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GOVERNMENT NOTICE

DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM

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THE NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT (ACT 10 OF 2004)

NATIONAL BIODIVERSITY FRAMEWORK

I, Buyelwa Patience Sonjica, Minister of Water and Environmental Affairs, acting under section 38(2) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004), hereby publish the National Biodiversity Framework, as contained in the Schedule below.

BUYELWA SONJICA
MINISTER OF WATER AND ENVIRONMENTAL AFFAIRS

SCHEDULE

SOUTH AFRICA'S
NATIONAL BIODIVERSITY FRAMEWORK

2008

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Acronyms

ABS	Access and benefit sharing
AIS	Alien and Invasive Species
ASGISA	Accelerated and Shared Growth Initiative of South Africa
BMP-E	Biodiversity Management Plans for Ecosystems
BMP-S	Biodiversity Management Plans for Species
BSSA	Biodiversity Stewardship South Africa
C.A.P.E.	Cape Action for People and the Environment
CBD	Convention on Biological Diversity
CMA	Catchment Management Agency
DAEA	KwaZulu-Natal Department of Agriculture and Environment Affairs
DALA	Mpumalanga Department of Agriculture and Land Administration
DEA&DP	Western Cape Department of Environment Affairs and Development Planning
DEAT	Department of Environment Affairs and Tourism
DEDEA	Eastern Cape Department of Economic Development and Environmental Affairs
DLA	Department of Land Affairs
DME	Department of Minerals and Energy
DoA	Department of Agriculture
DPLG	Department of Provincial and Local Government
DPW	Department of Public Works
DST	Department of Science and Technology
DTEC	Northern Cape Department of Tourism, Environment and Conservation
DTEEA	Free State Department of Tourism, Economic and Environment Affairs
DTI	Department of Trade and Industry
DWAF	Department of Water Affairs and Forestry
ECP	Eastern Cape Parks
EEZ	Exclusive Economic Zone
EKZNW	Ezemvelo KwaZulu-Natal Wildlife
EWT	Endangered Wildlife Trust
GDACE	Gauteng Department of Agriculture, Conservation and Environment
GMO	Genetically modified organism
IUCN	World Conservation Union
KZN	KwaZulu-Natal
LTPB	Limpopo Tourism and Parks Board
MCM	Marine and Coastal Management
MDTP	Maloti-Drakensberg Transfrontier Project

MTPA	Mpumalanga Tourism and Parks Agency
NAP	National Action Programme: Combating Land Degradation to Alleviate Rural Poverty
NEMA	National Environmental Management Act
NEPAD	New Partnership for Africa's Development
NBF	National Biodiversity Framework
NBSAP	National Biodiversity Strategy and Action Plan
NFSD	National Framework for Sustainable Development
NSBA	National Spatial Biodiversity Assessment
NSDP	National Spatial Development Perspective
NPAES	National Protected Area Expansion Strategy
NWPTB	North West Parks and Tourism Board
SADC	Southern African Development Community
SANBI	South African National Biodiversity Institute
SANParks	South African National Parks
SKEP	Succulent Karoo Ecosystem Programme
STEP	Subtropical Thicket Ecosystem Programme
SO	Strategic Objective
TFCA	Transfrontier Conservation Area
TOPS	Threatened or Protected Species
UNCCD	United Nations Convention to Combat Desertification
WESSA	Wildlife and Environment Society of South Africa
WWF-SA	World Wide Fund for Nature South Africa

Executive Summary

The purpose of the NBF

The purpose of the NBF is to provide a framework to co-ordinate and align the efforts of the many organisations and individuals involved in conserving and managing South Africa's biodiversity, in support of sustainable development.

The NBF is a requirement of the National Environmental Management: Biodiversity Act (Act No. 10 of 2004). The NBF aims to:

- Focus attention on the most urgent strategies and actions required for conserving and managing South Africa's biodiversity
- Point to roles and responsibilities of key stakeholders, including key organs of state whose mandates impact directly on biodiversity conservation and management

The heart of the NBF is a set of 33 Priority Actions, which provide an agreed set of priorities to guide the work of the biodiversity sector in South Africa for the next five years. These are summarised in Table 1 in this Executive Summary, and discussed in more detail in Section 4 of the main report.

The purpose of the NBF is <u>not</u> to:

- Describe South Africa's biodiversity and its importance in detail
- Reiterate South Africa's commitments to conserving biodiversity as a signatory of the Convention on Biological Diversity
- Describe the policy and legislative framework for biodiversity conservation in South Africa
- Give a comprehensive review of work currently being undertaken in the biodiversity sector
- Give a comprehensive list of all actions required to conserve and manage South Africa's biodiversity

The NBF will be reviewed at least every five years, providing an opportunity to take stock of progress, review priorities, and realign efforts. The NBF is thus a short- to medium-term tool. Its aim is not to be comprehensive, but rather to focus collective attention and effort on the set of activities that will make the most difference.

The NBF provides a framework for conservation *and* development. Too often in South Africa conservation and development are seen as opposing or irreconcilable goals. As our economy moves towards 6% economic growth, we need to ensure that the way we achieve this growth allows for the continued functioning of ecosystems and the persistence of the natural resource base. This is possible, if care is taken over the location of development, the type of development, and the consumption of natural resources in the development process. Sustainable development depends on *where* and *how* development takes place.

Who should use the NBF?

Key intended users of the NBF include:

- Organs of state whose core business includes biodiversity conservation
- Organs of state whose core business is not biodiversity conservation, but whose policies, programmes and decisions impact directly and substantially on how biodiversity is managed
- Government-led programmes
- NGOs wishing to make a contribution to biodiversity conservation in South Africa
- The private sector, particularly those production sectors whose activities contribute to the major pressures on South Africa's biodiversity, such as loss of natural habitat, over-abstraction of freshwater resources, and over-harvesting of marine resources

How does the NBF relate to the NBSAP and the NSBA?

The NBF rests on two preceding documents, both of which were based on extensive stakeholder consultation: the National Biodiversity Strategy and Action Plan (NBSAP) and the National Spatial Biodiversity Assessment (NSBA).

The NBSAP, finalised in May 2005 after a two-year development process, sets out a comprehensive long-term strategy for the conservation and sustainable use of South Africa's biodiversity, including fifteen year targets. The NBSAP is a requirement in terms of South Africa's commitments to the Convention on Biological Diversity (CBD).

The NSBA provides a spatial picture of the location of South Africa's threatened and under-protected ecosystems, and focuses attention on geographic priority areas for biodiversity conservation. South Africa's first NSBA was undertaken in 2004, and published in April 2005. The NSBA will be updated every five years.

The NBF is informed by both the NBSAP and the NSBA, as shown in Figure 1. It draws together key elements of each, and focuses attention on the immediate priorities, both spatial and thematic, for the next five years.

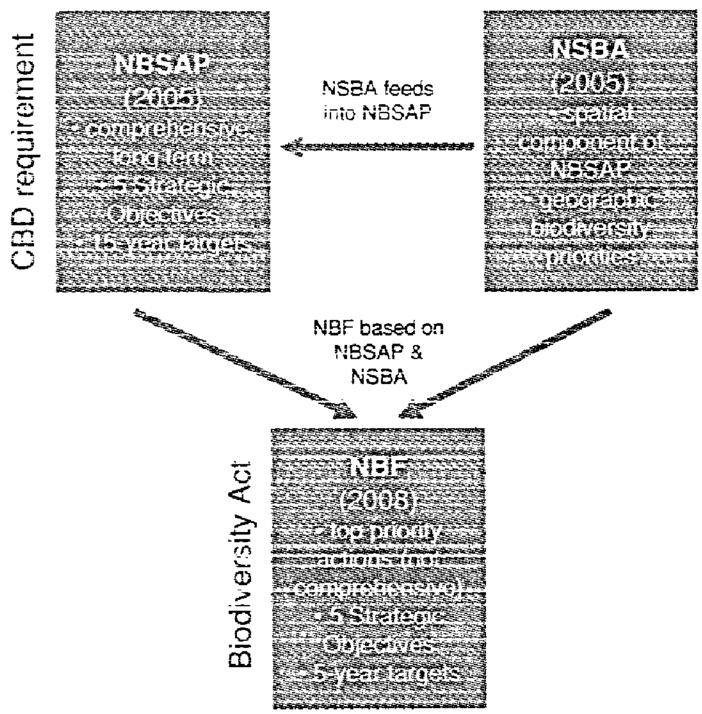

Figure 1: Relationship between the NBSAP, NSBA and NBF

Major pressures on biodiversity in South Africa

Many people are not aware of the impact of ordinary day-to-day activities on the functioning of ecosystems, and often see biodiversity conservation as being about protecting individual rare or threatened species rather than maintaining the integrity of ecosystems on which we depend for survival.

The major pressures on South Africa's biodiversity are:

- loss and degradation of natural habitat, in terrestrial and aquatic ecosystems
- invasive alien species
- over-harvesting of species, especially in the marine environment
- over-abstraction of water, especially for irrigation
- climate change

The challenge: conservation AND development, not conservation OR development

The challenge we face in addressing these pressures on biodiversity is not to conserve OR to develop, but rather how to conserve AND develop. The issue is not whether development takes place but rather *where* and *how* it takes place. The biodiversity sector is developing increasingly effective tools to support and streamline environmental decision-making and ensure that development is appropriate. Key among these are published bioregional plans in terms of the Biodiversity Act, which will identify critical biodiversity areas, including ecological corridors and important catchments, and give land-use planning and decision-making guidelines for these critical biodiversity areas.

Priority actions for conservation and management of South Africa's biodiversity

The NBSAP is a long-term strategy which identifies five strategic objectives and a comprehensive set of outcomes for each. The NBF draws out immediate priorities for the next five years within each of the Strategic Objectives (SOs) of the NBSAP. The NBF Priority Actions, summarised in Table 1 below, are organised according to the five NBSAP SOs:

SO 1: An enabling **policy and legislative framework** integrates biodiversity management objectives into the economy
SO 2: Enhanced **institutional effectiveness and efficiency** ensures good governance in the biodiversity sector
SO 3: **Integrated management of terrestrial and aquatic ecosystems** minimizes the impacts of threatening processes on biodiversity, enhances ecosystem services and improves social and economic security
SO 4: Human development and well-being is enhanced through **sustainable use** of biological resources and equitable sharing of the benefits
SO 5: A system of **protected areas and conservation areas** conserves a representative sample of biodiversity and maintains key ecological processes across the landscape and seascape

Table 1: Summary of NBF Priority Actions

	PRIORITY ACTION	LEAD AGENTS
	SO1: Policy and legislative framework	
1.	Make the case for the value of biodiversity as a cornerstone of sustainable development	DEAT, SANBI
2.	Integrate biodiversity considerations into fiscal policy through environmental fiscal reform	DEAT, SANBI, National Treasury, DWAF
3	Integrate biodiversity considerations in land-use planning and decision-making, by developing tools for supporting and streamlining environmental decision-making	DEAT, SANBI, DWAF, provincial environment affairs departments
4.	Finalise the regulatory framework for the prevention, containment and eradication of alien and invasive species	DEAT
5.	Strengthen the regulatory framework for species of special concern	DEAT, SANBI
6.	Finalise the regulatory framework for bioprospecting, access and benefit sharing	DEAT
	SO2: Institutional effectiveness	
7.	Establish and implement a human capital development strategy for the biodiversity sector to address transformation and scarce skills	SANBI, DEAT, SANParks, provincial conservation authorities, tertiary education institutions, relevant SETAs
8.	Fill key biodiversity information gaps	SANBI
9.	Improve biodiversity information management and access	DEAT, SANBI
10.	Establish and implement a national biodiversity research strategy	SANBI, DST, DEAT (MCM), DWAF, Water Research Commission, National Research Foundation
11.	Establish and implement a national monitoring and reporting framework for biodiversity	SANBI, DEAT, DWAF, provincial conservation authorities, SANParks
12.	Establish a national programme to build the capacity of municipalities to include biodiversity opportunities and constraints in their planning and operations	SANBI, DPLG, DEAT, SALGA, NGOs, provincial conservation authorities
13.	Establish pilot projects to explore mechanisms for integrated natural resource management at the district level	SANBI, DPLG, SALGA, DEAT, provincial environment affairs departments
14.	Support the development and strengthening of bioregional and ecosystem programmes	SANBI, DEAT, NGOs
	SO3: Integrated management of terrestrial and aquatic ecosystems	
15.	Develop and implement an integrated programme for ecosystem adaptation to climate change, with an emphasis on ecosystems vulnerable to climate change impacts	DEAT, SANBI
16.	Develop provincial spatial biodiversity plans in additional provinces	Provincial conservation authorities, SANBI
17.	Publish bioregional plans in terms of the Biodiversity Act	Provincial conservation authorities, provincial environment affairs departments, SANBI, DEAT

PRIORITY ACTION		LEAD AGENTS
18.	List threatened or protected ecosystems in terms of the Biodiversity Act	DEAT, SANBI, provincial conservation authorities, DWAF
19.	Develop Biodiversity Management Plans for species of special concern and threatened ecosystems	NGOs, DEAT, SANBI
20.	Work with key production sectors to minimise loss and degradation of natural habitat in threatened ecosystems and critical biodiversity areas	NGOs, SANBI, provincial conservation authorities, relevant industry sector organisations, DEAT
21.	Implement the alien and invasive species regulations	DEAT (including MCM), DWAF, DoA, provincial conservation authorities, SANBI, SANParks, municipalities
22.	Implement the cross-sector policy objectives for conservation of inland water biodiversity	DWAF, DEAT (including MCM), SANBI, CMAs, SANParks, provincial conservation authorities, DoA, NGOs
23.	Incorporate biodiversity conservation objectives in the work of Catchment Management Agencies	DWAF, CMAs, SANBI
24.	Develop and implement effective measures for management and control of activities relating to GMOs in order to manage their impact on the environment	DEAT, SANBI, DoA, DST, DTI, DWAF
SO4: Sustainable use		
25.	Address illegal and unregulated fishing and seafood trade, especially of line fish and abalone	DEAT (MCM), South African Sustainable Seafood Initiative (SASSI), relevant provincial conservation authorities, WWF-SA (Marine Programme), SANBI, other NGOs
26.	Develop an implementation strategy for bioprospecting, access and benefit sharing regulations	DEAT
27.	Facilitate the development of the natural products sector	DEAT, IUCN, SANBI, DWAF, DTI, DST, DoA, DAC, research institutions, NGOs
28.	Improve knowledge of sustainable extractive use of terrestrial resources	SANBI, research institutions, provincial conservation authorities, NGOs, traditional healer associations
SO5: Protected areas and conservation areas		
29.	Finalise the twenty-year National Protected Area Expansion Strategy, underpinned by national biodiversity targets	DEAT (including MCM), SANParks, provincial conservation authorities, SANBI
30.	Implement the National Protected Area Expansion Strategy	DEAT (including MCM), SANParks, provincial conservation authorities
31.	Establish and strengthen provincial stewardship programmes	DEAT, provincial conservation authorities, NGOs, SANBI
32.	Strengthen programmes that support the informal conservation area system	DEAT; provincial conservation authorities, SANParks, NGOs
33.	Develop and implement a National Botanical Gardens expansion strategy	SANBI

Regional co-operation

Priorities for co-operation between South Africa and other Southern African countries in relation to biodiversity are:

- Strengthen and improve the development of integrated management and tourism plans of the Transfrontier Conservation Areas and Transboundary World Heritage Sites.
- Develop and implement appropriate incentives for biodiversity conservation and its sustainable use in cooperation with our neighbouring countries
- Develop, implement and strengthen programmes for international scientific collaboration, sharing of information and technology transfer
- Develop and implement a coordinated regional programme to increase awareness, knowledge and appreciation of biological resources at various levels
- Strengthen the research and development capacity of the protected area system

Implementation, monitoring and review of the NBF

The NBF is the joint responsibility of a range of lead agents and supporting partners, with DEAT and SANBI playing a co-ordinating, catalysing role in addition to implementing specific Priority Actions.

The NBF must be reviewed every five years. The review will be led by DEAT in collaboration with all lead agents and other key stakeholders, and will involve:

- Assessing progress towards implementing Priority Actions identified in the current NBF
- Assessing progress towards achievement of the NBSAP strategic objectives
- Reviewing and revising Priority Actions for the following five-year period, and compiling these into an updated NBF
- Publishing the updated NBF

The Biodiversity Act toolbox

The Biodiversity Act provides for a range of mechanisms for sustainable use and conservation of biodiversity, in addition to the NBF. These other mechanisms include:

- A guideline for publishing bioregional plans (expected to be published in 2008)
- Regulations on alien and invasive species (draft expected to be published in 2009)

- Regulations on bio-prospecting, access and benefit sharing (expected to be published in 2008)
- Norms and standards on hunting (expected to be published in 2008)
- Regulations on threatened or protected species (published in 2007)
- Listing of threatened or protected species (national list published in 2007)
- Listing of threatened or protected ecosystems (first national list expected to be published in 2008)
- Norms and standards for biodiversity management plans for species (expected to be published in 2008)
- Norms and standards for biodiversity management plans for ecosystems (expected to be published in 2010)

1 Introduction to the NBF

The National Biodiversity Framework (NBF) is required in terms of the National Environmental Management: Biodiversity Act (Act No.10 of 2004) (hereafter referred to as the Biodiversity Act).

This introduction to the NBF explains:

- the purpose of the NBF (including what the NBF is not)
- its intended users
- its relationship with the National Biodiversity Strategy and Action Plan (NBSAP) and the National Spatial Biodiversity Assessment (NSBA)
- it's relationship with other national policies and strategies

1.1 What is the purpose of the NBF?

The purpose of the NBF is to provide a framework to co-ordinate and align the efforts of the many organisations and individuals involved in conserving and managing South Africa's biodiversity, in support of sustainable development.

The heart of the NBF is a set of 33 Priority Actions, which provide an agreed set of priorities to guide the work of the biodiversity sector in South Africa for the next five years. These are summarised Table 1 on page x of the Executive Summary, and discussed in more detail in Section 4 of this report.

The NBF provides a framework for conservation *and* development. Too often in South Africa conservation and development are seen as opposing or irreconcilable goals. As our economy moves towards 6% economic growth, we need to ensure that the way we achieve this growth allows for the continued functioning of ecosystems and the persistence of the natural resource base. This is possible, if care is taken over the location of development, the type of development, and the consumption of natural resources in the development process. Sustainable development depends on *where* and *how* development takes place.

Development is not sustainable if it results in:

- loss and degradation of habitat in threatened ecosystems and critical biodiversity areas
- further introduction or spread of invasive alien species

- over-abstraction of water beyond the limits of the ecological reserve
- over-harvesting of species
- further contributions to climate change

There are many opportunities for development that is consistent with building on and maintaining our extraordinary natural resource base, so that the socio-economic options of future generations are not compromised.

We are fortunate in South Africa to have an excellent base of biodiversity science that can provide tools for streamlining environmental decision-making and ensuring that development is appropriately located and managed. The NBF hopes to contribute to making such tools accessible and useful to a range of socio-economic sectors.

Sustainable use and conservation of biodiversity is a multi-sectoral effort that requires co-ordination and alignment of the efforts of many different organisations and individuals, inside and outside government.

The NBF sets out a framework for achieving this co-ordination and alignment. It does this by:

- highlighting the major pressures on biodiversity in South Africa
- identifying Priority Actions for the next five years for conserving biodiversity (these are a subset of the activities identified in the twenty-year National Biodiversity Strategy and Action Plan)
- setting out the implications of these Priority Actions for agents that will lead their implementation

According to the Biodiversity Act, the NBF must be reviewed at least every five years, providing an opportunity to take stock of progress, review priorities, and realign efforts. The NBF is thus a short- to medium-term tool. Its aim is not to be comprehensive, but rather to focus collective attention and effort on the set of activities that will make the most difference.

According to the Biodiversity Act, the NBF must:

- Provide for integrated, co-ordinated and uniform approach to biodiversity management
- Identify priority areas for conservation action
- Identify priority areas for establishment of protected areas
- Reflect regional co-operation issues concerning biodiversity management in southern Africa

In addition, the NBF aims to:

- Focus attention on the most urgent strategies and actions required for biodiversity management
- Point to roles and responsibilities of key stakeholders, including key organs of state whose mandates impact directly on biodiversity management

The purpose of the NBF is not to:

- Describe South Africa's biodiversity and its importance in detail
- Reiterate South Africa's commitments to conserving biodiversity as a signatory of the Convention on Biodiversity
- Describe the policy and legislative framework for biodiversity conservation in South Africa
- Give a comprehensive review of work currently being undertaken in the biodiversity sector
- Give a comprehensive list of all actions required to conserve and manage South Africa's biodiversity

For more on these topics see the following documents:

- The National Biodiversity Strategy and Action Plan (NBSAP) Country Study (DEAT 2005a)
- The NBSAP (DEAT 2005b)
- The National Spatial Biodiversity Assessment (NSBA) (Driver et al. 2005)
- The Biodiversity of South Africa 2002: Indicators, trends and human impacts (Endangered Wildlife Trust 2002)

1.2 Who should use the NBF?

This section points to the key intended users of the NBF, without whose collaboration effective conservation and sustainable use of South Africa's biodiversity will not be possible. The list of users of the NBF in this section is not comprehensive – there are likely to be additional users not mentioned here.

The intended users of the NBF include the following groups, each of which is expanded on below:

1. Organs of state whose core business includes biodiversity conservation

2. Organs of state whose core business is not biodiversity conservation, but whose policies, programmes and decisions impact directly and substantially on how biodiversity is managed
3. Government-led programmes
4. NGOs wishing to make a contribution to biodiversity conservation in South Africa
5. The private sector, particularly those production sectors whose activities contribute to the major pressures on South Africa's biodiversity, such as loss of natural habitat, over-abstraction of freshwater resources, and over-harvesting of marine resources

1. Organs of state whose core business includes biodiversity conservation include:

- Department of Environmental Affairs and Tourism (DEAT)
- South African National Biodiversity Institute (SANBI)
- South African National Parks (SANParks)
- World Heritage Site Authorities
- Department of Water Affairs & Forestry (DWAF)
- Provincial conservation authorities

Provincial conservation authorities include:

- Provincial conservation agencies or parks boards:
  - o CapeNature (Western Cape)
  - o Eastern Cape Parks (ECP)
  - o Ezemvelo KwaZulu-Natal Wildlife (EKZNW)
  - o Mpumalanga Tourism and Parks Agency (MTPA)
  - o North West Parks and Tourism Board (NWPTB)
  - o Limpopo Tourism and Parks Board (LTPB)

  (Of these six, CapeNature and EKZNW have a mandate to work throughout the province concerned, inside and outside protected areas. The other four have a mandate to work only within protected areas.)

- Provincial environment affairs and/or conservation departments:
  - o Eastern Cape Department of Economic Development and Environmental Affairs (DEDEA)
  - o Free State Department of Tourism, Economic and Environment Affairs (DTEEA)
  - o Gauteng Department of Agriculture, Conservation and Environment (GDACE)
  - o KwaZulu-Natal Department of Agriculture and Environment Affairs (DAEA)

- o Limpopo Department of Economic Development, Environment and Tourism (DEDET)
- o Mpumalanga Department of Agriculture and Land Administration (DALA)
- o North West Department of Agriculture, Conservation and Environment (NWDACE)
- o Northem Cape Department of Tourism, Environment and Conservation (DTEC)
- o Western Cape Department of Environment Affairs and Development Planning (DEA&DP)

2. Organs of state whose core business is not biodiversity conservation, but whose policies, programmes and decisions impact directly and substantially on how South Africa's biodiversity is managed, include:

- National Department of Agriculture (DoA)
- Provincial departments of agriculture
- Department of Minerals and Energy (DME)
- Department of Land Affairs (DLA)
- Department of Public Works (DPW)
- Municipalities
- South African Heritage Resources Agency and provincial Heritage Resources Authorities.

These organs of state play a key role in managing natural resources, and are required to take biodiversity into account in terms of the Constitution and NEMA.

In addition, the following national departments, while not directly responsible for managing natural resources, play a role in establishing policy and implementation frameworks that impact on biodiversity conservation:

- The Presidency
- Department of Provincial and Local Government (DPLG)
- Department of Science and Technology (DST)
- Department of Arts and Culture (DAC)
- Department of Trade and Industry (DTI)
- National Treasury

The local sphere of government deserves particular mention. Day-to-day decisions about how land and other natural resources are used at the local level ultimately determine whether development is sustainable. While local government does not make all these decisions itself (many of them are made by provincial or national departments, or by individual landowners or resource users), it has a key role to play in ensuring co-ordination and integrated management of natural resources. The South African Local Government Association (SALGA) has an important role to play in building the capacity of local government to do this.

3. Government-led programmes include:

- Working for Water
- Working for Wetlands
- Working on Fire
- LandCare
- CoastCare
- Community Based Natural Resource Management

4. NGOs in the conservation sector

The biodiversity sector in South Africa includes a range of international, national and local NGOs that make significant contributions to achieving the objectives of the NBSAP, including through mobilising civil society involvement in the conservation and sustainable use of biodiversity, through fundraising, and through piloting innovative approaches to conserving biodiversity.

Examples of national NGOs in the biodiversity sector include:

- Birdlife South Africa
- Botanical Society of South Africa, including its Conservation Unit
- Conservation International (CI)
- Endangered Wildlife Trust (EWT)
- IUCN (World Conservation Union) South Africa
- Peace Parks Foundation (PPF)
- Wildlife and Environment Society of South Africa (WESSA)
- World Wide Fund for Nature South Africa (WWF-SA)
- Wilderness Foundation (WF)

5. **Production sectors whose activities contribute substantially to the major pressures on South Africa's biodiversity, and which thus have an important role to play in contributing positively to biodiversity conservation, include, amongst others:**

- Cultivation, including biofuels
- Plantation forestry
- Mining
- Commercial fishing
- Property development, especially coastal property development
- Energy production
- Construction and infrastructure development
- Livestock farming

6. **Production sectors whose activities can be compatible with biodiversity management objectives, include, amongst others:**

- Livestock and game farming
- Wildlife tourism and hunting
- Indigenous forest management

1.3 Relationship between the NBF, the NBSAP and the NSBA

The NBF rests on two preceding documents, both of which were based on extensive stakeholder consultation: the National Biodiversity Strategy and Action Plan (NBSAP) and the National Spatial Biodiversity Assessment (NSBA).

Overview of the NBSAP

The NBSAP sets out a comprehensive long-term strategy for the conservation and sustainable use of South Africa's biodiversity, including medium- and long-term targets. It was finalised in May 2005, after a two-year development process. The NBSAP is a twenty-year strategy, developed as part of South Africa's commitments to the Convention on Biological Diversity (CBD).

The overall goal of the NBSAP is: To conserve and manage terrestrial and aquatic biodiversity to ensure sustainable and equitable benefits to the people of South Africa, now and in the future

The NBSAP identifies five strategic objectives (SOs) that are required to achieve this goal:

- SO 1: An enabling policy and legislative framework integrates biodiversity management objectives into the economy
- SO 2: Enhanced institutional effectiveness and efficiency ensures good governance in the biodiversity sector
- SO 3: Integrated terrestrial and aquatic management minimizes the impacts of threatening processes on biodiversity, enhances ecosystem services and improves social and economic security
- SO 4: Human development and well-being is enhanced through sustainable use of biological resources and equitable sharing of the benefits
- SO 5: A network of conservation areas[1] conserves a representative sample of biodiversity and maintains key ecological processes across the landscape and seascape

For each of these strategic objectives, the NBSAP identifies outcomes, activities, targets and indicators.

Overview of the NSBA

The NSBA provides a spatial picture of the location of South Africa's threatened and under-protected ecosystems, and focuses attention on geographic priority areas for biodiversity conservation. South Africa's first NSBA was undertaken in 2004, and published in April 2005. The NSBA will be updated every five years, in time to feed into the review of the NBF.

The NSBA is based on the systematic approach to biodiversity planning, which is driven by two principles:

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[1] The NBSAP uses the term "conservation areas" as an umbrella term that refers both to formal protected areas and to informal conservation areas. However, in the development of the National Protected Area Expansion Strategy (underway at the time of writing) the decision was made to use the term "protected areas" to refer to formal protected areas recognised in terms of the Protected Areas Act, and the term "conservation areas" to refer to areas that receive some level of informal protection but are not recognised in terms of the Protected Areas Act. The NBF uses the terms "protected areas" and "conservation areas" in the same way they are used in the National Protected Area Expansion Strategy.

- The principle of representation, or the need to conserve a representative sample of biodiversity pattern, including ecosystems, habitats and species
- The principle of persistence, or need to conserve ecological and evolutionary processes that allow biodiversity to persist over time

The NSBA 2004 found that 82% of South Africa's main river ecosystems are threatened compared with 34% of our terrestrial ecosystems, highlighting the fact that South Africa is a water-scarce country in which freshwater ecosystems are under great pressure.

Our protected area network is biased towards particular ecosystems and species. It does not conserve a representative sample of biodiversity, and excludes key ecological processes. This means that appropriate management of land and natural resources outside protected areas, especially in threatened ecosystems, is crucial for conserving biodiversity.

How the NBF fits in

The NBF is informed by both the NBSAP and the NSBA, as shown in Figure 1. It draws together key elements of each, and focuses attention on the immediate priorities, both spatial and thematic, for the next five years.

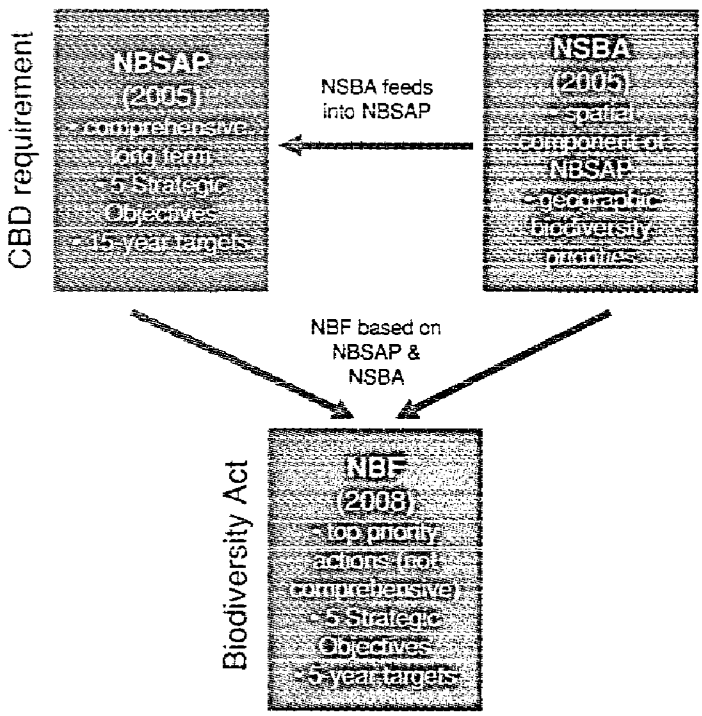


Figure 1: Relationship between the NBSAP, NSBA and NBF

1.4 Relationship between the NBF and other national policies and strategies

Strategic Plan for the Environmental Sector

DEAT has led the development of a draft Strategic Plan for the Environmental Sector, for 2008 to 2013. The purpose of this strategic plan is to develop a common sector-wide strategic implementation plan for the environmental sector in South Africa, and to maximise efficient use of the limited resources available for achieving environmental sustainability. The plan should be read as a forward looking common perspective for the sector by government under the custodianship of DEAT, the provincial departments responsible for the environment, and the public entities at both national and provincial level.

The Strategic Plan for the Environmental Sector deals with the same time period as the NBF (2008 – 2013) but has a much wider ambit, covering the following core focus areas:

- air quality management
- waste and chemicals management
- pollution incident management and response
- environmental impact management
- conservation and sustainable use of biodiversity
- marine and coastal management

The draft of the NBF which published for public comment in June 2007 fed directly into the development of the Strategic Plan for the Environmental Sector, forming the basis for the core focus area on biodiversity.

Accelerated and Shared Growth Initiative for South Africa (ASGISA)

As the South African economy moves towards the 6% growth rate targeted by national economic policy, the prospect of achieving major social goals such as halving poverty and unemployment by 2014 becomes real. A sustained 6% growth rate also means that the size of the economy will double approximately every 11 years, with major implications for the use of natural resources, especially water and natural habitat. We need to ensure that the way we achieve 6% growth allows for the continued functioning of ecosystems and the persistence of the natural resource base. This is possible, if care is taken over the location of development, the type of development, and the consumption of natural resources in the development process.

Sustainable development means avoiding development that results in:

- loss and degradation of natural habitat in threatened ecosystems or critical biodiversity areas
- further introduction or spread of invasive alien species
- over-abstraction of water beyond the limits of the ecological reserve
- over-harvesting of species
- further contributions to climate change

The NSBA, together with finer scale biodiversity plans for various parts of the country, points to ecosystems and locations where particular caution is needed before decisions are made to destroy or disturb natural habitat. Published bioregional plans in terms of the Biodiversity Act, based on systematic biodiversity plans, will provide a mechanism for streamlining environmental decision-making, contributing directly to achieving one of the objectives of ASGISA by reducing the regulatory hurdles to development, and helping to ensure that 6% growth does not compromise our natural resource base.

The NBF highlights the need to use spatial biodiversity plans to streamline environmental decision-making, and to develop the ability of the ecotourism sector and the natural products sector to contribute directly to job-creating growth.

National Framework for Sustainable Development (NFSD)

South Africa's NFSD highlights the need for maintaining the health and integrity of terrestrial and aquatic ecosystems as an underpinning of sustainable development. Strategic interventions for biodiversity conservation identified in the NFSD are consistent with those identified in the NBF. The NBF provides more detail than the NFSD, in which biodiversity was one of many priorities addressed.

The NFSD highlights the following opportunities and key challenges for sustainable development with respect to biodiversity, each of which is addressed in one or more of the Priority Actions discussed in Section 4:

	Reflected in NBF
• Making the case for the value of biodiversity	Priority Action 1
• Minimising loss and degradation of natural habitat, especially in threatened ecosystems	Priority Actions 18,19, 20
• Preventing and controlling impacts of alien and invasive species	Priority Actions 4, 21
• Making sure that extractive use of our natural resources is sustainable, especially in marine environment	Priority Actions 5, 19, 25
• Building the capacity of local government to include biodiversity opportunities and constraints in integrated development planning and other municipal functions	Priority Action 12
• Unlocking a mechanism for integrated natural resources management at local level	Priority Action 13
• Expanding the protected area network through innovative mechanisms	Priority Actions 29, 30, 31, 32

National Action Programme: Combating Land Degradation to Alleviate Rural Poverty (NAP)

In 1997 South Africa ratified the United Nations Convention to Combat Desertification (UNCCD), which provides a framework for countries affected by desertification to address the problem of land degradation effectively at a national level. DEAT is the focal point of the UNCCD in South Africa, and has in collaboration with other relevant departments (including DoA, DWAF, DME, DLA) and other key partners (including NGOs and the DBSA), developed a National Action Programme Combating Land Degradation to Alleviate Rural Poverty (NAP) (DEAT 2004a) as part of the country's commitments under the UNCCD.

As will be discussed in Section 3.1, degradation of natural habitat in terrestrial and aquatic ecosystems is an important cause of biodiversity loss. The NAP addresses a wide range of issues related to desertification, land degradation, and the effects of drought, some of which have strong links with biodiversity. The NAP proposes the development of a sustainable land management framework, which should include biodiversity objectives.

The implementation of several of the Priority Actions in the NBF, discussed in Section 4, will directly support the achievement of several of the priority activities identified in the NAP, as summarised below. There is scope in future revisions of the NAP and NBF to improve alignment and synergy between the two.

NAP Strategic Objectives and Activities	**Supported by NBF Priority Actions**
NAP Strategic Objective 1: Strengthened governance in the national and provincial spheres for an integrated and co-ordinated thrust in the NAP	
NAP Activity 1.6 The National Water Resource Strategy and catchment management	NBF Priority Action 22. Implement the cross-sector policy objectives for conservation of inland water biodiversity NBF Priority Action 23. Incorporate biodiversity conservation objectives in the work of Catchment Management Agencies
NAP Activity 1.7 The National Sustainable Land Management Framework	NBF Priority Action 16. Develop provincial spatial biodiversity plans in additional provinces (these should inform biodiversity objectives in the National Sustainable Land Management Framework) NBF Priority Action 18. List threatened or protected ecosystems in terms of the Biodiversity Act
NAP Activity 1.9 Achieve synergy between the relevant Conventions: CCD, FCCC, CBD, Ramsar, and the forest agreements	NBF Priority Action 14. Support the development and strengthening of bioregional and ecosystem programmes (these are specifically mentioned in the outcomes for this NAP activity) NBF Priority Action 15. Develop and implement an integrated programme for ecosystem adaptation to climate change, with an emphasis on ecosystems vulnerable to climate change impacts
NAP Strategic Objective 2: Strengthened local institutions and instruments for sustainable land management and project that contribute to substantial eradication of rural poverty	
NAP Activity 2.2 Finalising the standards for the integrated planning package: CBNRM principles, DPLG community-based planning process, local area plans and land degradation risk management	NBF Priority Action 12. Establish a national programme to build the capacity of municipalities to include biodiversity opportunities and constraints in their planning and operations NBF Priority Action 13. Establish pilot projects to explore mechanisms for integrated natural resource management at the district level
NAP Activity 2.3 Building land management institutions in municipalities located in areas with predominantly communal land	NBF Priority Action 12. Establish a national programme to build the capacity of municipalities to include biodiversity opportunities and constraints in their planning and operations NBF Priority Action 13. Establish pilot projects to explore mechanisms for integrated natural resource management at the district level

NAP Strategic Objectives and Activities	Supported by NBF Priority Actions
NAP Strategic Objective 4: Effective mobilisation, generation and delivery of the knowledge and information required to support sustainable land management	
NAP Activity 4.2 Building and retaining the capacity among institutions, people and communities to conduct sustainable land management	NBF Priority Action 7. Establish and implement a human capital development strategy for the biodiversity sector to address transformation and scarce skills
NAP Activity 4.4 National priorities in research and the development of sustainable land management policy and practice	NBF Priority Action 10. Establish and implement a national biodiversity research strategy
NAP Activity 4.5 Global change and land degradation	NBF Priority Action 15. Develop and implement an integrated programme for ecosystem adaptation to climate change, with an emphasis on ecosystems vulnerable to climate change impacts
NAP Activity 4.10 Systems to deliver information to the local development plans	NBF Priority Action 9. Improve biodiversity information management and access
NAP Strategic Objective 5: Assessment of and improvement to policies that impact on land management	
NAP Activity 5.1 Regulations and incentives for the promotion of the combating of land degradation	NBF Priority Action 2. Integrate biodiversity considerations into fiscal policy through environmental-fiscal reform. NBF Priority Action 3. Integrate biodiversity considerations into land-use planning and decision-making, by developing tools for supporting and streamlining environmental decision-making NBF Priority Action 20. Work with key production sectors to minimise loss and degradation of natural habitat in threatened ecosystems and critical biodiversity areas
NAP Strategic Objective 7: Monitoring, evaluation and continuous improvement	
NAP Activity 7.1 A system of indicators against which land degradation and NAP implementation is monitored must be established, and these must be co-ordinated with current reporting processes	NBF Priority Action 11. Establish and implement a national monitoring and reporting framework for biodiversity

National Spatial Development Perspective (NSDP)

The NSDP establishes principles for the spatial location and alignment of infrastructure investment in South Africa, in order to maximise the impact of scarce resources. It is designed to act as an indicative planning tool for all spheres of government with emphasis on the spatial implications for infrastructure and development policy and programmes in all three tiers of government.

The principles of the NSDP are consistent with biodiversity conservation objectives, especially to the extent that they encourage compact, nodal urban development and discourage investment in fixed infrastructure in marginal areas of limited economic potential.

Direct links between the NBF and the NSDP are limited, but no direct conflicts between the two are evident. The set of maps included in the NSDP includes a map of environmentally sensitive areas, but not a map of threatened ecosystems or biodiversity priority areas. Biodiversity maps and information could be included in any future revisions of the NSDP.

1.5 Structure of the NBF

The NBF is structured as follows:

- Section 1 has introduced the NBF, including its purpose, intended users, and relationship to the NBSAP and the NSBA
- Section 2 summarises why South Africa's biodiversity is important
- Section 3 briefly discusses the major pressures on South Africa's biodiversity
- Section 4 is the heart of the NBF: it outlines the priority strategies and actions for conserving South Africa's biodiversity, drawing directly on the NBSAP and the NSBA
- Section 5 deals with priority actions for regional (Southern African) co-operation
- Section 6 discusses the implementation, monitoring and review process envisaged for the NBF
- Section 7 outlines additional mechanisms for implementing the Biodiversity Act, over and above the NBF

2 Why South Africa's Biodiversity Matters

It is well known and well documented that South Africa's biodiversity is globally unique (see for example DEAT 2005a). Perhaps less recognised and appreciated in the socio-economic importance of our country's biodiversity resources.

South Africa's biodiversity provides an important basis for economic growth and development, in obvious ways such as providing a basis for our fishing industry, rangelands that support commercial and subsistence farming, horticultural and agricultural industry based on indigenous species, our tourism industry, aspects of our film industry, and commercial and non-commercial medicinal applications of indigenous resources. Keeping our biodiversity intact is also vital for ensuring ongoing provision of ecosystem services such as production of clean water through good catchment management, prevention of erosion, carbon storage (to counteract climate change) and clean air. Loss of biodiversity puts aspects of our economy and quality of life at risk, and reduces socio-economic options for future generations

People are ultimately fully dependent on living, functional ecosystems and their services they provide. The rural poor are more directly affected – poor people have limited assets and are more dependent on common property resources for their livelihoods, whilst the wealthy are buffered against loss of ecosystem services by being able to purchase basic necessities and scarce commodities. Our path towards sustainable development, poverty reduction and enhanced human well-being is therefore dependent on how effectively we conserve biodiversity.

Natural assets in most instances are harvested as part of an informal or second economy or cannot be traded. The benefits of South Africa's biodiversity stock and the flow of goods and services it generates therefore generally do not accrue through the market system and therefore does not generate sufficient private investment and institutions for its conservation and restoration. It also has limited potential for commercialisation. However, the social impacts and economic costs of not managing ecosystems in a sustainable manner is high, as is demonstrated through land degradation, loss of ecosystem resilience, loss of freshwater resources, the intensification of the global carbon cycle and resulting climate change, the loss of fishing stock and the deterioration of air quality. Based on several South African case studies, the average rural person who has open access to mostly communal lands derived a largely unaccounted value of R800 -

R1 000 per year from wild products and ecosystem grazing services to support their livestock, translating into an average value of R6 000 per household per year (De Wit 2006).

For the whole of South Africa, the added value of ecosystems in the production of biological resources as well as the final consumption of ecosystems was recently conservatively estimated at a baseline reference value of R27 billion per annum, or R20 000 per terrestrial km^2, with a spread of around R30 000/km^2 for savannas and grasslands to R5 500/km^2 for the Karoo. Indirect use values (mostly notably grazing and pollination inputs) account for two thirds of this value, while direct consumptive use values (nature's share of timber resources, aquatic resources, crops and plant resources and animal resources) account for 28% and non-consumptive use (nature based tourism) for 6% of total value (De Wit 2006).

Even if values are assumed unrealistically low, biodiversity still plays a significant role in the South African economy. If it is assumed under an arbitrary 10% scenario that:

- only 10% of the value of nature-based tourism is directly dependent on ecosystems
- pollination services are only 10% of the value measured in the fynbos biome
- and that value of the sequestered carbon is only R6.50/ton CO2,

the added value of ecosystems in the production of biological resources as well as the final consumption of ecosystems is still estimated at a value of more than R10 billion/year (De Wit 2006).

It is obvious that economic valuation of biodiversity is needed and can help in better informing decision-making processes. If the economic value of biodiversity is not included in decision making processes, sustainable development will not be achieved. With ecosystems that provide a list of goods and services that play an important role in formal economic activities, as well as contributing in a substantial way to the rural poor, it is imperative to have an estimate on the extent of these economic values and a way to communicate this message to decision makers in fields such as public and private finance, socio-economic development, industrial policy, fiscal policy, environmental protection and restoration, and poverty alleviation.

The linkages between ecosystem services and human well-being, as identified by the Millennium Ecosystem Assessment, are depicted in the diagram below.

Linkages between ecosystem services and human well-being

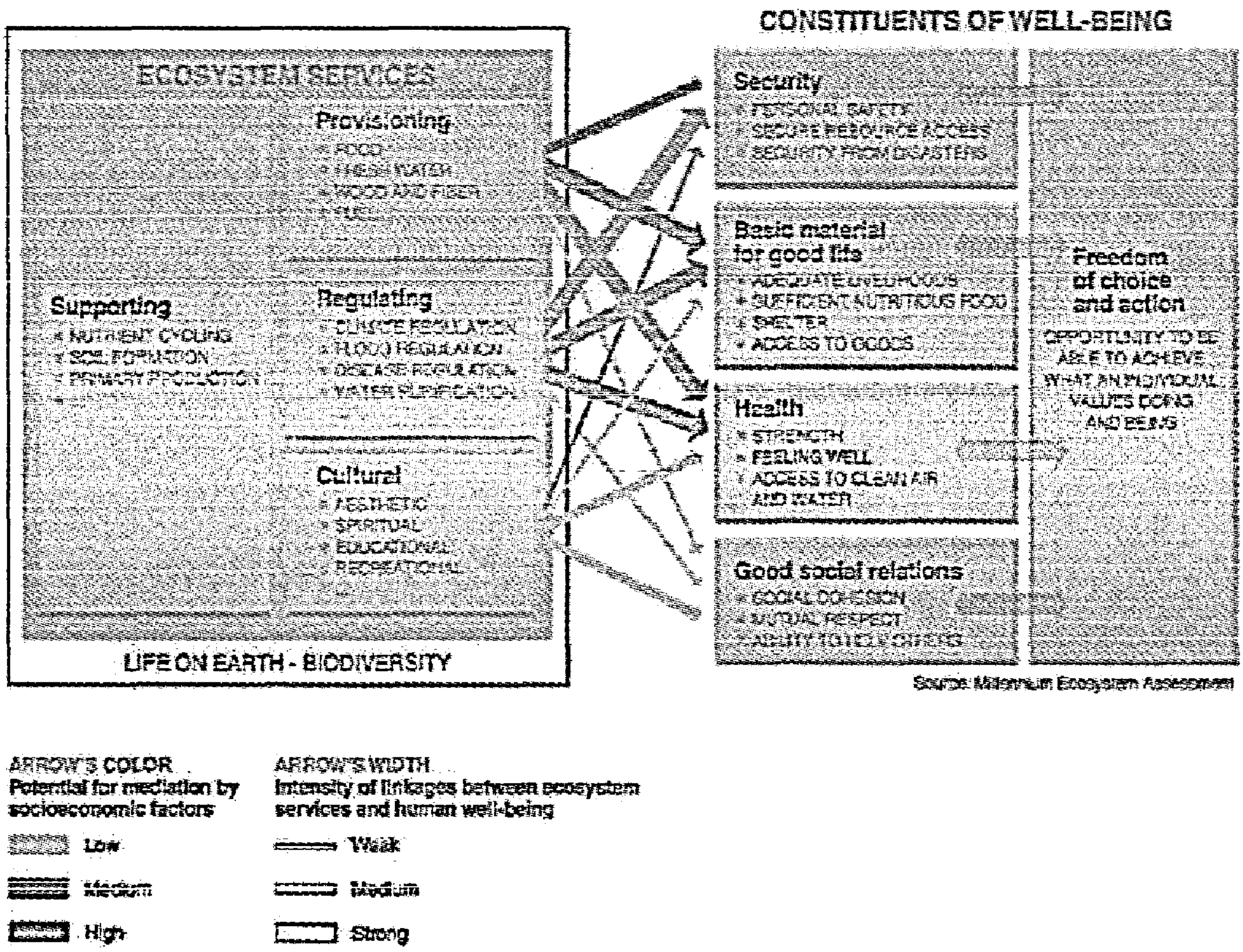


Figure SDM - A - The MA framework

3 Major Pressures on South Africa's Biodiversity

Many people are not aware of the impact of ordinary day-to-day activities on the functioning of ecosystems, and often see biodiversity conservation as being about protecting individual rare or threatened species rather than maintaining the integrity of ecosystems on which we depend for survival.

The major pressures on South Africa's biodiversity are:

- loss and degradation of natural habitat, in terrestrial and aquatic ecosystems
- invasive alien species
- over-harvesting of species, especially in the marine environment
- over-abstraction of water, especially for irrigation
- climate change

There are of course many other pressures on biodiversity, but these ones account for the majority of the damage to ecosystems, and are thus the most urgent ones to address. Each of these is briefly explained below.

3.1 Loss and degradation of natural habitat

Loss of natural habitat occurs when natural ecosystems are disturbed to the extent that they cannot recover. This occurs especially though:

- cultivation
- plantation forestry
- mining
- urban sprawl (as opposed to compact urban development)
- ribbon development along the coast
- trawl fisheries (that damage the ocean bed)

Loss of natural habitat, and the fragmentation of the remaining habitat that goes with it, is the single biggest cause of biodiversity loss in South Africa. In almost all cases it is irreversible. Degradation (as opposed to loss) of natural habitat occurs when natural ecosystems are disturbed, but may still be able to recover. Overgrazing is a major cause of degradation. Some ecosystems recover more easily from degradation than others, with more arid ecosystems generally taking longer to recover.

Loss and degradation of natural habitat affect both terrestrial and aquatic ecosystems. For example, when riparian habitat (river banks) and wetlands are disturbed, not only is the terrestrial habitat itself affected, but the health of the river, wetland system and estuary is compromised.

Pollution causes degradation and in some cases outright loss of natural habitat, especially in aquatic environments. Examples include oil spills in marine and coastal environments, point-source industrial and agricultural pollution into rivers and wetlands, and agricultural pesticides that impact on pollinators and ecosystem functioning.

Not all loss of natural habitat is a problem. It is crucial to avoid loss and degradation of natural habitat in critical biodiversity areas. Critical biodiversity areas include:

- critically endangered ecosystems
- endangered ecosystems
- ecological corridors
- river corridors
- critical wetlands and estuaries
- special habitats

Bioregional plans published in terms of the Biodiversity Act will identify critical biodiversity areas on a map, and will provide guidelines for land-use planning and decision-making in these critical biodiversity areas.

3.2 Invasive alien species

Invasive alien species, both plants and animals, are a major problem in terrestrial, freshwater and marine environments. They displace indigenous species, disturb habitats, and disrupt ecosystem functioning.

The problem is two-fold:

- It is difficult to manage and control invasive alien species that are already present in South Africa
- It is difficult to prevent entry of new invasive alien species

In the terrestrial environment, the major invasive alien species are woody plants. In addition to disrupting terrestrial ecosystem functioning, they use much more water than indigenous vegetation, and therefore disrupt freshwater ecosystems as well, especially when the invasive alien plants occur in riparian zones (along river banks).

In the freshwater environment, the major invasive alien species are fish, such as bass, which eat indigenous fish and damage habitats, and weeds such as the water hyacinth which disrupt ecosystem functioning.

In the marine environment, major invasive alien species include the blue mussel, which cannot be eradicated, and the European shore crab which can and should be eradicated. The aquaculture industry, if not carefully managed, is likely to result in new invasive alien species problems in the marine environment

The Alien and Invasive Species Regulations that will be published in terms of the Biodiversity Act cater for a range of measures to address the problems associated with invasive alien species.

3.3 Over-abstraction of freshwater, especially for irrigation

Freshwater ecosystems in South Africa are under even more pressure than terrestrial ecosystems, reflecting the fact that we are a water-scarce country. According to the NBSA, 44% of our main river ecosystems were critically endangered in 2004, compared with 5% of terrestrial ecosystems.

Freshwater ecosystems include rivers, wetlands and groundwater. The biggest pressure on freshwater ecosystems is flow modification, which occurs as a result of building dams and weirs, extracting water for agricultural, industrial and human use, and changing the course of a river.

The next biggest pressures on freshwater ecosystems are loss of natural habitat in the riparian zone and further away in the catchment, and invasive alien species in the riparian zone and in the river.

All of these pressures in freshwater ecosystems apply equally to estuaries, and can also impact on near-shore marine habitats.

The National Water Act provides for an ecological reserve – an amount of water that "belongs" to the river and is needed to maintain its ecological functioning. However, the implementation of the ecological reserve is complex, especially in cases where it involves retracting existing water rights. Catchment Management Agencies (CMAs), currently being established by DWAF, will play a major role in rolling out the implementation and enforcement of the ecological reserve.

3.4 Over-harvesting of marine species

Over-harvesting occurs in some terrestrial ecosystems (for example, over-harvesting of some medicinal species), but is not a major pressure compared to loss of natural habitat and invasive alien species. However, in the marine environment, over-harvesting of marine living resources especially through commercial and recreational fishing is by far the single biggest pressure on biodiversity.

We do not have current stock assessments for many important commercial marine species, so the full extent of the problem may not be appreciated. However, we do know that the stock status of eleven of our line fish species is considered collapsed. "Collapsed" means that less than 20% of the breeding stock remains, and the species is in danger of commercial extinction. These line fish species include ones that are still commonly served in restaurants all over the country, such as kob, certain rockcods and slinger.

Depletion of fish stocks themselves is not the only problem. Often commercial and recreational fishing results in by-catch and accidental death of other species such as seabirds and turtles, to the extent that they also become threatened. Some types of fishing damage the seabed or other habitat that supports marine resources.

3.5 Climate change

Global climate change, caused by increasing levels of greenhouse gases in the atmosphere as a result of human activities, is no longer disputed. Although uncertainties exist about the extent of the changes and the scope and depth of economic impacts, it is accepted that climatic changes are underway and are leading to ecological changes. Climate change is likely to impact on the economy and society at large. It is the poor and marginalized who are most likely to be exposed to these impacts, and least able to cope due to lack of access to both resources and social services.

The projected decline in South Africa's biodiversity that is noted in climate change assessment reports is especially worrying. Climate change modelling suggests a reduction of the area covered by the current biomes by up to 55% in the next 50 years. The largest losses are predicted to occur in the western, central and northern parts of the country. Species composition is expected to change, which may also lead to significant changes in the vegetation structure in some biomes, and, in some extreme cases, even leading to total species loss. Climate modelling predicts that most animal species will become increasingly concentrated in the proximity of the higher altitude eastern escarpment regions, with significant losses in the arid regions of the country (DEAT 2004b).

Five major ecosystem processes that may be affected through changes in biodiversity have been identified as community respiration, decomposition, nutrient retention, plant productivity and water retention. There is strong evidence that biodiversity, including the number, abundance and composition of genotypes, populations, species, functional units and landscape units, significantly influences the provision of ecosystem services and therefore human well being (Diaz & Tilman 2004). The reduction in the number of species, especially rare species, may only have subtle effects on ecosystem services in the short term, but can compromise the capacity of ecosystems to adjust in the face of a changing climate. By affecting processes such as primary production, nutrient and water cycling, and soil formation and retention, biodiversity indirectly supports the production of food, potable water and other natural products. Fragmentation of habitats also affects carbon cycling processes and reduces carbon storage.

The predicted rise in sea surface temperature will result in the migration of coastal species. Further, changes in sea temperature may increase the intensity and frequency of upwelling events. This would cause alterations of near-shore currents, which can be expected to have significant impacts on rocky shore ecosystems in South Africa. The nutrient and larval supply to the coast would be affected, thus influencing the community structures. In addition, studies have indicated that there would be an increase in the occurrences of the harmful 'red tide' events on the west coast which cause mass mortalities of fish, shellfish, marine mammals, seabirds and other animals, and can result in illness and death in persons who eat contaminated seafood (DEAT 2004b).

With regard to water resources, South Africa's rainfall is already highly variable in spatial distribution and unpredictable, both within and between years. Much of the country is arid or semi-arid and the whole country is subject to droughts and floods. A reduction in the amount or reliability of rainfall, or an increase in evaporation, would exacerbate the already serious lack of surface water and groundwater resources. Water availability in the arid and semi-arid regions, which cover nearly half of South Africa, is particularly sensitive to changes in precipitation. Desertification, which is already a problem in South Africa, could be exacerbated by climate change. Furthermore, climate change may alter the magnitude, timing and distribution of storms that produce flood events (DEAT 2004b).

3.6 The challenge is how to conserve AND develop (vs conserve OR develop)

The challenge we face in addressing these pressures on biodiversity is not to conserve OR to develop, but rather how to conserve AND develop. The issue is not whether development takes place but rather *where* and *how* it takes place. The biodiversity sector is developing increasingly effective tools to support and streamline environmental decision-making and ensure that development is appropriate. Key among these are published bioregional plans in terms of the Biodiversity Act, which will identify critical biodiversity areas, including ecological corridors and important catchments, and give land-use planning and decision-making guidelines for these critical biodiversity areas.

Sustainable development is development that avoids:

- loss and degradation of natural habitat in threatened ecosystems and critical biodiversity areas
- further introduction or spread of invasive alien species
- over-abstraction of water beyond the limits of the ecological reserve
- over-harvesting of species
- further contributions to climate change

4 Priority Actions for Conserving and Managing South Africa's Biodiversity

This section identifies 33 Priority Actions for conserving and managing South Africa's biodiversity, and highlights spatial priorities for biodiversity conservation. As explained in Section 1.3, the NBSAP is a twenty-year strategy which identifies five strategic objectives and a comprehensive set of outcomes for each. The NBF draws out immediate priorities for the next five years within each of the Strategic Objectives (SOs) of the NBSAP. This section is organised according to the Strategic Objectives of the NBSAP.

South Africa has good policy and legislation for the wise use and management of biodiversity, notwithstanding some gaps (see SO1 below). Much of it is relatively new. The overall challenge for the next five years is to implement existing policy and legislation effectively.

A theme that runs through many of the Priority Actions discussed below is mainstreaming biodiversity, which means integrating biodiversity considerations in the policies, strategies and day-to-day operations of a range of sectors whose core business is not biodiversity conservation. Mainstreaming biodiversity is essential for overcoming the "conservation vs. development" mindset, and for ensuring sustainable development.

4.1 SO 1: Enabling policy and legislative framework

Twenty-year objective: An enabling policy and legislative framework integrates biodiversity management objectives into the economy.

Top Priority Actions for 2008 to 2013:

1. Make the case for the value of biodiversity as a cornerstone of sustainable development
2. Integrate biodiversity considerations into fiscal policy through environmental fiscal reform
3. Integrate biodiversity considerations in land-use planning and decision-making, by developing tools for supporting and streamlining environmental decision-making
4. Finalise the regulatory framework for the prevention, containment and eradication of alien and invasive species (AIS)

5. Strengthen the regulatory framework for species of special concern
6. Finalise the regulatory framework for bioprospecting, access and benefit sharing

1. Make the case for the value of biodiversity as a cornerstone of sustainable development

The biodiversity sector has not made an effective case for the role of biodiversity in sustainable development, and for the links between biodiversity and socio-economic development. There is an urgent need to make the case for biodiversity, and to disseminate it among decision-makers and the public, if we are to address the major causes of biodiversity loss discussed in Section 3.

This includes working with Statistics South Africa to further develop tools for valuing biodiversity and to reflect the value of biodiversity in South Africa's national resource accounts.

Lead agents: DEAT, SANBI

2013 target:

- Partial economic valuation of South Africa's biodiversity has been completed, and presented effectively to key decision-makers and the public.

2. Integrate biodiversity considerations into fiscal policy through environmental fiscal reform

This involves developing fiscal instruments for improved biodiversity management, as part of the National Treasury's environmental fiscal reform initiative.

a. *Fiscal instruments that encourage private landowners to contribute their own resources to effective biodiversity management*
   Most of South Africa's biodiversity is in private hands, and private landowners (individuals or companies) are often willing to contribute their own resources to maintaining biodiversity and ecosystem functioning on their land. Incentives such as income tax or rates deductions for expenditure on controlling invasive alien species or on rehabilitating ecosystems, and estate duty provisions that encourage philanthropy

towards the environment, would help to harness this pool of private resources, with benefits for the provision of ecosystem services that contribute to the public good.

b. *Mechanisms that allow for payment for ecosystem services, and reinvestment of the revenues generated in securing the health of ecosystems*

Some payment mechanisms for ecosystem services exist already, for example levies on water and charges for pollution discharge. It is important to ensure that the revenues thus generated are invested in maintaining the ecosystem services concerned, for example in improved catchment management.

Lead agents: DEAT, SANBI, National Treasury, DWAF

2013 target:

- At least two fiscal instruments and/or market mechanisms for biodiversity conservation have been developed, and pilots are underway.

3. Integrate biodiversity considerations in land-use planning and decision-making, by developing tools for supporting and streamlining environmental decision-making

Our current system of environmental assessment and land-use decision-making usually fails to take adequate account of and respond to biodiversity priorities, with negative consequences for ecosystem functioning. This could be improved through the development of the following practical tools for officials, consultants and decision-makers. All of these tools are complemented by the identification and listing of threatened ecosystems (see Priority Action 18, underway), and/or the development of provincial spatial biodiversity plans (see Priority Action 16, completed or underway in most provinces), and/or the publication of bioregional plans for districts or groups of local municipalities which identify critical biodiversity areas in which loss of natural habitat should be avoided (see Priority Action 17).

a. *Ecosystem guidelines for environmental assessment, and generic terms of reference for biodiversity specialist studies conducted as part of EIAs.*

Biodiversity specialist studies in EIAs are often limited to listing species of special concern on the site. They usually fail to address impacts on ecosystem functioning, or cumulative impacts, yet these are crucial for sustainable development. Such guidelines and terms of reference have been published for the Western Cape, and should be produced for other provinces. These simple tools can dramatically improve the quality of biodiversity assessment in EIAs.

b. *Framework for guiding decisions on trade-offs that decision-makers have to make*
In many cases, conflicts between, for example, biodiversity management, food production and job creation, can be avoided through intelligent project planning and design. However, in some cases, trade-offs have to be made when a development application is approved or not approved. There is currently no framework to guide decision-makers about how to weigh up biodiversity considerations against more immediate socio-economic considerations. The framework for trade-offs should take threatened ecosystems and critical biodiversity areas into account.

c. *Policy framework for biodiversity offsets*
In some cases, following avoidance and mitigation, there is still residual damage to biodiversity as a result of a development. In such cases, if the development is socially and economically sustainable, ecological sustainability may be achieved through a biodiversity offset. A biodiversity offset involves setting aside land in the same or a similar ecosystem elsewhere, at the cost of the developer. Biodiversity offsets are particularly important in threatened ecosystems and critical biodiversity areas. They are already being implemented to some extent in South Africa, but in the absence of a legal or policy framework and thus with little consistency. Systematic application of biodiversity offsets could provide significant benefits at little cost to the fiscus.

Lead agents: DEAT, SANBI, DWAF, provincial environment affairs departments

2013 target:

- Ecosystem guidelines for environmental assessment, generic terms of reference for biodiversity specialist studies in EIAs, a decision-making framework to guide trade-offs where these are unavoidable, and a policy framework for biodiversity offsets have been developed and are being applied nationally.

4. Finalise the regulatory framework for the prevention, containment and eradication of alien and invasive species

The Biodiversity Act makes provision for prevention, containment and eradication of alien and invasive species (AIS) in South Africa. A draft version of regulations on alien and invasive species has been published for comment. The regulations aim to deal both with control of existing invasive species and the introduction of new invasive species. The regulations need to be finalised and published.

Lead agent: DEAT (including MCM)

2013 target:

- AIS regulations have been finalised. (This should be achieved by 2009.)

5. Strengthen the regulatory framework for species of special concern

Species of special concern include threatened species and species that are not necessarily threatened but require special attention (for example, species that are hunted). The Biodiversity Act provides for a series of regulations and norms and standards for the protection and management of species of special concern. Regulations for Threatened or Protected Species (TOPS regulations), with accompanying lists of threatened or protected species (TOPS lists), have been published. A series of additional regulations and norms and standards are required. Priorities include:

- **Regulations for specimens of species listed in terms of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)**, and establishment of the Scientific Authority. South Africa is a signatory to CITES, and the Biodiversity Act provides for a Scientific Authority to support the implementation of CITES. Provincial legislation currently provides for the enforcement of CITES; however, these provincial legislative frameworks are inadequate and need to be strengthened.
- **Regulations for the hunting industry.** Trophy hunting in particular is currently regulated by provinces. Although the provisions in all provinces are the same, people still need to apply for permits in each individual province.
- **Norms and standards for the regulation of the hunting industry**, to provide decision support to issuing authorities when approving or declining permits for the hunting of TOPS species.

- **Norms and standards for the management of elephant populations** in the wild through various mechanisms, with culling and/or keeping elephants in captivity as last resorts
- **Norms and standards for the control of wildlife/human conflict** (damage causing animals). The TOPS regulations provide for the management (culling) of damage causing animals. Norms and standards are required to provide, amongst others, for means and methods to control damage causing animals.
- **Revision of the species listed in** terms of the TOPS regulations.
- An **electronic permit system** for permits required in terms of the Biodiversity Act regulations, to enable national databases and easy submission of reports to Parliament

Lead agents: DEAT, SANBI

2013 targets:

- Regulations for species listed in terms of CITES have been developed and published and the Scientific Authority has been established.
- Development of trophy hunting regulations has commenced.
- Norms and standards for regulation of the hunting industry have been finalised and published.
- Norms and standards for elephant management have been finalised and published.
- Norms and standards for control of wildlife/human conflict have been finalised and published.
- The TOPS list has been revised.
- An electronic permit system has been developed and implemented.

6. Finalise the regulatory framework for bioprospecting, access and benefit sharing

Draft regulations for bioprospecting, access and benefit sharing have been developed and published for public comment. They need to be finalised and published.

Lead agent: DEAT

2013 target:

- Bioprospecting, access and benefit sharing regulations have been finalised and published. (This should be achieved by 2008.)

4.2 SO 2: Enhanced institutional effectiveness and efficiency

Twenty-year objective: Enhanced institutional effectiveness and efficiency ensures good governance in the biodiversity sector.

Top Priority Actions for 2008 to 2013:

7. Establish and implement a human capital development strategy for the biodiversity sector to address transformation and scarce skills
8. Fill key biodiversity information gaps
9. Improve biodiversity information management and access
10. Establish and implement a national biodiversity research strategy
11. Establish and implement a national monitoring and reporting framework for biodiversity
12. Establish a national programme to build the capacity of municipalities to include biodiversity opportunities and constraints in their planning and operations
13. Establish pilot projects to explore mechanisms for integrated natural resource management at the district and local level
14. Support the development and strengthening of bioregional and ecosystem programmes

7. Establish and implement a human capital development strategy for the biodiversity sector to address transformation and scarce skills

The biodiversity sector is far from representative of the South African population, reflecting the ongoing legacy of past discrimination and inequalities. In addition to the impacts of apartheid through unequal access to education and other opportunities, the conservation sector was previously seen as the preserve of the privileged few, with the majority of South Africans actively excluded from access to protected areas and the benefits of conservation.

In spite of the growing numbers of jobs in the biodiversity conservation sector, young previously disadvantaged South Africans do not necessarily perceive career opportunities or career paths in the conservation sector. At the same time, the shortage of skilled conservation managers and professionals holds back the development of the sector and the achievement of biodiversity conservation goals.

To tackle this complex problem, co-ordination of existing capacity building efforts and resources among organisations in the conservation sector is required, as well as investment of additional resources in human capital development. A national human capital development strategy should include bursaries, internships, targeted skills development programmes and learnerships, and should be firmly established and underway by 2013.

Lead agents: SANBI, DEAT, SANParks, provincial conservation authorities, tertiary education institutions, relevant SETAs

2013 target:

- A national human capital development strategy for the biodiversity sector, reflecting specific employment equity targets for all key research and implementing agencies in the sector, has been developed and is being implemented.

8. Fill key biodiversity information gaps

Several gaps exist in basic information needed for biodiversity research, assessment and management. These include:

- Gaps in taxonomy and biosystematics for key groups
- Gaps in Red Lists, which have not been completed for all groups, especially animal groups
- Gaps in spatial data on land cover, land degradation, wetlands, marine ecosystems, integrity of freshwater ecosystems, and integrity of marine ecosystems

SANBI has a lead role to play in ensuring that these information gaps are filled, not necessarily by undertaking the work required, but rather by playing a co-ordinating, facilitating and catalysing role. Many institutions are involved in the work required to fill these information gaps, including but not only universities, museums, and various national departments and research institutions. A necessary first step to address gaps in taxonomy is a thorough consultative process with the biosystematics community to identify priority groups that have not yet been assessed.

Lead agent: SANBI

2013 targets:

- Taxonomic and biosystematic assessments have been completed for at least ten identified priority groups.
- Red Lists have been completed for five priority animal groups.
- Marine ecosystem map has been developed, wetland ecosystem map has been completed, up-to-date national land cover is available, and a national land degradation map has been completed.

9. Improve biodiversity information management and access

Substantial improvements in biodiversity information management and access should include:

- Dramatically improved access to online biodiversity information, co-ordinated through SANBI's Integrated Biodiversity Information System (SIBIS) and the South African Biodiversity Information Facility (SABIF)
- Establishment of SANBI's one-stop-shop for biodiversity information, including spatial biodiversity information provided through Biodiversity GIS (BGIS)
- Electronic capture of biodiversity collections (dead specimens of plants and animals), and the development and implementation of an institutional model for ongoing management of biodiversity collections
- Integration between the Protected Area Register and other relevant databases

Lead agents: SANBI, DEAT

2013 targets:

- Web-enabled one-stop-shop for biodiversity information has been established, and is recognised and extensively used by managers and professionals.
- Institutional model for management of biodiversity collections has been developed and is being implemented.

10. Establish and implement a national biodiversity research strategy

Research in biodiversity conservation is currently fragmented and relatively uncoordinated, in spite of the need to address pressing research questions.

A national biodiversity research strategy should be developed by relevant stakeholders, and should guide allocation of research funding. It should articulate priorities by biome, by marine bioregion and by thematic area, and should link with biome-based research strategies where these exist (for example in the Cape Floristic Region). The research strategy should facilitate and encourage strengthened collaboration between research institutions.

Lead agents: SANBI, DST, DEAT (MCM), SANParks, DWAF, Water Research Commission, National Research Foundation

2013 target:

- A national biodiversity research strategy has been developed, is recognised by all key stakeholders, and is used as a basis for the allocation of research effort and funding. Institutional arrangements for biodiversity research are co-ordinated and strengthened.

11. Establish and implement a national monitoring and reporting framework for biodiversity

SANBI is tasked with monitoring and reporting on the state of biodiversity in the country. This involves the establishment of a national monitoring and reporting framework for biodiversity, currently underway in collaboration with relevant stakeholders. This framework will be used as a basis for annual reports to parliament on the state of biodiversity in South Africa. It should feed into the National State of Environment Report, and should inform the biodiversity indicators used in provincial and municipal state of environment reporting.

In addition, provincial conservation authorities and bioregional programmes require monitoring and evaluation frameworks to assess their contribution to biodiversity conservation. It is important for these frameworks to align with the national framework.

Further, a national system for monitoring protected area management effectiveness is an urgent priority, with an emphasis on biodiversity objectives.

Lead agents: SANBI, DEAT, DWAF, SANParks, provincial conservation authorities

2013 target:

- The national biodiversity monitoring and reporting framework has been established, is being used as the basis for annual reports to parliament and is informing policy direction and implementation. Monitoring and evaluation frameworks for provincial conservation authorities and bioregional and ecosystem programmes feed into the national monitoring and reporting framework.

12. Establish a national programme to build the capacity of municipalities to include biodiversity opportunities and constraints in their planning and operations

Local, district and metropolitan municipalities play a key role in managing biodiversity and other natural resources, for example through their role in spatial planning, land-use decision-making and infrastructure development, and management of municipal protected areas. Yet municipalities often do not have the information, systems and human resources to take biodiversity considerations effectively into account in these activities.

Although conservation is not a function of the local sphere of government in terms of the Constitution, municipalities are obliged to providing a safe environment for all residents and to contribute towards sustainable development. In terms of these obligations, municipalities must take biodiversity considerations into account in their planning, decision-making and other functions.

Municipal protected areas often play a crucial role in meeting biodiversity targets for ecosystems that are not protected elsewhere in the protected area system. Their biodiversity importance is thus disproportionate to their numbers and size. Municipalities may not realise the significance of their protected areas, and often lack the capacity to manage them effectively.

Several pilot projects around the country are working with municipalities to develop tools and methods for building municipal capacity to incorporate biodiversity considerations Into their planning and operations. Results from these pilot projects should be used to roll such support out to more municipalities. The results of the NSBA can help to identify municipalities that require support most urgently, for example, those with high numbers of threatened ecosystems.

Lead agents: SANBI, DPLG, DEAT, SALGA, NGOs, provincial environment affairs departments, provincial conservation authorities

2013 target:

- A national programme to build municipal capacity has been established and is underway, focusing initially on municipalities with, for example, high numbers of threatened ecosystems.

13. Establish pilot projects to explore mechanisms for integrated natural resource management at the district level

In addition to municipalities, a range of agencies, especially at the provincial level, make decisions about land and resource use. For example, provincial departments of environment affairs, provincial conservation agencies, provincial departments of agriculture, provincial offices of the national Department of Agriculture (DoA), DWAF, Department of Minerals and Energy (DME), and Catchment Management Agencies (CMAs) (in the process of being established by DWAF) all make decisions that impact on ecosystem functioning. Although these decisions are frequently taken by provincial and national authorities, their impact is felt locally. At the moment, these different organs of state tend to carry out their functions in relative isolation from each other, with little regard to their combined impact on ecosystem functioning. Integrated planning and management of water and land at the district level is a priority if we are to manage biodiversity and other natural resources effectively.

A relatively simple mechanism to align and co-ordinate natural resource management at the local level would be the appointment of a natural resource management liaison officer or advisor in each district, who would make sure that the staff of different agencies and departments working in the district were in regular contact with each other, aware of priority ecosystems in the area, and not working at cross-purposes. There may be other mechanisms that would be simple and inexpensive. These should be piloted in districts that have high numbers of threatened ecosystems and/or published bioregional plans.

Lead agents: SANBI, DPLG, SALGA, DEAT, provincial environment affairs departments

2013 target:

- Pilots for district natural resource co-ordinators and/or other mechanisms for integrated natural resource management are underway in at least four districts.

14. Support the development and strengthening of bioregional and ecosystem programmes

Bioregional and ecosystem programmes are multi-institutional, multi-sector, landscape-scale conservation initiatives that use pilot projects and innovative co-operative governance mechanisms to develop best practice models for biodiversity conservation and management. SANBI co-ordinates several bioregional and ecosystem programmes, including the Grasslands Programme, Cape Action for People and the Environment (C.A.P.E., focusing on the fynbos biome), Succulent Karoo Ecosystem Programme (SKEP), Subtropical Thicket Ecosystem Programme (STEP), and the Marine Programme. These bioregional and ecosystem programmes focus on broad priority areas for conservation action (as identified in the NSBA 2004, see Box 1 on page 50), with a strong commitment to stimulating socio-economic benefits from biodiversity in those priority areas. Each programme addresses priority activities to address the particular pressures on biodiversity in the area concerned, through pilot projects that can be scaled up if successful. Bioregional and ecosystem programmes provide a key institutional mechanism for achieving the strategic objectives of the NBSAP, particularly SO3 and SO4. SANBI has a key role to play in the co-ordination of bioregional and ecosystem programmes. The Marine Programme was established in 2007; the establishment of the Freshwater Programme is an urgent priority.

Urban conservation is an important theme that runs through the work of the bioregional programmes. Lessons learnt from urban conservation pilot projects need to be actively shared and built on between the bioregional programmes.

Lead Agents: SANBI, DEAT, NGOs

2013 target:

- The co-ordination units of the five existing bioregional and ecosystem programmes (C.A.P.E., SKEP, STEP, Grasslands, Marine) are funded by government and effective management structures for these programmes have been established.
- The Freshwater Programme has been established.

4.3 SO 3: Integrated management of terrestrial and aquatic ecosystems

Twenty-year objective: Integrated terrestrial and aquatic management minimises the impacts of threatening processes on biodiversity, enhances ecosystem services and improves social and economic security.

The NSBA identified threatened ecosystems in terrestrial and aquatic environments, as well as nine broad priority areas for conservation action (including integrated management of terrestrial and aquatic ecosystems). The results of this assessment, summarised in Box 1 on page 50 and in Appendix A, and the results of more detailed provincial spatial biodiversity plans where these are available, should guide the spatial focus for implementation of Priority Actions in SO3.

Top Priority Actions for 2008 to 2013:

15. Develop and implement an integrated programme for ecosystem adaptation to climate change adaptation, with an emphasis on ecosystems vulnerable to climate change impacts
16. Develop provincial spatial biodiversity plans in additional provinces
17. Publish bioregional plans in terms of the Biodiversity Act
18. List threatened and protected ecosystems in terms of the Biodiversity Act
19. Develop Biodiversity Management Plans for species of special concern and for listed ecosystems
20. Work with key production sectors to minimise loss and degradation of natural habitat in critical biodiversity areas
21. Implement the AIS regulations
22. Proceed with implementation of the cross-sector policy objectives for conservation of inland water biodiversity
23. Incorporate biodiversity conservation objectives in the work of Catchment Management Agencies
24. Develop and implement effective measures for the management and control of activities relating to Genetically Modified Organisms in order to manage their impact on the environment

15. Develop and implement an integrated programme for ecosystem adaptation to climate change, with an emphasis on ecosystems vulnerable to climate change impacts

Climate change scenarios show clearly that South Africa will experience significant impacts of climate change, with likely socio-economic consequences. These are discussed in the National Climate Change Response Strategy (DEAT 2004b) and its supporting Country Studies on Climate Change, and briefly summarised in Section 3.5.

The National Climate Change Response Strategy notes that "plant and animal biodiversity" are among the sectors most vulnerable to climate change (along with the health sector, maize production, rangelands and water resources), and suggests possible actions to assist with adaptation. However, the focus is not on ecosystem adaptation to climate change, and does not deal with freshwater biodiversity and ecosystems, in spite of the recognition of the vulnerability of water resources.

South Africa requires a strategy and programme for ecosystem adaptation to climate change. Increased resilience of ecosystems to climate change will help to offset the potentially negative socio-economic impacts of climate change, for example through helping to regulate the supply of water in the face of increased variability in rainfall.

An integrated national programme should facilitate adaptation to the predicted impacts of climate change on biodiversity across the landscape and seascape, and should include an emphasis on vulnerable ecosystems, especially freshwater ecosystems, and sustainable livelihoods.

Measures for facilitating ecosystem adaptation to climate change may include:

- Designing the protected area system to allow for long-term species and ecosystem movements in response to climate change (see also Priority Action 29)
- Keeping natural habitat intact in ecological corridors identified in provincial spatial biodiversity plans and published bioregional plans, especially corridors along climatic gradients (see Priority Actions 16 and 17)
- Protecting the integrity of freshwater ecosystems, including riparian zones and wetlands, to increase the resilience of these systems

Biodiversity considerations should be integrated more fully into future revisions of the National Climate Change Response Strategy.

Lead agents: DEAT, SANBI

2013 target:

- National programme dealing with ecosystem adaptation to climate change has been developed and is accepted by all stakeholders.

16. Develop provincial spatial biodiversity plans in additional provinces

Ideally every province should have a spatial biodiversity plan, based on a systematic biodiversity assessment incorporating both aquatic and terrestrial features, which identifies geographic biodiversity priority areas, and provides guidelines for land-use planning and decision-making in these areas. Four provinces already have such plans (Gauteng, KZN, Mpumalanga, Eastern Cape), and others are in the process of developing such plans (e.g. North West, Free State).

Provincial biodiversity plans, or fine-scale biodiversity plans at the district or local level, should form the basis for bioregional plans published in terms of the Biodiversity Act, as set out in the Guideline for Publishing Bioregional Plans (see Priority Action 17).

Spatial biodiversity priority areas identified in provincial biodiversity plans should be fed into Provincial Growth and Development Strategies, Provincial Spatial Development Frameworks, EIA supplementation projects, Provincial State of Environment Reports, and other provincial policies and strategies. Provincial biodiversity plans can also be used to inform environmental assessment and land-use decision-making throughout the province, Environmental Management Frameworks, and local and district Spatial Development Frameworks.

Further, provincial biodiversity plans should guide the spatial focus of the work of provincial conservation authorities, and should provide a basis for the development of provincial protected area expansion strategies.

The provincial biodiversity plan should be led by the provincial conservation authority (in some cases an autonomous conservation agency, in others part of the provincial environment affairs department – see list in Section 1.2). Ideally, the provincial conservation authority should house the plan, support its use by other provincial departments, municipalities in the province and other stakeholders involved in biodiversity management. Provincial biodiversity plans should be updated every five years. SANBI can provide technical support to provincial biodiversity planning initiatives.

Lead agents: Provincial conservation authorities, SANBI

2013 target:

- At least six provinces have spatial provincial biodiversity plans in place, with the necessary in-house capacity to maintain and update them.

17. Publish bioregional plans in terms of the Biodiversity Act

As noted, the Biodiversity Act provides for publishing bioregional plans. These plans underpin integrated management of terrestrial and aquatic ecosystems in priority areas, and will provide a key tool for supporting and streamlining environmental decision-making. A Guideline Regarding the Determination of Bioregions and the Preparation and Publication of Bioregional Plans has been developed by DEAT and SANBI, and was gazetted for public comment in September 2007. Bioregional plans should be published for districts, groups of local municipalities, or metropolitan municipalities.

A published bioregional plan must:

- Be based on a systematic biodiversity plan (such as a provincial spatial biodiversity plan)
- Identify critical biodiversity areas on a map, such as threatened ecosystems, ecological corridors, river corridors and critical wetlands
- Include guidelines for land-use planning and decision-making in critical biodiversity areas

Provincial conservation authorities and/or provincial environment affairs departments should play the lead role in developing and publishing bioregional plans, with technical support and advice from SANBI.

Lead agents: Provincial conservation authorities, provincial environment affairs departments, SANBI, DEAT

2013 target:

- At least seven bioregional plans have been published and are being used routinely to inform land-use planning and decision-making.

18. List threatened or protected ecosystems in terms of the Biodiversity Act

The Biodiversity Act provides for listing of threatened or protected ecosystems. Together with published bioregional plans, listing of threatened or protected ecosystems will facilitate effective management of terrestrial and aquatic ecosystems, and will support and streamline environmental decision-making.

The criteria for identifying threatened or protected ecosystems are currently being developed by SANBI in close collaboration with relevant institutions and experts. Ecosystems that meet the criteria will be identified and listed, along with supporting material such as guidelines on how listed ecosystems should be taken into account in planning and decision-making.

Lead agents: DEAT, SANBI, provincial conservation authorities, DWAF

2013 target:

- Threatened or protected ecosystems have been identified and listed, and the list has been updated at least once. Appropriate supporting material is available, and listed ecosystems are routinely taken into account in land-use planning and decision-making.

19. Develop Biodiversity Management Plans for species of special concern and threatened ecosystems

The Biodiversity Act provides for the development of Biodiversity Management Plans for:

- Indigenous species
- Migratory species
- Ecosystems

Norms and standards for Biodiversity Management Plans for Species (BMP-S) have been published; norms and standards for Biodiversity Management Plans for Ecosystems (BMP-E) are still to be developed by DEAT & SANBI.

Priority species for the development of BMP-S are species of special concern, including threatened species, endemic species and high-value useful species (such as medicinal plants). Priority ecosystems for the development of BMP-E are threatened ecosystems listed in terms of the Biodiversity Act (see Priority Action 18). NGOs as well as private and communal landowners and user groups are key role players in the development of BMPs with SANBI and DEAT playing a supportive role.

Lead agents: NGOs, DEAT, SANBI

2013 targets:

- Three BMP-S have been developed and are being successfully implemented.
- Norms and standards for BMP-E have been developed.

20. Work with key production sectors to minimise loss and degradation of natural habitat in threatened ecosystems and critical biodiversity areas

As discussed in Section 3.1, loss and degradation of natural habitat are the biggest causes of biodiversity loss in South Africa. Production sectors that are major land and resource users, including agriculture and aquaculture, property development, plantation forestry, mining, fisheries and biofuels, have a vital role to play as custodians of the country's biodiversity. These sectors should develop and implement sector-specific good-practice guidelines to minimise the degree to which their operations result in loss of natural habitat and species in threatened ecosystems and critical biodiversity areas, to protect ecosystem functioning, and to ensure biodiversity-friendly management of GMOs where applicable.

The new tools provided by the Biodiversity Act, including publishing bioregional plans and listing threatened or protected ecosystems, provide important mechanisms for meeting this challenge, by identifying specific geographic areas where loss and degradation of natural habitat should be strongly avoided.

Several collaborative initiatives between production sectors and the conservation sector are already underway. Conservation NGOs have often played a key lead role in these initiatives. They include:

- The Biodiversity and Wine Initiative
- The Mining and Biodiversity Dialogue, led by the Chamber of Mines and IUCN (note that this does not currently address marine mining)
- The South African Sustainable Seafood Initiative, funded by WWF-SA
- The By-Catch Reduction Programme, led by WWF-SA and Birdlife South Africa
- Engagement with Forestry South Africa and the Forestry Stewardship Council through the Grasslands Programme, DWAF and WWF
- Engagement with Potatoes South Africa
- Engagement with the Rooibos Producers Association
- Engagement with the Gamtoos Valley Citrus Growers Association, through the C.A.P.E. programme
- Engagement with the South African Sugar Association, through WWF-SA
- Wildlife industries through the establishment of the Wildlife Forum involving a wide spectrum of role players such as game farmers, the hunting fraternity, taxidermists and organs of state.
- Engagement with tourism through the 2010 Greening Campaign

Additional production sectors earmarked for collaboration with the biodiversity sector in the next five years include:

- Red Meat Producers Association (red meat production can be highly compatible with biodiversity conservation)
- Game farming sector
- The energy sector (including biofuels, nuclear power and wind power)
- The banking and financial sector, to encourage biodiversity-friendly lending practices
- The property development sectors, particularly coastal property development
- Marine and coastal mining
- The aquaculture sector

Given that the biofuels sector has been identified as a priority sector for economic growth by ASGISA, there is an urgent need to develop guidelines for biodiversity-friendly production of biofuels. Some biofuels (such as those made from existing waste streams) are likely to contribute to ecological sustainability; others (such as those produced from primary crops) are highly likely to undermine ecological sustainability. Biofuels will only contribute to sustainable development if they are produced in a manner that avoids both loss of natural habitat in critical biodiversity areas and over-abstraction of water.

Lead agents: NGOs, SANBI, provincial conservation authorities, relevant industry sector organisations, DEAT

2013 targets:

- Guidelines for biodiversity-friendly production of biofuels have been developed and are being applied by biofuel producers.
- At least three additional production sectors have developed wise practice guidelines to minimise their impact on biodiversity.

21. Implement the AIS regulations

Multiple institutions are involved in the prevention, containment and eradication of alien and invasive species in South Africa. Key among these institutions are DEAT (including MCM), DoA, DWAF, Department of Health, Customs and Excise, and Department of Transport (through their management of harbours and airports).

Geographic priority areas for action need to be identified, on the basis of criteria such as impacts on biodiversity and on the economy. Co-ordination and alignment of resource allocation and implementation strategies is needed between these institutions. The immediate challenge is to improve co-operative governance with respect to:

- managing and controlling invasive alien species that are already present in South Africa
- preventing entry of new alien and invasive species

As noted in Priority Action 4, the development of regulations for the prevention, containment and eradication of alien and invasive species is underway. Once these regulations have been finalised, their implementation will be an urgent priority. This should include preventing entry of new invasive alien species through mariculture, transport and shipping, and the exotic pet trade.

It is likely that implementation of the regulations published in terms of section 97 (1) (c) (i) of the Biodiversity Act, for the management, through permitting, of alien and listed invasive species will include the designation of issuing authorities and assessment of the risk to the environment of any proposed introduction of alien species that are not exempted from permitting.

Other mechanisms for the achievement of broader objectives as listed below will be:

- Establishment and maintenance of accessible databases and inventories to monitor and report on invasive alien species.
- Establishment of an early warning system for alien species based on analyses of potential risk locations and mechanisms whereby they can invade, and the significance of any actual or potential invasion.
- An improved control system at ports of entry to prevent new introductions.
- Encouragement of the use of indigenous, non-invasive species rather than exotic species at all times, whether the exotic species are known to be invasive or not. This includes species used for horticulture, hunting and fishing.
- Integration of management plans for invasive alien species into other planning and natural resource management processes. In particular, municipalities need assistance (skills, human resources, equipment, finance, information) to implement plans to control and eradicate invasive alien species.
- Strengthening of the link between invasive alien species control and poverty alleviation.

Lead agents: DEAT (including MCM), DWAF, DoA, provincial conservation authorities, SANBI, SANParks, municipalities.

2013 target:

- Control, monitoring and eradication plans are in place for priority alien invasive species that threaten ecosystems, habitats or indigenous species. A system to monitor implementation is in place.

22. Implement the cross-sector policy objectives for conservation of inland water biodiversity[2]

Mandates for conservation of freshwater biodiversity are often unclear, as water forms part of DWAF's mandate, while biodiversity forms part of DEAT's mandate. The mandate for estuaries lies with MCM. DWAF, in collaboration with the CSIR, Water Research

[2] Inland water includes rivers, wetlands, estuaries and groundwater.

Commission, DEAT, DoA, SANBI and other relevant departments, has led the development of cross-sector policy objectives and implementation principles to guide the conservation of inland water biodiversity.

There are five cross-sector policy objectives, each with a set of implementation principles. The five objectives are:

- Set and entrench quantitative targets for inland water biodiversity
- Plan for representation of inland water biodiversity
- Plan for persistence of inland water biodiversity
- Establish a portfolio of inland water conservation areas
- Enable effective implementation

A necessary first step for the implementation of these principles is the identification of *national freshwater and estuarine biodiversity priority* areas, based on biodiversity targets. On the basis of this, a portfolio of freshwater and estuarine conservation areas should be identified and established. It is essential that these national inland water biodiversity priority areas are integrated into Catchment Management Strategies (also see Priority Action 23 below). The management of these priority areas need to be reflected in all protected area management plans.

A National Freshwater Biodiversity Collaboration is in the process of being established, with a secretariat housed at SANBI as part of the new Freshwater Programme (see Priority Action 14). The co-ordination unit for the Freshwater Programme should play a central role in facilitating the implementation of these principles.

Lead agents: DWAF, DEAT (including MCM), SANBI, CMAs, SANParks, provincial conservation authorities, DoA, NGOs.

2013 target:

- A portfolio of freshwater and estuarine conservation areas has been identified, and mechanisms for implementing appropriate management of these areas are being piloted in at least three Water Management Areas.

23. Incorporate biodiversity conservation objectives in the work of Catchment Management Agencies

Catchment Management Agencies are currently in the process of being established by DWAF, one in each of the country's 19 Water Management Areas. CMAs should integrate quantitative freshwater biodiversity targets based on the NSBA, as well as national freshwater biodiversity priority areas, into their Catchment Management Strategies, and should assist in the urgent determination and implementation of the ecological reserve for priority river ecosystems and estuaries.

Lead agents: DWAF, CMAs, SANBI

2013 target:

- All CMAs that are established and operational have integrated quantitative freshwater biodiversity targets and national freshwater biodiversity priority areas into their Catchment Management Strategies.

24. Develop and implement effective measures for management and control of activities relating to Genetically Modified Organisms in order to manage their impact on the environment

The deployment of Genetically Modified Organisms (GMOs) into the environment has been increasing in South Africa over the last seven years. As a result, approximately 500 000 hectares are currently under commercial GM crop production. There are over 40 field trials of GM crops around the country. Most of the debate around GMOs and their use has so far concentrated on the risks of the release of GMOs to natural environments and gene flows between GMOs and natural populations in and/or between different organisms. Thus there is already some understanding of these risks and measures have also been developed to minimize them. However, a substantial amount of basic knowledge is still missing and there has been lack of research into indirect effects of the use of GMOs in the local context. The present system of evaluation relies on the use of desk top risk assessments that have been conducted outside the South African context. There is therefore an urgent need to improve the process of conducting environmental risk assessment through the development of appropriate environmental risk assessment tools for GMOs.

While it is believed that in the future applications of biotechnology may contribute to the mitigation of the environmental impacts of agriculture, there is an urgent need for a comprehensive management framework for GMOs that addresses impacts on the environment. This management framework should include environmental risk assessment for GMOs together with a risk management component that would include long-term monitoring of GMOs released into the environment and their impacts on biodiversity.

The expansion of GM crops has potentially severe implications for ecosystem functioning, especially if it results in further large-scale loss of natural habitat and use of water. Any expansion of GM crops should be done in a way that avoids loss of natural habitat in threatened ecosystems and critical biodiversity areas identified in bioregional plans. The NSBA and provincial biodiversity plans provide a starting point for such an assessment.

DEAT is spearheading the development of a comprehensive Environmental Risk Assessment Framework for GMOs. The proposed framework is aimed at providing guidance on:

- Regulatory requirements and processes around the deployment of GMOs into environment (taking into consideration the GMO Act, the Biodiversity Act and the EIA Regulations under NEMA)
- Appropriate tools for use in identifying impacts to be considered and risks to be assessed, including loss of natural habitat and increased water use
- Long-term monitoring and reporting on GMOs released into the environment
- Priority areas for research on the environmental impacts of GMOs in South Africa
- Integration of GMO issues into biodiversity management plans where appropriate

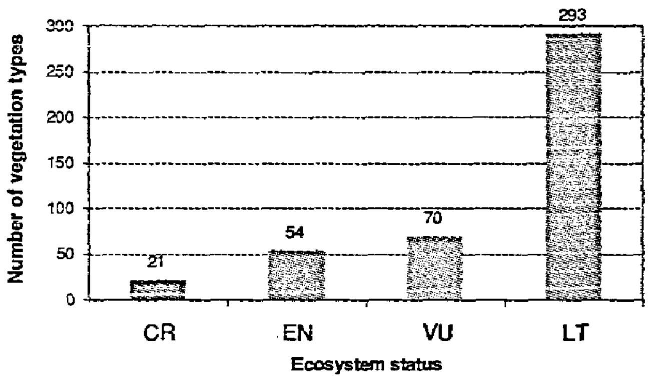
Lead agents: DEAT, SANBI, DoA, DST, DTI, DWAF

2013 target:

- Environmental Risk Assessment Framework for GMOs has been developed and is routinely used.

BOX 1: Spatial priorities for integrated management of terrestrial and aquatic ecosystems

The National Spatial Biodiversity Assessment (NSBA) 2004 identified threatened ecosystems in the terrestrial, river, estuarine and marine environments, as well as nine broad priority areas for conservation action. The results of these analyses are summarised in the maps and graphs below. Threatened ecosystems include Critically Endangered, Endangered and Vulnerable ecosystems. The NSBA will be updated in 2010.



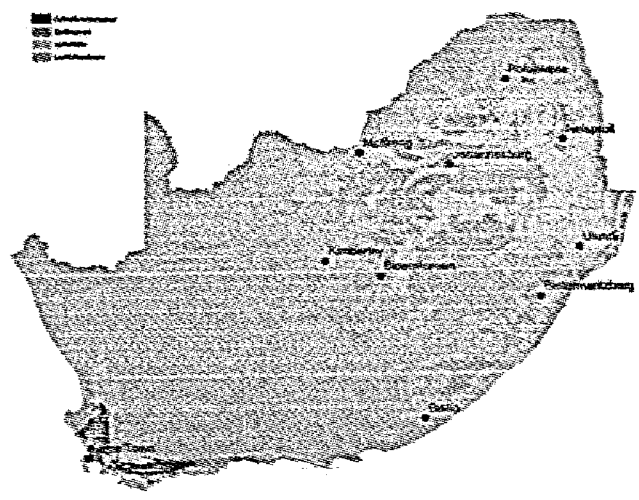
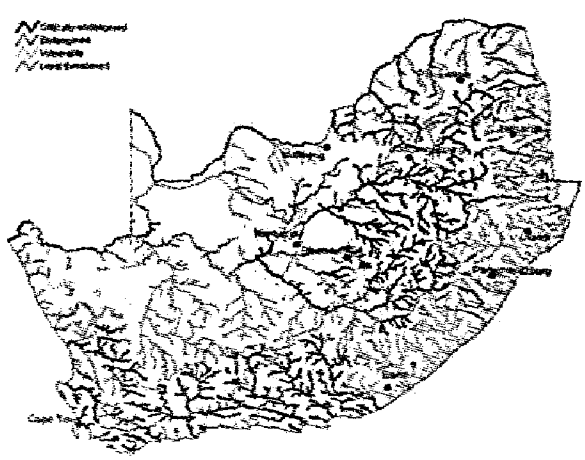


Figure 2: Status of terrestrial ecosystems

Note that this is a conservative assessment of the status of terrestrial ecosystems. It is based on how much natural habitat had been irreversibly lost in these ecosystems in 1996 (this was the most recent data available), so it is likely that considerably higher numbers of terrestrial ecosystems are threatened than in 2006. In addition, the assessment did not take into account loss of habitat that is reversible, primarily degradation through overgrazing. Some of the "Least Threatened" ecosystems, especially in arid parts of the country such as the succulent karoo, are actually severely degraded.



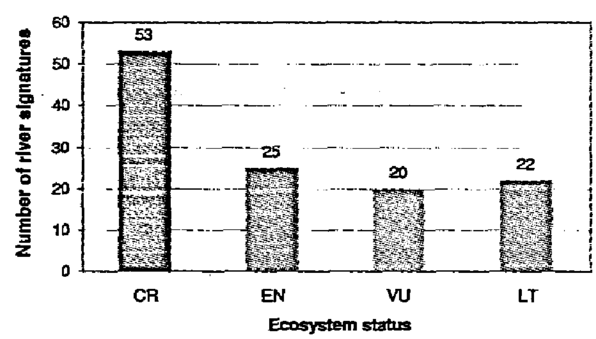


Figure 3: Status of main river ecosystems

Coastal ecosystems deserve particular mention. A great deal of loss of natural habitat has occurred since 1996 in coastal ecosystems especially, mainly as a result of ribbon development along the coastline (high income residential and resort development). The NSBA 2010 is likely to show a much more drastic picture for coastal ecosystems.

The NSBA 2004 assessed main river ecosystems only, not tributaries. Many tributaries are in a healthier condition than main rivers. Nevertheless, the status of South Africa's river ecosystems is much worse than our terrestrial ecosystems, reflecting the fact that we are a water-scarce country with many competing demands on our water resources. As noted in Section 3, over-abstraction of water is the biggest pressure on freshwater ecosystems, followed by loss and degradation of natural habitat and invasive alien species.

Lack of national data on wetlands prevented a full assessment of the status of wetland ecosystems in the NSBA 2004. However, we know that approximately half of South Africa's wetlands have already been irreversibly destroyed, with severe consequences for water quality, water quantity and flood control. All wetlands should be considered critical biodiversity areas in which further loss of habitat should be completely avoided.

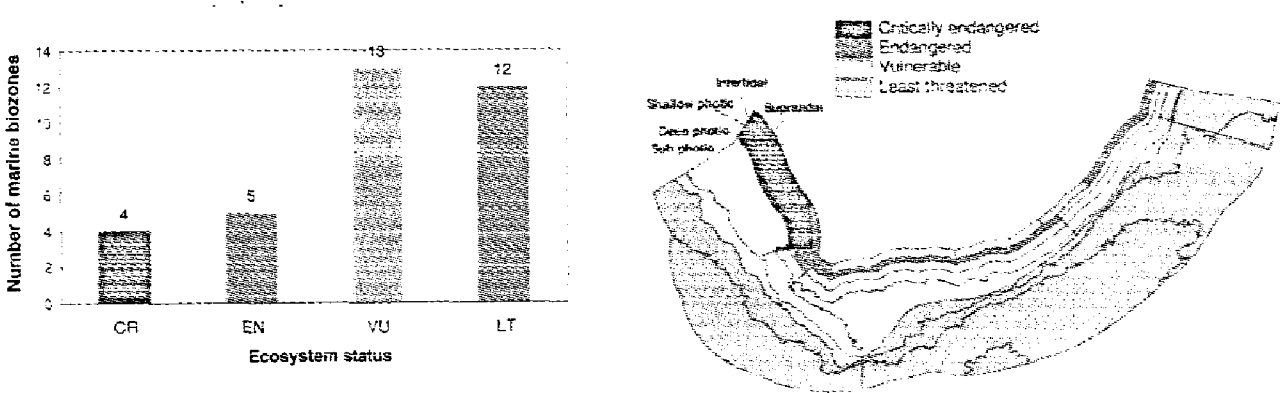


Figure 4: Status of marine biozones

In general, marine biozones further from the shore are less threatened than those closer to the shore, which are much more accessible to human-related impacts. The overall picture for marine ecosystems is less dramatic than for freshwater ecosystems, but worse than for terrestrial ecosystems.

Table 2: Summary of NSBA ecosystem status results

	Terrestrial ecosystems	River ecosystems (main rivers only)	Estuary groups	Marine biozones
Critically endangered (CR)	5%	44%	23%	12%
Endangered (EN)	13%	27%	39%	15%
Vulnerable (VU)	16%	11%	15%	38%
Threatened = CR + EN + VU	34%	82%	77%	65%

Based on combined scores for ecosystems, species and ecological processes, the NSBA 2004 identified nine broad priority areas for conservation action. These confirm the location of South Africa's existing bioregional programmes, and provide potential pointers for the establishment of additional b

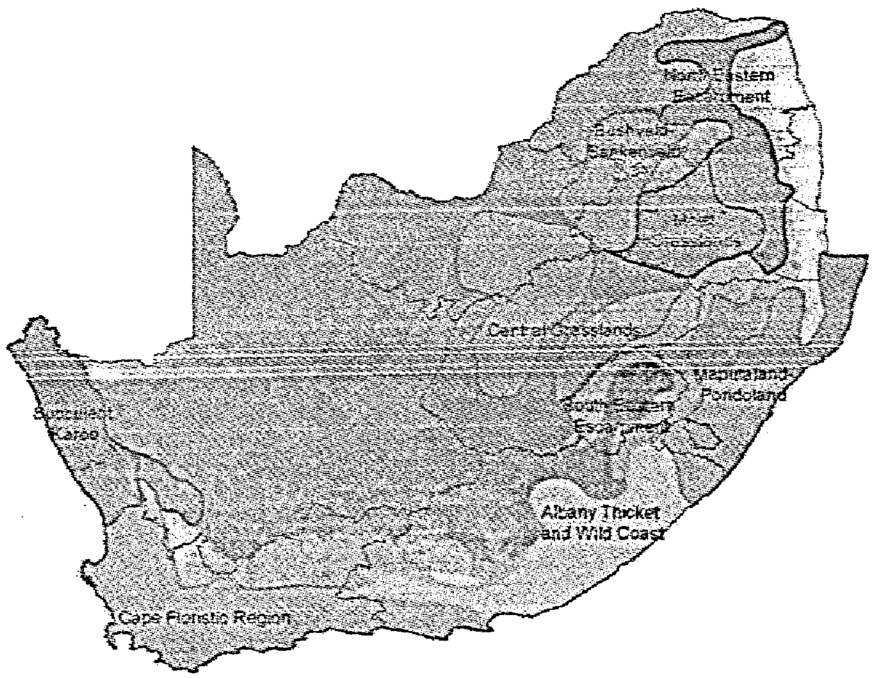


Figure 5: Nine broad priority areas for conservation action

The boundaries of these priority areas are rough, not exact, and this map does not imply that there is no important biodiversity in the rest of the country. However, given limited resources we cannot act everywhere at once, so it makes sense to focus actions on places where the return is likely to be greatest. These priority areas also highlight places where neighbouring provinces need to co-operate in managing significant biodiversity resources that cross provincial boundaries. For more on the reasons for identification of these priority areas see Appendix A.

4.4 SO 4: Sustainable use of biological resources and equitable sharing of the benefits

Twenty-year objective: Human development and well-being is enhanced through sustainable use of biological resources and equitable sharing of the benefits.
(Note that the focus in this strategic objective is on genes and species, rather than whole ecosystems.)

Top Priority Actions for 2008 to 2013:

25. Address illegal and unregulated fishing and seafood trade, especially of line fish and abalone
26. Develop an implementation strategy for bio-prospecting, access and benefit sharing regulations
27. Develop the natural products sector
28. Improve knowledge of sustainable extractive use of terrestrial resources, especially medicinal plants

25. Address illegal and unregulated fishing and seafood trade, especially of line fish and abalone

The problem of over-exploitation of marine resources is complex, and the lack of up-to-date assessments means that the status of many marine species is poorly understood. However, there are some key problems and solutions that stand out:

A state of emergency was declared in South Africa's line fishery in 2000, and it is still considered in crisis. As noted in Section 3.4, the stocks of eleven line fish (many of which are still commonly served in restaurants) have collapsed, putting these fish in danger of commercial extinction. Fishing and seafood trade (sale of fish to retailers and restaurants) must be more effectively policed.

Abalone poaching must be more effectively policed, and abalone should be CITES listed. Specific abalone reserves are needed, with effective policing, so that stocks can recover. A Red List for South African marine species should be developed. Updated line fish status reports are urgently required, and recovery plans should be implemented where possible.

An ecosystem approach to fisheries management should be widely implemented. This involves the development of best practice guidelines in the fishing industry to:

- Limit by-catch
- Limit loss and degradation of marine habitats as a result of fishing practices
- Limit other indirect impacts of fisheries on the marine environment, such as impacts on top predators

Well located marine protected areas, including World Heritage Sites, can play a substantial role in sustainable use of marine resources, by protecting nursery grounds and replenishing fish resources for adjacent fished areas. The need to expand marine protected areas is addressed in Priority Actions 29 and 30.

Lead agents: DEAT (MCM), South African Sustainable Seafood Initiative (SASSI), relevant provincial conservation authorities, WWF-SA (Marine Programme), SANBI, other NGOs.

2013 targets:

- Linefish status reports have been updated, recovery plans are being implemented for six species and the ecosystem approach is being implemented in all major commercial fisheries.
- Monitoring and enforcement capacities among regional and local authorities and other role players are strengthened, especially in regions of high priority, such as Gauteng, a hub for seafood trade.
- A regional network of relevant institutions and organisations for monitoring the illegal trade in seafood/threatened species has been developed.
- Consumer demand for threatened or protected marine species has been reduced through increased awareness.

26. Develop an implementation strategy for bioprospecting, access and benefit sharing regulations

Our legacy of enormously rich biodiversity resources makes South Africa a particularly attractive place for bioprospecting, and as such genetic engineering may well generate significant new opportunities. However, recent court actions have brought attention to the problem of ownership of these commonly held resources falling into the hands of multi-national companies.

Draft regulations on bioprospecting, access and benefit sharing have been developed, dealing with the following categories of issues:

- Permitting procedures and issuing authorities
- Benefit Sharing Agreements
- Material Transfer Agreements
- Bio-prospecting Trust Fund
- Exemptions of specific indigenous biological resources or activities relating to indigenous biological resources
- Transitional arrangements for existing bioprospecting projects.

Once these regulations have been approved by Cabinet, the priority action will be the development of an implementation strategy and capacity building within the relevant government departments to ensure effective implementation of the regulations.

Lead agent: DEAT

2013 target:

- Implementation strategy for bioprospecting, access and benefit sharing regulations has been developed, and milestones or targets identified in the strategy are being reached.

27. Facilitate the development of the natural products sector

South Africa's natural products sector is growing, but has significant unrealised potential. The natural products sector can be defined broadly to include any biological products, including agricultural products. However, a narrower definition promoted by the natural products sector in Southern Africa holds greater benefits for the poor rural communities and for the environment. This definition, supported by the IUCN, focuses on plant-based products that are indigenous and harvested from the wild. Natural products defined in this narrower way are likely to be pro-poor and pro-biodiversity – pro-poor because barriers to participation in harvesting from the wild are low (no capital investment is needed), and pro-biodiversity because harvesting from the wild, as long as it is sustainably managed, is inherently more biodiversity-friendly than cultivation. It is recognised that as markets grow, options for organic cultivation may need to be explored. Lipid oils, which have anti-ageing properties and are used as ingredients in cosmetics, are a particularly promising sub-sector.

The Natural Futures Programme, led by IUCN in partnership with PhytoTrade Africa, the Southern African Natural Products Trade Association, focuses on addressing market barriers to the emergence and growth of the pro-poor, pro-biodiversity natural products sector.

Four important ways to facilitate development of the natural products sector are:

- **Facilitate sustainable international trade in these products.** Currently there are significant barriers to trade in natural products that should be addressed, including:
    - Lack of awareness of the special needs of the natural products sector, or its significance, among trade officials, negotiators and decision-makers.
    - Significant non-tariff barriers, including onerous regulatory environments in important export markets. For example, in terms of the European Union's novel foods regulation, food products that do not have a history of use in the EU (such as baobab pulp) are considered potentially dangerous, even if they have been used for centuries elsewhere. Overcoming these barriers is prohibitively expensive for producers and needs high-level support.
    - A standards vacuum for many natural products. For example, there are no sanitary and phyto-sanitary standards for natural products. Other standards are inappropriate for Southern African conditions. The establishment of standards setting bodies for natural products would facilitate trade.
    - Export facilitation is a major barrier. For example, the lack of appropriate transport facilities and transport channels for natural products poses a problem. Often, natural products are not shipped in quantities large enough to fill a container, resulting in unnecessary costs.

- **Facilitate certification.** Certification (for example as organic or fair trade) is critical for realising the potential of the natural products sector, as it enables access to high value niche export markets that provide the price premiums necessary to make harvesting of natural products a viable livelihood option. Existing international certification systems are inaccessible for small local producers, because of the complexity and cost of the certification process. Addressing barriers to certification for small producers at the system level, market level and product level is necessary to enable market access.

- **Grow domestic demand through increased awareness.** The major markets for Southern African natural products are currently export markets. Consumers in the South African market are often not aware of natural products or may have negative perceptions of these products. Growing the domestic market for natural products should be tackled alongside the ongoing development of export markets. Building awareness of the properties and significance of natural products among South African consumers is an important step in developing the domestic market.

- **Strengthen natural products enterprises and supply chain management.** The potential supply of natural products is large, especially if there is co-operation between Southern African countries. However, value addition and natural products enterprises need to be supported and supply chain management must be improved to ensure a stable supply. Reliable supply is crucial for developing markets and realising the potential of the sector. Supply chain management includes ensuring that local producers capture an appropriate amount of the value in the supply chain. Experts in the natural products sector should collaborate with providers of venture capital and business development services (e.g. financial management, marketing and business planning support services), to make them aware of the potential of the sector and its particular needs. Biotrade legislation should provide a balance between incentives for R&D and investment in the sector, and benefits to South Africa and local communities.

Lead agents: DEAT, IUCN, SANBI, DWAF, DTI, DST, DoA, DAC, research institutions, NGOs

2013 targets:

- Certification and sustainable international trade in natural products has been facilitated.
- Domestic demand has increased through increased awareness.
- Natural products enterprises and supply chain management have been strengthened.

28. Improve knowledge of sustainable extractive use of terrestrial resources

In the terrestrial environment, the ecological sustainability of extractive use of biological resources needs to be assessed and monitored, and opportunities for improvement identified. Our knowledge and understanding of this aspect of sustainable development, which is particularly important for the rural poor and for community-based natural resource management programmes, is inadequate.

The TOPS regulations list more than 70 animal species and more than 30 plant species threatened by extractive use. Knowledge of the extent of harvesting and limits to sustainable extractive use for these species is incomplete. In addition, South Africa has a wealth of indigenous knowledge on medicinal plants, many of which are harvested from the wild by traditional healers. Some but not all of these are listed in the TOPS regulations. Collaboration with traditional healers to understand the limits to sustainable extraction of these plants, and to develop cultivation strategies where appropriate, is a priority.

Improved knowledge of sustainable extractive use of species is an important foundation for the development of Biodiversity Management Plans for these species (see Priority Action 19).

Lead agents: SANBI, research institutions, provincial conservation authorities, NGOs, traditional healer associations.

2013 targets:

- Preliminary synthesis and assessment of the available information on sustainable extractive use for species listed in the TOPS regulations has been completed.
- Knowledge of the extent of harvesting and limits to sustainable extractive use has been developed for at least ten priority species on the TOPS list as well as for at least ten medicinal plants.
- Knowledge of sustainable extractive use of terrestrial resources informs the development and implementation of community-based natural resource management programmes

4.5 SO 5: Expanded network of protected areas and conservation areas

Twenty-year objective: A network of protected areas and conservation areas[3] conserves a representative sample of biodiversity and maintains key ecological processes across the landscape and seascape.

The NSBA included an assessment of which terrestrial and aquatic ecosystems are currently under-protected. The results of this assessment, summarised in the box on page 65, should guide the implementation of Priority Actions in SO5.

Top Priority Actions for 2008 to 2013:

29. Finalise the twenty-year National Protected Area Expansion Strategy, underpinned by the national biodiversity targets in the NSBA, refined for biomes, provinces and marine biozones
30. Implement first phase of the National Protected Area Expansion Strategy
31. Establish and strengthen provincial stewardship programmes
32. Strengthen programmes that support the informal conservation area system
33. Develop and implement a national botanical gardens expansion strategy

29. Finalise the twenty-year National Protected Area Expansion Strategy, underpinned by national biodiversity targets

DEAT is leading the development of a National Protected Area Expansion Strategy (NPAES), which includes:

- Clear quantitative and spatially explicit priorities for protected area expansion by biome, by province and by marine biozone
- Explicit institutional roles and responsibilities for protected area expansion
- Clear implementation phases

[3] As noted earlier, the distinction is made in the NBF (although not in the NBSAP) between protected areas and conservation areas. Protected areas are recognised in terms of the Protected Areas Act, while conservation areas are not. Stewardship programmes (see Priority Action 31) involve a combination of protected areas and conservation areas.

The NPAES deals with all the protected area categories recognised in terms of the National Environmental Management: Protected Areas Act (Act No. 57 of 2003), including World Heritage Sites.

The NSBA sets national biodiversity targets for all ecosystems. These biodiversity targets tell us how much of the ecosystem should ideally be protected within a formal, well-managed protected area. The NSBA assesses the current protection level of each ecosystem in relation to its biodiversity target, and points to under-protected ecosystems. By far the majority of ecosystems are under-protected; it is not feasible to meet biodiversity targets for all ecosystems within the next twenty years. The NPAES identifies a subset of national biodiversity targets to be met in the next twenty years. In addition, the expansion strategy takes into account the need to design the protected area system to protect freshwater ecosystems and to facilitate adaptation of ecosystems and species to climate change.

The NPAES highlights the links between protected area development, sustainable tourism, and benefits to surrounding communities who should be key stakeholders in protected areas.

The following actions are required to support the development and implementation of the NPAES:

- Developing an accurate, up-to-date map of protected areas in South Africa. The existing map is reasonably good but not complete.
- Populating and maintaining the protected area register managed by DEAT.
- Drawing on analyses undertaken in provincial spatial biodiversity plans and fine-scale biodiversity plans at the sub-provincial level, where these exist, to supplement the national analysis of protected area expansion priorities.
- Strengthening programmes that will ensure formal conservation of private land in biodiversity priority areas, such as Biodiversity Stewardship South Africa (see Priority Action 31).

Lead agents: DEAT (including MCM), SANParks, provincial conservation authorities, SANBI

2013 targets:

- National Protected Area Expansion Strategy has been finalised and is supported by all key implementing agencies.

- Complete up-to-date map of protected areas is widely available. Protected area register is populated and maintained.

30. Implement the National Protected Area Expansion Strategy

The twenty-year National Protected Area Expansion Strategy, based on national biodiversity targets, is phased. The first phase should be implemented in the 2008 to 2013 period. The NPAES provides the basis for the development of agency-specific protected area expansion strategies and implementation plans.

Implementation of the NPAES will rely on a range of mechanisms for expanding and consolidating the terrestrial protected area network, including declaration of public land available for conservation, land acquisition (through donations, purchase, leasing), and negotiation of contractual arrangements with landowners. Biodiversity stewardship programmes (see Priority Action 31), which encourage contractual arrangements with landowners, are seen as an important part of the implementation of the NPAES.

The NPAES includes the expansion of the marine protected area network, with a strong focus on offshore marine protected areas.

Lead agents: DEAT (including MCM), SANParks, DWAF, provincial conservation authorities, NGOs

2013 targets:

- An additional 2.2% (2.7 million hectares) of the country has been included in the land-based protected area network (currently 6.5% of the country).
- An additional 2.4% (88km) of the coastline has been included in the inshore marine protected area network (currently 21.5% of the coastline, but with only 9.1% in no-take marine protected areas).
- An additional 4.9% (52 500km^2) of the mainland exclusive economic zone (EEZ) and an additional 5% (23 300km^2) of the Prince Edward Islands EEZ has been included in the offshore marine protected area network (currently 0.4% of the mainland EEZ and 0% of the Prince Edward Islands EEZ).

For more detail on these protected area expansion targets see the National Protected Area Expansion Strategy.

31. Establish and strengthen provincial stewardship programmes

The Protected Areas Act provides for any land, including private or communal land, to be declared a formal protected area, and allows for co-management of such a protected area by the landowner(s) or any suitable person or organisation. This means that formal protected area status, with associated property rates exclusion in terms of the Municipal Property Rates Act (Act No. 6 of 2004), is not limited to state-owned land, and that government agencies are not the only organisations that can manage protected areas. The Biodiversity Act allows for Biodiversity Management Plans (see Priority Action 19) and Biodiversity Management Agreements with individuals and organisations. These new legal tools open the way for a range of innovative protected area arrangements that were not previously possible.

Stewardship programmes involve using these new provisions in national and provincial legislation to contract critical biodiversity areas in private or communal ownership as formal protected areas. A well established stewardship programme exists in the Western Cape, led by CapeNature, but is under-resourced relative to its strategic importance for securing the province's biodiversity. A new stewardship programme in KwaZulu-Natal and embryonic stewardship programme in the Northern Cape need to be nurtured, and additional provinces should be encouraged to establish stewardship programmes.

DEAT has established a national stewardship programme, Biodiversity Stewardship South Africa (BSSA), which will provide support to provincial stewardship programmes. Stewardship programmes are seen as an important part of the implementation of the National Protected Areas Expansion Strategy (see Priority Action 30).

SANBI should play a supportive role with respect to stewardship, for example through providing opportunities for lesson sharing and networking.

Lead agents: DEAT, provincial conservation authorities, NGOs, SANBI

2013 targets:

- At least six provinces have active stewardship programmes.
- National guidelines for incentives for stewardship sites have been developed, and implementation on provincial level has been negotiated. National guidelines and minimum standards for assessing candidate sites have been developed, and a toolbox to assist provincial implementation has been finalised.

32. Strengthen programmes that support the informal conservation area system

In addition to the formal protected area network, the informal conservation area network can play an important supporting role in conserving biodiversity. South Africa is engaged in several international programmes that support the establishment of informal conservation areas, including the Man and the Biosphere Programme and the Ramsar Convention.

One of the United Nations Educational Scientific and Cultural Organisation (UNESCO) intergovernmental natural and social sciences programs dealing with environment and sustainable development is the Man and the Biosphere (MAB) Programme. The focus of the MAB programme, which in the past was centred on ecosystems, has shifted to Biosphere Reserves in recent years. The implementation of the Biosphere Reserve concept is relatively new to South Africa, with the first South African Biosphere Reserve designated by UNESCO in 1998.

Biosphere Reserves usually include one or more formal protected areas, but are much more than just protected areas. They truly are "special places for people and nature", aiming to encapsulate ideas on sustainable development and conservation as expressed at the Rio Conference through documents like the CBD and Agenda 21. The Biosphere Reserve concept is inclusive, addressing not only biodiversity conservation but also the social, economic and cultural aspects of a given region.

South Africa currently has five Biosphere Reserves: Kogelberg Biosphere Reserve (Western Cape, designated 1998), Cape West Coast Biosphere Reserve (Western Cape, designated 2000), Waterberg Biosphere Reserve (Limpopo, designated 2001), Kruger-to-Canyons Biosphere Reserve (Limpopo, designated 2001), Cape Winelands Biosphere Reserve (Western Cape, designated 2007.

The Ramsar Convention on Wetlands allows for listing of wetlands of international importance as Ramsar sites. DEAT, as the focal point for the Ramsar Convention, is responsible for initiating and submitting proposals for the listing of wetlands as Ramsar sites. There are 19 sites listed at present, but unless they are situated in a protected area, they have no legal protection. DEAT needs to initiate the process to investigate possible means of protection for these sites.

Lead agents: DEAT, provincial conservation authorities, SANParks, NGOs

2013 targets:

- Two additional Biosphere Reserves have been designated by UNESCO.
- Two additional wetland sites have been designated as Ramsar sites. An investigation of possible means of protection for Ramsar sites has been initiated.

33. Develop and implement a National Botanical Gardens expansion strategy

SANBI manages nine National Botanical Gardens in six provinces. The most recent addition was the Niewoudtville National Botanical Garden in the Northern Cape, which was launched in August 2007. National Botanical Gardens showcase and protect indigenous species, and provide important recreational and educational facilities. Not all South Africa's biomes or provinces are currently represented in the National Botanical Garden estate. SANBI is currently developing an expansion strategy for National Botanical Gardens, which will include a revision of the criteria for establishing National Botanical Gardens. The Eastern Cape is a likely to be a priority for establishment of a new National Botanical Garden.

Lead agent: SANBI, DEAT

2013 target:

- A National Botanical Gardens expansion strategy has been developed, and at least one new National Botanical Garden has been established.

BOX 2: Spatial priorities for expanding the protected area system

The National Spatial Biodiversity Assessment (NSBA) 2004 included an assessment of the current protection levels of terrestrial and aquatic ecosystems. An important principle underpinning the NSBA is that we should strive towards having a representative and viable sample of all ecosystems included in formal protected areas. At the moment, some ecosystems are well protected, while others are poorly protected or not protected at all. An ecosystem is considered well protected if its biodiversity target is met in a formal protected area. Formal protected areas include Special Nature Reserves, Protected Environments, National Parks, Nature Reserves, Marine Protected Areas, Specially Protected Forest Areas, Forest Nature Reserves, Forest Wilderness Areas, World Heritage Sites, and Mountain Catchment Areas.

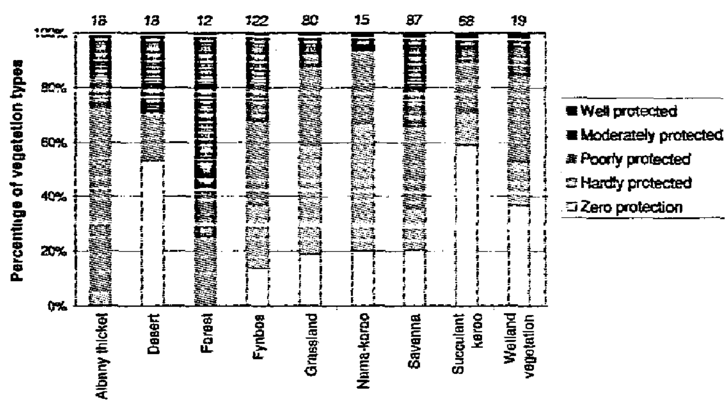


Figure 6: Protection levels of terrestrial ecosystems

The development of South Africa's protected area system was opportunistic, so it does not protect a representative sample of the country's ecosystems and excludes key ecological processes. Nearly half the country's terrestrial ecosystems have no or extremely low levels of formal protection. Overall, approximately 5% of the country's land area is included in formal protected areas, but this is not distributed evenly across all ecosystems. Most of our well protected ecosystems are in the fynbos mountains and the savanna biome, while the most severely under-protected ecosystems tend to be in the succulent karoo, the grasslands and the fynbos lowlands.

In expanding the protected area system, it makes sense to focus on biomes and ecosystems that are currently under-protected, to bring us closer the ideal of a representative sample of all ecosystems in formal protected areas.

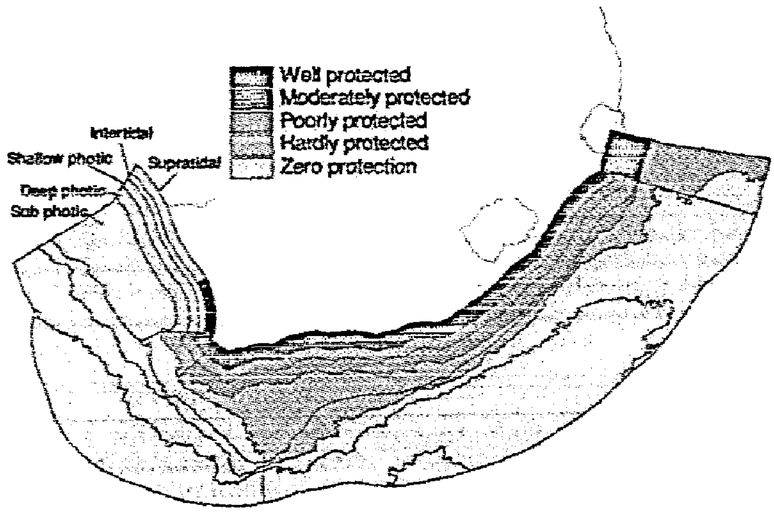


Figure 7: Protection levels of marine biozones

Twenty-three of our 34 marine biozones are poorly protected, hardly protected or not protected at all. Overall, only 1.6% of South Africa's waters are protected. Priority areas for expanding the marine protected area estate are the Namaqua (West Coast) and Agulhas Bank biozones.

Protection levels of river ecosystems are more difficult to assess than protection levels of terrestrial and marine ecosystems. If part of a river ecosystem flows through a protected area, or if a river forms the boundary of a protected area (as is often the case), should that river ecosystem be considered protected or not? The establishment and management of formal protected areas has usually focused on protecting terrestrial ecosystems (or on other socio-economic objectives), with little emphasis on proclaiming protected areas to protect entire river lengths. In any case this is not a practical management option for most river systems, which cross large distances in the landscape. More importantly, rivers are impacted by activities that take place throughout their entire catchments, so even if a whole river length is included in a protected area, the river is still subject to impacts that could originate far away. For all these reasons, it does not make sense to assess simply whether biodiversity targets for river ecosystems are met in formal protected areas or not.

The cross-sector policy objectives referred to in Priority Action 22 suggest the establishment of inland water conservation areas, designed to protect river ecosystems and other inland water ecosystems such as wetlands and estuaries. Mechanisms for establishing and managing freshwater and estuarine conservation areas need to be explored in the roll out of these policy objectives. They may differ from mechanisms for establishing and managing terrestrial and marine-focused protected areas, not least because of the linear nature of river ecosystems.

5 Regional Co-operation

South Africa is a strong supporter of African initiatives, such as the New Partnership for Africa's Development (NEPAD), the principles of which include sustainable use of natural resources and the environment. NEPAD identifies biodiversity, desertification and climate change as key issues in its Environmental Initiative Plan and has adopted a strategy for sustainable environmental management.

Regional co-operation is particularly important to South Africa. As a member of the Southern African Development Community (SADC), the country has signed a number of SADC protocols which apply to water, wildlife, fisheries and forestry, such as the Protocol on Wildlife Conservation and Law Enforcement in SADC, which entered into force in 1999.

In addition, a number of agreements have been signed with neighbouring countries, or are in the process of being negotiated, for the establishment and co-management of Transfrontier Conservation Areas (TFCAs), between South Africa and Namibia, Botswana, Zimbabwe, Mozambique, Lesotho and Swaziland. These include:

- Maloti-Drakensberg
- Lubombo
- Limpopo Sashe
- Kgalagadi
- Greater Limpopo Transfrontier Project (GLTP)
- !Ai-!Ais/Richtersveld

5.1 Regional co-operation in the NBSAP

Strategic Objective 2 in the NBSAP deals with enhanced institutional effectiveness and efficiency, and good governance. As part of this strategic objective, the following activities were identified with regard to regional co-operation:

NBSAP Activity 2.7.1: *Align policies, strategies and programmes of South Africa, SADC and African Union, including NEPAD, where possible and strategic*

The biodiversity of the continent is an asset and can play a strategic role in development. Conservation and sustainable use of biodiversity requires management across political and administrative boundaries. It is therefore important to align policies and their implementation, especially for resources that cross boundaries, such as water, migratory birds and animals, GMOs and invasive alien species. It is also important to develop common positions and lobbying strategies where necessary, for example with regard to bioprospecting, biosafety and trade issues.

NBSAP Activity 2.7.2: Develop partnerships and cooperative arrangements with neighbouring countries regarding shared resources

It is especially important to align policy and practice with neighbouring countries and other countries in southern Africa. This includes partnerships and cooperation on research, training and capacity building programmes, sharing of data and taking neighbouring countries' needs into account, especially with regard to shared water resources and marine resources. Coastal and deep-water fisheries are important renewable natural resources for South Africa and our neighbouring countries and contribute to food security, livelihoods, job creation, tourism dévelopment and economic growth. South Africa needs to work closely with Namibia and Mozambique in particular, to safeguard marine resources and co-operate on aspects such as research, management, monitoring and enforcement. South Africa is also an important roleplayer in the Antarctic region.

NBSAP Activity 2.7.3: Establish coalitions with groups of like minded countries to ensure that South Africa's biodiversity management objectives are not prejudiced by international trade agreements

Trade agreements and other aspects of globalisation can have significant impacts on biodiversity in South Africa, which need to be understood and anticipated, and measures put in place to minimise these impacts.

NBSAP Activity 2.7.4: Strengthen capacity for international negotiation by developing common positions with other countries where possible and strategic

South Africa can play an important catalytic role in the international community and this role will be strengthened by developing common positions on key policy issues. In particular, South Africa should seek to strengthen its position by aligning with a common African position.

NBSAP Activity 2.7.5: Implement a coordinated programme to build capacity across all relevant departments and institutions to engage with processes relating to multilateral agreements

There is a need to build capacity, including negotiation skills, and to coordinate and prepare inter-disciplinary teams to attend inter-sessional and technical meetings to understand issues and processes, before attending Conference of the Parties and other high level meetings.

NBSAP Activity 2.7.6: Develop, implement and strengthen programmes for international scientific collaboration, sharing of information and technology transfer

South Africa has in the past played a significant role in research and capacity building in the region, in fields such as biodiversity, climate change, invasive species, biotechnology, etc. Such programmes should be strengthened and expanded and particular attention paid to collaboration and information sharing. At the same time, we can learn much from our neighbours, for example with regard to sustainable use and land management.

5.2 Relevant aspects of the SADC Regional Biodiversity Strategy

The SADC Regional Biodiversity Strategy (June 2006) identified the following eight priority constraints and issues:

- Increased pressure and demand on biodiversity and agricultural land due to limited alternative livelihood opportunities outside agriculture and natural resource exploitation
- Inadequate biodiversity inventory and monitoring system, and knowledge on and ability to handle biodiversity information
- Inadequate incentives for biodiversity conservation and its sustainable use
- Low levels of awareness, knowledge and appreciation of biological resources at various levels
- Weak institutional and legal frameworks for implementing biodiversity initiatives
- Limited and unsustainable funding for implementing biodiversity programmes
- Inadequate research and development approaches for biodiversity initiatives
- Limited attention to the management of GMOs and invasive alien species

5.3 Priorities for regional co-operation in the next five years

Top Priority Actions for 2008-2013:

- Strengthen and improve the development of integrated management and tourism plans of the transfrontier conservation areas and transboundary World Heritage Sites
- Develop and implement appropriate incentives for biodiversity conservation and its sustainable use in cooperation with our neighbouring countries
- Develop, implement and strengthen programmes for international scientific collaboration, sharing of information and technology transfer
- Develop and implement a coordinated regional programme to increase awareness, knowledge and appreciation of biological resources at various levels
- Strengthen the research and development capacity of the protected area system

R1. Strengthen and improve the development of management plans for the transfrontier conservation areas and transboundary World Heritage Sites

Integrated management and tourism plans are in the process of being developed for six transfrontier conservation areas involving South Africa and all neighbouring countries (Botswana, Namibia, Mozambique, Swaziland and Zimbabwe). These plans will identify and protect important features of ecosystems and provide guidelines for development within the protected environments. The development and implementation of these plans will be led by the implementing agencies of the participating countries with the involvement of all stakeholders.

Lead agents: DEAT in co-operation with the relevant implementing agencies of the neighbouring countries, SANParks, World Heritage Site Authorities.

2013 target:

- Six integrated management and tourism plans are in place.

R2. Develop and implement appropriate incentives for biodiversity conservation and its sustainable use in cooperation with our neighbouring countries

There have been very limited incentives for biodiversity conservation and its sustainable use at both local and national levels in southern Africa. Reasons for this include communal land tenure systems; restrictive policies and legislation; and the low economic value of most biological resources and the limited benefits that accrue to communities. Therefore, the economic value of biological resources should be emphasised and mechanisms to equitably share the resultant benefits should be developed.

Lead agents: DEAT in co-operation with relevant agencies in SADC.

2013 target:

- *At least one regional incentive scheme for biodiversity conservation is in place.*

R3. Develop, implement and strengthen programmes for regional scientific collaboration, sharing of information and technology transfer

Biodiversity inventory and monitoring methods tend to vary between countries. This makes it difficult to compare results, especially on trans-boundary initiatives. In addition, the technical and institutional capacity to conduct inventories and monitoring studies varies across the region, and capacity to handle and utilize available knowledge is limited.

Furthermore, the existing biodiversity inventory and monitoring systems have not taken into account the values and aspirations of local people on the basis of their indigenous knowledge. Such knowledge has been transmitted from generation to generation. It has played and continues to play an important role in areas such as food security; agricultural development; and human, animal and plant health. The incorporation of indigenous knowledge into biodiversity inventory and monitoring systems is therefore critical given that local communities have lived with and managed biological resources for centuries.

Lead agents: SANBI, relevant institutions in South Africa and neighbouring countries.

2013 target:

- Pilot projects to strengthen regional scientific collaboration are underway.

R4 Develop and implement a coordinated regional programme to increase awareness, knowledge and appreciation of biological resources at various levels

In southern Africa, biological resources are largely considered as a medium for development and not a source of development. Consequently, very limited information and knowledge on them in terms of their value, status and potential exists. In situations where such information is available, it has not been properly packaged and disseminated to relevant stakeholders. As a result, natural resources are taken for granted and expected to be available for exploitation whenever the need arises.

Lead agents: DEAT, relevant regional institutions.

2013 target:

- An appropriate regional awareness, information and knowledge on biological resources at various stakeholder levels strategy is in place.

R5. Strengthen the research and development (R&D) capacity of the protected area system

Throughout southern Africa, expenditure on research and technology development is way below 1% of the GDP. In addition, few or no incentives are offered to the private sector to encourage it to invest in R&D. Furthermore, most development models in the region have considered biological resources as a source of sustenance and not as a source of wealth. The foregoing scenario largely explains the limited R&D attention that has gone into areas such as value addition, bioprospecting, policy and institutional analysis, appropriate development models and targeted research into emerging issues such as the wildlife, livestock and human interface. Given the high costs and level of expertise needed in such R&D efforts, there is need for partnerships with local, regional and international NGOs, the private sector and international cooperating partners.

Lead agents: DEAT and relevant regional institutions, research and academic institutions, NGOs

2013 target:

- An appropriate regional R&D approach for biodiversity initiatives is in place.

6 Implementing, Monitoring and Reviewing the NBF

DEAT and SANBI are lead agents for many of the Priority Actions identified in the NBF. In addition, these two organisations have a vital role to play in driving the implementation of the NBF by co-ordinating and catalysing the actions of other lead agents, especially those whose core business is not biodiversity but whose active collaboration is required in order to achieve the NBF targets.

Of the 33 Priority Actions identified in Section 4, some are more urgent than others or should precede others for practical reasons. For example, the development of provincial biodiversity plans (Priority Action 16) is a necessary first step towards publishing bioregional plans (Priority Action 17). Those provinces with existing provincial biodiversity plans (Gauteng, KZN, Mpumalanga, Eastern Cape) are in a position to proceed with publishing of bioregional plans, while other provinces need to develop provincial biodiversity plans before they can move to publishing bioregional plans. Scheduling the implementation of NBF Priority Actions is best done by lead agents for the various activities. Appendix B summarises the Priority Actions by lead agent, for easy reference.

The NBF must be reviewed every five years. The review should be led by DEAT in collaboration with all lead agents and other key stakeholders, and should involve:

- Assessing progress towards implementing Priority Actions identified in the current NBF
- Assessing progress towards achievement of the NBSAP strategic objectives
- Reviewing and revising Priority Actions for the following five-year period, and compiling these into an updated NBF
- Publishing the updated NBF

Monitoring the implementation of the NBF is primarily DEAT's responsibility. SANBI may be delegated to assist. In order to assess progress towards implementing Priority Actions identified in the current NBF, the lead agent(s) for each Priority Action will be required to report to DEAT on progress with implementation two years before the end of the five-year NBF cycle, according to a reporting format supplied by DEAT. The intention is not to create new, onerous reporting responsibilities, so reporting requirements will be kept to the minimum. NBF implementation reports from all lead agents will be synthesised and assessed in preparation for workshops with key stakeholders to develop the updated NBF.

7 The Biodiversity Act Toolbox

The Biodiversity Act provides for a range of mechanisms for sustainable use and conservation of biodiversity, in addition to the NBF. These other mechanisms include:

- A guideline for publishing bioregional plans (expected to be published in 2008)
- Regulations on alien and invasive species (draft expected to be published in 2009)
- Regulations on bio-prospecting, access and benefit sharing (expected to be published in 2008)
- Norms and standards on hunting (expected to be published in 2008)
- Regulations on threatened or protected species (published in 2007)
- Listing of threatened or protected species (national list published in 2007)
- Listing of threatened or protected ecosystems (first national list expected to be published in 2008)
- Norms and standards for biodiversity management plans for species (expected to be published in 2008)
- Norms and standards for biodiversity management plans for ecosystems (expected to be published in 2010)

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Appendix A: Priority Actions Linked to the Biodiversity Priority Areas Identified in the NSBA 2004

The table below summarises priority national spatial biodiversity features, the reason for their identification, and current and future pressures, based on the NSBA 2004. Also see Box 1 on page 50.

National spatial feature	Reason for identification	Current and future pressures
Critically endangered and endangered river ecosystems	Ecological integrity of river ecosystems poor.	Over-abstraction, invasive alien species, loss of riparian habitat and poor land management in catchment.
Wetlands	Crucial for ecosystem services and regulation of water supply, provide resources for economic activities, and act as buffers during floods.	Development (residential properties, power lines etc), intensified land use e.g. overgrazing, and over-utilisation of resources
Critically endangered, endangered and less protected marine biozones	Biozones severely impacted primarily through extractive living resource use and mining.	Biggest pressure is from extractive marine living resource use. Other pressures include pollution, mining, coastal development, climate change, catchment degradation, non-extractive recreational activities, alien invasive species and mariculture.
Coastal environment	Concentration of threatened ecosystems, over exploitation of resources and flow reduction.	Coastal ribbon development including resorts and golf estates, development on estuaries.
Moist Grasslands	Very important for threatened habitats.	Cultivation, alien plant invasion, afforestation and habitat fragmentation.
Maputaland-Pondoland	Very important for threatened habitats, species of special concem and key areas for processes.	Afforestation, habitat fragmentation and urban expansion.
Bushveld-Brakenveld	Important for threatened habitats, species of special concem and processes.	Alien plant invasion, urban expansion, cultivation, and mining.
Central Grasslands	Very important for threatened habitats.	Habitat fragmentation, cultivation, and mining.
North Eastem Escarpment	Very important for species of special concem and key area for processes.	Mining, urban expansion and afforestation.
Albany Ticket and Wild Coast	Important for threatened habitats, species of special concem and processes.	Alien plant invasion, habitat fragmentation and afforestation.
South Eastem Escarpment	Important for species of special concem and key area for processes.	Afforestation, cultivation and urban expansion.
Cape Floristic Region	Very important for threatened habitats, species of special concem and key area for processes.	Habitat fragmentation, urban expansion and afforestation.
Succulent Karoo	Very important for species of special concem.	Mining, afforestation and alien plant invasion.

Appendix B: Summary of Priority Actions by Lead Agent

1. DEAT – Biodiversity & Conservation

Priority Actions per Strategic Objective		2013 Targets
SO 1: Enabling policy and legislative framework		
1. Make the case for the value of biodiversity as a cornerstone of sustainable development		• Partial economic valuation of South Africa's biodiversity has been completed, and presented effectively to key decision-makers and the public.
2. Integrate biodiversity considerations into fiscal policy through environmental fiscal reform		• At least two fiscal instruments and/or market mechanisms for biodiversity conservation have been developed, and pilots are underway.
2a	*Fiscal instruments that encourage private landowners to contribute their own resources to effective biodiversity management*	
2b	*Mechanisms that allow for payment for ecosystem services, and reinvestment of the revenues generated in securing the health of ecosystems*	
3. Integrate biodiversity considerations in land-use planning and decision-making, by developing tools for supporting and streamlining environmental decision-making		• Ecosystem guidelines for environmental assessment, generic terms of reference for biodiversity specialist studies in EIAs, a decision-making framework to guide trade-offs where these are unavoidable, and a policy framework for biodiversity offsets have been developed and are being applied nationally.
3a	*Ecosystem guidelines for environmental assessment, and generic terms of reference for biodiversity specialist studies conducted as part of EIAs*	
3b	*Framework for guiding decisions on trade-offs that decision-makers have to make*	
3c	*Policy framework for biodiversity offsets*	
4. Finalise the regulatory framework for the prevention, containment and eradication of invasive alien species		• AIS regulations have been finalised and published. (This should be achieved by 2009.)

Priority Actions per Strategic Objective	2013 Targets
5. Strengthen the regulatory framework for species of special concern	• Regulations for species listed in terms of CITES have been developed and published and the Scientific Authority has been established. • Development of trophy hunting regulations has commenced. • Norms and standards for regulation of the hunting industry have been finalised and published. • Norms and standards for elephant management have been finalised and published. • Norms and standards for control of wildlife/human conflict have been finalised and published. • The TOPS list has been revised. • An electronic permit system has been developed and implemented.
6. Finalise the regulatory framework for bioprospecting, access and benefit sharing	• Bioprospecting, access and benefit sharing regulations have been finalised and published. (This should be achieved by 2008.)
SO 2: Enhanced institutional effectiveness and efficiency	
7. Establish and implement a human capital development strategy for the biodiversity sector to address transformation and scarce skills	• A national human capital development strategy for the biodiversity sector, reflecting specific employment equity targets for all key research and implementing agencies in the sector, has been developed and is being implemented.
9. Improve biodiversity information management and access	• Web-enabled one-stop-shop for biodiversity information established, recognised and extensively used by managers and professionals. • Institutional model for management of biodiversity collections has been developed and is being implemented.
10. Establish and implement a national biodiversity research strategy	• National biodiversity research strategy has been developed, is recognised by all key stakeholders, and is used as a basis for the allocation of research efforts and funding. Institutional arrangements for biodiversity research are co-ordinated and strengthened.
11. Establish and implement a national monitoring and reporting framework for biodiversity	• The national biodiversity monitoring and reporting framework has been established, is being used as the basis for annual reports to parliament and is informing policy direction and implementation. Monitoring and evaluation frameworks for provincial conservation authorities and bioregional and ecosystem programmes feed into the national monitoring and reporting framework.

Priority Actions per Strategic Objective	2013 Targets
12. Establish a national programme to build the capacity of municipalities to include biodiversity opportunities and constraints in their planning and operations	• A national programme to build municipal capacity has been established and is underway, focusing initially on municipalities with, for example, high numbers of threatened ecosystems.
13. Establish pilot projects to explore mechanisms for integrated natural resource management at the district level	• Pilots for district natural resource co-ordinators and/or other mechanisms for integrated natural resource management are underway in at least four districts.
14. Support the development and strengthening of bioregional and ecosystem programmes	• The co-ordination units of the five existing bioregional and ecosystem programmes (C.A.P.E., SKEP, STEP, Grasslands and Marine) are funded by government and effective management structures have been established. • The Freshwater Programme has been established.
SO 3: Integrated management of terrestrial and aquatic ecosystems	
15. Develop and implement an integrated programme for ecosystem adaptation to climate change adaptation, with an emphasis on ecosystems vulnerable to climate change impacts	• National programme dealing with ecosystem adaptation to climate change has been developed and is accepted by all stakeholders.
17. Publish bioregional plans in terms of the Biodiversity Act	• At least seven bioregional plans have been published and are being used routinely to inform land-use planning and decision-making.
18. List threatened or protected ecosystems in terms of the Biodiversity Act	• Threatened or protected ecosystems have been identified and listed, and the list has been updated at least once. Appropriate supporting material is available, and listed ecosystems are routinely taken into account in land-use planning and decision-making.
19. Develop Biodiversity Management Plans for species of special concern and threatened ecosystems	• Three BMP-S have been developed and are being successfully implemented. • Norms and Standards for BMP-E have been developed.
20. Work with key production sectors to minimise loss and degradation of natural habitat in threatened ecosystems and critical biodiversity areas	• Guidelines for biodiversity-friendly production of biofuels have been developed and are being applied by biofuel producers. • At least three production sectors have developed wise practice guidelines to minimise their impact on biodiversity.
21. Implement the AIS regulations	• Control, monitoring and eradication plans are in place for priority alien invasive species that threaten ecosystems, habitats or indigenous species. A system to monitor implementation in place

Priority Actions per Strategic Objective	2013 Targets
22. Implement the cross-sector policy objectives for the conservation of inland water biodiversity	• A portfolio of freshwater and estuarine conservation areas has been identified, and mechanisms for implementing appropriate management of these areas are being piloted in at least three Water Management Areas.
24. Develop and implement effective measures for the management and control of activities relating to GMOs, in order to manage their impact on the environment	• Environmental Risk Assessment Framework for GMOs has been developed and is routinely used.
SO 4: Sustainable use of biological resources and equitable sharing of the benefits	
26. Develop an implementation strategy for bioprospecting, access and benefit sharing regulations	• Implementation strategy for bioprospecting, access and benefit sharing regulations has been developed, and milestones or targets identified in the strategy are being reached.
27. Facilitate the development of the natural products sector	• Certification and sustainable international trade in natural products has been facilitated. • Domestic demand has increased through increased awareness. • Natural products enterprises and supply chain management have been strengthened.
SO 5: Expanded network of protected areas and conservation areas	
29. Finalise the 20-year National Protected Area Expansion Strategy, underpinned by the national biodiversity targets	• National Protected Area Expansion Strategy has been finalised and is supported by all key implementing agencies. • Complete up-to-date map of protected areas is widely available. Protected area register is populated and maintained.
30. Implement the National Protected Area Expansion Strategy	• An additional 2.2% (2.7 million hectares) of the country has been included in the land-based protected area network (currently 6.5% of the country). • An additional 2.4% (88km) of the coastline has been included in the inshore marine protected area network (currently 21.5% of the coastline, but with only 9.1% in no-take marine protected areas). • An additional 4.9% (52 500km2) of the mainland exclusive economic zone (EEZ) and an additional 5% (23 300km2) of the Prince Edward Islands EEZ has been included in the offshore marine protected area network (currently 0.4% of the mainland EEZ and 0% of the Prince Edward Islands EEZ).

Priority Actions per Strategic Objective	2013 Targets
31. Establish and strengthen provincial stewardship programmes	• At least six provinces have active stewardship programmes. • National guidelines for incentives for stewardship sites have been developed, and implementation on provincial level has been negotiated. National guidelines and minimum standards for assessing candidate sites have been developed, and a toolbox to assist provincial implementation has been finalised.
32. Strengthen programmes that support the informal conservation area system	• Two additional Biosphere Reserves have been designated by UNESCO. • Two additional wetland sites have been designated as Ramsar sites. An investigation of possible means of protection for Ramsar sites has been initiated.

2. DEAT – Marine & Coastal Management

Priority Actions per Strategic Objective	2013 Targets
SO 1: Enabling policy and legislative framework	
4 Develop the regulatory framework for the prevention, containment and eradication of invasive alien species	• AIS regulations have been finalised and published. (This should be achieved by 2009.)
SO 2: Enhanced institutional effectiveness and efficiency	
10. Establish and implement a national biodiversity research strategy	• National biodiversity research strategy has been developed, is recognised by all key stakeholders, and is used as a basis for the allocation of research efforts and funding. Institutional arrangements for biodiversity research are co-ordinated and strengthened.
11 Establish and implement a national monitoring and reporting framework for biodiversity	• The national biodiversity monitoring and reporting framework has been established, is being used as the basis for annual reports to parliament and is informing policy direction and implementation. Monitoring and evaluation frameworks for provincial conservation authorities and bioregional and ecosystem programmes feed into the national monitoring and reporting framework.

Priority Actions per Strategic Objective	2013 Targets
SO 3: Integrated management of terrestrial and aquatic ecosystems	
20. Work with key production sectors to minimise loss and degradation of natural habitat in threatened ecosystems and critical biodiversity areas	• Guidelines for biodiversity-friendly production of biofuels have been developed and are being applied by biofuel producers. • At least three production sectors have developed wise practice guidelines to minimise their impact on biodiversity.
21. Implement the AIS regulations	• Control, monitoring and eradication plans are in place for priority alien invasive species that threaten ecosystems, habitats or indigenous species. A system to monitor implementation in place
22. Implement the cross-sector policy objectives for the conservation of inland water biodiversity	• A portfolio of freshwater and estuarine conservation areas has been identified, and mechanisms for implementing appropriate management of these areas are being piloted in at least three Water Management Areas.
24. Develop and implement effective measures for the management and control of activities relating to GMOs, in order to manage their impact on the environment	• Environmental Risk Assessment Framework for GMOs has been developed and is routinely used.
SO 4: Sustainable use of biological resources and equitable sharing of the benefits	
25. Address illegal and unregulated fishing and seafood trade, especially of endemic line fish and abalone	• Linefish status reports are updated, recovery plans are implemented for 6 species and the ecosystem approach is implemented in all major commercial fisheries • Monitoring and enforcement capacities among regional and local authorities and other roleplayers are strengthened, especially in regions of high priority such as Gauteng, a hub for seafood trade. • A regional network of relevant institutions and organisations for monitoring the illegal trade in seafood/threatened species has been developed. • Consumer demand for threatened or protected marine species has been reduced through increased awareness
SO 5: Expanded network of protected areas and conservation areas	
29. Finalise the 20-year National Protected Area Expansion Strategy, underpinned by the national biodiversity targets	• National Protected Area Expansion Strategy has been finalised and is supported by all key implementing agencies. • Complete up-to-date map of protected areas is widely available. Protected area register is populated and maintained.

Priority Actions per Strategic Objective	2013 Targets
30. Implement the National Protected Area Expansion Strategy	• An additional 2.2% (2.7 million hectares) of the country has been included in the land-based protected area network (currently 6.5% of the country) • An additional 2.4% (88km) of the coastline has been included in the inshore marine protected area network (currently 21.5% of the coastline, but with only 9.1% in no-take marine protected areas). • An additional 4.9% (52 500km2) of the mainland exclusive economic zone (EEZ) and an additional 5% (23 300km2) of the Prince Edward Islands EEZ has been included in the offshore marine protected area network (currently 0.4% of the mainland EEZ and 0% of the Prince Edward Islands EEZ).

3. SANBI

Priority Actions per Strategic Objective		2013 Targets
SO 1: Enabling policy and legislative framework		
1. Make the case for the value of biodiversity as a cornerstone of sustainable development		• Partial economic valuation of South Africa's biodiversity has been completed, and presented effectively to key decision-makers and the public
2. Integrate biodiversity considerations into fiscal policy		• At least two fiscal instruments and/or market mechanisms for biodiversity conservation have been developed, and pilots are underway.
2a	*Fiscal instruments that encourage private landowners to contribute their own resources to effective biodiversity management*	
2b	*Mechanisms that allow for payment for ecosystem services, and reinvestment of the revenues generated in securing the health of ecosystems*	
3. Integrate biodiversity considerations in land-use planning and decision-making, by developing tools for supporting and streamlining environmental decision-making		• Ecosystem guidelines for environmental assessment, generic terms of reference for biodiversity specialist studies in EIAs, a decision-making framework to guide trade-offs where these are unavoidable, and a policy framework for biodiversity offsets have been developed and are being applied nationally.
3a	*Ecosystem guidelines for environmental assessment, and generic terms of reference for biodiversity specialist studies conducted as part of EIAs*	
3b	*Framework for guiding decisions on trade-offs that decision-makers have to make*	
3c	*Policy framework for biodiversity offsets*	

Priority Actions per Strategic Objective	2013 Targets
11. Establish and implement a national monitoring and reporting framework for biodiversity	• The national biodiversity monitoring and reporting framework has been established, is being used as the basis for annual reports to parliament and is informing policy direction and implementation. Monitoring and evaluation frameworks for provincial conservation authorities and bioregional and ecosystem programmes feed into the national monitoring and reporting framework.
12. Establish a national programme to build the capacity of municipalities to include biodiversity opportunities and constraints in their planning and operations	• A national programme to build municipal capacity has been established and is underway, focusing initially on municipalities with, for example, high numbers of threatened ecosystems.
13. Establish pilot projects to explore mechanisms for integrated natural resource management at the district level	• Pilots for district natural resource co-ordinators and/or other mechanisms for integrated natural resource management are underway in at least four districts.
14. Support the development and strengthening of bioregional and ecosystem programmes	• The co-ordination units of the five existing bioregional and ecosystem programmes (C.A.P.E., SKEP, STEP, Grasslands and Marine) are funded by government and effective management structures have been established. • The Freshwater Programme has been established.
SO 3: Integrated management of terrestrial and aquatic ecosystems	
15. Develop and implement an integrated programme for ecosystem adaptation to climate change adaptation, with an emphasis on ecosystems vulnerable to climate change impacts	• National programme dealing with ecosystem adaptation to climate change has been developed and is accepted by all stakeholders.
16. Develop provincial spatial biodiversity plans in additional provinces	• At least six provinces have spatial provincial biodiversity plans in place, with the necessary in-house capacity to maintain and update them.
17. Publish bioregional plans in terms of the Biodiversity Act	• At least seven bioregional plans have been published and are being used routinely to inform land-use planning and decision-making.
18. List threatened or protected ecosystems in terms of the Biodiversity Act	• Threatened or protected ecosystems have been identified and listed, and the list has been updated at least once. Appropriate supporting material is available, and listed ecosystems are routinely taken into account in land-use planning and decision-making.
19. Develop Biodiversity Management Plans for species of special concern and threatened ecosystems	• Three BMP-S have been developed and are being successfully implemented. • Norms and Standards for BMP-E have been developed.

Priority Actions per Strategic Objective	2013 Targets
5. Strengthen the regulatory framework for species of special concern	• Regulations for species listed in terms of CITES have been developed and published and the Scientific Authority has been established. • Development of trophy hunting regulations has commenced. • Norms and standards for regulation of the hunting industry have been finalised and published. • Norms and standards for elephant management have been finalised and published. • Norms and standards for control of wildlife/human conflict have been finalised and published. • The TOPS list has been revised. • An electronic permit system has been developed and implemented.
SO 2: Enhanced institutional effectiveness and efficiency	
7. Establish and implement a human capital development strategy for the biodiversity sector to address transformation and scarce skills	• A national human capital development strategy for the biodiversity sector, reflecting specific employment equity targets for all key research and implementing agencies in the sector, has been developed and is being implemented.
8. Fill key biodiversity information gaps	• Taxonomic and biosystematic assessments have been completed for at least ten identified priority groups. • Red Lists have been completed for five priority animal groups. • Marine ecosystem map has been developed, wetland ecosystem map has been completed, up-to-date national land cover is available, and a national land degradation map has been completed.
9. Improve biodiversity information management and access	• Web-enabled one-stop-shop for biodiversity information established, recognised and extensively used by managers and professionals. • Institutional model for management of biodiversity collections has been developed and is being implemented.
10. Establish and implement a national biodiversity research strategy	• National biodiversity research strategy has been developed, is recognised by all key stakeholders, and is used as a basis for the allocation of research efforts and funding. Institutional arrangements for biodiversity research are co-ordinated and strengthened.

Priority Actions per Strategic Objective	2013 Targets
20. Work with key production sectors to minimise loss and degradation of natural habitat in threatened ecosystems and critical biodiversity areas	• Guidelines for biodiversity-friendly production of biofuels have been developed and are being applied by biofuel producers. • At least three production sectors have developed wise practice guidelines to minimise their impact on biodiversity.
21. Implement the AIS regulations	• Control, monitoring and eradication plans are in place for priority alien invasive species that threaten ecosystems, habitats or indigenous species. A system to monitor implementation in place
22. Implement the cross-sector policy objectives for the conservation of inland water biodiversity	• A portfolio of freshwater and estuarine conservation areas has been identified, and mechanisms for implementing appropriate management of these areas are being piloted in at least three Water Management Areas.
23. Incorporate biodiversity conservation objectives in the work of Catchment Management Agencies	• All CMAs that are established and operational have integrated quantitative freshwater biodiversity targets and national freshwater biodiversity priority areas into their Catchment Management Strategies.
24. Develop and implement effective measures for the management and control of activities relating to GMOs, in order to manage their impact on the environment	• Environmental Risk Assessment Framework for GMOs has been developed and is routinely used.
SO 4: Sustainable use of biological resources and equitable sharing of the benefits	
25. Address illegal and unregulated fishing and seafood trade, especially of endemic line fish and abalone	• Linefish status reports are updated, recovery plans are implemented for 6 species and the ecosystem approach is implemented in all major commercial fisheries • Monitoring and enforcement capacities among regional and local authorities and other roleplayers are strengthened, especially in regions of high priority such as Gauteng, a hub for seafood trade. • A regional network of relevant institutions and organisations for monitoring the illegal trade in seafood/threatened species has been developed. • Consumer demand for threatened or protected marine species has been reduced through increased awareness
27. Facilitate the development of the natural products sector	• Certification and sustainable international trade in natural products has been facilitated. • Domestic demand has increased through increased awareness. • Natural products enterprises and supply chain management have been strengthened.

Priority Actions per Strategic Objective	2013 Targets
28. Improve knowledge of sustainable extractive use of terrestrial resources	• Preliminary synthesis and assessment of the available information on sustainable extractive use for species listed in the TOPS regulations has been completed. • Knowledge of the extent of harvesting and limits to sustainable extractive use has been developed for at least ten priority species on the TOPS list as well as for at least ten medicinal plants. • Knowledge of sustainable extractive use of terrestrial resources informs the development and implementation of community-based natural resource management programmes.
SO 5: Expanded network of protected areas and conservation areas	
29. Finalise the 20-year National Protected Area Expansion Strategy, underpinned by the national biodiversity targets	• National Protected Area Expansion Strategy has been finalised and is supported by all key implementing agencies. • Complete up-to-date map of protected areas is widely available. Protected area register is populated and maintained.
31. Establish and strengthen provincial stewardship programmes	• At least six provinces have active stewardship programmes. • National guidelines for incentives for stewardship sites have been developed, and implementation on provincial level has been negotiated. National guidelines and minimum standards for assessing candidate sites have been developed, and a toolbox to assist provincial implementation has been finalised.
33. Develop and implement a National Botanical Gardens expansion strategy	• A National Botanical Gardens expansion strategy has been developed, and at least one new National Botanical Garden has been established

4. SANParks & World Heritage Site Authorities

Priority Actions per Strategic Objective	2013 Targets
SO 2: Enabling policy and legislative framework	
7. Establish and implement a human capital development strategy for the biodiversity sector to address transformation and scarce skills	• A national human capital development strategy for the biodiversity sector, reflecting specific employment equity targets for all key research and implementing agencies in the sector, has been developed and is being implemented.

Priority Actions per Strategic Objective	2013 Targets
10. Establish and implement a national biodiversity research strategy	• National biodiversity research strategy has been developed, is recognised by all key stakeholders, and is used as a basis for the allocation of research efforts and funding. Institutional arrangements for biodiversity research are co-ordinated and strengthened.
11. Establish and implement a national monitoring and reporting framework for biodiversity	• The national biodiversity monitoring and reporting framework has been established, is being used as the basis for annual reports to parliament and is informing policy direction and implementation. Monitoring and evaluation frameworks for provincial conservation authorities and bioregional and ecosystem programmes feed into the national monitoring and reporting framework.
SO 3: Integrated management of terrestrial and aquatic ecosystems	
21. Implement the AIS regulations	• Control, monitoring and eradication plans are in place for priority alien invasive species that threaten ecosystems, habitats or indigenous species. A system to monitor implementation in place
22. Implement the cross-sector policy objectives for the conservation of inland water biodiversity	• A portfolio of freshwater and estuarine conservation areas has been identified, and mechanisms for implementing appropriate management of these areas are being piloted in at least three Water Management Areas.
SO 5: Expanded network of conservation areas	
29. Finalise the 20-year National Protected Area Expansion Strategy, underpinned by the national biodiversity targets	• National Protected Area Expansion Strategy has been finalised and is supported by all key implementing agencies. • Complete up-to-date map of protected areas is widely available. Protected area register is populated and maintained.
30. Implement the National Protected Area Expansion Strategy	• An additional 2.2% (2.7 million hectares) of the country has been included in the land-based protected area network (currently 6.5% of the country). • An additional 2.4% (88km) of the coastline has been included in the inshore marine protected area network (currently 21.5% of the coastline, but with only 9.1% in no-take marine protected areas). • An additional 4.9% (52 500km2) of the mainland exclusive economic zone (EEZ) and an additional 5% (23 300km2) of the Prince Edward Islands EEZ has been included in the offshore marine protected area network (currently 0.4% of the mainland EEZ and 0% of the Prince Edward Islands EEZ).

Priority Actions per Strategic Objective	2013 Targets
32. Strengthen programmes that support the informal conservation area system	• Two additional Biosphere Reserves have been designated by UNESCO. • Two additional wetland sites have been designated as Ramsar sites. An investigation of possible means of protection for Ramsar sites has been initiated.

5. DWAF and Catchment Management Agencies

Priority Actions per Strategic Objective		2013 Targets
SO 1: Enabling policy and legislative framework		
2. Integrate biodiversity considerations into fiscal policy		• At least two fiscal instruments and/or market mechanisms for biodiversity conservation have been developed, and pilots are underway.
2a	*Fiscal instruments that encourage private landowners to contribute their own resources to effective biodiversity management*	
2b	*Mechanisms that allow for payment for ecosystem services, and reinvestment of the revenues generated in securing the health of ecosystems*	
3. Integrate biodiversity considerations in land-use planning and decision-making, by developing tools for supporting and streamlining environmental decision-making		• Ecosystem guidelines for environmental assessment, generic terms of reference for biodiversity specialist studies in EIAs, a decision-making framework to guide trade-offs where these are unavoidable, and a policy framework for biodiversity offsets have been developed and are being applied nationally.
3a	*Ecosystem guidelines for environmental assessment, and generic terms of reference for biodiversity specialist studies conducted as part of EIAs*	
3b	*Framework for guiding decisions on trade-offs that decision-makers have to make*	
3c	*Policy framework for biodiversity offsets*	
SO 2: Enabling policy and legislative framework		
10. Establish and implement a national biodiversity research strategy		• National biodiversity research strategy has been developed, is recognised by all key stakeholders, and is used as a basis for the allocation of research efforts and funding. Institutional arrangements for biodiversity research are co-ordinated and strengthened.

Priority Actions per Strategic Objective	2013 Targets
11. Establish and implement a national monitoring and reporting framework for biodiversity	• The national biodiversity monitoring and reporting framework has been established, is being used as the basis for annual reports to parliament and is informing policy direction and implementation. Monitoring and evaluation frameworks for provincial conservation authorities and bioregional and ecosystem programmes feed into the national monitoring and reporting framework.
SO 3: Integrated management of terrestrial and aquatic ecosystems	
18. List threatened or protected ecosystems in terms of the Biodiversity Act	• Threatened or protected ecosystems have been identified and listed, and the list has been updated at least once. Appropriate supporting material is available, and listed ecosystems are routinely taken into account in land-use planning and decision-making.
21. Implement the AIS regulations	• Control, monitoring and eradication plans are in place for priority alien invasive species that threaten ecosystems, habitats or indigenous species. A system to monitor implementation in place
22. Implement the cross-sector policy objectives for the conservation of inland water biodiversity	• A portfolio of freshwater and estuarine conservation areas has been identified, and mechanisms for implementing appropriate management of these areas are being piloted in at least three Water Management Areas.
23. Incorporate biodiversity conservation objectives in the work of Catchment Management Agencies	• All CMAs that are established and operational have integrated quantitative freshwater biodiversity targets and national freshwater biodiversity priority areas into their Catchment Management Strategies.
24. Develop and implement effective measures for the management and control of activities relating to GMOs, in order to manage their impact on the environment	• Environmental Risk Assessment Framework for GMOs has been developed and is routinely used.
SO 4: Sustainable use of biological resources and equitable sharing of the benefits	
27. Facilitate the development of the natural products sector	• Certification and sustainable international trade in natural products has been facilitated. • Domestic demand has increased through increased awareness. • Natural products enterprises and supply chain management have been strengthened.
SO 5: Expanded network of protected areas and conservation areas	

Priority Actions per Strategic Objective	2013 Targets
30. Implement the National Protected Area Expansion Strategy	• An additional 2.2% (2.7 million hectares) of the country has been included in the land-based protected area network (currently 6.5% of the country). • An additional 2.4% (88km) of the coastline has been included in the inshore marine protected area network (currently 21.5% of the coastline, but with only 9.1% in no-take marine protected areas). • An additional 4.9% (52 500km2) of the mainland exclusive economic zone (EEZ) and an additional 5% (23 300km2) of the Prince Edward Islands EEZ has been included in the offshore marine protected area network (currently 0.4% of the mainland EEZ and 0% of the Prince Edward Islands EEZ).

6. Department of Agriculture

Priority Actions per Strategic Objective	2013 Targets
SO 3: Integrated management of terrestrial and aquatic ecosystems	
21. Implement the AIS regulations	• Control, monitoring and eradication plans are in place for priority alien invasive species that threaten ecosystems, habitats or indigenous species. A system to monitor implementation in place
22. Implement the cross-sector policy objectives for the conservation of inland water biodiversity	• A portfolio of freshwater and estuarine conservation areas has been identified, and mechanisms for implementing appropriate management of these areas are being piloted in at least three Water Management Areas.
24. Develop and implement effective measures for the management and control of activities relating to GMOs, in order to manage their impact on the environment	• Environmental Risk Assessment Framework for GMOs has been developed and is routinely used.
SO 4: Sustainable use of biological resources and equitable sharing of the benefits	
27. Facilitate the development of the natural products sector	• Certification and sustainable international trade in natural products has been facilitated. • Domestic demand has increased through increased awareness. • Natural products enterprises and supply chain management have been strengthened.

7. Department of Trade & Industry

Priority Actions per Strategic Objective		2013 Targets
SO 1: Enabling policy and legislative framework		
3. Integrate biodiversity considerations into trade policy by developing tools for supporting and streamlining environmental decision-making		• Ecosystem guidelines for environmental assessment, generic terms of reference for biodiversity specialist studies in EIAs, a decision-making framework to guide trade-offs where these are unavoidable, and a policy framework for biodiversity offsets have been developed and are being applied nationally.
3a	*Ecosystem-specific guidelines for environmental assessment, and generic terms of reference for biodiversity specialist studies conducted as part of EIAs.*	
3b	*Framework for guiding decisions on trade-offs that decision-makers have to make.*	
3c	*Policy framework for biodiversity offsets*	
SO 3: Integrated management of terrestrial and aquatic ecosystems		
24. Develop and implement effective measures for the management and control of activities relating to GMOs, in order to manage their impact on the environment		• Environmental Risk Assessment Framework for GMOs has been developed and is routinely used.
SO 4: Sustainable use of biological resources and equitable sharing of the benefits		
27. Facilitate the development of the natural products sector		• Certification and sustainable international trade in natural products has been facilitated. • Domestic demand has increased through increased awareness. • Natural products enterprises and supply chain management have been strengthened.

8. Department of Science & Technology

Priority Actions per Strategic Objective	2013 Targets
SO 2: Enhanced institutional effectiveness and efficiency	
10. Establish and implement a national biodiversity research strategy	• National biodiversity research strategy has been developed, is recognised by all key stakeholders, and is used as a basis for the allocation of research efforts and funding. Institutional arrangements for biodiversity research are co-ordinated and strengthened.
SO 3: Integrated management of terrestrial and aquatic ecosystems	
24. Develop and implement effective measures for the management and control of activities relating to GMOs, in order to manage their impact on the environment	• Environmental Risk Assessment Framework for GMOs has been developed and is routinely used.
SO 4: Sustainable use of biological resources and equitable sharing of the benefits	
27. Facilitate the development of the natural products sector	• Certification and sustainable international trade in natural products has been facilitated. • Domestic demand has increased through increased awareness. • Natural products enterprises and supply chain management have been strengthened.

9. National Treasury

Priority Actions per Strategic Objective		2013 Targets
SO 1: Enabling policy and legislative framework		
2. Integrate biodiversity considerations into fiscal policy		• At least two fiscal instruments and/or market mechanisms for biodiversity conservation have been developed, and pilots are underway.
2a	*Fiscal instruments that encourage private landowners to contribute their own resources to effective biodiversity management*	
2b	*Mechanisms that allow for payment for ecosystem services, and reinvestment of the revenues generated in securing the health of ecosystems*	

10. Provincial conservation authorities and environment affairs departments

Priority Actions per Strategic Objective		2013 Targets
SO 1: Enabling policy and legislative framework		
3. Integrate biodiversity considerations in land-use planning and decision-making, by developing tools for supporting and streamlining environmental decision-making		• Ecosystem guidelines for environmental assessment, generic terms of reference for biodiversity specialist studies in EIAs, a decision-making framework to guide trade-offs where these are unavoidable, and a policy framework for biodiversity offsets have been developed and are being applied nationally.
3a	*Ecosystem guidelines for environmental assessment, and generic terms of reference for biodiversity specialist studies conducted as part of EIAs*	
3b	*Framework for guiding decisions on trade-offs that decision-makers have to make*	
3c	*Policy framework for biodiversity offsets*	
SO 2: Enhanced institutional effectiveness and efficiency		
7. Establish and implement a human capital development strategy for the biodiversity sector to address transformation and scarce skills		• A national human capital development strategy for the biodiversity sector, reflecting specific employment equity targets for all key research and implementing agencies in the sector, has been developed and is being implemented.
11. Establish and implement a national monitoring and reporting framework for biodiversity		• The national biodiversity monitoring and reporting framework has been established, is being used as the basis for annual reports to parliament and is informing policy direction and implementation. Monitoring and evaluation frameworks for provincial conservation authorities and bioregional and ecosystem programmes feed into the national monitoring and reporting framework.
12. Establish a national programme to build the capacity of municipalities to include biodiversity opportunities and constraints in their planning and operations		• A national programme to build municipal capacity has been established and is underway, focusing initially on municipalities with, for example, high numbers of threatened ecosystems.
13. Establish pilot projects to explore mechanisms for integrated natural resource management at the district level		• Pilots for district natural resource co-ordinators and/or other mechanisms for integrated natural resource management are underway in at least four districts.
SO 3: Integrated management of terrestrial and aquatic ecosystems		
16. Develop provincial spatial biodiversity plans in additional provinces		• At least six provinces have spatial provincial biodiversity plans in place, with the necessary in-house capacity to maintain and update them.

Priority Actions per Strategic Objective	2013 Targets
17. Publish bioregional plans in terms of the Biodiversity Act	• At least seven bioregional plans have been published and are being used routinely to inform land-use planning and decision-making.
18. List threatened or protected ecosystems in terms of the Biodiversity Act	• Threatened or protected ecosystems have been identified and listed, and the list has been updated at least once. Appropriate supporting material is available, and listed ecosystems are routinely taken into account in land-use planning and decision-making.
20. Work with key production sectors to minimise loss and degradation of natural habitat in threatened ecosystems and critical biodiversity areas	• Guidelines for biodiversity-friendly production of biofuels have been developed and are being applied by biofuel producers. • At least three production sectors have developed wise practice guidelines to minimise their impact on biodiversity.
21. Implement the AIS regulations	• Control, monitoring and eradication plans are in place for priority alien invasive species that threaten ecosystems, habitats or indigenous species. A system to monitor implementation in place.
22. Implement the cross-sector policy objectives for the conservation of inland water biodiversity	• A portfolio of freshwater and estuarine conservation areas has been identified, and mechanisms for implementing appropriate management of these areas are being piloted in at least three Water Management Areas.
SO 4: Sustainable use of biological resources and equitable sharing of the benefits	
28. Improve knowledge of sustainable extractive use of terrestrial resources	• Preliminary synthesis and assessment of the available information on sustainable extractive use for species listed in the TOPS regulations has been completed. • Knowledge of the extent of harvesting and limits to sustainable extractive use has been developed for at least ten priority species on the TOPS list as well as for at least ten medicinal plants. • Knowledge of sustainable extractive use of terrestrial resources informs the development and implementation of community-based natural resource management programmes.
SO 5: Expanded network of protected areas and conservation areas	
29. Finalise the 20-year National Protected Area Expansion Strategy, underpinned by the national biodiversity targets	• National Protected Area Expansion Strategy has been finalised and is supported by all key implementing agencies. • Complete up-to-date map of protected areas is widely available. Protected area register is populated and maintained.

Priority Actions per Strategic Objective	2013 Targets
30. Implement the National Protected Area Expansion Strategy	• An additional 2.2% (2.7 million hectares) of the country has been included in the land-based protected area network (currently 6.5% of the country). • An additional 2.4% (88km) of the coastline has been included in the inshore marine protected area network (currently 21.5% of the coastline, but with only 9.1% in no-take marine protected areas). • An additional 4.9% (52 500km2) of the mainland exclusive economic zone (EEZ) and an additional 5% (23 300km2) of the Prince Edward Islands EEZ has been included in the offshore marine protected area network (currently 0.4% of the mainland EEZ and 0% of the Prince Edward Islands EEZ).
31. Establish and strengthen provincial stewardship programmes	• At least six provinces have active stewardship programmes. • National guidelines for incentives for stewardship sites have been developed, and implementation on provincial level has been negotiated. National guidelines and minimum standards for assessing candidate sites have been developed, and a toolbox to assist provincial implementation has been finalised.
32. Strengthen programmes that support the informal conservation area system	• Two additional Biosphere Reserves have been designated by UNESCO. • Two additional wetland sites have been designated as Ramsar sites. An investigation of possible means of protection for Ramsar sites has been initiated.

11. Municipalities, SALGA and DPLG

Priority Actions per Strategic Objective	2013 Targets
SO 2: Enhanced institutional effectiveness and efficiency	
12. Establish a national programme to build the capacity of municipalities to include biodiversity opportunities and constraints in their planning and operations	• A national programme to build municipal capacity has been established and is underway, focusing initially on municipalities with, for example, high numbers of threatened ecosystems.
13. Establish pilot projects to explore mechanisms for integrated natural resource management at the district level	• Pilots for district natural resource co-ordinators and/or other mechanisms for integrated natural resource management are underway in at least four districts.

Priority Actions per Strategic Objective	2013 Targets
SO 3: Integrated management of terrestrial and aquatic ecosystems	
21. Implement the AIS regulations	• Control, monitoring and eradication plans are in place for priority alien invasive species that threaten ecosystems, habitats or indigenous species. A system to monitor implementation in place

12. NGOs

Priority Actions per Strategic Objective	2013 Targets
SO 2: Enhanced institutional effectiveness and efficiency	
12. Establish a national programme to build the capacity of municipalities to include biodiversity opportunities and constraints in their planning and operations	• A national programme to build municipal capacity has been established and is underway, focusing initially on municipalities with, for example, high numbers of threatened ecosystems.
14. Support the development and strengthening of bioregional and ecosystem programmes	• The co-ordination units of the five existing bioregional and ecosystem programmes (C.A.P.E., SKEP, STEP, Grasslands and Marine) are funded by government and effective management structures have been established. • The Freshwater Programme has been established.
SO 3: Integrated management of terrestrial and aquatic ecosystems	
19. Develop Biodiversity Management Plans for species of special concern and threatened ecosystems	• Three BMP-S have been developed and are being successfully implemented. • Norms and Standards for BMP-E have been developed.
20. Work with key production sectors to minimise loss and degradation of natural habitat in threatened ecosystems and critical biodiversity areas	• Guidelines for biodiversity-friendly production of biofuels have been developed and are being applied by biofuel producers. • At least three production sectors have developed wise practice guidelines to minimise their impact on biodiversity.
22. Implement the cross-sector policy objectives for the conservation of inland water biodiversity	• A portfolio of freshwater and estuarine conservation areas has been identified, and mechanisms for implementing appropriate management of these areas are being piloted in at least three Water Management Areas.
SO 4: Sustainable use of biological resources and equitable sharing of the benefits	

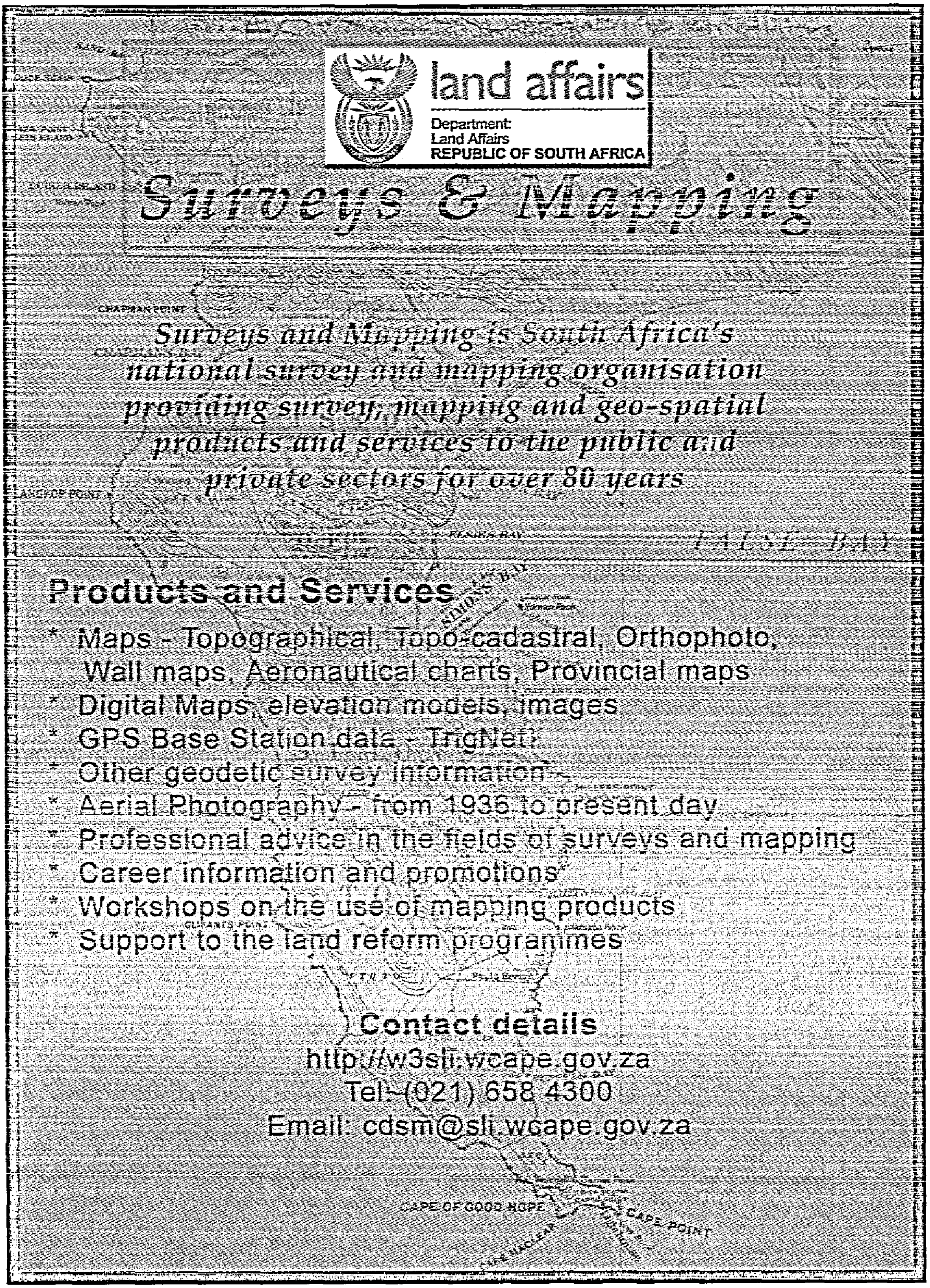
Priority Actions per Strategic Objective	2013 Targets
25. Address illegal and unregulated fishing and seafood trade, especially of endemic line fish and abalone	• Linefish status reports are updated, recovery plans are implemented for 6 species and the ecosystem approach is implemented in all major commercial fisheries • Monitoring and enforcement capacities among regional and local authorities and other roleplayers are strengthened, especially in regions of high priority such as Gauteng, a hub for seafood trade. • A regional network of relevant institutions and organisations for monitoring the illegal trade in seafood/threatened species has been developed. • Consumer demand for threatened or protected marine species has been reduced through increased awareness
27. Facilitate the development of the natural products sector	• Certification and sustainable international trade in natural products has been facilitated. • Domestic demand has increased through increased awareness. • Natural products enterprises and supply chain management have been strengthened.
28. Improve knowledge of sustainable extractive use of terrestrial resources	• Preliminary synthesis and assessment of the available information on sustainable extractive use for species listed in the TOPS regulations has been completed. • Knowledge of the extent of harvesting and limits to sustainable extractive use has been developed for at least ten priority species on the TOPS list as well as for at least ten medicinal plants. • Knowledge of sustainable extractive use of terrestrial resources informs the development and implementation of community-based natural resource management programmes.
SO 5: Expanded network of protected areas and conservation areas	**Lead agencies**
30. Implement the National Protected Area Expansion Strategy	• An additional 2.2% (2.7 million hectares) of the country has been included in the land-based protected area network (currently 6.5% of the country). • An additional 2.4% (88km) of the coastline has been included in the inshore marine protected area network (currently 21.5% of the coastline, but with only 9.1% in no-take marine protected areas). • An additional 4.9% (52 500km2) of the mainland exclusive economic zone (EEZ) and an additional 5% (23 300km2) of the Prince Edward Islands EEZ has been included in the offshore marine protected area network (currently 0.4% of the mainland EEZ and 0% of the Prince Edward Islands EEZ).

Priority Actions per Strategic Objective	2013 Targets
31. Establish and strengthen provincial stewardship programmes	• At least six provinces have active stewardship programmes. • National guidelines for incentives for stewardship sites have been developed, and implementation on provincial level has been negotiated. National guidelines and minimum standards for assessing candidate sites have been developed, and a toolbox to assist provincial implementation has been finalised.
32. Strengthen programmes that support the informal conservation area system	• Two additional Biosphere Reserves have been designated by UNESCO. • Two additional wetland sites have been designated as Ramsar sites. An investigation of possible means of protection for Ramsar sites has been initiated.

13. Research institutions and tertiary education institutions

Priority Actions per Strategic Objective	2013 Targets
SO 2: Enhanced institutional effectiveness and efficiency	
7. Establish and implement a human capital development strategy for the biodiversity sector to address transformation and scarce skills	• A national human capital development strategy for the biodiversity sector, reflecting specific employment equity targets for all key research and implementing agencies in the sector, has been developed and is being implemented.
10. Establish and implement a national biodiversity research strategy	• National biodiversity research strategy has been developed, is recognised by all key stakeholders, and is used as a basis for the allocation of research efforts and funding. Institutional arrangements for biodiversity research are co-ordinated and strengthened.
SO 4: Sustainable use of biological resources and equitable sharing of the benefits	
27. Facilitate the development of the natural products sector	• Certification and sustainable international trade in natural products has been facilitated. • Domestic demand has increased through increased awareness. • Natural products enterprises and supply chain management have been strengthened.

Priority Actions per Strategic Objective	2013 Targets
28. Improve knowledge of sustainable extractive use of terrestrial resources	• Preliminary synthesis and assessment of the available information on sustainable extractive use for species listed in the TOPS regulations has been completed. • Knowledge of the extent of harvesting and limits to sustainable extractive use has been developed for at least ten priority species on the TOPS list as well as for at least ten medicinal plants. • Knowledge of sustainable extractive use of terrestrial resources informs the development and implementation of community-based natural resource management programmes.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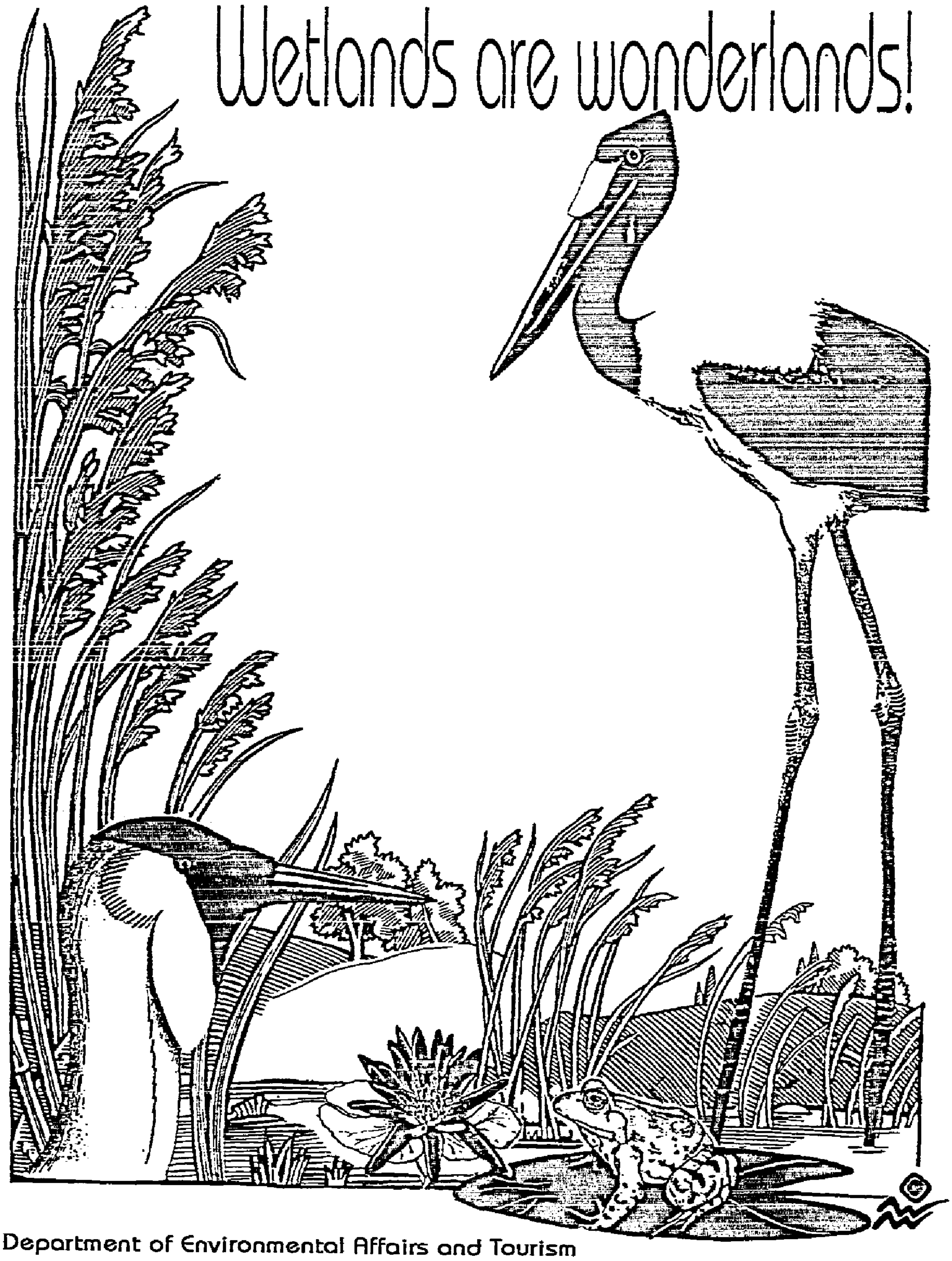
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