have to be established.
- Exploitation of natural resources must involve local communities through effective participatory mechanisms.
- Appropriate democratic institutions must be put in place through which locals participate.
- Capacity building through appropriate demand driven training should be pursued to enhance local empowerment.
A decentralised approach to management requires a friendly policy environment.

4. Implementation of CAMPFIRE

Legislative changes were made to make the implementation of CAMPFIRE possible. Some of these changes include the District Council amendment Act (1980), which gave District Councils the responsibility to manage most resources on communal lands (Peterson, 1991). In addition to legislative support, CAMPFIRE was given prominence and importance at national level – for example, CAMPFIRE's objectives were incorporated into the country's first Five Year Development Plan (1986-1990).

The CAMPFIRE programme was implemented through the collaborative efforts of several groups of stakeholders. Communities, Non Governmental Organisations (NGOs), central government, local government and the private sector worked together. Support from donors such as USAID, ODA, NORAD and others ensured the availability of funds to establish the programme. In a typical setting, quotas on various species of wildlife are be set by DNPWM and Rural District Councils (representing central and local government respectively. NGOs (e.g. Campfire Association, World Wide Fund for Nature (WWF), Zimbabwe Trust etc.) and government officers provide extension services, facilitate and conduct training of community members in different aspects of resource management and administration. Rural District Councils advertise hunting rights, select and contract safari companies, organize anti-poaching activities and collect and disburse the revenue raised from wildlife operations. The safari companies (private businesses) manage the hunting and pay fees to the community through the Rural District Council. In return, communities have to pay taxes to the Rural District Council to cover the costs of wildlife management. Communities decide how they want to use their revenue. In some instances cash dividends to individual households are opted for while in others revenues are invested in public infrastructure such as schools and clinics.

On a day to day basis communities deal with and make decisions on management issues such as habitat conservation, land use planning, protection of cropping and residential areas from wildlife and control of problem animals. Local knowledge of animal behaviour and habitat plays an important role in management.

5. Institutional and capacity development

The CAMPFIRE Programme emphasises the formation and development of democratic institutions at all levels, from household to district. In the Zimbabwean context a village has up to one hundred households while a ward formed of six villages has about six hundred households. The number of wards in a district is variable, depending on the area and population of a district. Local people elect their CAMPFIRE or Natural resources committees at the various levels. These committees are a fusion of civic and traditional structures which makes them inclusive. The committees represent the interests of the local community, and to ensure that they perform their tasks efficiently, they are given training in leadership skills, bookkeeping and project management. The importance of democratic institutions is that decision making becomes legitimate and locals are free to change their leadership. In all the districts a process of training local manpower as game guards, scouts, problem animal reporters and bookkeepers took place. The training was in most cases demanded by the communities themselves on the basis of their needs. The training was supported in order to build local management capacity, empower the communities and ensure sustainability.

6. Challenges

CAMPFIRE is not a homogenous scheme that is uniformly successful. CAMPFIRE schemes have performed differently in different districts. Land use and biological factors have a bearing on the performance of schemes, and schemes with large amounts of wildlife, high wildlife species
richness and low livestock and human populations have tended to generate high revenue and have been classified as good performers (Campbell et al., 1998). One of the challenges faced by the CAMPFIRE Programme is the growing human population and continued encroachment into wildlife areas.

The CAMPFIRE programme has faced capacity and financial constraints as it expanded and was adopted in an increasing number of districts. There were not enough trained people to provide technical and extension services and to train communities in new CAMPFIRE districts. Start up funds for new CAMPFIRE projects were limited and this exacerbated the capacity problems.

Restriction on trade in endangered species has had an impact on CAMPFIRE. For example, in the mid 1990s trophy hunting accounted for a large proportion of the CAMPFIRE revenues and elephants products accounted for over half of the revenue. Restrictions on trade in ivory have had a negative impact on CAMPFIRE revenues.

7. Lessons learned
Some of the lessons learned from the CAMPFIRE Programme are:

- Public participation in environmental management has more chances of success than the centralist method of environmental management. This is especially true in situations where people are struggling to survive.

- Traditional knowledge systems and values such as respect for certain plants, animals and sites are important for environmental management and conservation in rural areas. Traditional values give legitimacy to local environmental management and local knowledge is useful and relevant in resource management.

- Stakeholder collaboration is key to the success of public participation initiatives such as CAMPFIRE.

- Community control of resources can be a powerful tool in sustainable development. The control of wildlife resources by communities in CAMPFIRE was able to provide both livelihood and conservation benefits

- Viable local institutions are key to the success and sustainability of initiatives such as CAMPFIRE.

8. References


GLOSSARY OF DEFINITIONS

Affected environment
Those parts of the socio-economic and biophysical environment impacted on by development. (Department of Environmental Affairs and Tourism (DEAT), 2002: p21).

Baseline conditions
Conditions that currently exist. Also called "existing conditions" (DEAT, 2002: p21).

Baseline information
Information derived from data which:
- Records the existing elements and trends in the environment; and
- Records the characteristics of a given project proposal (DEAT, 2002: p21).

Decision-maker
The person(s) entrusted with the responsibility for allocating resources or granting approval to a proposal (DEAT, 2002: p21).

Decision-making
The sequence of steps, actions or procedures that result in decisions, at any stage of a proposal (DEAT, 2002: p21).

Environment
The surroundings within which humans exist that includes the economic, cultural, social and biophysical dimensions that affect development (adapted from DEAT, 2001).

Environmental Assessment (EA)
The generic term for all forms of environmental assessment for projects, plans, programmes or policies. This includes methods/tools such as EIA, strategic environmental assessment, sustainability assessment and risk assessment (DEAT, 2002: p22).

Environmental consultant
Individuals or firms who act in an independent and unbiased manner to provide information for decision-making (DEAT, 2002: p22).

Environmental Impact Assessment (EIA)
A public process, which is used to identify, predict and assess the potential environmental impacts of a proposed project on the environment. The EIA is used to inform decision-making (DEAT, 2002: p22).
**Fatal flaw**

Any problem, issue or conflict (real or perceived) that could result in proposals being rejected or stopped (DEAT, 2002: p22).

**Impact**

The positive or negative effects on human well-being and/or on the environment (DEAT, 2002: p22).

**Integrated Environmental Management (IEM)**

A philosophy which prescribes a code of practice for ensuring that environmental considerations are fully integrated into all stages of the development and decision-making process. The IEM philosophy (and principles) is interpreted as applying to the planning, assessment, implementation and management of any proposal (project, plan, programme or policy) or activity - at the local, national and international level - that has a potentially significant effect on the environment. Implementation of this philosophy relies on the selection and application of appropriate tools to a particular proposal or activity. These may include environmental assessment tools (such as Strategic Environmental Assessment and Risk Assessment); environmental management tools (such as monitoring, auditing and reporting) and decision-making tools (such as multi-criteria decision-support systems or advisory councils) (DEAT, 2002: p22).

**Integration**

Integration has a number of implications. These include the need for integration of economic, social and biophysical objectives. Other factors include: sectoral integration, institutional integration between government agencies, coordination of the delivery of infrastructure and services, linkages between the various stages in the policy and planning process and spatial integration between, for example, rural and urban areas (DEAT, 2001).

**Local Agenda 21**

Agenda 21 is the document developed at the 1992 Rio Earth Summit. It is a global plan of action to stop environmental degradation and promote equitable development. Chapter 28 of this document deals with local government. Local Agenda 21 is a mechanism or process for promoting sustainable development strategies at the municipal level (DEAT, 2001).

**Mitigate**

The implementation of practical measures to reduce or eliminate adverse impacts or enhance beneficial impacts of an action (adapted from DEAT, 2002: p23).

**Non-governmental organizations (NGOs)**

Voluntary environmental, social, labour or community organisations, charities or pressure groups (DEAT, 2002: p23).
**Proponent**
Any individual, government department, authority, industry or association proposing an activity (e.g. project, programme or policy) (DEAT, 2002: p23).

**Proposal**
The development of a project, plan, programme or policy. Proposals can refer to new initiatives or extensions and revisions to existing ones (DEAT, 2002: p23).

**Public**
Citizens who have diverse cultural, educational, political and socio-economic characteristics. The public is not a homogeneous and unified group of people with a set of agreed common interests and aims (adapted from DEAT, 2002: p23).

**Role-players**
The stakeholders who play a role in the environmental decision-making process. This role is determined by the level of engagement and the objectives set at the outset of the process (DEAT, 2002: p23).

**Scoping**
The process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addressed in an environmental assessment. The main purpose of scoping is to focus the environmental assessment on a manageable number of important questions. Scoping should also ensure that only significant issues and reasonable alternatives are examined (DEAT, 2002: p23).

**Screening**
A decision-making process to determine whether or not a development proposal requires environmental assessment, and if so, what level of assessment is appropriate. Screening is initiated during the early stages of the development of a proposal (DEAT, 2002: p23).

**Stakeholders**
A sub-group of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term therefore includes the proponent, authorities (both the lead authority and other authorities) and all interested and affected parties (I&APs). The principle that environmental consultants and stakeholder engagement practitioners should be independent and unbiased excludes these groups from being considered stakeholders (DEAT, 2002: p23).
**Stakeholder engagement**
The process of engagement between stakeholders (the proponent, authorities and I&APs) during the planning, assessment, implementation and/or management of proposals or activities. The level of stakeholder engagement varies depending on the nature of the proposal or activity as well as the level of commitment by stakeholders to the process. Stakeholder engagement can therefore be described by a spectrum or continuum of increasing levels of engagement in the decision-making process. The term is considered to be more appropriate than the term “public participation” (DEAT, 2002: p24).

**Stakeholder engagement practitioner**
Individuals or firms whose role it is to act as independent, objective facilitators, mediators, conciliators or arbitrators in the stakeholder engagement process. The principle of independence and objectivity excludes stakeholder engagement practitioners from being considered stakeholders (DEAT, 2002: p24).

**Strategic Environmental Assessment (SEA)**
There is currently no internationally accepted definition of SEA. It is, however, commonly referred to as a process for assessing the environmental consequences of policies, plans and programmes (Thérivel et al., 1992; Sadler and Verheem, 1996; Thérivel and Partidário, 1996). The term strategic encompasses a range of types and contexts of decision-making. SEA encompasses assessments of both broad policy initiatives and more concrete programmes and plans that have physical and spatial dimensions.

For the purposes of this resource document, SEA is defined as the process of integrating the concept of sustainability into strategic decision-making processes.

**Sustainability / sustainable development**
The report entitled “Our Common Future”, published by the World Commission on Environment and Development (1987) defined sustainable development as development that meets the needs of the present without limiting the potential to meet the needs of future generations. The WCED report maintained that the goals of economic and social development must be defined in terms of sustainability in all countries, industrial or developing. The concept of sustainability relates to the maintenance and enhancement of environmental, social and economic resources, in order to meet the needs of current and future generations (DEAT and CSIR, 2000).
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td><strong>CBO</strong></td>
<td>Community Based Organisation</td>
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<tr>
<td><strong>DEAT</strong></td>
<td>South Africa’s Department of Environmental Affairs and Tourism</td>
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<td><strong>EA</strong></td>
<td>Environmental Assessment</td>
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<td><strong>EIA</strong></td>
<td>Environmental Impact Assessment</td>
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<td><strong>EMP</strong></td>
<td>Environmental Management Plan</td>
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<td><strong>EMS</strong></td>
<td>Environmental Management Systems</td>
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<tr>
<td><strong>IAIA</strong></td>
<td>International Association of Impact Assessment</td>
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<td><strong>I&amp;AP</strong></td>
<td>Interested and Affected Party</td>
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<td><strong>IEM</strong></td>
<td>Integrated Environmental Management</td>
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<td><strong>IUCN</strong></td>
<td>International Union for the Conservation of Nature</td>
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<td><strong>LA 21</strong></td>
<td>Local Agenda 21</td>
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<tr>
<td><strong>NEPAD</strong></td>
<td>New Partnership for Africa’s Development</td>
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<tr>
<td><strong>NGO</strong></td>
<td>Non-governmental organisation</td>
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<tr>
<td><strong>PPP</strong></td>
<td>Policies, plans and programmes</td>
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<td><strong>SADC</strong></td>
<td>Southern African Development Community</td>
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<tr>
<td><strong>SEA</strong></td>
<td>Strategic Environmental Assessment</td>
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<td><strong>SOE</strong></td>
<td>State of Environment</td>
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<tr>
<td><strong>UN</strong></td>
<td>United Nations</td>
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<td><strong>UNCED</strong></td>
<td>United Nations Conference on Environment and Development</td>
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<td><strong>UNDP</strong></td>
<td>United Nations Development Programme</td>
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<td><strong>UNEP</strong></td>
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<tr>
<td><strong>WCED</strong></td>
<td>World Commission on Environment and Development</td>
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<td><strong>WSSD</strong></td>
<td>World Summit on Sustainable Development</td>
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<td><strong>WWF</strong></td>
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