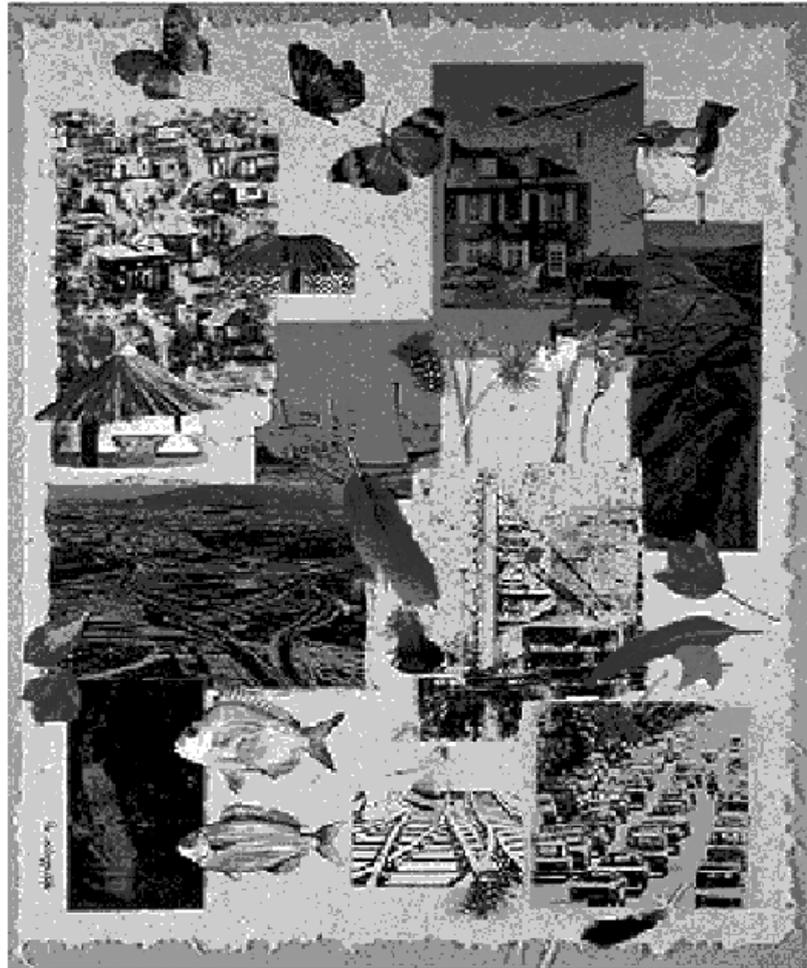


GUIDELINE DOCUMENT



Strategic Environmental Assessment in South Africa

February 2000

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Department of Environmental Affairs and Tourism



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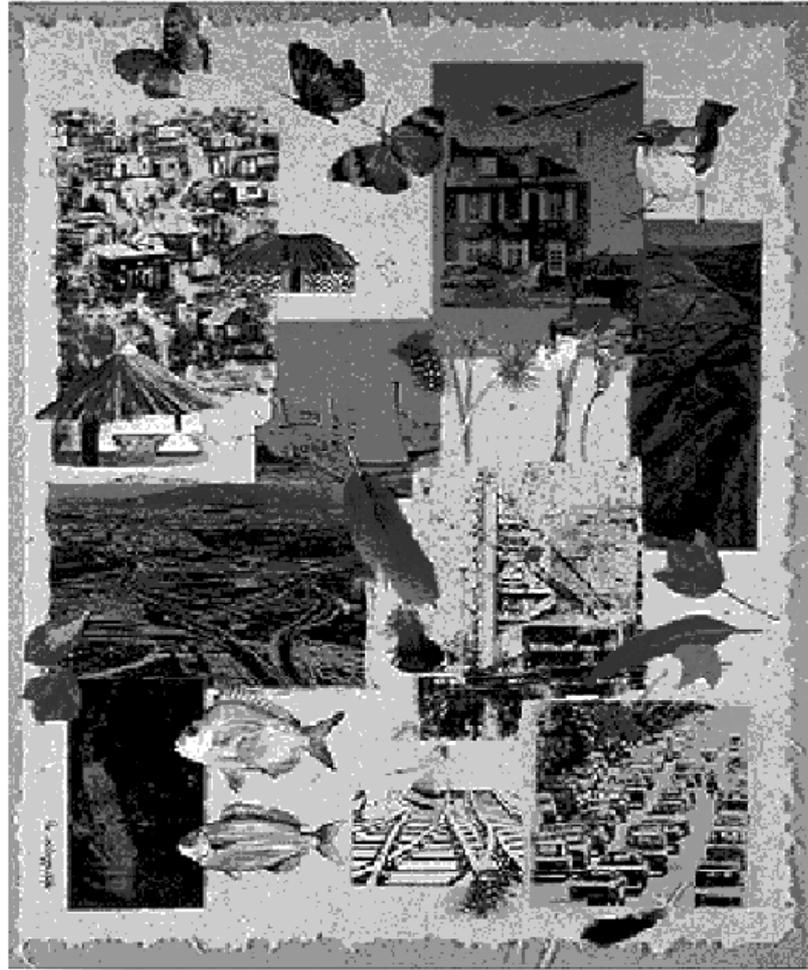
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SUMMARY

Strategic Environmental Assessment (SEA) is becoming an accepted and widely used instrument for integrating environmental issues into the formulation of plans and programmes. Several SEAs have recently been undertaken in South Africa, or are currently in progress. However, these studies have been done in the absence of an agreed understanding and methodology for SEA. This gave rise to the need for guidelines which promote a common understanding of SEA in South Africa and assist in the development of best practice in SEA.

These *Guidelines* apply to environmental assessment at the planning and programme level. Although SEA can also be applied at a policy level, current experience both locally and internationally relates primarily to SEA at the planning and programme level. It is also becoming apparent that the application of SEA to policies is significantly different to that for plans and programmes. SEA methodologies at the policy level are therefore developing separately.

SEA aims to ensure that environmental issues are addressed from an early stage in the process of formulating policies, plans and programmes, and incorporated throughout this process. The *Guidelines* describe the main benefits of SEA and the contribution that SEA can make to guide development within sustainable limits.

It is intended that SEA, at its current stage of development, should be a pro-active management instrument. This means that no particular body has legal responsibility for undertaking or approving an SEA. Initiation of an SEA should arise from the benefits that it provides to a decision-maker.

Ten principles are proposed for SEA in South Africa. These principles are the fundamental premises underpinning SEA methodologies in South Africa and provide the theoretical base for the development of local SEA processes. The *Guidelines* also describe the essential elements of an SEA and indicate how these elements can be combined into a SEA process. SEA is context-specific, and this process would need to be refined and adapted to suit the context in which it is applied. Recommendations are provided for integrating the key elements and principles into existing processes for plan and programme formulation, or for developing a separate SEA process, depending on what the context requires.

In conclusion, the continued development of SEA in South Africa is important for the integration of the concept of sustainability into the social, economic and biophysical goals of this country. These *Guidelines* aim to provide a basis on which context-specific, integrated and sustainability-led processes for SEA may be formulated. Each specific SEA process will vary depending on the situation in which it is developed and the purpose for which it is undertaken.

These *Guidelines* are 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 nationally. This development of SEA will assist in practically implementing sustainability and moving towards a true integration of economic, social and biophysical goals.

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GLOSSARY

Affected environment - "Those parts of the socio-economic and biophysical environment impacted on by the development" (DEAT, 1998).

Alternatives - "A possible course of action, in place of another, that would meet the same purpose and need (of the proposal)" (DEAT, 1998).

Cumulative Impact - "An action that in itself is not significant but is significant when added to the impact of other similar actions" (DEA, 1992).

Development - "The act of altering or modifying resources in order to obtain potential benefits" (DEAT, 1998).

Environment - "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).

Environmental Impact Assessment (EIA) - "A detailed study of the environmental consequences of a proposed course of action. An environmental assessment or evaluation is a study of the environmental effects of a decision, project, undertaking or activity. It is most often used within an Integrated Environmental Management (IEM) planning process, as a decision support tool to compare different options" (DEAT, 1998).

Environmental Implementation Plans and Environmental Management Plans - In terms of the National Environmental Management Act (No. 107 of 1998), these plans are to be prepared by provincial and national government departments. The purpose of environmental implementation and management plans is to coordinate the environmental policies, plans and programmes and decisions of various government departments at a local and provincial level, which exercise functions which affect the environment. The aim is to minimise the duplication of procedures and provide consistency in the protection of the environment

across the country as a whole.

Environmental Management System - A system which provides a structured process for continual improvement and which enables an organization to achieve and systematically control the level of environmental performance that it sets itself. In general, this is based on a dynamic cyclical process of "plan, implement, check and review".

Environmental Resources - Goods, services or environmental conditions that have the potential to enhance social well-being.

Impacts - "The outcome of an action, whether considered desirable or undesirable" (DEA, 1992).

Integrated Development Plan - Integrated Development Planning is a process through which a municipality can establish a development plan for the short, medium and long term. It integrates planning across different government sectors and identifies and sets priorities for delivery. The Local Government Transition Act (No. 97 of 1996) requires all local governments to produce an Integrated Development Plan, and is binding in all nine provinces.

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 process in order to achieve a desirable balance between conservation and development" (DEA, 1992).

Interested and affected parties (I&APs) - "Individuals and groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, workforce, customers and consumers, environmental interest groups, and the general public." (DEAT, 1998).

Land Development Objectives (LDO) - Land Development Objectives are developed in terms of the Development Facilitation Act (No. 67 of 1995). LDOs provide for a new system of urban management at local government, which is aimed at transforming the systems and procedures and facilitate integrated, efficient and coordinated service delivery. The LDOs will essentially link public expenditure to a new development vision and strategies that have

been prioritised in conjunction with communities and other major stakeholders (Greater Johannesburg Transitional Metropolitan Council, 1996).

Plan - "A purposeful, forward-looking strategy or design, often with coordinated priorities, options and measures that elaborate and implement policy" (CSIR, 1997).

Policy - "A general course of action or proposed overall direction that is being pursued and which guides ongoing decision-making" (CSIR, 1997).

Precautionary Principle - This involves applying a "risk-averse and cautious approach that recognises the limits of current knowledge about the environmental consequences of decisions or actions" (White Paper on Environmental Policy for South Africa, 1998).

Programme - "A coherent, organised agenda or schedule of commitments, proposal instruments and/or activities that elaborate and implement policy" (CSIR, 1997).

Scoping - "A procedure for narrowing the scope of an assessment and ensuring that the assessment remains focused on the truly significant issues or impacts" (DEA, 1992).

Screening - "The classification of proposals" (DEA, 1992).

Strategic Environmental Assessment (SEA) - There is no universal definition for SEA, however, it is referred to in the White Paper on Environmental Management Policy for South Africa (1998), as "a process to assess the environmental implications of a proposed strategic decision, policy, plan, programme, piece of legislation or major plan." A notable problem with this definition is that it could imply that SEA is separate from the policy, plan and programme formulation process. Furthermore, this definition focuses on the impacts of the environment on development. However, the principle of evaluating the opportunities which the environment offers to development and the constraints which it imposes, should be included in the definition of SEA.

A more proactive approach to SEA is reflected in Tonk and Verheem's (1998) definition of SEA as "a structured, proactive process to strengthen the role of environmental issues in strategic decision making." Sadler (1995) states that SEA aims to integrate environmental (biophysical, social and economic)

considerations into the earliest stages of policy, plan and programme development. In these Guidelines, SEA is defined as a process of integrating the concept of sustainability into strategic decision-making.

Sustainability - Refer to Box 1 in the document for a definition and discussion on sustainability.

ABBREVIATIONS

DEA - Department of Environment Affairs
DEAT - Department of Environmental Affairs and Tourism
EIA - Environmental Impact Assessment
EIP - Environmental Implementation Plan
EMP - Environmental Management Plan
EMS - Environmental Management System
IDP - Integrated Development Plan
IEM - Integrated Environmental Management
LDO - Land Development Objective
SABS - South African Bureau of Standards
SEA - Strategic Environmental Assessment

1. INTRODUCTION

Strategic Environmental Assessment (SEA) is becoming an accepted and widely used instrument for integrating environmental issues into the formulation of plans and programmes. Several SEAs have recently been undertaken in South Africa, or are currently in progress. However, these studies have been done in the absence of an agreed understanding and methodology for SEA. This gave rise to the need for *Guidelines* which promote a common understanding of SEA in South Africa and assist in the development of best practice in SEA.

These *Guidelines* apply to environmental assessment at the planning and programme level. Although SEA can also be applied at a policy level, current experience both locally and internationally relates primarily to SEA at the planning and programme level. It is also becoming apparent that the application of SEA to policies is significantly different to that for plans and programmes. SEA methodologies at the policy level are therefore developing separately.

1.1 Objectives and benefits of SEA

SEA aims to ensure that environmental issues are addressed from an early stage in the process of formulating plans and programmes, and incorporated throughout this process.

The main benefits of SEA are that it:

- pro-actively informs the development of plans and programmes;
- identifies the opportunities and constraints which the environment places on development;
- provides guidelines to ensure that development is within sustainable limits;
- has the ability to integrate across areas, regions or sectors;
- improves the way in which cumulative effects are dealt with in environmental assessments, for example, through the use of thresholds and limits of acceptable change; and
- focuses on the maintenance and enhancement of a chosen level of environmental quality, rather than on minimising individual impacts.

The approach of assessing the effect of the environment on development is an important benefit of SEA (Figure 1). This is one of the differences between SEA and EIA, as EIAs focus on the effect of development on the environment. In some countries, an EIA-based approach to SEA is followed, where

SEA is used to assess the impacts of a plan or programme on the environment. However, an *integrative approach* is proposed in these *Guidelines*. This approach considers the opportunities and constraints which the environment places on the plan or programme.

The fundamental benefit of SEA is that it aims to integrate the concept of sustainability into the formulation of plans and programmes. Box 1 contains the definition of sustainability used in these *Guidelines*.

1.2 Legislative and policy context for SEA

There are currently no legislative requirements specifically for SEA in South Africa. However, the National Environmental Management Act (NEMA) (No. 107 of 1998) makes provision for the development of assessment procedures that aim to ensure that the environmental consequences of policies, plans and programmes are considered. This provision indicates a need, within legislation, for the use of SEA.

A number of policy initiatives also address the need for SEA, for example, the White Paper on Environmental Management Policy for South Africa (1998). Furthermore, SEA is a means of implementing the principle of sustainability, which is central to the new planning and environmental legislation promulgated in South Africa. The opportunity therefore exists for SEA to provide an approach for integrating sustainability into the implementation of recent legislation. For example, SEA could be applied in conjunction with the following processes required by planning and environmental legislation:

- Land Development Objectives (LDOs) required in terms of the Development Facilitation Act (No. 67 of 1995);
- Environmental Implementation Plans (EIPs) and Environmental Management Plans (EMPs) required in terms of the National Environmental Management Act (No. 107 of 1998); and
- Integrated Development Plans (IDPs) required in terms of the Local Government Transition Act (No. 109 of 1993).

It is intended that SEA, at its current stage of development, should be a pro-active management instrument. This means that no particular body has legal responsibility for undertaking or approving a SEA. Initiation of a SEA should arise from the benefits which

it provides to a decision-maker, as described in Section 1.1 of these *Guidelines*. The initiator of an SEA may be, for example, an industry which intends making a strategic decision concerning their future business direction; or a government body that requires a process to enhance strategic decision-making relating to the management of a

particular sector or region.

Similarly, at present there is no legislative responsibility for government to review an SEA. However, reviews should be built into the process, for example, through independent peer review and feedback from interested and affected parties.

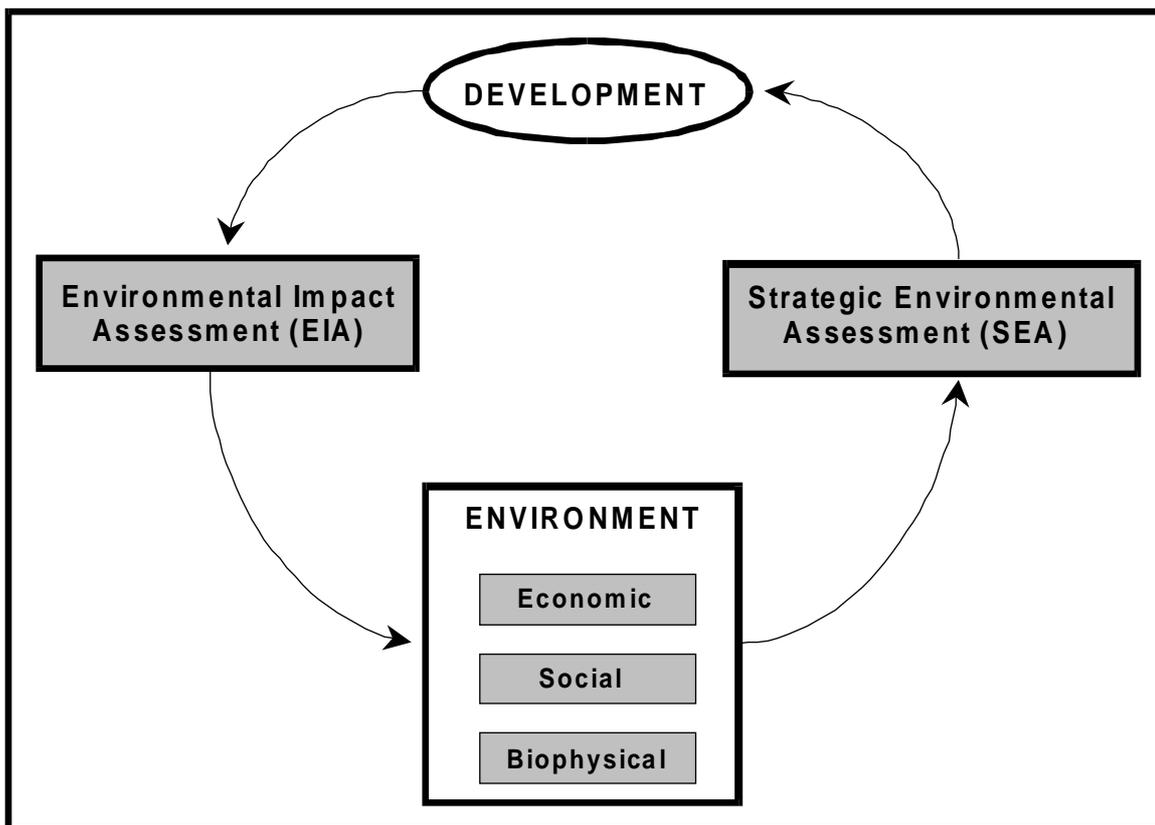


FIGURE 1: THE DIFFERENCE IN FOCUS BETWEEN EIA AND SEA (Source: CSIR, 1996)

BOX 1. SUSTAINABILITY

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. The three components of sustainability are:

- Environmental sustainability: which requires that natural capital remains intact. This means that the source and sink functions of the environment should not be degraded. Therefore, the extraction of renewable resources should not exceed the rate at which they are renewed, and the absorptive capacity to the environment to assimilate wastes should not be exceeded. Furthermore, the extraction of non-renewable resources should be minimised and should not exceed agreed minimum strategic levels.
- Social sustainability: which requires that the cohesion of society and its ability to work towards common goals be maintained. Individual needs, such as those for health and well-being, nutrition, shelter, education and cultural expression should be met.
- Economic sustainability: which occurs when development, which moves towards social and environmental sustainability, is financially feasible

(Source: Gilbert, Stevenson, Girardet, Stren, 1996).

1.3 Role of SEA within Integrated Environmental Management

Integrated Environmental Management (IEM) provides the overarching philosophy for the integration of environmental management principles into decision-making in South Africa. These principles are described in NEMA (Appendix B) and embrace the SEA principles described in Section 3 of these *Guidelines*.

IEM incorporates several instruments for environmental assessment and management. These can be applied at different levels of environmental impact management. SEA has been identified as an appropriate instrument, both locally and internationally, to incorporate environmental aspects into the higher

level planning processes of a more strategic nature. The relationship of these IEM instruments to levels in the development cycle is shown in Figure 2. It is not intended that SEA should replace EIA, but rather that it should complement project-level assessment, by providing an effective instrument for environmental assessment at the plan and programme level. SEA may form the context for lower levels of planning and provide input into higher, more strategic levels.

There are several instruments developed for environmental impact management which can be used within the SEA process. For example, life cycle assessment, cost-benefit analysis and other economic and monitoring instruments.

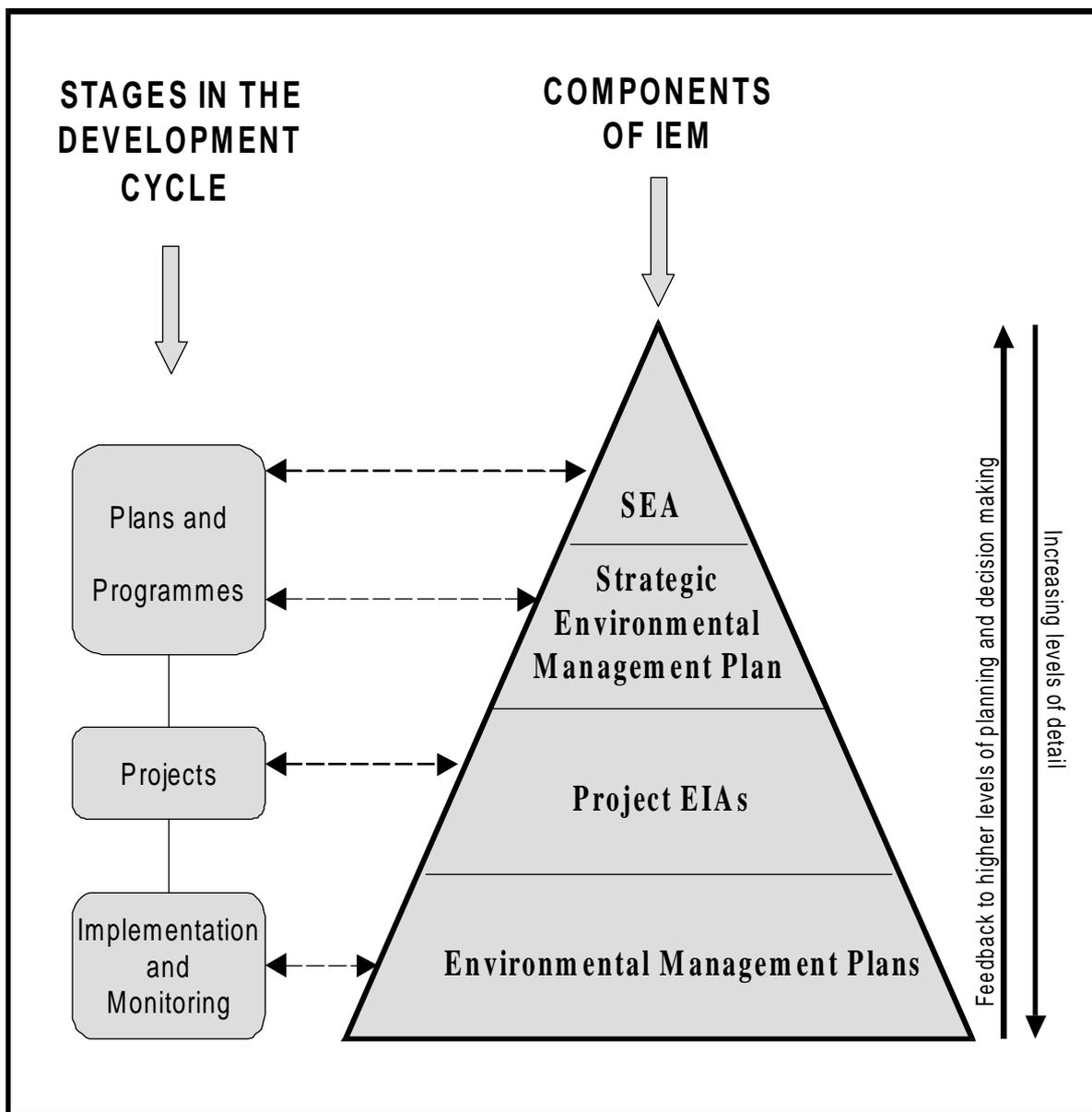


FIGURE 2: EXAMPLE OF A TIERED APPROACH TO SEA AND PROJECT-LEVEL EIA IN SOUTH AFRICA

1.4 Development of the SEA Guidelines

The *SEA Primer* (CSIR, 1996) provided a first step in the development of SEA as an accepted tool for environmental planning and management in South Africa. The need for SEA was identified, indicating the limitations of an Environmental Impact Assessment (EIA) approach for plans and programmes.

After a number of SEAs had been commissioned and experience in SEA had grown, it was possible to produce a *Protocol for Strategic Environmental Assessment* (CSIR, 1997). This provided a foundation from which key principles and approaches to SEA could be developed. Thereafter, the draft principles and early versions of the *Guidelines* were distributed for comment to authorities, practitioners and other parties involved in SEA in South Africa. Early versions of the *Guidelines* were also tested against international trends and experiences.

Based on the above process, draft *Guidelines for SEA in South Africa* were produced in March 1999. These *Guidelines* were widely distributed by the Department of Environmental Affairs and Tourism (DEAT) to interested and affected parties for their comment. This was accompanied by a series of workshops held in May 1999 in Cape Town, Pretoria and Durban where the *Guidelines* were presented and feedback obtained.

1.5 Purpose of the SEA Guidelines

The purpose of these *Guidelines* is to:

- Promote the development of best practice in SEA;
- Assist role-players in contributing to and reviewing SEA processes;
- Provide a generic approach to SEA which is applicable to the South African context; and
- Provide the foundation for the possible future development of SEA legislation in South Africa.

1.6 Structure of this document

This document is divided into the following sections:

- Key concepts underpinning SEA;
- Principles for SEA in South Africa;
- Key elements for an SEA process;
- Current issues and challenges in the implementation of SEA; and
- Conclusions.

The key concepts outline the theoretical approach to SEA. Thereafter, the principles underpinning SEA in South Africa are summarised. Questions relating to each principle are also included. These questions formed the basis for the development of key elements and related actions which provide the structure for a SEA process. Finally, some current issues and challenges facing the implementation of SEA are highlighted.

2. KEY CONCEPTS UNDERPINNING SEA GUIDELINES

The approach to SEA adopted in these *Guidelines* is context-specific, integrative and sustainability-led. Each of these characteristics is described below.

2.1 Context-specific

The process for a SEA should be informed by the context (e.g. the political, institutional, social and biophysical environment) in which the plan or programme is being developed. The focus is on the identification of key elements for SEA, to be integrated into context-specific processes for plan and programme formulation (e.g. processes for the formulation of Integrated Development Plans). SEA is therefore adapted to local requirements for decision-making. The aim is not to develop a new and separate process for SEA. However, the key elements may also be used as a guide in developing a separate SEA process if the context requires this. Such an approach also allows for flexibility in developing tailor-made SEA procedures, which respond to local conditions.

2.2 Integrative

The integrative approach to SEA aims to avoid the duplication of processes. The focus is on adding value to existing procedures and minimising the need for additional human and financial resources. This is particularly important in South Africa's diverse range of social, economic, biophysical, legislative and administrative conditions. Therefore it is not proposed that there be a single SEA process to be applied in all circumstances; but rather that there be principles and key elements that should be integrated into current procedures for the formulation of policies, plans and programmes. This integration should assist in moving towards sustainability at the strategic level.

2.3 Sustainability-led

A sustainability-led approach to SEA goes beyond the extension of project-specific EIA procedures to the plan and programme level. It provides for the inclusion of the concept of sustainability into plan and programme formulation. SEA may then be a practical means of implementing much of the new legislation in South Africa. Examples of legislation which refer to sustainability in development are: The Constitution Act (No. 108 of 1996); the White Paper on Environmental Management Policy in South Africa (1998), the National Environmental Management Act (No. 107 of 1998) and the Development Facilitation Act (No 67 of 1995). This approach to SEA aims to facilitate local definitions of sustainability; as well as the formulation and implementation of strategies to achieve this.

SEA strives for continuous learning and improvement. This means that lessons learnt from one SEA should be captured, and incorporated into other SEA processes to improve their effectiveness. Through implementing an integrative and sustainability-led SEA, objectives for sustainability are defined and strategies to achieve them are implemented and monitored. These objectives and strategies are updated as more information about development processes and the environment is obtained.

3. PRINCIPLES FOR SEA IN SOUTH AFRICA

The principles are the fundamental premises underpinning SEA methodologies in South Africa. They provide the theoretical base for the development of local SEA processes. The principles can assist in the integration of SEA into other planning and environmental processes and in the evaluation of the effectiveness of SEA methodologies.

3.1 Description of the Principles

Table 1 contains the principles for SEA in South Africa, their implications for SEA *Guidelines*, and questions to assist in the development and evaluation of a SEA. The principles are consistent with those underpinning IEM (Appendix A), but were formulated specifically for the development of an agreed approach to SEA in South Africa. The SEA principles and process guidelines are also set within the context of NEMA (Appendix B). Examples of principles within NEMA which SEA can address include:

“(3) Development must be socially, environmentally and economically sustainable” (p 10); and
“(4) (e) Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle” (p 12).

In the following table, the substantive principles (1 - 3) relate to the content of the SEA and the procedural principles (4 - 10) to the process.

4. KEY ELEMENTS OF A SEA PROCESS

This section describes the essential elements of SEA and indicates how these elements can be combined into a SEA process. SEA is context-specific, and this process would need to be refined and adapted to suit the context in which it is applied.

If a SEA is undertaken as a stand-alone process, then the process presented in this section should be followed. If, however, SEA is being integrated into another planning process, then certain elements in this section can be incorporated into planning as needed.

The key elements of a SEA process are shown in Figure 3 and listed below:

- Identify broad plan and programme alternatives;
- Screening;
- Scoping;
- Situation Assessment;
- Formulate sustainability parameters for the development of the plan or programme;
- Develop and assess alternative plans and programmes;
- Decision-making;
- Develop a plan for implementation, monitoring and auditing; and
- Implementation.

4.1 Identify broad plan and programme alternatives

Broad plan or programme alternatives should be identified. These should indicate the physical and administrative boundaries, the level of planning and the type of plan or programme (e.g. sectoral or regional) to be undertaken. These alternatives will be refined or changed as the plan or programme is developed. As an example, the conceptual development options for the SEA of an industrial complex near Wellington are presented in Box 2.

TABLE 1: PRINCIPLES, THEIR IMPLICATIONS AND KEY QUESTIONS FOR STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)

SUBSTANTIVE/CONTENT PRINCIPLES		
<p>1. SEA is driven by the concept of sustainability.</p>	<p>The focus of SEA is on integrating the concept of sustainability into the objectives and outcomes of plans and programmes.</p> <p>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.</p> <p>Targets and measurement tools are defined to guide development towards sustainability.</p>	<p>How can the concept of sustainability be integrated into different levels of decision-making, within the spatial context of the plan or programme?</p>
<p>2. SEA identifies the opportunities and constraints which the environment places on the development of plans and programmes.</p>	<p>The environmental resources needed to achieve the sustainability objectives are identified. These resources are maintained and enhanced through the plan or programme. The resources are prioritised through effective participation procedures.</p> <p>The environmental resources form the basis for the identification of opportunities and constraints, which guide the formulation of plans and programmes.</p>	<p>What are the environmental resources which should be maintained and/or enhanced in the plan or programme?</p>
<p>3. SEA sets the criteria for levels of environmental quality or limits of acceptable change.</p>	<p>The levels of acceptable change of the environmental resources are determined. This process reflects public views and scientific information.</p> <p>The plan or programme is developed in such a way as to maintain and enhance the level of environmental quantity and quality of these resources. This includes an iterative process of developing alternatives and predicting whether the resources will be maintained and enhanced.</p> <p>Management programmes are identified. These are implemented should the limits of acceptable change of the environmental resources be exceeded, or are threatened to be exceeded.</p>	<p>What is the level of acceptable change of the environmental resources identified?</p>
PROCEDURAL PRINCIPLES		
<p>4. SEA is a flexible process which is adaptable to the planning and sectoral development cycle.</p>	<p>SEA is integrated into existing processes for plan and programme formulation and implementation.</p> <p>There is not one SEA process to be used in all contexts, but different processes for various contexts and strategic tasks.</p> <p>The focus is on understanding the context-specific decision-making and plan or programme formulation procedure. The objectives of sustainability are then integrated into this process at key decision points, throughout the various levels and scales of plan and programme development. The SEA consistently interacts with the plan and programme procedure in an iterative way.</p>	<p>How can sustainability objectives be integrated effectively into existing context-specific processes for plans and programmes?</p>

PRINCIPLE	IMPLICATIONS	KEY QUESTION
PROCEDURAL PRINCIPLES		
5. SEA is a strategic process, which begins with the conceptualisation of the plan or programme.	SEA introduces sustainability objectives at the earliest stage in the plan or programme process; from conceptualisation through to the many stages of decision-making.	How can sustainability objectives be integrated into the plan or programme, starting from the stage of conceptualisation?
6. SEA is part of a tiered approach to environmental assessment and management.	SEA addresses higher levels of decision-making in order to provide the context for lower levels (Figure 2). Linkages are established between the various levels of decision-making.	What are the plans or programmes which influence the maintenance and enhancement of the environmental resources identified?
7. The scope of an SEA is defined within the wider context of environmental processes.	SEA is not limited to a particular site, but considers significant local, regional, national and international linkages.	What are the political, socio-economic, and biophysical processes influencing the maintenance and enhancement of the environmental resources identified?
8. SEA is a participative process.	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.	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?
9. SEA is set within the context of alternative scenarios.	Scenarios, visions and alternative plan and programme options are developed in a participatory way. Alternative plans and programmes are evaluated in terms of their ability to maintain and enhance the environmental resources identified.	What plan and programme alternatives will most effectively maintain and enhance the environmental resources identified?
10. SEA includes the concepts of precaution and continuous improvement.	A risk-averse and cautious approach is applied, which recognises the limitations of current knowledge about the consequences of decision-making. This approach should be linked to a commitment to continuous learning and improvement. This link between a cautious approach and continuous learning contributes to an increasing understanding of sustainability for a region or sector. SEA must lead to a process for: <ul style="list-style-type: none"> ● monitoring and continuous improvement; ● improvement of baseline information; and ● understanding of sustainability objectives. 	What mechanism for the monitoring and evaluation of sustainability should be integrated into the plan or programme?

BOX 2: EXAMPLES OF CONCEPTUAL DEVELOPMENT OPTIONS

In the SEA for the Somchem industrial complex at Krantzkop near Wellington, seven potential development options were identified:

- Maintenance of the *status quo*;
- Optimal use of the existing land and facilities by Somchem;
- Development of an industrial park;
- Use of land for agriculture;
- Use of the land for conservation;
- Selling of the property; and
- Closure.

(Source: CSIR, 1998b: 3.5)

4.2 Screening

This stage involves identifying the overarching purpose of the plan or programme and deciding whether a SEA is required. This decision may be determined by legislation, policies, local requirements or an identified need. Context-specific screening criteria would assist in determining whether a SEA should be undertaken. For example, these criteria could include a checklist categorising plans and programmes which could have a significant impact on the environment, a list of important ecological processes, or a spatial representation of environmentally sensitive areas.

4.3 Scoping

The aim of Scoping is to determine the nature and extent of the SEA. This involves formulation of a vision and identification of significant strategic issues to be addressed in the SEA. This 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 organisations, business and community

organisations. This group should ensure that the Scoping process, which includes a wider range of interested and affected parties, focuses on strategic issues.

It is important that the public involvement process enables and supports interested and affected parties to engage in the process at different levels, in a way that is appropriate to their resources and needs. These levels of involvement could range from being informed of the SEA process, to providing inputs or to being actively involved in influencing the process. The public participation process should be designed in such a way that it enhances the entire SEA process.

4.3.1 Formulate a vision

The vision is the overarching statement of what the plan or programme is aiming to achieve (Box 3). The effectiveness of the plan or programme is determined by the extent to which it achieves that vision.

4.3.2 Identify significant strategic issues

Significant strategic issues relating to the broad plan or programme alternatives should be identified (Box 4). These are overarching concerns which relate to

BOX 3: EXAMPLE OF A VISION

The overall vision for the development of the Somchem industrial complex at Krantzkop near Wellington:

“... is to develop and manage the Krantzkop site in a manner that is consistent with the objectives of sustainable development and local and regional planning initiatives.”

(Source: CSIR, 1998b: 3.1)

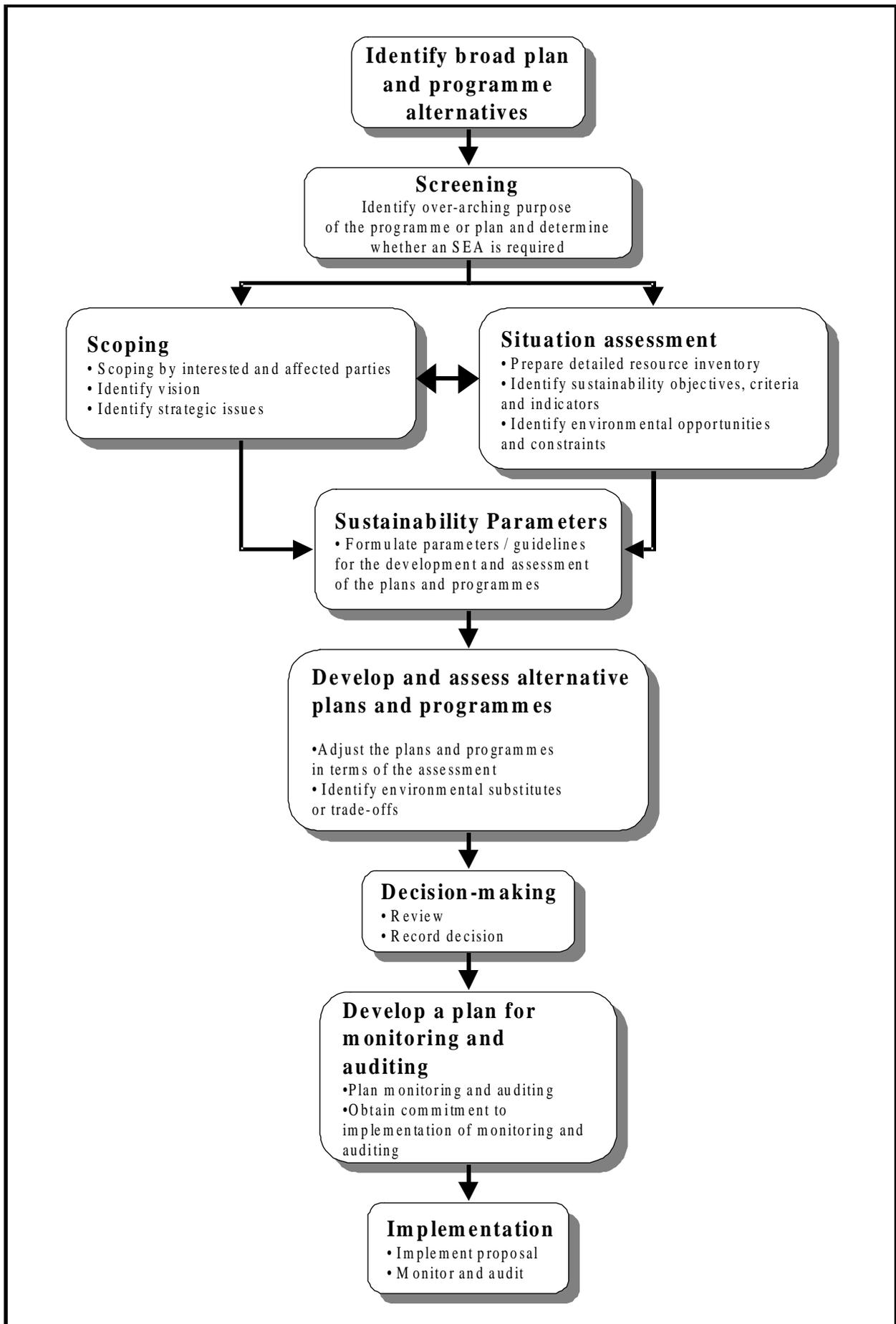


FIGURE 3: SEA PROCESS

the proactive guidance and management of smaller, more incremental decisions. These issues influence the wider social, economic and biophysical system and have implications for a range of spatial and temporal scales. Furthermore, strategic issues relate to the higher (upstream) more general level of decision-making in plans and programmes, rather than the specific (downstream) decisions made in project planning and implementation. For example, concerns relating to the location of tourist facilities in a region are strategic, whereas those concerning a change in land use of a site for tourist facilities are project related and not strategic.

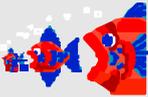
The aim of Scoping is to focus the assessment on significant and strategic issues. This may result in certain concerns raised by interested and affected parties being excluded from the SEA. However, it should be clearly explained which issues were excluded and the reasons for this. Various public participation methods may be used to identify which

issues are significant and to prioritise issues.

The strategic issues identified may relate to direct impacts (e.g. water pollution), the cause of impacts (e.g. coal burning) or a general concern (e.g. decrease in security). In an EIA, these issues are translated into impacts of development on the environment. However, in a SEA the focus is on the opportunities and constraints of the environment on development. It is therefore suggested that strategic issues be translated into social, economic and biophysical resources which provide opportunities to enhance or constrain the development of the human population. It is important that the focus on significant issues is not lost through this translation into opportunities and constraints. These opportunities and constraints are then used to inform the development of the plan or programme. In summary, the product of the Scoping phase is an agreed, focused set of issues and alternatives.

BOX 4: EXAMPLES OF STRATEGIC ISSUES

The following are examples of strategic issues which were addressed in a Draft Port Development Framework for Saldanha:

	Strategic Issue	Comment
	Short-, medium- and long-term demands on port facilities	If the Port of Saldanha is to play an efficient and effective role in unlocking the economic potential of the West Coast region, it is important that the short-, medium- and long-term port demands are estimated and planned for.
	Land-use planning for future port expansion	For the port to meet future demands it will require the development of additional land for expansion, close to existing port facilities. It is important that such land should be identified and planned for future port expansion.
	Integration of port with surrounding land- and water-uses	Integration of the port operations with surrounding land- and water-uses such as recreational, residential, mariculture and tourism facilities is essential for the balanced and sustainable development of the bay. It is important to ensure that future port development does not jeopardise future alternative uses of the bay.
	Protection of the marine environment	There is a need to protect the marine environment in such a way that future alternative opportunities to use the natural resources are not compromised in any way. Cumulative impacts must be considered.

(Source: CSIR, 1998a: 1.3)

4.4 Situation Assessment

4.4.1 Prepare a resource inventory

A resource inventory must be prepared which:

- Identifies the social, economic and biophysical resources which should be maintained and/or enhanced;
- Identifies the social, economic and biophysical trends on all relevant scales, which will influence the maintenance and enhancement of these resources; and
- Identifies the existing institutions, legislation, policies, plans and programmes, which will influence the maintenance and enhancement of the environmental resources.

4.4.2 Identify sustainability objectives, criteria and indicators

This involves formulating objectives which are based on the concept of sustainability (sustainability objectives) and translating these into context-specific criteria and indicators. These objectives, criteria and indicators should relate to the environmental resources identified in the Scoping phase and to the nature and scale of the plan or programme. The objectives are generic, commonly recognised requirements for the sustainability of resources. They relate to a particular area, scale and level of decision-making.

The sustainability objectives may then be translated into sustainability criteria. These should reflect the

social, economic and biophysical context of the plan or programme. The criteria are typically based on limits for acceptable change within the environment and may be quantitative or qualitative. These may be reflected in existing standards (e.g. SABS standards) and legislation, or developed through specialist research and public participation. The SEA process itself may not determine limits or set new criteria, however, these may be obtained from other sources such as national and city State of the Environment Reports.

Measurable sustainability indicators may then be identified to determine whether the criteria are being met. For example, in an ecologically sensitive area, the criteria could be the maintenance and enhancement of the number of plant species in a particular wetland; whereas in a highly built-up area the criteria might be the maintenance and enhancement of specific cultural heritage sites. Sustainability criteria and indicators may be used to compare alternatives and monitor the implementation of the plan or programme.

4.4.3 Identify environmental opportunities and constraints

The opportunities and constraints which the biophysical and socio-economic environment place on the plan or programme can then be identified. Where sustainability criteria are already met, an opportunity exists for development which maintains or enhances the environmental resources, e.g. decreases the amount of waste flowing into a river, or increases the quality of community facilities (Box 5). However, constraints to the plan or programme will

BOX 5: EXAMPLES OF ENVIRONMENTAL OPPORTUNITIES AND CONSTRAINTS

Examples of environmental opportunities and constraints identified in the SEA for the Somchem industrial complex at Krantzkop near Wellington:

Opportunities

- Water supply currently available for industrial usage, as Krantzkop only uses 25% of its permitted 4 000 000 m³ per annum water allocation.
- Potential usage of good quality groundwater.
- The R44 is identified as a scenic route and offers opportunities to support ecotourism growth.

Constraints

- Possible limited pollution risk to shallow groundwater and stream if appropriate management actions are not taken.
- Total SO₂ emissions from the site may in a "worst case" scenario exceed levels which will ensure protection of sensitive receptors near the site.
- The ability of existing transportation routes in the area to sustain further demand, in particular between the site and the R44 - Soetendal Road intersection.

(Source: CSIR, 1998b)

exist where the sustainability criteria are not met, or are at risk of not being met, e.g. ambient air quality exceeds the threshold described in the sustainability criteria.

4.5 Formulate sustainability parameters for the development of the plan or programme

Sustainability parameters can then be formulated to guide the outcome of the plan or programme towards achieving the objectives for sustainability. These may be written in the form of principles or guidelines, as shown in Box 6. The sustainability parameters should include recommendations on how the plan or programme may address the environmental constraints and enhance the opportunities. These parameters may be quantitative (e.g. set levels for sulphur dioxide emissions), qualitative (e.g. promote the use of alternative low-sulphur sources of fuel in industry to minimise sulphur dioxide emissions) or spatially based (e.g. maps indicating zoning of activities including conditions for “no-go” areas).

The nature of the sustainability parameters would also be influenced by the level of the plan or programme. For example, at a municipal level, the use of buffer

zones and corridors may be necessary to ensure that marginal habitats are not lost. However, at a regional level, the parameters would be broader, for example, to promote the conservation of biodiversity in a region.

Ensuring the sustainability of environmental resources may require links to other levels of decision-making and spatial scales. These links may be drawn through recommendations for environmental management and planning at other levels and spatial scales. For example, recommendations may be made concerning assessments (e.g. Environmental Impact Assessments and Risk Assessments), Environmental Management Systems, sectoral plans and monitoring programmes. These recommendations should become part of future plan, programme and project formulation.

4.6 Develop and assess alternative plans and programmes

The sustainability parameters, objectives, criteria and indicators which have been developed in the previous stages, together provide a sustainability framework. This framework can be used in two ways: either to guide the formulation of new plans and programmes,

BOX 6: EXAMPLES OF SEA GUIDELINES FOR PLAN AND PROGRAMME DEVELOPMENT

Listed below are examples of guidelines to improve public communication and promote socio-economic development, identified in the *Draft Port Development Framework for Saldanha*.

Guidelines for improved public communication

There are a number of ways in which Portnet can improve its communication with the public, local authorities and key stakeholders. These include the following:

- constitution of port-focused stakeholder forums;
- regular press releases or newsletters;
- fliers which can be distributed to a wide range of stakeholders within the community; and
- attendance of established forums such as the Saldanha Bay Water Monitoring Forum and the Saldanha Steel Community Forum.

Guidelines to promote socio-economic development

- Portnet should give preference to the employment of local labour and companies where these comply with the job requirements;
- Portnet should contract local companies to undertake maintenance, planning and construction contracts where possible;
- Portnet should investigate the possibility of adult educational courses and of supporting local schools; and
- Portnet should expand the present health monitoring programme and improve the existing Port clinic facilities.

(Source: CSIR, 1998a)

or to provide a measure against which existing plans and programmes can be assessed.

The most proactive use of the framework is to integrate sustainability into the planning process, as early as possible. In this case, key leverage points (e.g. the setting objectives stage) in the decision-making process may be identified, at which to integrate the concept of sustainability. This involves evaluating alternatives at each decision-point, in terms of the sustainability framework.

The preferred alternative is the one which is most compatible with the sustainability parameters. Should all the alternatives be compatible with all the parameters, the preferred alternative is that which most effectively fulfils their requirements (e.g. the alternative which could result in the greatest decrease in pollution levels).

It may be useful to develop the alternative plans and programmes within the context of various scenarios. National and regional forecasting may be used to guide the formulation of these alternatives, which would then apply to a range of future conditions. For example, variables in population numbers, income levels, pollution levels, energy consumption and traffic may be used in scenario development.

The sustainability framework may also be used to evaluate plans or programmes which have already been developed. This will assist in determining their sustainability, in terms of the context-specific objectives and criteria for sustainability. In this case, the plan or programme may be divided into its component parts and evaluated against the sustainability framework.

4.6.1 Adjust or develop the plan or programme in terms of the assessment

Development of the plan or programme involves an iterative process of assessment and adjustment. This requires regular interaction between the environmental manager and the planner. At key decision points, the environmental manager provides the planner with information on the environmental consequences of the plan or programme, while the planner provides the environmental manager with information about the plan or programme which feeds into the assessment. Through this iterative process, the plan or programme is developed in a way which is aligned with the sustainability framework.

4.6.2 Identify environmental substitutes or trade-offs

There may be environmental resources, identified in the Scoping stage, which are not maintained and/or enhanced in the plan or programme. In an EIA,

mitigation measures are identified to reduce or eliminate potential negative impacts as a result of the project. In a SEA, it may be possible to identify substitutes or trade-offs for the functions these environmental resources provide. It is important that national priorities such as poverty alleviation and social justice are incorporated into this process of identifying substitutes or trade-offs. Public involvement should inform decisions on substitutes or trade-offs.

4.7 Decision-making

4.7.1 Review

The purpose of review is to evaluate the positive and negative aspects of the framework for sustainability and the final draft of the plan or programme. The review process must be guided by a terms of reference as determined at the beginning of the SEA process. Reviewers could include relevant authorities, specialists and interested and affected parties. In terms of IEM, a review is undertaken to ensure that: there is sufficient interested and affected party involvement; there is sufficient information to make a decision; and legislative, administrative and other requirements have been complied with. In addition, the review should ensure that the SEA was effectively undertaken and that the sustainability requirements are incorporated in the plan or programme. At present there are no legislated responsibilities for government authorities to review a SEA (refer to sections 1.2 and 5.2).

4.7.2 Record of decision

The initiator of the SEA decides on whether the environmental consequences of the plan or programme have been adequately considered in planning. Amendments may have to be made before final acceptance. A statement of the decision, indicating how SEA requirements were taken into account, should be drawn up. This stage of decision-making is usually part of established processes for plan or programme approval.

Decision-making may occur throughout the plan and programme formulation process. A record of these decisions should be kept and made available as necessary.

4.8 Develop a plan for implementation, monitoring and auditing

4.8.1 Prepare implementation strategy

A strategy for the implementation of the plan or

programme should be clearly described. This may be integrated with the implementation strategies required in terms of other legislation (e.g. Development Facilitation Act (No. 67 of 1995)). Where appropriate, the implementation strategy may include:

- mechanisms for implementation and management (e.g. legislation, institutional arrangements, strategic plans, local plans, environmental management systems and environmental assessment);
- roles and responsibilities for various levels of government and other organisations;
- financial and human resource requirements;
- phasing and time-frames for implementation; and
- a communication strategy.

4.8.2 Plan monitoring and auditing

Resources should be monitored and audited to proactively identify any threat of non-sustainable use and allow for measures to restore sustainability. The sustainability indicators formulated in the assessment stage are useful tools in monitoring whether the sustainability criteria are being met and the parameters (or guidelines) being adhered to. A programme for monitoring and auditing of the plan or programme is therefore required. The information obtained from the monitoring and auditing should be fed back into the baseline information used for SEAs, in order to promote continual improvement.

Monitoring and auditing also allows for adjustment of the sustainability framework and the nature of the plan or programme. The monitoring and auditing programme should be applicable to the context in which the plan or programme is developed. This implies that the programme may be integrated into other monitoring and auditing schemes required by existing legislation (e.g. the Minerals Act (No. 50 of 1991)). Alternatively, the monitoring and auditing programme could be formulated specifically for the plan or programme being developed. Typically, the monitoring programme will include objectives for monitoring and a description of where, how, when and by whom monitoring will take place. Details on the financing of the programme should also be included.

At this stage, a statement should be made on the commitment to the implementation, monitoring and auditing.

4.9 Implementation

4.9.1 Implement the proposal

After acceptance of the plan or programme, it is

implemented. The conditions of acceptance may require that an environmental management system be prepared and implemented, and that an environmental committee be established to guide the monitoring and auditing process.

4.9.2 Monitor and audit

Monitoring and auditing should be undertaken according to the programme prepared in the planning and assessment stage. The sustainability framework may be used as an input into:

- Monitoring the condition of the environmental resources affected by the plan or programme, and;
- Auditing the effectiveness of the plan or programme, in the light of implementation.

The sustainability framework and the plan or programme should then be altered in terms of the results of monitoring and auditing.

5. CURRENT ISSUES AND CHALLENGES TO THE IMPLEMENTATION OF SEA IN SOUTH AFRICA

There are a number of challenges to the implementation of an integrated and sustainability-led approach to SEA. These include:

- Developing links between SEA and the Integrated Development Planning (IDP) process;
- Facilitating capacity building and training;
- Providing baseline information; and
- Improving coordination between various institutional structures.

5.1 Links between SEA and the IDP process

SEA should not be separate to the IDP process but rather integrated into it. SEA can add value to the IDP process by providing the means of integrating the concept of sustainability into planning. In the SEA process, limits of acceptable change are defined, which indicate the ability of the environment to sustain development. These limits may therefore be used as a guide in planning, to ensure that development does not degrade or deplete environmental resources. Environmental

opportunities, which may be enhanced through appropriate planning, are also identified in the SEA process. The purpose of SEA is therefore to complement the planning process, by providing the information necessary to ensure that development maintains and enhances environmental resources. This is a practical means of implementing the concept of sustainability in planning.

The SEA process should be adapted to the specific planning process which is being undertaken. This can be accomplished by identifying the elements of SEA which will add value to the planning process and therefore should be incorporated into it. An example of how SEA may be integrated into the IDP process is provided in Figure 4. This figure is a simplistic

illustration of the IDP process, which indicates which key elements of SEA may be incorporated into the IDP process and which elements are already included and need not be repeated through SEA.

5.2 Capacity building and training

At present SEA is not a regulatory instrument and therefore does not impose any additional legislative responsibility on government authorities. SEA should be undertaken on a voluntary basis by government and other interested and affected parties, as a means of ensuring that sustainability is integrated into planning. The nature and extent of the SEA should therefore be matched with the financial and human

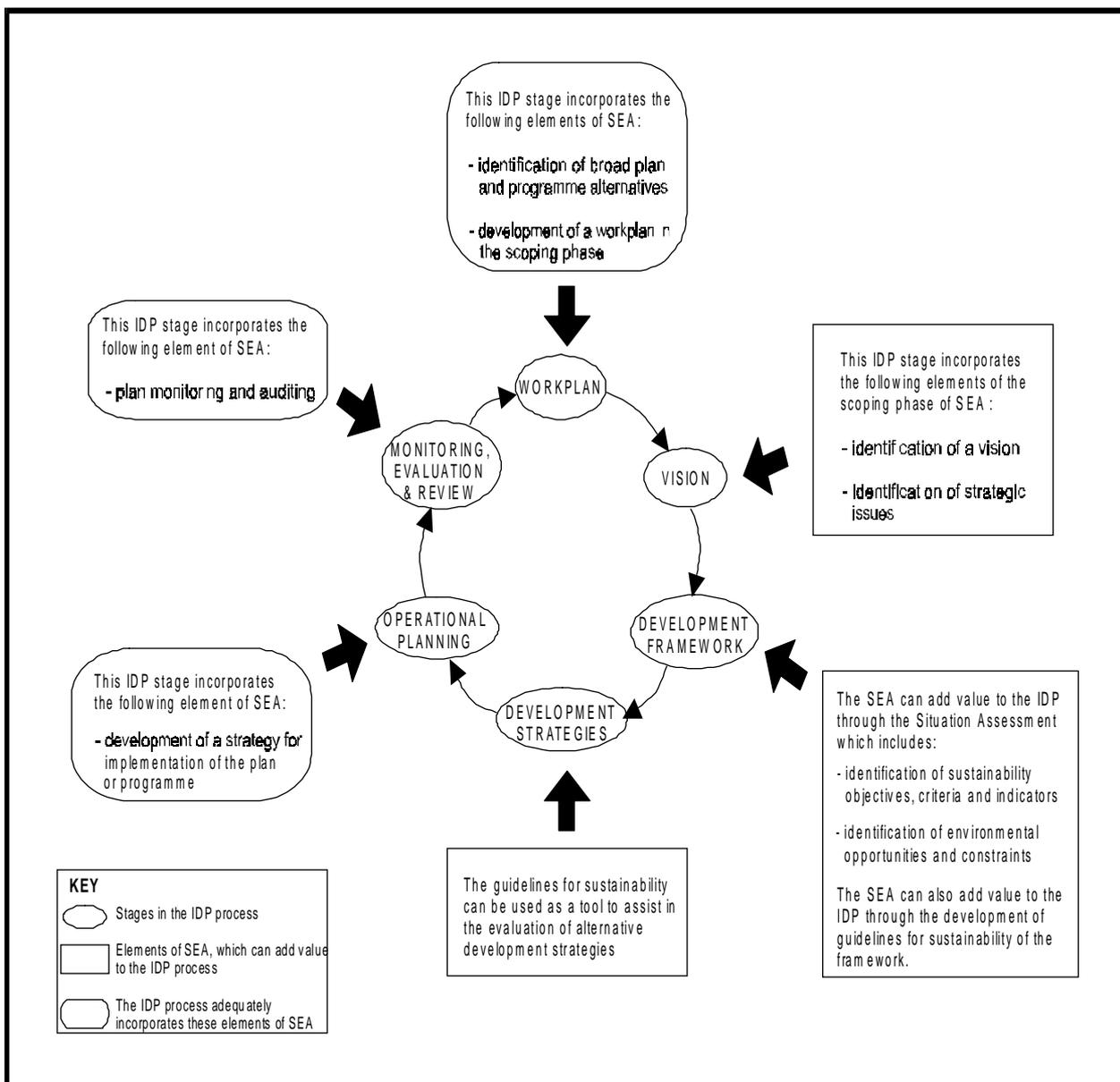


FIGURE 4: INTEGRATING THE IDP PROCESS AND ELEMENTS OF SEA

resources of those initiating and coordinating the process.

Training in SEA could be undertaken by DEAT in partnership with institutions involved in planning and environmental education. It is proposed that sections relating to SEA should also be included in existing environmental management and planning courses at universities and other educational institutions. This *Guideline Document* and the growing body of case studies, may be used as material for SEA training and capacity building. It is essential that this training should cut across various sectors and spheres of government, to improve the understanding and use of SEA in planning and environmental management processes.

5.3 Information needs

There is a growing body of existing information sources and processes that can contribute towards meeting the information needs of an SEA. A SEA can, in turn, contribute to this body of information. Examples of information sources resulting from recent legislation and planning processes are listed below:

- *Environmental Implementation Plans and Environmental Management Plans*, which are required in terms of NEMA (No. 107 of 1998), are to be prepared by provinces and national departments;
- *Catchment Management Strategies*, required in terms of the National Water Act (No. 36 of 1998), are to be prepared by the catchment management agencies for the water resources within their management areas;
- National and cities *State of the Environment Reports*, have been prepared as part of South Africa's Local Agenda 21 programme and include the cities of Johannesburg, Pretoria, Durban and Cape Town;
- *Environmental Management Programme Reports*, required in terms of the Minerals Act (No. 50 of 1991), include supporting baseline information; and
- *Environmental Impact Assessments*, required in terms of sections 21, 22 and 26 of the Environment Conservation Act (No. 73 of 1989), also provide baseline information on the environment affected by development proposals.

Depending on the extent and scale of the baseline information needed for the SEA, the national Environmental Potential Atlases (ENPAT) and other environmental spatial data maintained by DEAT and other Departments can also provide valuable

information. In return, these databases may also benefit from information generated by SEA processes.

5.4 Coordination between various institutional structures

One of the main challenges facing the implementation of a sustainability-led approach to SEA is the need for integration across institutional structures. Historically, planning and decision-making has been divided along sectoral lines. However, a strong trend in much of the recent legislation is to establish cooperative governance through coordinating mechanisms. Examples of such mechanisms include the Committee for Environmental Coordination established in terms of NEMA to promote the integration and coordination of environmental functions by the relevant organs of state; and catchment management agencies established under the National Water Act. The IDP process also provides a planning mechanism which coordinates the needs of several government departments. It is recommended that a SEA process should be linked to existing forums and integrative processes in order to make best use of available resources.

6. CONCLUSION

The continued development of SEA in South Africa is important for the integration of the concept of sustainability into the developmental objectives of this country. These guidelines aim to provide a basis on which context-specific, integrated and sustainability-led processes for SEA may be formulated. Each specific SEA process will vary depending on the situation in which it is developed and the purpose for which it is undertaken. However, key elements are identified to guide the formulation of the process, according to the principles of IEM and those identified for SEA in South Africa. It is suggested that these key elements and principles be integrated into existing processes for plan and programme formulation. However, they may be used to develop a separate SEA process, if that is what the context requires. A number of SEAs have been undertaken in this country, which could also assist in the formulation of context-specific SEA processes.

These guidelines are 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. The development of SEA will assist in practically implementing sustainability and moving towards a true integration of economic, social and biophysical goals.

REFERENCES

CSIR (1996). *Strategic Environmental Assessment (SEA): A Primer*; CSIR Report ENV/S-RR 96001; Stellenbosch.

CSIR (1997). *A Protocol for Strategic Environmental Assessment in South Africa: Draft Discussion Document* CSIR Report ENV/S-I 97043C; Stellenbosch.

CSIR (1998a). *Draft Port Development Framework for the Port of Saldanha*; CSIR Report ENV/S-C 97152 B; Stellenbosch.

CSIR (1998b). *Strategic Environmental Assessment for the Somchem Krantzkop Site, Wellington: Development Framework Report*; CSIR Report ENV/S-C97158F; Stellenbosch.

Department of Environment Affairs (1992). *Integrated Environmental Management Guideline Series*; Pretoria.

Department of Environmental Affairs and Tourism (1998). *EIA Regulations: Implementation of sections 21, 22 and 26 of the Environment Conservation Act: Guideline Document*; Pretoria.

Gilbert, R., Stevenson, D., Girardet, H. and Stren, R. (1996). *Making Cities work*. Earthscan publication Limited, United Kingdom.

Greater Johannesburg Transitional Metropolitan Council (GJTMC) (1996). *Composite Working Plan for the Formulation of Land Development Objectives (LDOs): Report to the Executive Committee*; 17 September 1996, Johannesburg.

Sadler, B. (1995). *Strategic Environmental Assessment: Paper presented at the 15th Annual Meeting of the International Association of Impact Assessment (IAIA)*; Durban.

Tonk, J. and Verheem, R. (1998). *Integrating the Environment in Strategic Decision-making: One Concept, Multiple Forms: Paper presented at the 18th Annual Meeting of the International Association of Impact Assessment*; Christchurch, New Zealand.

Appendix A

Principles of Integrated Environmental Management (IEM) (Department of Environment Affairs, 1992):
The basic principles underpinning IEM are that there be:

- informed decision-making;
- accountability for information on which decisions are taken;
- accountability for decisions taken;
- a broad meaning given to the term environment (i.e. one that includes physical, biological, social, economic, cultural, historical and political components);
- an open, participatory approach in the planning of proposals;
- consultation with interested and affected parties;
- due consideration of alternative options;
- an attempt to mitigate negative impacts and enhance positive aspects of proposals;
- an attempt to ensure that the 'social costs' of development proposals (those borne by society, rather than the developers) be outweighed by the 'social benefits' (benefits to society as a result of the actions of the developers);
- democratic regard for individual rights and obligations;
- compliance with these principles during all stages of the planning, implementation and decommissioning of proposals (i.e. from 'cradle to grave'); and
- the opportunity for public and specialist input in the decision-making process.

Appendix B

National Environmental Management Principles in terms of the National Environmental Management Act (No. 107 of 1998) Chapter 1

CHAPTER 1

NATIONAL ENVIRONMENTAL MANAGEMENT PRINCIPLES

Principles

- 2.(1) The principles set out in this section apply throughout the Republic to the actions of all organs of state that may significantly affect the environment and
- (a) shall apply alongside all other appropriate and relevant considerations, including the State's responsibility to respect, protect, promote and fulfil the social and economic rights in Chapter 2 of the Constitution and in particular the basic needs of categories of persons disadvantaged by unfair discrimination;
 - (b) serve as the general framework within which environmental management and implementation plans must be formulated;
 - (c) serve as guidelines by reference to which any organ of state must exercise any function when taking any decision in terms of this Act or any statutory provision concerning the protection of the environment;
 - (d) serve as principles by reference to which a conciliator appointed under this Act must make recommendations; and
 - (e) guide the interpretation, administration and implementation of this Act, and any other law concerned with the protection or management of the environment.
- (2) Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.
- (3) Development must be socially, environmentally and economically sustainable.
- (4) (a) Sustainable development requires the consideration of all relevant factors including the following:
- (i) That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
 - (ii) that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
 - (iii) that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;
 - (iv) that waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;
 - (v) that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;
 - (vi) that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;
 - (vii) that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and
 - (viii) that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.
- (b) Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.

- (c) Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.
- (d) Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination.
- (e) Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.
- (f) The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.
- (g) Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognising all forms of knowledge, including traditional and ordinary knowledge.
- (h) Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.
- (i) The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.
- (j) The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.
- (k) Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.
- (l) There must be intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment.
- (m) Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.
- (n) Global and international responsibilities relating to the environment must be discharged in the national interest.
- (o) The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.
- (p) The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.
- (q) The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.
- (r) Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.

Appendix C

Case studies of SEA's recently undertaken in South Africa:

Case study 1: Durban South Basin SEA

Case study 2: SEA for the Somchem Krantzkop Site, Wellington

Case study 3: SEA for water uses in South Africa

Case study 4: Northern Metropolitan Local Council SEA

Case study 5: Baralink Node Development Framework SEA

Case study 6: SEA of the Cape Town 2004 Olympic Bid

Case Study 1

Durban South Basin Strategic Environmental Assessment

1. Need for the SEA

Apartheid planning has created the Durban South Basin's mix of heavy industry and residential land uses. Local communities have raised concerns over health and quality of life, while industry seeks sanction for a number of strategically important developments in the area. The need for the study was motivated by local communities in the Durban South Basin who, since the advent of democracy, have been mobilising around environmental issues. The South Central Local Council and the Durban Metropolitan Council accepted their responsibility to resolve the conflict between industrial and local community needs that had been created by apartheid planning. They undertook this SEA as an integral part of their Local Agenda 21 programme.

2. Objectives of the study

The objectives of the study were to:

1. Produce a baseline assessment of the Durban South Basin identifying opportunities and constraints for future development;
2. Identify key strategic development criteria for current and future development;
3. Evaluate various types of future development in terms of their sustainability; and
4. Develop a policy planning framework for sustainable development to guide management and planning in the Durban South Basin.

In terms of this brief, five development options were assessed. They were the Existing Situation, the Mixed Use Option (combining housing and light industry), the Petrochemical Option, the Second Port Option and the Combined Second Port and Petrochemical Option.

3. Outcomes and products

The study recommended resolutions that the Durban Metropolitan Council, the South Central Local Council and the South Local Council should accept, in order to promote sustainable development in the Durban South Basin and the Durban Metropolitan Area.

- Recommended Resolution 1 was that the future development of the Durban South Basin should be industrial.
- Recommended Resolution 2 was that the local authorities promote industrial development in the Durban South Basin and build on developments such as the proposed port development,

petrochemical expansion and associated downstream light industry and commerce. This should be undertaken within a pro-active planning and environmental management framework in order to ensure that regional benefits are maximised and that local costs to the biophysical, economic and social environment are minimised.

- Recommended Resolution 3 was that, in support of this policy, the relevant local authorities should commit themselves to implementing the strategic plan recommended in the SEA. This requires that they:
 - Establish dedicated institutional structures and project teams to address planning and management issues;
 - Prepare a development plan for the Durban South Basin in accordance with the recommendations of the SEA and local Integrated Development Plans; and
 - Implement those projects and actions that have been identified by the SEA as requiring priority attention, particularly infrastructural improvements and the need to reduce air pollution.

4. Innovative approaches to the study

Three sets of Guiding Principles have been identified by the SEA which address the issue of sustainability at global, regional and local levels. These include:

1. Principles of Sustainability as outlined by Agenda 21 and interpreted for the Durban South Basin which must overarch all development. In terms of the South African context these indicate a need for environmentally sustainable economic development.
2. Durban Metropolitan Development Principles, which have been developed from the Durban Metropolitan Council's strategic vision for their future. These tend to focus on the needs of the Durban Metropolitan Area.
3. Community Development Objectives that were established by the South Durban Community Environmental Alliance. These focus on the requirements of the communities in the Durban South Basin.

The use of principles developed at all three levels show where there is correlation and where decisions will have to be made to make the best of trade off situations. The development options were assessed against these principles.

(This case study was prepared by CSIR.)

Case Study 2

Strategic Environmental Assessment for the Somchem Krantzkop Site, Wellington

1. Need for the Study

The Krantzkop site is located north of Wellington in the Western Cape and covers an area of approximately 3200ha. It was established in the early 1980s and is operated by Somchem, a division of Denel (Pty) Ltd, for the manufacture of specialist explosives and propellant raw materials. Due to changes in the demand of these products, Somchem identified a need to re-assess the Krantzkop site in terms of the role it plays in their organization and its suitability for further development. This led Somchem to investigate various strategic development options for the site. In order to ensure that environmental issues are well understood and inform future planning and decision-making, a SEA was undertaken.

2. Objectives of the study

The overall objective of the SEA was to provide a vision and framework for the management and potential development of the Krantzkop site to ensure that environmental issues are addressed in a pro-active manner in the planning process. The SEA also provided baseline information, which can be used in future project-specific Environmental Impact Assessments (EIAs). The public consultation in the SEA also laid the foundation for future public consultation which would be required if EIAs were undertaken for specific development proposals. Opportunities and constraints that the environment places on development were identified to inform future management and possible development of the site.

3. Outcomes and products

The vision and framework for the management and potential development of the Krantzkop site was provided in the form of a Development Framework Report. This included identification and mapping of opportunities and constraints, and the description of principles and guidelines to be followed for sustainable management and possible development of the site. A framework was also provided for a Strategic Environmental Management Plan (SEMP) which was proposed to coordinate environmental management on the site and link with existing quality and health, safety and environment management systems.

Somchem will use the SEA to guide their future management of the site, and the information will also feed into Denel's higher level strategic decision-making with regard to the management of their sites, locally as well as nationally.

4. Innovative approaches used in the study

Conceptual development options, based on the overall vision for the site that was defined by all relevant stakeholders, were identified and evaluated in the light of the information provided by specialists on the project team. The client was presented with a listing of opportunities and constraints for each of the conceptual development options, as well as principles and guidelines on which future decision-making, management and possible development of the site should be based. The specialists employed various techniques such as resource economics, social assessment, air pollution modelling and ground water quality assessment to inform the SEA. The biggest challenge was to encourage specialists to think in an integrative way whilst drafting their specialist reports - paving the way for the integration of the information into the Development Framework Report.

(This case study was prepared by CSIR.)

Case Study 3

Strategic Environmental Assessment for Water Uses in South Africa

1. Need for this SEA

Decisions regarding the amount of water used within catchments, and the licencing of such use, have often lacked a strategic context. This was exemplified by the decisions required for the permitting of forestry. This SEA was born out of the need to contextualise such decision-making (initially for forestry), and to broaden the scope of aspects considered to include not only water availability but also impact on environment and biodiversity, weighed against a best understanding of social and economic cost and benefit. The new National Water Act (No. 36 of 1998) requires that all forms of water use should be licenced, and allows for the establishment of Water Management Areas under the authority of Catchment Management Agencies. These agencies will need to plan and allocate water within the context of national and provincial needs, and will need to ensure that the best possible use is made of land and water resources. Understanding of the catchment, its role and its function is needed by the decision-makers and by the people making use of catchment resources.

2. Objectives of the study

This Strategic Environmental Assessment is aimed at establishing the context for decision making with regard to land use and water issues within catchments, and at providing the tools to all parties to discuss and negotiate these decisions on the basis of best available information. It is a process and approach which reviews the opportunities and constraints for development in the context of environmental, social and economic criteria.

3. Outcomes and products

The SEA for water use offers the following outputs:

- Information and maps describing catchment resource use and activity;
- An understanding of the use of the water resource and of issues arising;
- Information on what the use of resources will mean to people, along with the economic implications;
- An understanding of the physical environment and its value;

- An analysis of opportunities and constraints;
- Scenarios for resource use;
- A decision support system; and
- Participation and sharing in information and decisions.

The SEA offers support to regulators, planners and users, with all information and outputs being available publicly. Users of the process and its products will include:

- The water management authorities - The Department of Water Affairs and Forestry, the Catchment Management Agency and Catchment Committees;
- Environmental authorities;
- Provincial and regional authorities;
- Planners and developers; and
- Users of the catchment and its resources.

4. Innovative approaches used in this study

The SEA will be used by the Catchment Management Agencies through its Advisory Committees. Regional Councils and all authorities responsible for local or integrated planning will be able to draw on the context-providing approach and information offered by this SEA. Typically, the SEA is facilitating the development of an environmental surface whereby the landscape of entire provinces is classified in terms of its value to biodiversity and the cost which will be borne should that landscape be transformed. The needs of society along with economic costs and benefits, at both immediate and wider scale, together with the prospects for alternative forms of resources use, will all form part of the information mix used in making decisions as to the preferability of any particular development. The information provided by this SEA will not be the preserve of the regulatory authority, but will be available to all interested parties, and those interested in applying for development licences will have a full knowledge of the opportunities and constraints offered by the catchment. Development applications involving land transformation will still require EIAs. Many of the issues requiring attention will however been dealt with (or flagged) at a strategic level, considerably reducing the amount of input demanded at EIA level.

(This case study was prepared by the Department of Water Affairs and Forestry's SEA team in the Sub-Directorate: Stream Flow Reduction Allocations.)

Case Study 4

Northern Metropolitan Local Council's Strategic Environmental Assessment

1. Need for the SEA

The Northern Metropolitan Local Council of Johannesburg has, through the development of its Land Development Objectives, identified its northern sector as a zone of opportunity. "Opportunity" in this sense refers to economic, social and environmental development.

The northern sector of the Northern Metropolitan Local Council is characterised by:

- Large tracts of open space and undisturbed land;
- Many divergent activities; and
- A diversity of communities.

As the first step towards guiding development in this area and encouraging the concept of a "sustainable" sector, the Northern Metropolitan Local Council decided to embark on developing a strategic planning framework. As part of the framework, a Strategic Environmental Assessment (SEA) was undertaken to ensure that environmentally sensitive and appreciated areas are protected in the future and areas that are unsuitable for development identified. The SEA formed one of four other studies being undertaken for this area.

2. Objectives of the study

The objectives for the study were to:

- Develop a process which will collect the information required as input into the strategic decision-making related to environmental issues in the area;
- Ensure the acceptability of the approach through transparency and public involvement;
- Identify environmental opportunities and constraints from the collected information; and
- Develop an acceptable and viable environmental management strategy for the northern sector which can input into an overall management strategy for the area.

3. Outcomes and products

A report entitled *Draft Strategic Environmental*

Assessment for the Northern Sector was prepared. This report collated all the specialist investigations, the public involvement programme and the interpretation of this work. The interpretation of the work was linked to a Geographic Information System (GIS) database where the environmental opportunities and constraints of the area were digitally represented. This product fed into the Northern Strategic Planning Framework which collated the results of all studies that were undertaken in this area.

4. Innovative approaches used in the study

This Strategic Environmental Assessment was prepared through continual interaction with the consultants undertaking the other studies for the northern sector (social, economic and planning). This allowed for regular testing of ideas and proposals. Because this study was not undertaken in isolation, it enabled environmental concerns and needs of the northern sector to guide the development of the strategic plan and the vision for the northern sector.

(This case study was prepared by SRK Consulting.)

Case Study 5

Baralink Node Development Framework Strategic Environmental Assessment

1. Need for the SEA

In recognition of the investment potential of the Baralink area, the “Baralink Development Framework” was completed in 1995. This document provided a set of development options that could potentially guide development and investment in the area.

In 1997, a team of consultants were appointed to undertake a range of studies (strategic environmental, transportation, transportation related specifically to rail, geotechnical, infrastructure and services, socio-economic, and planning and urban design). These were undertaken to provide a detailed local development framework for the Baralink area.

The environmental study (SEA) was designed to evaluate the environmental impacts of the proposed development options produced in the “Baralink Development Framework”. The results of the study provided the Greater Johannesburg Metropolitan Council with relevant information which allowed it to make strategic decisions regarding the environmental acceptability of alternative development options.

2. Objectives of the study

The objectives of the study were to:

- Develop a process to collect the information required to enhance the decision-making process of the Greater Johannesburg Metropolitan Council;
- Ensure the acceptability of the approach by the adoption of a transparent approach;
- Ensure the sustainable development of the Baralink area in the context of the value system of the interested and affected parties; and
- Develop an acceptable and viable environmental management strategy for the area.

3. Outcomes and products

The study produced two documents, a SEA Report and an Environmental Management Guidelines (EMG) Report. These reports were incorporated into the Baralink Node Development Framework document which was used by the Greater Johannesburg

Metropolitan Council to guide further development in the Baralink area.

The SEA Report provided a synthesis of all baseline environmental data for the Baralink area. It also presented the environmental opportunities and constraints and provided an assessment of the development options in relation to the environmental opportunities and constraints. The EMG Report provided a set of environmental guidelines and a strategic environmental management plan to guide development.

4. Innovative approaches used in the study

The risk with SEA, as with most assessment processes, is that they evaluate previously formulated plans. As the study was undertaken as part of an urban planning exercise, it provided the opportunity to incorporate environmental issues throughout all stages of the planning process.

(This case study was prepared by SRK Consulting.)

Case Study 6

Strategic Environmental Assessment of the Cape Town 2004 Olympic Bid

1. Need for the SEA

The need for the SEA arose out of concerns expressed by members of the public and certain NGOs and community-based organisations (CBOs) that the potential implications of bidding for and hosting the 2004 Olympic Games in Cape Town had not been adequately assessed by the Olympic Bid Committee (OBC). Given that hosting of the games had a number of potential social, economic and environmental impacts with local, regional and national implications, it was felt that a SEA was the most appropriate tool for assessing the situation. The study was strategic in that hosting an event like the Olympic Games requires a very large capital investment from the state. In a country like South Africa, this investment needed to be weighed up against other competing social and economic needs. At the same time it was also recognised that the games provides Cape Town and South Africa with a unique marketing opportunity which in turn had the potential to boost tourism and create job opportunities.

2. Objectives of the study

The objective of the study was to provide an integrated view of the long term social, economic and environmental consequences of preparing for and hosting the games in Cape Town in 2004. In this regard the terms of reference for the SEA were to:

- Identify and evaluate the potential systemic impacts of preparing for and hosting the 2004 Games in Cape Town on specific economic, social and biophysical processes. Particular emphasis was placed on those longer term impacts which could affect the development of the Cape Metropolitan Region and South Africa as a whole; and
- Identify specific proposals in the current plan which might need to be reconsidered if the Bid was successful.

3. Outcome and products

In total three reports were produced, consisting of Volume 1: Main Report, Volume 2: Background Reading and Volume 3: Specialist Reports. It was envisaged that the SEA would be used by National

Government and the City of Cape Town to assess the costs and benefits of hosting the 2004 Olympics in Cape Town. If the findings indicated that the costs outweighed the benefits, then Government would need to reassess their support to host the games.

The outcome of the SEA would have also been used by the NGO and CBO sector to provide an independent assessment of the costs and benefits of hosting the games in Cape Town in 2004. As indicated above, the aim of the SEA was also to assess specific proposals in the current plan that would need to be reconsidered if the Bid was successful.

In terms of existing processes, the SEA predated the Integrated Development Planning (IDP) legislation. The SEA was, however, informed by a number of site specific EIAs that had been carried out for some of the proposed venues and associated facilities.

4. Innovative approaches used in the study

The most innovative aspect of the SEA was in the establishment of a social value system for identifying the key strategic issues that needed to be assessed. This approach was aimed at ensuring that the findings of the SEA were based on an agreed upon and widely accepted set of social values and goals. To do this, the SEA involved a detailed assessment of the values and goals outlined in relevant South African legislation and policy documents, such as the RDP, GEAR and the Environment Conservation Act. This information was in turn used to assess the statements contained in the Bid and the findings of the various specialist studies.

(This case study was prepared by SRK Consulting.)