

21. SOUTH AFRICA

21.1 Water Resources Management Policies and Actions

In South Africa, the National Water Policy (NWP) has been adopted by the Cabinet in 1997. It states three fundamental objectives for managing South Africa's water resources, which are:

- To achieve equitable access to water
- To achieve sustainable use of water
- To achieve efficient and effective water use

In 1998, the National Water Act derives from the fundamental principles and objectives for a New South African Water Law and the NWP's proposals for managing water resources. It becomes the principal legal instrument relating to water resources management in South Africa and contains comprehensive provisions for the protection, use, development, conservation, management and control of South Africa's water resources.³³⁰

As required by the Act, the Department of Water Affairs and Forestry (DWAF) has published the National Water Resource Strategy (NWRS) in 2004. It outlines the objectives of water resources management for the country and provides the plans, guidelines and strategies to achieve these goals. The objectives include:

- to establish the national framework for managing water resources
- to establish the framework for the preparation of catchment management strategies
- to provide water-related information to facilitate coherent and holistic planning
- to identify development opportunities and constraints³³¹

There are two complementary strategies for water resources management:

(i) Resource-Directed Measures:

These measures focus on the quality of the water resource. Resource quality reflects the overall health or condition of the water resource, and is a measure of its ecological status. Resource quality includes water quantity and water quality, the character and condition of in-stream and riparian habitats, and the characteristics, condition and distribution of the aquatic biota. Resource quality objectives will be defined for each significant resource to describe its quality at the desired level of protection.

(ii) Source-Directed Controls:

These measures contribute to define the limits and constraints that must be imposed on the use of water resources to achieve the desired level of protection. They are primarily designed to control water use activities at the source of impact, through tools such as standards and the situation-specific conditions that

³³⁰ Referenced to the National Water Resource Strategy 2004,

<http://www.dwaf.gov.za/Documents/Policies/NWRS/Sep2004/pdf/Chapter1.pdf>, page 7-8. Full document can be obtained in <http://www.dwaf.gov.za/Documents/Policies/NWRS/Default.htm>

³³¹ Referenced to the National Water Resource Strategy 2004,

<http://www.dwaf.gov.za/Documents/Policies/NWRS/Sep2004/pdf/Chapter1.pdf>, page ii.

are included in water use authorisations. Source-directed controls are the essential link between the protection of water resources and the regulation of their use.³³²

There are some proposed actions stated in the NWRS in order to reach the goals, some are stated below:

(i) National water resources classification system

This is a system being developed to provide a consistent framework within which water resources can be classified, each class representing a different level of protection. The desired level of protection will be considered to have been achieved if the conditions appropriate to the designated class are achieved. More information will be stated in section 21.5.³³³

(ii) Water use licenses

General authorisations allows limited water use without a license, which include the use of relatively small quantities of water, mainly for domestic purposes (including non-commercial gardening and stock watering), and also allows use in emergency situations and for certain recreational purposes.³³⁴ Water use licenses give existing or prospective water users authorisations to use water or to access water resources for beneficial purposes. There is a "compulsory licensing", which will be carried out in areas defined by catchment or groundwater aquifer boundaries.³³⁵

(iii) Water pricing

The objective of the pricing strategy is to contribute to achieving equity and sustainability in water matters by promoting financial sustainability and economic efficiency in water use. One objective is to ensure that the real financial costs of managing water resources and supplying water, including the cost of capital, are recovered from users. The full pricing strategy for water use charges will apply to uses of water, including, taking water from a resource, discharging waste into the resource, storing water and other uses such as the recreational use of water.³³⁶

³³² Referenced to the National Water Resource Strategy 2004,
<http://www.dwaf.gov.za/Documents/Policies/NWRS/Sep2004/pdf/Chapter3.pdf>, page 56

³³³ Referenced to the National Water Resource Strategy 2004,
<http://www.dwaf.gov.za/Documents/Policies/NWRS/Sep2004/pdf/Chapter3.pdf>, page 57

³³⁴ Referenced to the National Water Resource Strategy 2004,
<http://www.dwaf.gov.za/Documents/Policies/NWRS/Sep2004/pdf/Chapter3.pdf>, page 64

³³⁵ Referenced to the National Water Resource Strategy 2004,
<http://www.dwaf.gov.za/Documents/Policies/NWRS/Sep2004/pdf/Chapter3.pdf>, page 67

³³⁶ Referenced to the National Water Resource Strategy 2004,
<http://www.dwaf.gov.za/Documents/Policies/NWRS/Sep2004/pdf/Chapter3.pdf>, page 83

21.2 Environmental Evaluation/SEA in South Africa

In South Africa, the use of SEA is a non-statutory requirement and it is still in an evolving process. The National Environmental Management Act (NEMA) makes provision for the development of assessment procedures that aim to ensure that the environmental consequences of policies, plans and programmes are considered.³³⁷ It stipulates a range of Integrated Environmental Management (EM) tools. These tools include SEA used for the proactive integration of environmental issues at the policy and planning level, Environmental Impact Assessment (EIA) used for the assessment of project specific developments and Environmental Management Systems (EMS) used for the day-to-day management of projects.³³⁸

Council for Scientific and Industrial Research (CSIR)³³⁹ and Department of Environmental Affairs and Tourism (DEAT) published a guideline document, Integrated Environmental Management on SEA in South Africa in February 2000.³⁴⁰ In conjunction with the production of these documents, a number of SEA processes were undertaken which followed a variety of approaches. In addition to national SEA guidelines, various policies and regulations also have provisions of SEA as part of planning processes.

South Africa's NEMA No. 107 of 1998 provides for the development of procedures for the assessment of the impact of policies, plans and programmes. Besides, a requirement related to SEA in the context of spatial planning is referred to in the Municipal Planning and Performance Management Regulations of 2001, promulgated in terms of the Municipal Systems Act No. 32 of 2000, and in the White Paper on Spatial Planning and Land Use Management, produced by the Ministry of Agriculture and Land Affairs in 2001. Also, the South African White Paper on a National Commercial Ports Policy, states that, "SEA should be used for the proactive integration of environmental issues with social and economic issues at the policy and planning level".³⁴¹

According to the SEA guidelines by CSIR and DEAT, there are 9 principles for SEA that provides a basis for the development of local SEA processes. These are that SEA:

- is driven by the concept of sustainability;
- identifies the opportunities and constraints which the environment places on the

³³⁷ Extracted from the "Strategic Environmental Assessment: A sourcebook and reference guide to international experience", Barry Dalal-Clayton and Barry Sadler, 2004,

http://www.iied.org/Gov/spa/documents/SEAbook/Chapter6_Oct04.pdf, page 206

³³⁸ Referenced to the website of Pretoria vol. 446, Government Gazette of Republic of South Africa,

<http://www.info.gov.za/gazette/whitepaper/2002/23715.pdf>

³³⁹ Extracted from the "Strategic Environmental Assessment: A sourcebook and reference guide to international experience", Barry Dalal-Clayton and Barry Sadler, 2004,

http://www.iied.org/Gov/spa/documents/SEAbook/Chapter6_Oct04.pdf, pages 208-209

³⁴⁰ Extracted from Strategic Environmental Assessment of South Africa- Guideline Document by the Department of Environmental Affairs and Tourism,

http://www.environment.gov.za/Documents/Publications/2000Feb1/SEA_final%20Guidelines.pdf

³⁴¹ Referenced to the "Integrated Environmental Management Information Series - Strategic Environmental Assessment" by the Department of Environmental Affairs and Tourism, 2005,

<http://www.environment.gov.za/Documents/Publications/2005Jan7/Book5.pdf>, page 6

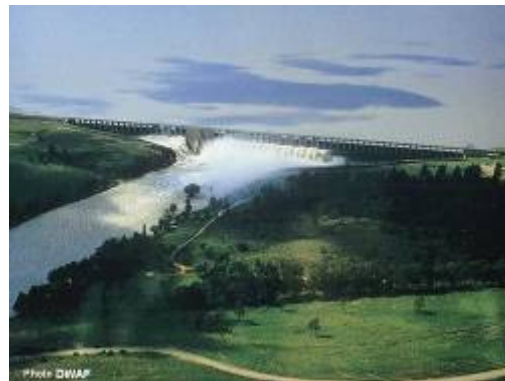
- development of plans and programmes;
- sets the criteria of environmental quality or limits of acceptable change;
 - is a flexible tool which is adaptable to the planning and sectoral development cycle;
 - is a strategic process which begins with the conceptualisation of the plan or programme;
 - is part of a tiered approach to environmental assessment and management;
 - has a scope defined within the wider context of environmental processes;
 - is a participative process; and
 - is set within the context of alternative scenarios.³⁴²

The guidelines present SEA as including the concepts of precaution and continuous improvement and the following steps and elements:

- identify broad plan and programmes alternatives;
- screening;
- scoping;
- situation assessment;
- formulate sustainability parameters for the development of the plan or programmes;
- develop and assess alternatives plans and programmes;
- decision-making; and
- develop a plan for implementation, monitoring and auditing; and implementation.³⁴³



Pumping station at Marksdrift on the Orange River³⁴⁴



Vaal Dam ³⁴⁵

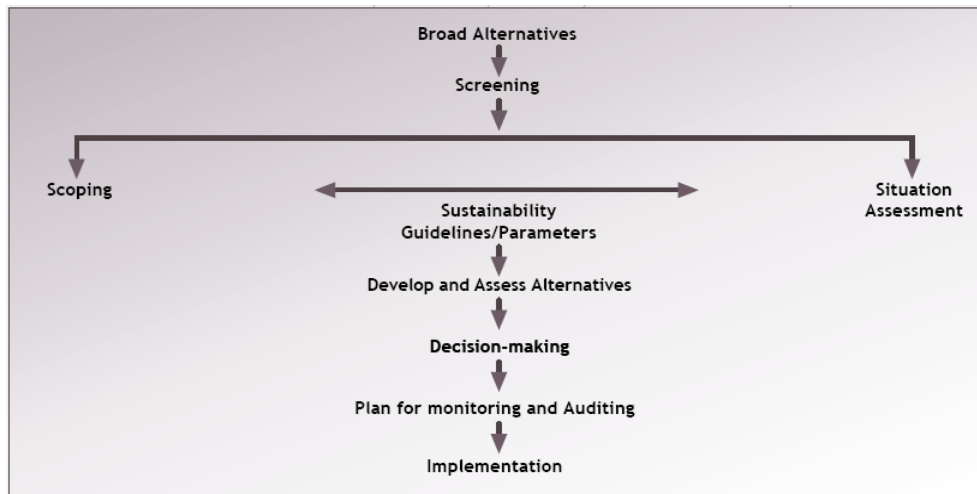
³⁴² Extracted from the "Strategic Environmental Assessment: A sourcebook and reference guide to international experience", Barry Dalal-Clayton and Barry Sadler, 2004, http://www.iied.org/Gov/spa/documents/SEAbook/Chapter6_Oct04.pdf, page 212

³⁴³ Extracted from the "Strategic Environmental Assessment: A sourcebook and reference guide to international experience", Barry Dalal-Clayton and Barry Sadler, 2004, http://www.iied.org/Gov/spa/documents/SEAbook/Chapter6_Oct04.pdf, page 212

³⁴⁴ Source: http://www.dwaf.gov.za/orange/Mid_Orange/orange-v.htm

³⁴⁵ Source: <http://www.dwaf.gov.za/orange/Vaal/vaaldam.htm>

The figure below shows the conceptual illustration of the SEA process contained in the SEA guidelines:³⁴⁶



³⁴⁶ Referenced to the “Integrated Environmental Management Information Series – Strategic Environmental Assessment” by the Department of Environmental Affairs and Tourism, 2005, <http://www.environment.gov.za/Documents/Publications/2005Jan7/Book5.pdf>, page 8

21.3 Environmental Evaluation/SEA on Water Resources Management in South Africa

SEA in South Africa is in evolving process. There is no explicitly statutory requirement for the use of SEA in South Africa, though the NEMA makes provisions for the development of assessment procedures that aim to ensure that the environmental consequences of policies, plans and programmes are considered. With the provision of SEA guidelines by CSIR and DEAT, a number of SEA processes were undertaken administratively in South Africa which followed a variety of approaches, including some related to water resources management, conducted by the DWAF.

SEA was introduced into the DWAF to support implementation of the National Water Act. SEA is a process and working tool that offers an approach, information and ways of supporting decision-making. The SEA approach weighs the opportunities, constraints, the costs and benefits. It also weighs that social, economic and ecological impacts of how water is used and how it could perhaps best be used. This approach is also useful in the water allocation plans and licensing process.³⁴⁷ A pilot study has been mentioned in Section 21.5.

A summary table for both the water resources management policies and actions and SEA status in South Africa is presented in **Exhibit SF-1**:

Exhibit SF-1 Summary of Water Resources Management (WRM) Policies and Actions and SEA status in South Africa	
(a) WRM Policies and Actions	
WRM Policies and Actions	Policies <ul style="list-style-type: none"> ● The National Water Policy ● National Water Resource Strategy (NWRS) Actions <ul style="list-style-type: none"> ● National water resources classification system ● Water use licenses ● Water pricing
Guidance/Legislations in WRM	The National Water Act
(b) Environmental Evaluations / SEA Status in WRM Policies and Actions	
Type of Assessment	SEA
Requirement Mechanisms	Administrative
Legislation for Environmental Evaluation / SEA	National Environmental Management Act (NEMA) – stipulates a range of environmental management tools, which includes SEA for the proactive integration of environmental issues at the policy and planning level
Applications	Policies, Plans and Programmes

³⁴⁷ Referenced to the website of the Department of Water Affairs and Forestry, <http://www.dwaf.gov.za/sfra/sea/sea%20home1.asp>

21.4 Analysis and Conclusions

WRM Policies

In South Africa, the National Water Resource Strategy (NWRS) outlines the objectives of water resources management for the country and provides the plans, guidelines and strategies to achieve these goals. To achieve the goals, there are some planned actions, like develop a national water resources classification system to classify different level of protection, set up a water use licenses system and a water pricing strategy.

Compared to South Africa, Hong Kong's two main sources of water are from rainfall from natural catchment and supply from Guangdong. It is Water Supplies Department's (WSD) scope of work to cover the whole process from the collection of natural yield from rainfall, the reception of raw water from Guangdong to the provision of a supply with a quality of accepted international standards to the users' taps. WSD also supplies sea water for flushing purposes to over 80% of the population. For protection against flooding, sewage collection, treatment and disposal, it is under Drainage Services Department's (DSD) jurisdiction.

For the sustainable development of Hong Kong, WSD has initiated a *Total Water Management programme* comprising key elements of new water resources, water reclamation, water conservation and water resources protection and management was initiated for better utilization of the different water resources.

Similar to South Africa, Hong Kong adopts "polluter pays" principle. Following this principle, the sewage charging scheme was introduced in Hong Kong on 1 April 1995. Dischargers are required to pay the cost of the sewage services according to the quality and quantity of their discharge. Also, Hong Kong, while is part of Guangdong province, has a neighbour city, Shenzhen, to the north. Effective transboundary cooperation is considered to be essential for the protection of inland water bodies.

EE/SEA

Regarding to the SEA/EE system in South Africa, it is in evolving process. There is no explicitly statutory requirement for the use of SEA in South Africa, though the NEMA makes provisions for the development of assessment procedures that aim to ensure that the environmental consequences of policies, plans and programmes are considered. With the provision of SEA guidelines by CSIR and DEAT, a number of SEA processes were undertaken administratively in South Africa which followed a variety of approaches, including some related to water resources management, conducted by the DWAF.

While the SEA/EE system in South Africa is under development, there are both statutory and non-statutory systems for PPP projects in Hong Kong. Hong Kong's SEA/EE is under Environmental Protection Department's (EPD) jurisdiction. At present, there are both statutory and administrative systems for PPP projects. While the statutory requirements govern primarily large scale development projects (i.e. over 20 ha of area or population over 100,000), the administrative counterpart has been applied to land use planning, transportation and sectoral PPP.

21.5 Examples of Water Resources Management Policies / Actions or their Environmental Evaluation/SEA

Example SF-1	Strategic Environmental Assessment for Water Uses in South Africa
Description of the Study ³⁴⁸	This SEA is aimed at establishing the context for decision-making with regard to land use and water issues within catchments, and providing the tools to all parties to discuss and negotiate these decisions on the basis of best available information.
Projects for the Study	There are two catchment studies held under SEA methodology, namely, the Mhlathuze Catchment in KwaZulu-Natal and the Usutu to Mhlathuze Water Management Area. ³⁴⁹ For the Mhlathuze catchment in KwaZulu, it is the first of the three pilot projects in the SEA process. This project started at the beginning of September 1999 and was finished in September 2000. This project focused on all water uses in the catchment, and looked at the influence of stream flow reduction activities on the water resource. ³⁵⁰
Outcomes of the Study ³⁵¹	Below are outputs of this SEA for water use: <ul style="list-style-type: none"> ● Information and maps describing catchment resource use and activity ● 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 ● Understanding of the physical environment and its value ● Analysis of opportunities and constraints ● Scenarios for resource use ● Decision support ● Participation and sharing in information and decisions

³⁴⁸ Paragraphs are extracted from "National Water Resource Strategy 2004",

<http://www.dwaf.gov.za/Documents/Policies/NWRS/Sep2004/pdf/Chapter3.pdf> from page 57-59

³⁴⁹ Referenced to the webpage of the Department of Water Resource and Forestry,

<http://www.dwaf.gov.za/sfra/sea/SEA%20Pilot%20Studies.asp>

³⁵⁰ Referenced to the webpage of the Department of Water Resource and Forestry,

http://www.dwaf.gov.za/sfra/sea/mhlathuze%20pilot%20study/sea_mhlathuze.asp

³⁵¹ Paragraphs are extracted from "National Water Resource Strategy 2004",

<http://www.dwaf.gov.za/Documents/Policies/NWRS/Sep2004/pdf/Chapter3.pdf> from page 57-59

Example SF-2	National Water Resources Classification System ³⁵²
Description of the System	Water resources will be classified under this system, each class represents different level of protection. The system will provide specifications against which management decisions can be made about the nature and extent of permissible, sustainable resource use. Increasing restrictions on use will apply as the level of protection increases. The system will also provide guidance on the involvement of water users and other stakeholders in the process of classifying water resources.
Classification of the System	<p>Three management classes are being considered, representing three conditions of use as described below.</p> <ul style="list-style-type: none"> ● Natural – that is a resource in which human activity has caused no or minimal changes to the historically natural structure and functioning of biological communities, hydrological characteristics and the bed, and channel of the resource; and chemical concentrations are not significantly different from background concentrations levels or ranges for naturally occurring substances. ● Moderately used/impacted – this class represents resource conditions that are slightly to moderately altered from the Natural class reference conditions due to the impacts of human activity and water use. ● Heavily used/impacted – this class represents resource conditions that are significantly changed from the Natural class reference conditions due to the impacts of human activity and water use, but that are nonetheless ecologically sustainable.
Applications of the System	The classification system plans to apply to all surface water resources, but will provide for the different characteristics of rivers, wetlands, impoundments and estuaries. The classification system for groundwater will be generically similar to that for surface water, but it will have its own features.

³⁵² Paragraphs are extracted from “National Water Resource Strategy 2004”, <http://www.dwaf.gov.za/Documents/Policies/NWRS/Sep2004/pdf/Chapter3.pdf>, page 57-59