



chapter 9

Environmental management

Environmental management in South Africa is the responsibility of various government institutions. At central government level, the Department of Environmental Affairs and Tourism is the central policy-formulating and co-ordinating body.

The vision of the Department is to lead environmental management and tourism in the interest of sustainable development and to contribute to the improvement of the quality of life of all South Africans by:

- promoting the sustainable development, utilisation and protection of the country's natural and cultural resources
- establishing responsible tourism that ensures environmental sustainability and contributes to job creation and a better quality of life for all
- harnessing the skills, experience and knowledge of the environment of all South Africans
- fostering equitable access to the benefits derived from the country's natural and cultural resources

◀ The ground hornbill is an endangered species. As the largest co-operative breeding birds in the world they are of great interest to scientists. The current status of the ground hornbill has been judged by the WorldWide Fund (WWF) and South African Green Trust as justifying a conservation, research and introduction project.

- empowering the South African public, communities and organisations through participation, environmental education, capacity-building, research and information services
- working with all relevant stakeholders and spheres of government in the spirit of good governance
- ensuring that all international participation and obligations are undertaken in accordance with South Africa's environmental policies and principles.

Other Departments involved include Agriculture, Water Affairs and Forestry, Minerals and Energy, and Health.

At regional level, the provincial conservation agencies are major role-players, and independent statutory organisations such as the South African National Parks (SANParks) and National Botanical Institute (NBI) are valuable partners in the country's total conservation effort.

In accordance with the National Environment Management Act, 1998 (Act 107 of 1998), the Committee for Environmental Co-ordination was established to harmonise the work of government departments on environmental issues, and to co-ordinate environmental implementation and national management plans at provincial level. The Act sets principles for effective management of the environment, which all organs of the

State have to comply with in their decision-making. The Act also makes provision for the National Environmental Advisory Forum, where stakeholders and experts advise the Minister of Environmental Affairs and Tourism on environmental-management issues.

The National Environmental Management Act, 1998 requires government and provincial departments to compile Environmental Implementation Plans (EIPs) and Environmental Management Plans, providing a legal framework for environmental development.

By June 2003, the national and provincial Departments of Environmental Affairs had put in place a comprehensive set of EIPs. The national Department has approached the Office of the Auditor-General for assistance in developing a mechanism to monitor compliance with the EIPs.

Reports providing the status of these EIPs can be viewed on the Department's website at www.environment.gov.za.

Each province may promulgate its own ordinances dealing with hunting, fishing and the protection of fauna and flora.

Environmental Impact Assessments (EIAs)

One of the most far-reaching interventions around co-operative governance in the last decade has been the introduction of EIAs. Some EIAs are considered at national level, but

the vast majority of development applications are processed by provinces.

In 2002, the Department processed 88 EIAs, which comprised projects estimated at a value of R43 billion. These included:

- the N4 platinum toll highway which is to form part of the main link between the West Coast and East Coast
- Coega industrial development and Coega Harbour
- the construction of an underground natural gas pipeline from Mozambique's Temane and Pande gas fields to Secunda in Mpumalanga
- the development of support infrastructure within the Great Limpopo Transfrontier Park (GLTP)
- twenty-nine applications related to government's Poverty-Relief Programme.

State of the environment

The greatest challenge for South Africa and the rest of the world is to improve the quality of human life for both present and future generations, without depleting its natural resources. This can only be achieved through a healthy natural environment which supplies raw material; absorbs and treats waste products; and maintains water, soil and air quality.

Food security, water provision and climatic stability depend on having properly functioning ecosystems, stable levels of biodiversity, sustainable rates of resource extraction, and a minimal production of waste and pollution.

To this end, the United Nations (UN) General Assembly Conference on Environment and Development developed and adopted Agenda 21 in 1992 as the global strategy for sustainable development.

South Africa has taken several steps to implement Agenda 21 at national and local level, including reforming environmental policies, ratifying international agreements and participating in many global and regional sustainable-development initiatives.



World Wetlands Day: 2 February
National Water Week: 19 March to 25 March
Earth Day: 20 March
World Water Day: 22 March
World Meteorological Day: 23 March
World Environment Day: 5 June
World Desertification Day: 17 June
National Arbor Week: 1 to 7 September
International Day for the Protection of the Ozone Layer: 16 September
World Tourism Day: 27 September
World Habitat Day: 4 October
National Marine Day: 20 October



World Summit on Sustainable Development (WSSD)

Johannesburg hosted the WSSD, which took place from 26 August to 4 September, 2002.

Representatives of nearly 200 countries with widely divergent positions attended. The agreements reached in Johannesburg are a guide to action that will take forward the UN Millennium Summit Declaration's goal of halving world poverty by 2015, as well as decisions taken by world bodies since the Rio Earth Summit in 1992.

Among the victories of the Summit was the launch of over 300 partnerships, including 32 energy initiatives, 21 water programmes and 32 programmes for biodiversity and ecosystem management.

The biggest success was getting the world to turn the UN Millennium Declaration into a concrete set of programmes and mobilise funds for these programmes. The WSSD focused on the most marginalised sectors of society, including women, youth, indigenous people and people with disabilities.

The Implementation Plan includes programmes to deliver water, energy, healthcare, agricultural development, a better environment for the world's poor, and targets for the reduction of poverty and protection of the environment.

New targets set at the Summit will have enormous impact:

- The number of people without basic sanitation will be halved by 2015. In 2001, the world's leaders agreed to halve the number of people without access to safe drinking water by 2015.
- Biodiversity loss is to be reversed by 2010, and collapsed fish stocks restored by 2015.
- Chemicals with a detrimental health impact will be phased out by 2020.
- Energy services will be extended to 35% of African households over the next 10 years.

The Minister of Environmental Affairs and Tourism, Mr Mohammed Valli Moosa, chaired the 11th Session of the UN Commission on

Sustainable Development in New York in April 2003.

Ministerial input at the meeting, a follow-up to the WSSD, included aspects such as ways in which the sectors involved in the WSSD should address the issues raised.

A Multi-Year Programme of Work was drawn up according to different thematic clusters for the work which is to be done by 2016/17. The main themes identified are as follows:

- 2004/05: Water, Sanitation and Human Settlements
- 2006/07: Energy for Sustainable and Industrial Development, Air Pollution/Atmosphere Climate Change
- 2008/09: Agriculture, Rural Development, Land, Drought, Desertification, Africa
- 2010/11: Transport, Chemicals, Waste Management, Mining and a 10-Year framework of programmes on Sustainable Consumption and Production Patterns
- 2012/13: Forests, Biodiversity, Biotechnology, Tourism, Mountains
- 2014/15: Oceans and Seas, Marine Resources, Small Island Developing States, Disaster Management and Vulnerability
- 2016/17: Overall Appraisal of Implementation of Agenda 21, the Programme for the Further Implementation of Agenda 21, and the Johannesburg Plan of Implementation.

Biological diversity

South Africa enjoys the third-highest level of biodiversity in the world. The country's rich natural heritage is vast and staggering in its proportions. For example, over 3 700 marine species occur in South African waters and nowhere else in the world. The remarkable richness of South Africa's biodiversity is largely the result of the mix of tropical Mediterranean and temperate climates and habitats occurring in the country. Some 18 000 vascular plant species occur within South Africa's boundaries, of which 80% occur nowhere else. More plant species occur within 22 000 hectares (ha) of the

Biodiversity values in South Africa							
	Biome	Veld type	Number of species				
			Plant	Mammal	Bird	Amphibian	Reptile
Eastern Cape	6	29	6 383	156	384	51	57
Free State	3	19	3 001	93	334	29	47
Gauteng	2	9	2 826	125	326	25	53
KwaZulu-Natal	3	19	5 515	177	462	68	86
Limpopo	2	14	4 239	239	479	44	89
Mpumalanga	2	20	4 593	160	464	48	82
Northern Cape	4	20	4 916	139	302	29	53
North West	2	10	2 483	138	384	27	59
Western Cape	6	19	9 489	153	305	39	52

Source: Department of Environmental Affairs and Tourism. Plant defined as angiosperm and gymnosperm. Data taken from the National Herbarium Pretoria Computerised Information System database, May 2003. Biome counts taken from Rutherford (1997) with thicket from Low & Rebelo (1998) Veld types taken from Acocks (1988)

Cape Peninsula National Park than the whole of the British Isles or the whole of New Zealand.

In addition to South Africa's extraordinarily varied plant life, a wealth of animal life exists in the region. The country hosts an estimated 5,8% of the world's total mammal species, 8% of bird species, 4,6% of the global diversity of reptile species, 16% of the total number of marine fish species, and 5,5% of the world's classified insect species. In terms of the number of mammal, bird, reptile and amphibian species which occur in this country only, South Africa is the 24th-richest country in the world and the fifth-richest in Africa.

South Africa is home to a diversity of spiders – 66 families comprising more than 6 000 species. The country also boasts 175 species of scorpion.

South Africa's marine life is similarly diverse, partly as a result of the extreme contrast between the water masses on the east and west coasts. Three water masses – the cold Benguela Current, the warm Agulhas Current and oceanic water – make the region one of the most oceanographically heterogeneous in the world. According to the *White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity*, over 10 000 plant and animal species – almost 15% of the coastal species known worldwide – are found in South African waters, with about 12% of these occurring nowhere else.

The easiest way to describe the country's natural heritage is on the basis of a systematic classification of regions, or biomes. A biome can be defined as a broad ecological unit representing a major life zone, which extends over a large area, and contains relatively uniform plant and animal life closely connected with environmental conditions, especially climate.

The White Paper states that South Africa is one of six countries in the world with an entire plant kingdom within its national confines. Known as the Cape Floral Kingdom, this area



The National Environmental Management: Biodiversity Bill was approved by the Cabinet for submission to Parliament in April 2003.

The Bill aims to ensure the management and conservation of the biological diversity of South Africa, the sustainable use of biological resources, and the fair and equitable sharing of benefits arising from the use and application of genetic resources and material.

The Bill also provides for the establishment of the National Biodiversity Institute, replacing the National Botanical Institute. The Biodiversity Institute will regulate and manage botanical gardens, and act as an advisory and consultative body to State organs and biodiversity stakeholders on matters relating to biodiversity.

The National Council of Provinces approved the Bill in August 2003.



has the highest recorded species diversity for any similar-sized temperate or tropical region in the world.

Other biomes in the country are also of global conservation significance; for example, one-third of the world's succulent plant species is found in South Africa.

There are eight major terrestrial biomes, or habitat types, in South Africa. These biomes can, in turn, be divided into 70 veld types.

The degree to which each of these biomes is threatened varies, depending on the fertility of the soil, the economic value derived from use of the area, human population pressures, and the extent to which the biome is conserved in protected areas.

Savanna biome

This biome is an area of mixed grassland and trees, and is generally known as bushveld.

In the Northern Cape and Kalahari sections of this biome, the most distinctive trees are the camel thorn (*Acacia erioloba*) and the camphor bush (*Tarchonanthus camphoratus*). In Limpopo, the portly baobab (*Adansonia digitata*) and the candelabra tree (*Euphorbia ingens*) dominate. The central bushveld is home to species such as the knob thorn (*Acacia nigrescens*), bushwillow (*Combretum spp.*), monkey thorn (*Acacia galpinii*), mopani (*Colophospermum mopane*) and wild fig (*Ficus spp.*) In the valley bushveld of the south,

euphorbias and spekboom trees (*Portulacaria afra*) predominate.

An abundance of wild fruit trees provide food for many birds and animals in the savanna biome.

Grey louries, hornbills, shrikes, flycatchers and rollers are birds typical of the northern regions. The subtropical and coastal areas are home to Knysna louries, purple-crested louries and green pigeons. Raptors occur throughout the biome.

The larger mammals include lion, leopard, cheetah, elephant, buffalo, zebra, rhinoceros, giraffe, kudu, oryx, waterbuck, hippopotamus and many others.

Approximately 8,5% of the biome is protected. The Kruger National Park, Kgalagadi Transfrontier Park, Hluhluwe-Umfolozi Park, Greater St Lucia Wetlands Park (GSWLP), and other reserves are located in the savanna biome.

Nama-Karoo biome

This biome includes the Namaland area of Namibia and the Karoo area of South Africa.

Because of low rainfall, rivers are nonperennial. Cold and frost in winter and high temperatures in summer demand special adaptations from plants. The vegetation of this biome is mainly low shrubland and grass, with trees limited to water courses. The bat-eared fox, black-backed jackal, ostrich, suricate and ground squirrel are typical of the area.

Only 1% of the Nama-Karoo biome falls within officially protected areas, of which the Karoo and Augrabies National Parks are the largest.

Overgrazing and easily eroded soil surfaces are causing this semi-desert to creep slowly in on the neighbouring savanna and grassland biomes.

Grassland biome

This biome is a summer-rainfall area with heavy thunderstorms and hail, and frost in winter. A number of perennial rivers such as the Orange, Vaal, Pongola, Kei and Umzimvubu originate in, and flow through, the area. Trees



From 8 to 17 September 2003, South Africa, under the leadership of South African National Parks, hosted the Fifth World Parks Congress in Durban, KwaZulu-Natal – the single most important event of its kind for dealing with issues of conservation and environmental protection. South Africa was requested to host the event in recognition of the country's successful park management system and transfrontier parks initiatives.

The theme of the Congress was *Benefits Beyond Boundaries*.

Some 2 300 participants, including experts in the field of protected area management from across the world, attended.

are scarce and are found mainly on hills and along river beds. Karee (*Rhus lancea*), wild currant (*Rhus pyroides*), white stinkwood (*Celtis africana*) and several acacia species are the most common.

The grassland biome has the third-largest number of indigenous plant species in the country.

Eight mammal species endemic to South Africa occur in a wild state in this biome. Three of these, namely the black wildebeest, blesbok and eland, do not occur outside the grassland biome.

The area is internationally recognised as an area of high species endemicity insofar as birds are concerned. Birds commonly found in the area include the black korhaan, blue crane, guinea-fowl and other grassland birds.

Only 1,1% of the grassland biome is officially protected. The wilderness areas of the KwaZulu-Natal Drakensberg are the most significant.

Succulent Karoo biome

One of the natural wonders of South Africa is the annual blossoming of the Namaqualand wild flowers (mainly of the family Asteraceae), which transforms the semi-desert of the Northern Cape into a fairyland. After rain, the drab landscape is suddenly covered from horizon to horizon with a multicoloured carpet (from August to October, depending on the rainfall).

This is a winter-rainfall area with extremely dry and hot summers. Succulents with thick, fleshy leaves are plentiful. Most trees have white trunks to reflect the heat.

The quiver tree (*Aloe dichotoma*) and the human-like elephant's trunk (*Pachypodium namaquanum*) are prominent in the Richtersveld. Grass is scarce.

The animal life is similar to that of neighbouring biomes (*fynbos* and Nama-Karoo).

The Richtersveld, Tankwa-Karoo and Namaqua National Parks have improved the conservation status of this biome considerably.

Fynbos biome

The *fynbos* biome is one of the six accepted floral kingdoms of the world. This region covers only 0,04% of the land surface of the globe.

Fynbos is found mainly in the Western Cape. It is a winter-rainfall area, and the *fynbos* vegetation is similar to that of mediterranean regions.

Fynbos is the name given to a group of evergreen plants with small, hard leaves (such as those in the Erica family). It is made up mainly of three groups of plants, namely the proteas, the heathers and the restios, and incorporates a diversity of plant species (more than 8 500 kinds, over 6 000 of which are endemic).

The *fynbos* biome is home to the protea, for which South Africa is renowned. The biome also contains flowering plants, now regarded as garden plants, such as freesia, tritonia, sparaxis and many others.

Protected areas cover 13,6% of the *fynbos* biome and include the Cape Peninsula and Agulhas National Parks.

The biome is not very rich in bird and mammal life, but does include the grysbok, the geometric tortoise, the Cape sugar-bird and the protea seed-eater, which are endemic to the area. The mountains are the habitat of the leopard, baboon, several types of eagle, honeybadger, caracal and rhebuck.

Forest biome

South Africa has few forests. The only forests of significance are the Knysna and Tsitsikamma forests in the Western and Eastern Cape, respectively.

Other reasonably large forest patches that are officially protected are in the high-rainfall areas of the eastern escarpment, and on the eastern seaboard. Forest giants such as yellowwood (*Podocarpus spp.*), ironwood (*Olea capensis*) and lemonwood (*Xymalos monospora*) dominate.

The indigenous forests are a magical world of ferns, lichens, and colourful forest birds such as the Knysna lourie, the endangered



Cape parrot and the rameron pigeon. Animals include the endangered samango monkey, the bushpig, the bushbuck and the delicate blue duiker.

Thicket biome

Subtropical thicket ranges from closed shrubland to low forest, dominated by evergreen succulent trees, shrubs and vines.

It is often impenetrable and has little herbaceous cover. Roughly 20% of the species in the thicket biome are endemic to the biome.

Desert biome

True desert is found under very harsh environmental conditions which are even more extreme than those found in the succulent Karoo and the Nama-Karoo biomes. The climate is characterised by summer rainfall, but also high levels of summer aridity. Rainfall is highly variable from year to year. Desert is found mostly in Namibia, although it does occur in South Africa in the lower Orange River valley.

The vegetation of the desert biome is characterised by the dominance of annual plants (often annual grasses). This means that after a rare season of abundant rain, the desert plains can be covered with a sea of short annual grass, whereas in drier years, the plains appear bare with the annual plants persisting in the form of seeds.

Perennial plants are usually encountered in specialised habitats associated with local con-

centrations of water. Common examples of such habitats are broad drainage lines or washes. Nearer to the coast, the role of coastal fog also governs the distribution of certain species commonly associated with the desert.

The desert biome includes an abundant insect fauna which includes many tenebrionid beetles, some of which can utilise fog water. There are also various vertebrates including reptiles, springbuck, ostrich, gemsbuck, snakes and geckos.

Some areas in the desert biome are formally protected in the Richtersveld National Park.

Preserving genetic diversity

South Africa, with its wide range of natural resources, is an ideal proponent to apply the principle of sustainable use of these resources. There is a wide range of benefits derived from the conservation of biodiversity. A large portion of the South African population is directly dependent on biological resources for subsistence purposes, including the gathering, harvesting or hunting of plants and animals as a source of food, medicine, shelter and trade. The use of biological resources therefore provides a buffer against poverty as well as a source of economic gain. A number of industries in the country, such as the fishing, hunting, wild flower and wood-harvesting industries, are directly dependent on its biological resources.

Local communities benefit in various ways from the trade in biological resources. For example, the Makuleke community in the Kruger National Park had their land returned to them and are now developing infrastructure for tourists, as well as benefitting from consumptive wildlife resource-use.

South Africa is the fastest-growing tourism destination in the world, with 6,4 million tourists visiting the country during 2002. Overseas arrivals increased by 20,1% (just over 1,8 million people) during 2002.



Cape Town installed one of the first 'penguin' crossings in the world in 2003.

The crossing is aimed at reducing penguin fatalities in the Simon's Town area.

The colony of African penguins making use of the crossing live in a naturally protected area at Boulders Beach, which forms part of the Cape Peninsula National Park.

By June 2003, the estimated penguin population in the area was estimated at 3 600 birds – from just two breeding pairs in 1982.

The main attractions are nature-based tourism facilities such as national parks and private game reserves.

There are some 9 000 privately owned game ranches in South Africa, expanding at a rate of 300 000 ha per annum. The contribution of these areas in maintaining South Africa's unique biodiversity is incalculable.

The following are examples of the success that has been achieved in South Africa, in terms of the conservation of endangered species by various role-players:

White rhinoceros

South Africa hosts the most stable population of the southern white rhinoceros in Africa. Through concerted efforts by conservation agencies such as Ezemvelo KwaZulu-Natal Wildlife and SANParks, the population of this species increased from less than 20 in 1910 to almost 8 000 in 1997, in approximately 60 populations across South Africa. Almost a third of the animals are in private ownership. A significant number of animals have also been relocated to destinations outside the country.

African elephant

In 1910, the elephant population in South Africa was reduced to four remnant populations covering an area of less than 10 000 ha. Due to the efforts of judicious management practices, of among others, SANParks, the number of elephants had increased to more than 11 300 in 1998, in approximately 60 locations throughout the country.



With over 500 bird species, including black coucals, narina trogons, Pel's fishing owls, crowned eagles, black eagles and the African finfoot, the Kruger National Park is a birding paradise. The Park has tapped into its wealth of bird species to boost its income. The Park hosts an annual Big Birding Day, which is becoming a very popular event.

The Park is home to an impressive number of species: 336 trees, 49 fish, 34 amphibians, 114 reptiles and 147 mammals.

Cycads

This genus is very popular among collectors, causing it to be under severe threat. Through actions such as legislation and the refining of *ex situ* conservation efforts, artificial propagation has been achieved. By mid-2002, more than 200 000 seedlings of endangered species of the genus had been sold to the general public, and the threat to the wild populations has largely been reduced.

Cheetah

Through the efforts of formal conservation agencies assisted by private individuals, South Africa has managed to breed large numbers of this species in captivity. Relocation of these animals to protected areas, both in and outside South Africa, is common practice.

Wild dog

The wild dog, *Lycaon pictus*, is the most endangered large carnivore species in South Africa.

On 1 January 2000, there were at least 177 wild dogs living in 25 packs in the Kruger National Park and neighbouring reserves.

Conservation areas

South Africa boasts some 403 terrestrial protected areas, with a total area of 6 638 658 ha or about 5,44% of its total land area. Twenty-two of these protected areas are national parks, and their total area makes up 53,09% of South Africa. A further 13,82% are State forests in terms of the National Forests Act, 1998 (Act 84 of 1998). Provinces are legally responsible for 30,51% of South Africa's protected area estate.

There are a number of management categories of protected areas in South Africa, which conform to the accepted categories of the World Conservation Union (IUCN).

The National Environment Management: Protected Areas Bill, which was tabled in Parliament in August 2003, seeks to establish a representative system of protected areas as part of a national strategy to protect South Africa's biological diversity, and to ensure that



biodiversity is able to bring about sustainable benefits for future generations.

The Bill will repeal the National Parks Act, 1976, [Act 57 of 1976], and provide for the continued existence of SANParks, which will continue to administer the National Parks Land Acquisition Fund.

It also enables the Minister to acquire private land by purchasing land rights for the creation of protected areas.

Four types of protected areas can be declared in terms of the Bill, including nature reserves, national parks and protected environments. It is intended that all terrestrial protected areas in South Africa, other than those established in terms of the National Forests Act, 1998, be catered for in the Bill.

Scientific reserves

Scientific reserves are sensitive and undisturbed areas managed for research, monitoring and maintenance of genetic sources. Access is limited to researchers and staff. Examples of such areas are Marion Island and the Prince Edward Islands near Antarctica.

Wilderness areas

These areas are extensive in size, uninhabited and underdeveloped, and access is strictly controlled since no vehicles are allowed. The highest management priority is the maintenance

of the intrinsic wilderness character. Examples of wilderness areas are the Cedarberg Wilderness Area and Dassen Island in the Western Cape, and the Baviaanskloof Wilderness Area in the Eastern Cape.

National parks and equivalent reserves

SANParks manages a system of 20 national parks, representative of the country's important ecosystems and unique natural features. Commercial and tourism-conservation development, and the involvement of local communities, are regarded as performance indicators. These areas include national parks proclaimed in terms of the National Parks Act, 1976 [Act 57 of 1976], provincial parks and nature reserves, and indigenous State forests.

Some of these natural and scenic areas are extensive in size, and include large representative areas of at least one of the country's biomes. Since 1994, parks under SANParks have expanded by 166 071 ha.

The National Parks are: Kruger National Park, Kalahari Gemsbok National Park (part of the Kgalagadi Transfrontier Park), Addo Elephant National Park, Bontebok National Park, Mountain Zebra National Park, Golden Gate Highlands National, Tsitsikamma National Park, Augrabies Falls National Park, Karoo National Park, Wilderness National Lakes Area, West Coast National Park, Tankwa-Karoo National Park, Knysna National Lakes Area, Marakele National Park, Richtersveld National Park, Vhembe-Dongala National Park, Vaalbos National Park, Aghulhas National Park, Namaqua National Park, and Cape Peninsula National Park, which incorporates the Cape of Good Hope, Table Mountain and Silvermine Nature Reserves.

There are currently six Transfrontier Conservation Areas (TFCAs) along borders with neighbouring countries, at various stages of development: GLTP, Kgalagadi, Lubombo, Ais-Ais/Richtersveld, Maloti-Drakensberg and Limpopo-Shashe. These are conservation landmarks, significantly promoting regional



The Kruger National Park received more than a million tourists between April 2002 and March 2003, the largest number ever in its history.

The Park, which first opened to visitors in 1927, recorded a steep growth after 1994, with a record 954 732 visitors in the 1997/98 financial year.

One of the major events that attracted visitors to the Park was the total solar eclipse that took place on 4 December 2002.

The far northern section of the Park was the only place in the world from which the eclipse's path of totality was completely visible. The Phabeni Gate was opened to the public in December 2002, creating easy access to the entire southern region.

integration, greater biodiversity, environmental tourism and economic growth.

The proposed GLTP covers South Africa's Kruger National Park, Mozambique's Limpopo National Park and the Gonarezhou National Park in Zimbabwe.

Part of the fence dividing South Africa and Mozambique was removed in December 2002, following the signing of a treaty by President Thabo Mbeki, Mozambican President Joaquim Chissano and Zimbabwean President Robert Mugabe to formally establish the GLTP.

The signing ceremony sealed a two-year process of intensive preparations for the establishment of the 35 000 km² Park, referred to as Africa's 'super park'.

It is envisaged that the establishment of the GLTP will eventually lead to the development of a TFCA spanning 99 800 km².

President Mbeki and President Sam Nujoma of Namibia signed a treaty between the two neighbouring countries for the establishment of the Ais-Ais/Richtersveld Transfrontier Park on 1 August 2003.

The Park features the world's second largest canyon in the Fish River, a hot spring game park on the Namibian side, and spectacular arid and desert mountainous scenery in the South African part.



South African National Parks launched a R45-million poverty relief project at the Vhembe-Dongola National Park near Musina in Limpopo in May 2003.

Through funding from the Department of Environmental Affairs and Tourism, some 500 jobs will be created at the Park. The funds will also be used to establish a wide range of tourism facilities including rest camps, fences, roads and staff housing.

Mapungubwe was declared a World Heritage Site in July 2003. This means that the Vhembe-Dongola National Park now has international status, as the declaration specifies that the term 'site' means the larger cultural landscape, which includes the well-known Mapungubwe Archaeological Site.

The Park is the third largest TFCA in the Southern African Development Community (SADC) region.

On 22 August 2003, the Minister of Environmental Affairs and Tourism launched the Maloti-Drakensberg Conservation and Development Area in Lesotho. The project was conceived on 11 June 2001 when the two countries concluded an agreement for the purpose of conserving biological diversity and the promotion of sustainable development in the area. This was further bolstered by an injection of funds by the World Bank for reconstruction and development, as a result of which both countries co-signed the Global Environmental Trust Fund Grant Agreement.

South Africa has accepted the duty to make a positive and responsible contribution to the conservation of biodiversity and to the environment on a global scale. This is done through responsible participation in the affairs of the IUCN, Convention on the International Trade in Endangered Species (CITES), Ramsar Convention on Wetlands, the World Wildlife Fund, and other agencies.

National and cultural monuments

These are natural or cultural features, or both, and may include botanical gardens, zoological gardens, natural heritage sites and sites of conservation significance.

In May 1997, South Africa ratified the World Heritage Convention. The South Africa World Heritage Convention Committee is responsible for the identification of possible sites in South Africa and the co-ordination of the Convention.

The World Heritage Convention Act, 1999 (Act 49 of 1999), allows for cultural and natural sites in South Africa to be granted World Heritage status. The Convention obliges the South African Government to guarantee its implementation, ensure legal protection and develop management plans and institutional structures for periodic monitoring.

The Act makes the principles of the Convention applicable to South Africa's World



Size of South African National Parks

Park	Date proclaimed	Area in 1994	Area added since 1994 (ha)	Current size (ha)
Addo Elephant	1931	51 309	23 030	74 339
Agulhas	1999	0	5 690	5 690
Augrabies Falls	1966	11 743	29 933	41 676
Bontebok	1931	2 786	0	2 786
Cape Peninsula	1998	0	13 450	22 100
Golden Gate Highlands	1963	11 633	0	11 633
Kalahari Gemsbok (now part of Kgalagadi Transfrontier)	1931	959 103	0	959 103
Karoo	1979	41 047	36 047	77 094
Knysna National Lakes Area	1985	15 000	0	15 000
Kruger	1926	1 962 362	0	1 962 362
Marakele	1993	37 035	13 691	50 726
Mountain Zebra	1937	6 536	18 127	24 633
Richtersveld	1991	162 445	0	162 445
Tankwa-Karoo	1986	27 064	16 835	43 899
Tsitsikamma	1964	63 942	0	63 942
Vaalbos	1986	22 697	0	22 697
Vhembe-Dongola	1998	0	5 356	5 356
West Coast	1985	32 361	3 912	36 273
Wilderness	1985	10 600	0	10 600
Total				3 592 384

Source: SANParks

Heritage sites and further provides for the adequate protection and conservation of these sites to promote tourism in a culturally and environmentally responsible way.

In December 1999, Robben Island, the GSWLP and the hominid sites at Swartkrans, Sterkfontein and Kromdraai, which had become known as the Cradle of Humankind, were proclaimed World Heritage sites by the United Nations Educational, Scientific and Cultural Organisation.

The Ukhahlamba-Drakensberg Park was nominated as a mixed site. This was the first mixed (natural and cultural) site to be nominated by South Africa, and became the 23rd mixed site worldwide to achieve World Heritage Site status.

The Ukhahlamba-Drakensberg Park has a number of outstanding natural features linked to the geomorphic history of the subcontinent, including the high altitude and unique south-

ern African alpine-tundra vegetation and its associated endemic palaeo-invertebrates. In addition to these natural assets, and located within its original natural setting and ecosystems, is one of the world's greatest rock art collections.

In July 2003, Mapungubwe cultural landscape became the fifth heritage site.

Mapungubwe is situated at the confluence of the Shashe and Limpopo Rivers in Limpopo. The area includes the archaeological sites of Schroda, K2 and Mapungubwe.

Successive capitals of the Mapungubwe civilisation inhabited the area between 900 and 1 290 AD. The kingdom was a sophisticated, class-based society built on wealth generated by controlling trade into the Indian Ocean's trade network. At its peak there were probably 5 000 people living at Mapungubwe, which has been called the 'first southern African kingdom'.

By late 2003, the number of World Heritage Sites stood at 754. A total of 149 were natural sites, 582 cultural sites, and 23 mixed. Twenty-three of these were regarded as sites of outstanding universal value.

Habitat and wildlife management areas

These areas are subject to human intervention, based on research into the requirements of specific species for survival. They include conservancies, provincial, regional or private reserves created for the conservation of species habitats or biotic communities, marshes, lakes, and nesting and feeding areas.

Protected land and seascapes

These areas are products of the harmonious interaction of people and nature, and include natural environments protected in terms of the Environment Conservation Act, 1989 (Act 73 of 1989), scenic landscapes, and historical urban landscapes.

Sustainable-use areas

These areas emphasise the utilisation of products on a sustainable basis in protected areas such as the Kosi Bay Lake system in KwaZulu-Natal. Nature areas in private ownership are proclaimed and managed to curtail undesirable development in areas with high aesthetic or conservation potential.

Conservancies are formed to involve the ordinary landowner in conservation. One or more landowners can establish a conservancy where conservation principles are integrated with normal farming activities.

Wetlands

Wetlands include a wide range of inland and coastal habitats – from mountain bogs and fens and midland marshes to swamp forests and estuaries, linked by green corridors of streambank wetlands.

Wetlands were previously regarded as unproductive and even unhealthy wastelands.

Today it is understood that, if well managed, wetlands are essential in meeting the needs of a growing population.

South Africa became a contracting party to the Ramsar Convention in 1975, and the country's Ramsar sites include the Nylsvlei Nature Reserve, Blesbokspruit, Barberspan, Seekoeivlei, the Ukhahlamba-Drakensberg Park, Ndumo Game Reserve, the Kosi Bay System, Lake Sibaya, the turtle beaches and coral reefs of Tongaland, the St Lucia System, Wilderness Lakes, De Hoop Vlei, De Mond State Forest, Langebaan, Verlorenvlei and Orange River Mouth Wetland.

In 2003, the Verloren Valley Wetland in Mpumalanga became the 17th wetland to be registered by Ramsar.

Working for Wetlands is implementing a rehabilitation project in the Verloren Valley Reserve, in partnership with the Mpumalanga Parks Board. The Working for Water Programme is also being implemented in the area.

The Directorate: Biodiversity Management of the Department of Environmental Affairs and Tourism is responsible for the South African Wetlands Conservation Programme. The Programme has been developed to ensure that South Africa's obligations are met in terms of the Ramsar Convention and the aspects concerning aquatic ecology under the Convention on Biological Diversity.

The Programme is aimed at building on past efforts to protect wetlands in South Africa against degradation and destruction, while striving for the ideal of wise and sustainable use of resources, to ensure that the ecological and socio-economic functions of wetlands are sustained for the future.

South Africa is a member of Wetlands International, an international body dedicated to conserving the world's wetlands.

Botanical gardens

The NBI, with its head office at Kirstenbosch National Botanical Garden in Cape Town, is an



autonomous State-aided Institute, which collects, displays and cultivates plants indigenous to South Africa; undertakes and promotes research into indigenous plants and related matters; studies and cultivates endangered plant species; promotes utilisation of the economic potential of indigenous plants; and runs environmental education programmes.

The NBI manages eight botanical gardens in five of the nine provinces. The largest, and the site of the Institute's headquarters, is Kirstenbosch, on the eastern slopes of Table Mountain in Cape Town. It houses 5 300 indigenous plant species, and was voted one of the top seven botanical gardens in the world at the World Botanic Gardens Congress in 2000.

The other gardens are the Karoo Desert in Worcester, Harold Porter in Betty's Bay, Free State in Bloemfontein, Natal in Pietermaritzburg, Lowveld in Nelspruit, Witwatersrand in Roodepoort, and the Pretoria National Botanical Garden. The latter houses the National Herbarium of South Africa, the largest in the southern hemisphere. Here, research is conducted on 750 000 specimens of southern African plants, 150 000 tropical African specimens, 50 000 others from around the world, and 25 000 cultivated specimens. There are

also regional herbaria in Durban and at the Kirstenbosch Research Centre.

The NBI has two main libraries, the Mary Gunn Library in Pretoria and the Harry Molteno Library at Kirstenbosch, which are valuable sources of information on southern African flora and related topics.

Some municipalities have botanical gardens which are not controlled by the NBI. These include The Wilds and Melville Koppies in Johannesburg, and the Municipal Durban Botanic Gardens.

The Johannesburg Botanical Garden owns one of the biggest collections of lithops in the world. These are found only in the southern regions of Africa.

During 2002, the NBI set up the Biodiversity Division, which is to play a major role in linking biodiversity management with the socio-economic development needs of the country.

The NBI is about to embark on an extensive capital development programme in the Pretoria, Witwatersrand and Lowveld Botanical Gardens, as well as entering into major research partnerships in the Cape Floral Kingdom and succulent Karoo biome.

The Kirstenbosch National Botanical Garden is in the process of setting up the Centre for Home Gardening, which will feature an indigenous retail nursery.

A new commercial centre, featuring a nursery, will be developed at the Witwatersrand Botanical Gardens.

Botanists at the NBI at the Compton Herbarium, Kirstenbosch have discovered more than 160 new species of southern African plants over the past decade.

These include several species of erica, glad-iolus and other *fynbos* plants, two freesias, the second species of amaryllis to be named in 250 years, and, most astonishingly, a new clivia.

Zoological gardens

The National Zoological Gardens of South Africa in Pretoria, or the Pretoria Zoo, celebra-



The World Bank announced in March 2003 that it would commit about R62 million towards the creation of a massive transfrontier conservation and development programme involving areas in the Eastern Cape, KwaZulu-Natal, the Free State and Lesotho.

The conserved areas include the Ukhahlamba-Drakensberg World Heritage Site, Golden Gate National Park, QwaQwa National Park, Sterkfontein Dam Nature Reserve and conserved areas within Lesotho.

The programme aims to put a management strategy in place for the whole region as well as create sustainable economic activity for the people who live there.

The conservation bodies from all four provinces, along with South African National Parks, will be involved in the project and will contribute portions of their operating budgets to add to the World Bank funds.

This will bring the total amount to be utilised over the next five years to R264 million.

ted its centenary in October 1999. It is the only zoo in South Africa with national status and is a member of the American Zoo Association, the World Association of Zoos and Aquariums, the Pan-African Association of Zoological Gardens, Aquaria and Botanical Gardens, the International Union of Zooculturists and the International Association of Zoo Educators.

The Pretoria Zoo, considered to be one of the 10 best in the world, extends over an area of about 80 ha. In 2001, the Zoo attracted 488 168 visitors.

It has breeding centres in Mokopane in Limpopo, and Lichtenburg in the North West, where many endangered animal species are bred.

By mid-2003, the Zoo's collection included 526 specimens of 96 mammal species, 1 136 specimens of 157 bird species, 4 007 specimens of 303 fish species, 40 specimens of 14 invertebrate species, 333 specimens of 80 reptile species, and 87 specimens of six amphibian species. The animal collections at the two game-breeding centres include 1 821 specimens of 62 mammal species and 56 specimens of 22 bird species.

The National Zoological Gardens of South Africa undertook the creation of a zoo and animal park at the Emerald Safari Resort and Casino in Vanderbijlpark. The resulting Animal World comprises 314 ha consisting of a game park and zoo, which house, among others,

rhino, buffalo, hippo, wild dog and a variety of bird and animal species.

The Emerald Safari Resort has 277 specimens of 40 mammal species, 186 specimens of 49 bird species, 74 species of 25 reptile species, and six specimens of three species of amphibians.

All the animals were provided by the National Zoo and its two satellite breeding centres.

The Johannesburg Zoological Gardens, covering some 54 ha, has an animal collection which includes about 300 species represented by some 1 900 specimens. The animals are kept in open-air enclosures, separated from the public by dry or water moats. The enclosures include the internationally acclaimed gorilla complex, the pachyderm section and the section for large carnivores.

Of particular interest are the African elephants, golden lion tamarins and sitatunga.

The Johannesburg Zoo has gained international recognition for animal-breeding programmes with numerous species, including the red panda, African wild cats and grysbok.

Breeding centres

There are a number of breeding centres in South Africa. The National Zoological Gardens of South Africa is responsible for the management of the Lichtenburg Game Breeding Centre, which covers an area of some 6 000 ha, and the Game Breeding Centre near Mokopane, covering an area of 1 500 ha. The main aim of the two centres is to supplement the Zoo's breeding programme for various endangered animals, and to supplement the Zoo's own animal collection.

The Lichtenburg Game Breeding Centre houses, among others, Père David's deer, pygmy hippopotamus, white rhino, the endangered addax, and scimitar-horned and Arabian oryx. Large herds of impala, springbuck, zebra, blesbuck and red hartebeest also roam the area.

About 32 ha of the wetland area in the Centre have been developed into a system of



A breathtaking sandcastle sculpture of Table Mountain and a tapestry of coastal *fynbos* species were featured in South Africa's exhibit at the prestigious Chelsea Flower Show in London in May 2003.

The exhibit, entitled *Cape of Flowers*, was unique with several flora species endemic to Table Mountain being used, including the pride of Table Mountain disa (*Disa uniflora*) and the silverleaf tree (*Leucodendron argenteum*).

A ton of beach sand from Cape Town had to be shipped to London to make the sculpture of Table Mountain and surrounding beaches.

In 2002, South Africa won gold at Chelsea for the 25th consecutive year.



dams and pans, which serves as a natural haven for waterbirds such as spoonbills, kingfishers, ibises and herons.

The Mokopane Game Breeding Centre is home to an abundance of exotic and indigenous fauna such as lemurs, rare tsessebe, roan antelope, cheetah and black rhino.

The renowned De Wildt Cheetah Breeding and Research Centre, situated near Pretoria, is best known for its highly successful captive-breeding programme. De Wildt also breeds a number of rare and endangered African species, the most spectacular of which is the magnificent king cheetah. It also plays a major role in the breeding of wild dogs.

The Hoedspruit Research and Breeding Centre for Endangered Species in Mpumalanga is another well-known breeding centre. The Centre caters for, among others, five species of vulture: Cape griffins, whitebacked, hooded, whiteheaded and lappetfaced vultures.

Aquaria

There are well-known aquaria in Pretoria, Port Elizabeth, Cape Town and Durban.

The Aquarium and Reptile Park of the Pretoria Zoo is the largest inland aquarium in Africa, with the largest collection of freshwater fish. It is also the only aquarium in South Africa that exhibits a large variety of marine fish in artificial sea water.

The Port Elizabeth Oceanarium is the home of seal, dolphin and fish families indigenous to the Eastern Cape coastline. East London also has a smaller aquarium, which is well worth visiting.

At the Two Oceans Aquarium situated at the Victoria and Alfred Waterfront, Cape Town, more than 3 000 specimens represent some 300 species of fish, invertebrates, mammals, birds and plants supported by the waters in and around the Cape coast.

This is the largest aquarium in South Africa, housing more than 300 marine species in impressive and informative displays.

Sea World, comprising a dolphinarium and aquarium, is situated on the beach front at Marine Parade in Durban. The aquarium has a shark and reef tank with large turtles and a variety of fish, including kingfish and stingrays.

Snake parks

The Hartbeespoort Dam Snake and Animal Park on the northern shore of the Hartbeespoort Dam near Pretoria has a fine reptile collection.

The Transvaal Snake Park at Midrand, between Pretoria and Johannesburg, houses up to 150 species of snake and other reptiles and amphibians from southern Africa and elsewhere. The emphasis is on the development of breeding programmes for animals in captivity.

In Durban, the Fitzsimons Snake Park houses more than 100 exotic and indigenous species of snake.

The Port Elizabeth Snake Park has a wide variety of South African and foreign reptiles, including boa constrictors, pythons, crocodiles, lizards and deadly venomous snakes such as cobras, mambas and rattlers.

The Aquarium and Reptile Park complex situated at the Pretoria Zoo houses 80 reptile species from all over the world.

Marine resources

South Africa's coastline covers some 3 000 km. Of this, only a very small portion is protected in terms of being closed to certain activities.

The Chief Directorate: Marine and Coastal Management of the Department of Environmental Affairs and Tourism is the central government agency primarily responsible for the administration of marine fisheries in South Africa. This includes marine research, exploitation control, formulating policy advice, and managing a fleet of research ships, including the *MV SA Agulhas*. This ship also serves as a replenishment ship for the South African

Antarctic base and various Southern Ocean islands.

The research component of Marine and Coastal Management advises on the utilisation of living marine resources and the conservation of marine ecosystems, interacting with decision-makers, role-players, and local and international scientific communities.

Inland fisheries fall under the jurisdiction of the provincial administrations or the national Department of Agriculture. Some aspects of estuarine research and management, as well as all aspects of mariculture (aquaculture in the sea), fall under the control of Marine and Coastal Management.

South Africa's rich coastal waters are an important source of nutrition and sustainable livelihood for many coastal communities. For this reason, the country's marine resources must be carefully managed to avoid over-exploitation, and to ensure that the maximum benefit is derived to achieve sustainable economic growth.

South Africa's fisheries are considered to be among the best-managed in the world. The Department has followed a precautionary approach in the management of fish stocks. This, coupled with a policy of stock-rebuilding, has yielded significant dividends. For example, in the pelagic fish industry, oceanographic surveys indicate that populations of pilchard and anchovy are at record highs. A stock-rebuilding strategy for west coast rock lobster, which was instituted in 1996, appears to have paid off sooner than expected. In 2002, fishery scientists measured an increase in two out of the three indices that are used to determine the status of west coast rock lobster populations. This has resulted in the Total Allowable Catch (TAC) for west coast rock lobster being increased by 25%, and the opening up of further areas for limited commercial fishing.

By mid-2003, the process of allocating medium-term commercial fishing rights had been substantially completed. Some 2 200

fishing rights had been allocated, of which 60% went to historically disadvantaged persons.

In a recent landmark decision, the Supreme Court of Appeal pronounced favourably upon the allocation process. The total number of fishing rights allocated increased from 400 to 2 200, 1 700 of which are allocated to small, medium and micro enterprises. Communities in KwaZulu-Natal and the Eastern Cape, many of whom are women, have been issued with 859 subsistence-fishing rights. In the Eastern Cape, 337 women have received subsistence-fishing rights, and in the Western Cape, 152 limited commercial-fishing-rights have been allocated to women.

At the end of August 2003, it was announced that an additional 341 fishers had been allocated rights in the linefish sector, following an appeal process.

In protecting South Africa's valuable fish stocks, the Department has recorded a number of significant successes.

In February 2003, the first Environmental Court in South Africa was opened. Strategically situated on the south coast, at Hermanus in the Western Cape, this Court has already had an impact on poaching, due to a high rate of successful prosecutions, the imposition of jail sentences, and the seizure of assets.

The deployment of scientific observers on at least 15% of offshore fishing voyages began in South Africa in July 2002. The Offshore Resources Observer Programme is contributing to an improved understanding of fishing operations, and is likely to provide Marine and Coastal Management researchers with a vastly improved set of data with which to manage offshore fisheries.

State of marine resources

Small pelagic fish

South Africa's pelagic fishing industry, which catches pilchards for canning, and anchovy for reduction to fishmeal, a major constituent in animal foods, had a frustrating year in 2002.



Although fishmeal prices were high in 2002, and there was an exceptional abundance of pilchard and anchovy in South African waters, bad weather, mixed shoals, and the poor availability of fish made it nearly impossible for the industry to catch their full allocations.

Demersal fish

Owing to the poor environmental conditions that prevailed in 2002, catch rates in the off-shore hake fishery were particularly poor. For the first time in many years, several thousand tons (t) of hake had not been landed by the fishing industry before the close of the season. The TAC for 2003 was reduced slightly from 166 000 t, and there will be a further reduction of 6 000 t over the next two years.

West coast rock lobster

The TAC for the west coast rock lobster fishery increased by 25% in 2002, owing to an improvement in the status of stock.

The completion of the appeal process in May 2002 saw the number of limited commercial-right-holders in the west coast rock lobster fishing industry increase from 321 to 500. Limited commercial fishing rights of between 200 and 1 500 kg each were allocated to historically disadvantaged fishers in five fishing zones between Port Nolloth and Cape Hangklip.

The Department has also opened a new area for the commercial exploitation of west coast rock lobster. Limited commercial rights will be allocated predominantly to historically disadvantaged fishers in Hermanus (40 t), Gans Bay (40 t), and Kleinmond (20 t).



South Africa celebrated World Environment Day on 5 June 2003 under the theme *My Environment, My Life*.

The year 2003 was declared the International Year of Freshwater by the United Nations General Assembly.

Activities organised by the various provinces focused on the importance of wetlands and water.

These included hosting a youth environmental *lekgotla*, anti-litter campaigns, environment marches and clean-up campaigns.

South coast rock lobster

In 2002, Marine and Coastal Management scientists recorded a turnaround in the prospects of the south coast rock lobster fishery, which had been plagued by declining catch rates and annual cuts in the TAC for 12 years. Two consecutive increases in catch rates were recorded in 2001 and 2002.

Fishing rights held by Hout Bay Fishing Industries and a joint venture partner were revoked and reallocated to the remaining right-holders in this fishery on a *pro rata* basis.

Squid

Eastern Cape towns such as St Francis and Humansdorp have benefitted from one of the best squid fishing seasons ever recorded. It is estimated that 4 000 t of squid were landed between the opening of the season on 23 November 2002 and 1 January 2003. Squid shoals moved inshore and were highly available to the fishing fleet between Mossel Bay and East London.

Abalone

The impact that widespread poaching has had on abalone resources is amply demonstrated by the fishery-independent abalone survey that is carried out annually by Marine and Coastal Management scientists. Results indicate that the average density of abalone in the fishing zone between Hawston and Hermanus has dropped to 0,1 abalone per square metre – the lowest level ever recorded. This will impact on the further allocation of fishing rights in this sector.

In October 2003, the Department of Environmental Affairs and Tourism released its final policy on the allocation of commercial abalone fishing rights. Earlier, the Minister had announced a dramatic increase in fines for abalone poaching from the previous maximum of R40 000 to R800 000 as a measure to further deter abalone poaching.

The primary objectives of the policy are to ensure the long-term viability of the South

African commercial abalone fishery, and to sustain jobs in the commercial abalone fishery.

The TAC was reduced from 693 t in 2000 to 430 t for the 2002/03 season. In 2002, the Department determined that more than 1 000 t of abalone had been poached. In the first six months of 2003, the Department confiscated approximately 600 000 abalone (102 t).

The final policy makes provision for the allocation of commercial rights to three different categories. These are: divers; legal entities owned and managed by historically disadvantaged persons that previously held a medium-term commercial abalone right; and abalone-processing factories (i.e. fish-processing establishments that currently have a right to process wild abalone and that previously held a medium term commercial abalone right).

Rights will be allocated for a period of 10 years to divers and legal entities. Rights will be granted to abalone fish-processing factories for a period of three years. At the end of the three-year period, abalone fish-processing factories will not be allocated their own abalone allocations.

By mid-August 2003, the TAC was split into seven zones from Cape Columbine in the west to Cape Agulhas in the east. The Department was expected to divide each of these zones into smaller secondary zones.

Subsistence fishing

A community of approximately 5 200 people

benefit directly from exemptions issued in December 2002 to 859 subsistence fishers from the Eastern Cape district of Hamburg, and to the Sokhulu subsistence fishers in KwaZulu-Natal, who harvest brown mussel and red bait. Community monitoring and co-management programmes have been established at Sokhulu and are proving highly successful.

Seabirds

In 2002, the Department drafted a National Plan of Action for reducing the incidental catch of seabirds in longline fisheries, after concern was raised over the number of seabirds, especially albatrosses, that are killed by longline fishing vessels in southern Africa.

The Plan sets out the required mitigation measures to reduce the mortality of seabirds to below an interim target level of 0,05 birds per 1 000 hooks cast by South Africa's longline fisheries for hake, tuna and swordfish, Patagonian toothfish and sharks.

Seaweed

Abalone farms are creating an enormous demand for fresh kelp fronds (leaves). Research into seaweed cultivation for use on abalone farms is being undertaken, to establish whether the nutrient-rich waste water from abalone farms can be effectively utilised to cultivate certain seaweeds for abalone feed. This would have the additional benefit of purifying waste-water, which could then be recirculated on the farm.

New opportunities

The Department plans to develop 12 new fisheries over the next five years. Some of the fisheries that have been earmarked are Eastern Cape abalone; limpets; ornamental fish; east coast rock lobster; sand soldier and Indian Ocean squid in KwaZulu-Natal; as well as a directed monk fishery.

Policies and guidelines for an experimental octopus fishery were developed in 2002, and



The Cabinet approved the Southern African Development Community (SADC) Protocol on Fisheries in February 2003.

The Protocol will be tabled in Parliament for ratification.

The objective of the Protocol is to promote responsible and sustainable use of living aquatic resources and ecosystems on its coastline in order to promote and enhance food security and human health; to safeguard the livelihood of fishing communities; to generate economic opportunities to ensure that future generations benefit from these renewable resources; and to alleviate poverty.



applications for experimental permits were expected to be called for in 2003.

The termination of the Japanese and Taiwanese fisheries agreements saw the departure of the foreign fleets in January 2003. This has opened the door for the development of the local tuna longline industry, which has struggled to establish itself under difficult conditions. The experimental tuna fishery will be brought to an end and longer-term fishing rights will be allocated to South Africans.



Did you know?

- South Africans buy over a million cans of pilchards every day.
- South Africa is the largest fishing nation in Africa. In 2000, it was ranked by the Food and Agricultural Organisation of the United Nations (UN) as the 27th largest producer of fish in the world, with a total catch of 643 812 t. China, with a production of 16 987 325 t, was ranked as the world's top fishing nation.
- At least 70% of the world's fisheries are either depleted or fully exploited, according to the UN Environment Programme.
- The west coast of southern Africa is home to the largest mainland seal colonies in the world, with nearly two million individual seals recorded in South Africa and Namibia.
- Marine scientists agree that the whole South African coast, sweeping down from the coral reefs of the Indian Ocean to the rich kelp beds of the Atlantic, is one of the richest, most biologically diverse and oceanographically complex marine environments on earth.
- South Africa has the most accessible coelacanth population in the world. A group of seven coelacanths was observed in underwater caves off the coast of Sodwana Bay in April 2002. The latest count, by a team of German scientists using submersible craft, estimates the size of the Sodwana Bay population at 18. Prior to 1938, scientists believed the coelacanth had been extinct for 70 million years.
- Elf or shad are one of South Africa's most popular angling fish. They are pursued by more than 300 000 anglers every year.
- Albatrosses are among the largest of flying birds. The largest is the wandering albatross with a wing span of up to 3,5 m, enabling it to soar for hours in the oceanic air currents.

Legislation

The Coastal Management Bill was drafted in 2002 and was expected to be presented for comment in 2003. The Bill provides for important interventions to regulate, enhance, preserve and rehabilitate sensitive or over-exploited coastal reserves. It also ensures equitable access to South Africa's coastline, and aligns South African legislation with international laws and conventions. The Marine Living Resources Act, 1998 (Act 18 of 1998), is in the process of being amended, to provide increased protection for certain linefish and other species.

Transformation

In his 2003 State of the Nation Address, President Thabo Mbeki referred to the fishing industry as being one of three industries that had shown positive signs with respect to Black Economic Empowerment.

The establishment of a bargaining council for the fishing industry, and the publication of a set of minimum conditions of employment for workers in the deep-sea and inshore trawling industries in 2002, are seen as historic steps forward for the industry.

The Marine and Coastal Management Branch is planning further transformation by working towards the National Charter for the South African Fishing Industry, and increasing the number of historically disadvantaged individuals who are trained in marine sciences every year. The existing recruitment, bursary, internship, and mentorship programmes will be maintained and strengthened.

Harbours

An extensive Harbour Repair and Maintenance Programme was initiated in 2002, following the completion of a full investigation into the state of South Africa's 12 fishing harbours. The National Treasury approved a budget of R83 million for the Programme. Extensive repairs have been carried out at St Helena Bay Harbour, one of

the busiest fishing harbours on the west coast, and at the small fishing harbour of Gans Bay on the Cape south coast.

A further R18,3 million will be spent on the repair and improvement of harbours at Laaiplek, Kalk Bay, Hout Bay and Hermanus.

International relations

South Africa, through the Department of Environmental Affairs and Tourism, has adopted the Benguela Fisheries Interaction Training (BENEFIT) Programme and the Benguela Current Large Marine Ecosystem (BCLME) Programme as an integral part of the New Partnership for Africa's Development.

BENEFIT is a joint initiative between South Africa, Namibia and Angola to address fisheries, and other marine scientific investigations of important living marine resources and their interactions with the environment. Training of staff to undertake research and to achieve the levels of expertise necessary to provide advice to fisheries management is also an important objective of BENEFIT, which is generously funded by the Norwegian and German Governments.

While BENEFIT is very much a science-based programme, the BCLME Programme is a management-orientated programme aimed at boosting the infrastructure necessary to address cross-boundary problems associated with fishing, mining, oil exploitation, coastal development, biodiversity and pollution. The BCLME Programme is funded by the Global Environment Facility under its International Waters portfolio, and is implemented by the UN Development Programme.

The following important instruments have been acceded to and are in the process of being ratified:

- Agreement for the Implementation of the Provisions of the UN Convention on the Law of the Sea of 10 December 1982, relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (Straddling Stocks Agreement)

- Agreement on the Conservation of Albatrosses and Petrels
- Convention for the Protection, Management and Development of the Marine and Coastal Environment of the East African Region and Related Protocols (Nairobi Convention)
- Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region and Related Protocol (Abidjan Convention)
- SADC Protocol on Fisheries.

4x4s

There has been overwhelming public support for the implementation of strict measures that prohibit off-road vehicles from being driven on South Africa's beaches. Accordingly, the bird and animal life on South Africa's beaches and sensitive coastal areas has increased notably.

Conservation challenges

South Africa faces many of the problems experienced by developing countries, in which rapid industrialisation, population growth and urbanisation pose a threat to the quality of the environment.

The Department is reforming environmental law to introduce reform in biodiversity conservation, pollution, waste management and environmental planning.

Climatic and atmospheric change

According to the *State of the Environment Report*, South Africa is sensitive to climatic changes, and contributed about 1,2% to global warming in 1990.

The levels of sulphur dioxide, nitric oxide and ozone are, on average, within the accepted South African guidelines for human health and the prevention of direct ecosystem damage. The measured concentrations at ground level are not currently indicating an upward trend.

The Report states that there are, however, occasions, especially in the major urban areas,



when the concentrations of sulphur dioxide, nitric oxide, ozone and smoke particles could lead to further health problems in people who have respiratory problems. No trend is apparent in the number of times these levels are being exceeded, but with more people living in urban areas, the impact is likely to increase.

Indoor air quality constitutes a health hazard in poorly ventilated dwellings without chimneys, where coal, wood, paraffin or dung is used as fuel. The electrification of houses is improving this situation, as is the general improvement in housing design and construction brought about by national housing policy.

According to the Report, susceptible terrestrial and freshwater ecosystems are likely to show the adverse effects of acid deposition in a few decades if the current emission rates of sulphur dioxide and nitric oxide continue or increase. The National Assembly approved accession to the Kyoto Protocol of the UN Framework Convention on Climate Change in March 2002. The accession to the Protocol demonstrates South Africa's commitment to further enhance the effectiveness of environmental legislation.

The Kyoto Protocol is a legally binding instrument whereby developed countries undertake to reduce greenhouse gas emissions by at least 5% of their 1990 levels. One of the Protocol's features is the incorporation of market-based mechanisms designed to allow developed countries to achieve their required emission reductions at the least possible cost.

The Department is operating three climatic change projects. A sum of \$5 million has been donated to South Africa by the United States of America (USA) in terms of the US-South African Bilateral Agreement on Climate Change Support. These projects are:

Cities for Climate Protection

This project involves the improvement of management capacity in local government. It will run for three years, with a budget of US\$1,2 million to help local governments identify and

implement actions that meet their objectives, as well as address global climate change.

Demonstration projects linking climate change and sustainable development

Various institutions, including educational institutions, private, and non-profit organisations implement a number of projects on behalf of the Department countrywide. These projects include the promotion of ecovillages in urban and rural areas; rural energisation; renewable energy technology such as biomass gasification and ethanol production; community-based greening and waste recycling; low-tech energy solutions such as thermally efficient and renewable-energy solutions in housing; clean transport systems; carbon sequestration and conservation; and industrial energy efficiency. Some R12,6 million is being spent on these projects.

Climate change, public awareness and education

The objective of this project is to increase public awareness of global climate change in South Africa, and to assist government in its efforts to educate students on the importance of such change within the country.

Erosion and desertification

Most of South Africa's soils are unstable. The country loses an estimated 500 million t of topsoil annually through erosion caused by water and wind.

Approximately 81% of the total land area of South Africa is being farmed. However, only 70% of this area is suitable for grazing. Overgrazing and erosion diminish the carrying-capacity of the veld and lead to land degradation. This process has already claimed more than 250 000 ha of land in South Africa.

The Department of Agriculture administers the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983), in terms of which various measures are being implemented to prevent or contain soil erosion.

In January 1995, South Africa signed the Convention to Combat Desertification, which was ratified on 30 September 1997. The main objectives of the Convention include co-operation between governments, organisations and communities to accomplish sustainable development, especially where water resources are scarce. The Convention aims to support member countries in Africa to prevent desertification and its consequences. These countries support one another at technical and scientific level, as they share similar climatic conditions. South Africa also acts as co-ordinator for the Valdivia Group for Desertification. The Group consists of countries in the southern hemisphere, namely Australia, New Zealand, Argentina, Chile, Uruguay, South Africa and Brazil, whose aim it is, *inter alia*, to foster scientific and technological co-operation.

Waste management

Towards the end of 2002, government published the *White Paper on Integrated Pollution and Waste Management*, which outlines its new thinking in relation to pollution and waste management.

The Government believes that pollution prevention is one of the most effective means of protecting South Africa's people and the environment. Pollution prevention eliminates costly and unnecessary waste and promotes sustainable development. It aims to reduce risks to human health and the environment by trying to eliminate the causes, instead of treating the symptoms, of pollution. This objective marks a major shift in emphasis from control to prevention.

The White Paper also stresses the need to make pollution prevention a part of everyday activities.

Effective pollution prevention not only focuses on the installation of pollution-abatement equipment in industry, but also on the shared responsibility of all sectors of society to protect South Africa's natural resources, which involves:

- innovation in product design and production
- the encouragement of cost savings through efficiencies and conservation
- insisting on sound management of persistent bio-accumulative and toxic substances, and eliminating their use where necessary.

Both municipalities and provincial governments will play an important role in implementing national strategies addressing waste and pollution management.

Municipalities will be responsible for providing waste-management services, and managing waste-disposal facilities. Specific functions to be carried out by municipalities will include:

- compiling and implementing general waste-management plans
- implementing public awareness
- collecting data for the Waste Information System
- providing general waste-collection services and managing waste-disposal facilities
- implementing and enforcing appropriate waste minimisation and recycling initiatives
- where possible, regional planning and establishment and management of landfill sites, especially for regionally based general waste landfills.

On 6 August 2003, the Cabinet approved the release of the Draft Radioactive Waste Management Policy for public comment.

The Draft Policy is based on internationally accepted standards and focuses on:

- the need for future generations not to be burdened with nuclear-waste disposal
- banning the import or export of nuclear waste.

The Draft Policy furthermore makes provision for the establishment of a fund to enforce the 'polluter pays' principle.

The Department also recommended, during 2003, that the International Convention on the Safe Management of Spent Nuclear Fuel and Radioactive Waste be signed by South Africa.

Medical waste treatment continues to be inadequate in South African hospitals, prin-



cipally because non-hazardous items such as food are often mixed with contaminated medical waste. This dramatically increases the volume of medical waste, and makes the cost of safe disposal prohibitive.

In August 2003, an International Conference on Healthcare Risk Waste Management was held. More than 280 delegates representing 16 countries attended the Conference at Johannesburg's Sandton Convention Centre, aimed at sharing information on the management of healthcare risks in their respective countries.

The Conference, the first of its kind, was a culmination of a two-year feasibility project assessing the *status quo* of health-risk waste management in Gauteng. A pilot project on healthcare waste management was run in Leratong Hospital in Krugersdorp and Itireleng Clinic in Soweto.

The pilot project was implemented through financial and technical support from the Danish Government as part of an ongoing country-to-country support programme for the development and implementation of the National Waste Management Strategy.



The Department of Environmental Affairs and Tourism, in collaboration with the United Nations' Environment Programme and Food and Agriculture Organisation, hosted a workshop in January 2003 to launch the National Implementation Plan (NIP) of the Stockholm Convention on Persistent Organic Pollutants (POPs) and the African Stockpile Project.

South Africa is among the first 14 African countries nominated for the first phase of the obsolete pesticides clean-up and disposal operation through the African Stockpile Project.

The objective is to clean up and safely dispose of all obsolete pesticide stocks from Africa, and establish preventative measures to avoid future accumulation.

The Department is in the process of implementing an NIP that will rid South Africa of the impact of POPs.

The NIP will involve assessing the sources of POPs in the country, the impact of these POPs, the infrastructure available to manage the issue, and the additional capacity required.

The pilot project entailed the re-engineering of the entire healthcare waste management system with considerable capacity-building and training efforts. The project demonstrated improved occupational health and safety for health workers, and that measures are in place for safe segregation, transport and disposal of hazardous healthcare waste. Some of the highlights of the project were:

- the reduction of general waste in the medical waste stream from 25% to 7%.
- the amount of misplaced medical waste disposed at landfill sites being reduced by half
- new equipment to reduce the number and risks of needle stick injuries and exposure to infectious material, being developed and tested
- the pilot also demonstrated that it is possible to eliminate unnecessary overhead expenses incurred because of poor management of medical waste.

A successful Waste Summit was held in Polokwane in Limpopo during September 2001. It formed part of the National Waste Management Strategy and resulted in the Polokwane Declaration on Waste Management. Its vision is to implement a waste-management system which contributes to sustainable development and a measurable improvement in the quality of life, by harnessing the energy and commitment of all South Africans for the effective reduction of waste. The Polokwane Declaration outlines the goal of reducing waste generation and disposal by 50% and 25%, respectively, by 2012, and developing a plan for zero waste by 2022.

These are ambitious plans, but are potentially quite feasible with the introduction of a number of initiatives like eco-industrial parks (there are currently 25 around the world) that function on a zero-waste basis. Here factories are brought together so that they can use each other's waste (by-products) as input or raw materials.

A National Waste Management Workshop was held in Port Elizabeth in July 2003 to

discuss issues including the impact of waste and pollution on poor communities, and develop a national programme of action to address the problems surrounding waste management.

The main themes discussed were capacity-building, education and awareness; how local government deals with waste; financing waste; landfills and waste; and minimum standards.

An agreement containing new regulations governing plastic shopping bags was signed in September 2002 by the Minister of Environmental Affairs and Tourism, and representatives from various labour and business organisations.

The agreement, which came into effect on 9 May 2003, stipulates that the thickness of plastic bags will be 30 microns, but that manufacturers will be allowed to continue using their existing machinery to make bags of 24 micron thickness for the next five years before having to comply with the 30-micron standard.

The agreement states that printing will only be allowed on 25% of the surface area if the ink is not environmentally friendly. In situations where the ink is acceptable, this area can be increased to 50%.

A toll-free line was installed by the Department to deal with queries relating to plastic bags.

The Department of Environmental Affairs and Tourism met with its social partners during June 2003 to review and take stock of the implementation of the plastic bag regulations.

Water-quality management

Quality management of national water resources in South Africa is the responsibility of the Directorate: Water Quality Management of the Department of Water Affairs and Forestry.

Water-quality management involves the maintenance of the fitness of water resources for use on a sustained basis, by achieving a balance between socio-economic development and environmental protection. From a regulatory point of view, water-quality manage-

ment entails the ongoing process of planning, development, implementation and administration of water-quality management policy; the authorisation of water-uses that may have, or may potentially have, an impact on water quality; as well as the monitoring and auditing of the aforementioned. The evolution of South African society and the imperatives for equity of access to water served as the driving forces behind the water-law reform process, which culminated in the National Water Act, 1998 (Act 36 of 1998).

The Directorate is developing new water-quality policies and implementing various regulatory instruments stipulated by the Act to face up to these new challenges.

The National Water Act, 1998 further enables the Department to manage water-quality through both source-directed and resource-directed measures. Source-directed measures include the issuing of licences to water users with a potential impact on the resource.

The Department has adopted a hierarchy of decision-taking with regard to source-directed water-quality management:

- Pollution prevention: preventing waste production and pollution or degradation of the water resource wherever possible.
- Waste minimisation and remediation: if waste production and pollution or degradation of the water resource cannot be avoided, it must be minimised and remedied.
- Precautionary principle: if there is no alternative to the disposal of waste and/or the discharge of water containing waste, the precautionary principle applies. In applying this principle, the disposal of waste and/or discharge of water containing waste will only be allowed if the receiving environment has the capacity to assimilate the additional waste load.
- Differentiated approach: if the receiving water resource has the capacity to assimilate an additional waste load, i.e. when the requirements of the reserve and the other waste users are not threatened, relaxation from prescribed standards or requirements



may be considered. This approach is followed for all potential sources of pollution (as defined by the Act) and not only for hazardous substances.

The Act requires that all significant water resources be classified in accordance with the prescribed classification system.

The Department of Water Affairs and Forestry, in partnership with the Department of Environmental Affairs and Tourism, contributed to the completion of the Integrated Pollution Control and Waste Management Policy and the National Waste Management Strategy. It focused specifically on its water quality responsibilities within an integrated pollution-control policy model. (See Chapter 23: *Water affairs and forestry*.)

Air pollution

The Air-Quality Management Bill was approved for public comment by the Cabinet in April 2003.

The Bill, which will repeal the Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965), seeks to give effect to the integrated pollution and waste-management policy to ensure that all South Africans have access to clean air.

The Department of Environmental Affairs and Tourism is in the process of establishing several initiatives aimed at ensuring better air quality.

Durban South, in KwaZulu-Natal, is the second-largest industrial area in South Africa, and home to several fuel refineries, a pulp-and-paper-mill, sugar refineries and a number of smaller industries.

By mid-2003, the Department had contributed R4,4 million and the Norwegian Government R5,5 million towards the establishment of a new Air-Quality Management System in Durban South.

It was announced in June 2003 that a health study was to be conducted on the Durban South basin at a cost of R7 million.

The execution of the study, which was approved by the Executive Committee of the

eThekweni Municipality, is expected to be undertaken over a period of 18 to 24 months, and will comprise an epidemiological study and a health-risk assessment.

The focus on Durban South is increasingly being seen as a potential model for cleaning other air-pollution hotspots around the country, including the Vaal Triangle, the Witbank-Middelburg area, and Milnerton, near Cape Town.

According to the UN, the transportation sector worldwide now accounts for as much as 73% of global carbon emissions. Vehicles emit huge quantities of carbon monoxide, nitrogen oxides and volatile hydrocarbons.

Most of the petrol used in South Africa contains lead, which poses another serious health risk, particularly for children, as it can hamper their mental development.

Nitrous oxide harms the health of people with cardiac and respiratory weaknesses.

Oxides of nitrogen combined with water vapour create acid rain. Carbon monoxide can kill a person in a matter of minutes if large enough quantities are inhaled, and hydrocarbons harm human health as well as the environment.

The increasing number of vehicles on the country's roads is compounding the country's air pollution challenge.

The Vehicle Emission Strategy, which forms part of the Air-Quality Management Bill, is designed to ensure that emissions from vehicles do not lead to unacceptably poor air quality. The Ambient Air Standards were set to give guidelines in terms of acceptable emissions into the atmosphere, as well as the monitoring and enforcement of transgressors.

Marine pollution

More than 80% of marine pollution originates from land-based sources such as pipeline discharges, rivers and stormwater run-off.

There are many places where water or water containing waste is discharged into the sea. Forty sea outfalls have been formalised

through exemptions issued by the Department of Water Affairs and Forestry in terms of the Water Act, 1956 (Act 54 of 1956).

The same principles used for the issuing of other water-use licences apply to licences for sea outfalls. Such effluents include raw and treated sewage, industrial effluents, or a mixture of the two. In the past, many of these discharges were made into the surf zone, or even onto the shore, but the current tendency is to extend the pipelines further offshore. Permit conditions generally include the monitoring of adverse effects of such discharges on the marine environment.

An increasing source of concern is non-point-source pollution, especially that coming from the burgeoning informal settlements that form part of many coastal cities. Such pollution is generally the result of inadequate sanitation and other infrastructure, and is very difficult to control or monitor.

Shipping also contributes significantly to marine pollution, particularly with regard to specific types of pollutants. Of the estimated 6,1 million mt of oil entering the oceans every year, some 45% originates from shipping activities.

The balance comes from industrial discharges, urban run-off, and oil exploration and production – the latter contributing only 2%. Of the pollution emanating from shipping activities, the majority comes from vessel operations, with only 12% from tanker accidents. Nevertheless, due to the notorious sea conditions along its coastline, South Africa has experienced a number of major oil spills, and, as a consequence, has a well-developed response capability. This includes contingency

plans, salvage tugs, dispersant spraying vessels, a reconnaissance aircraft, and a stockpile of oil-spill-response equipment.

Other pollutants linked to the operational activities of ships include sewage and garbage, ballast water discharges, air pollution, and cargoes which enter the sea through accidents. Sewage, garbage and air pollution are regulated by annexes to MARPOL, an international convention controlling pollution from ships, to which South Africa is a party. New regulations to control ballast water discharges are being developed. A major concern is the translocation of alien species, including pathogens, which may have serious ecological, social (public health) and economic consequences. South Africa is involved in an international project aimed at implementing international guidelines on ballast water management in developing countries.

Cargoes range from foodstuffs such as rice and maize, to crude oil, toxic waste and plutonium.

Another potential source of marine pollution is the dumping of waste at sea. This activity is regulated under the Dumping at Sea Control Act, 1980 (Act 73 of 1980), and, since 1995, excludes industrial waste. The main categories of waste dumped in South Africa are dredged material from the ports; obsolete vessels; and, occasionally, spoiled cargoes.

Coastal management

The Department of Environmental Affairs and Tourism's Subdirectorate: Coastal Zone Management is the lead agent for coastal management. This requires empowering coastal users, decision-makers, and the people to sustain and manage the coastal zone and its resources appropriately.

The Coastal Management Bill sets out a new approach to managing the nation's coastal resources, in order to promote social equity and make the best economic use of coastal resources, while protecting the natural environment.



The Department of Transport, in partnership with the South African Maritime Safety Authority and the Department of Environmental Affairs and Tourism, is developing a national contingency plan to respond quickly and effectively to oil spills whenever they occur. Part of the plan is an envisaged rescue co-ordination centre.



The *White Paper on Coastal Management* was launched in June 2000. According to the White Paper, the coast has been a driving force in the national economy. Its products account for about 35% of the country's national Gross Domestic Product (GDP) and has enormous development potential.

A number of far-reaching initiatives were undertaken. These include:

- The ruling by the Port Elizabeth High Court in favour of the banning of private 4x4 vehicles on South African beaches. The regulation came into effect in January 2002.
- The removal/bulldozing of illegal cottages on the Wild Coast.
- The declaration of a Whale Sanctuary in Hermanus.
- The restructuring of the fishing-rights dispensation to control the exploitation of coastal and marine resources.

These measures supplement the illustrious programme of action already anticipated in the White Paper. Elements of this programme include the following:

- diversifying coastal economies and optimising benefits for local coastal communities
- promoting coastal tourism, leisure and recreational development
- establishing 'one-stop-shops' for development approvals



On 31 October 2003, the International Blue Flag jury approved eight South African beaches for the 2003/04 season. The Blue Flag eco-label assures visitors that beaches adhere to international standards in water quality, safety and security, environmental information and environmental management. They are:

- Humewood Beach, Nelson Mandela metropole (Port Elizabeth, Eastern Cape)
- Margate Main Beach (KwaZulu-Natal)
- South Beach, Durban (KwaZulu-Natal)
- Hibberdene Beach (KwaZulu-Natal South Coast)
- Ramsgate Beach (KwaZulu-Natal South Coast)
- Marina Beach, San Lameer (KwaZulu-Natal)
- Umhlanga Rocks Main Beach, (KwaZulu-Natal)
- Grotto Beach, Hermanus (Western Cape).

- improving public access to the coast and coastal resources
- developing ports and harbours
- improving co-ordination and integration of coastal and marine-resource management
- improving the monitoring and management of coastal pollution
- rehabilitating degraded coastal areas and resources.

The Working for the Coast Programme was launched in October 2000. It has succeeded in upgrading the environment and improving the lives of many people living along the coast. The Programme has created more than 1 500 jobs.

More than 55 teams of workers have been formed along South Africa's coast to upgrade the environment, with many of them having started their own small businesses.

The Department announced in April 2003 that it would be investing R3 million in poverty-relief projects in the Centani region in the Eastern Cape.

It is envisaged that the projects will be driven through the Working for the Coast Programme.

Chemicals

Although relatively small by international standards, the chemical industry is a significant player in the South African economy, contributing about 5% to GDP and providing employment to about 200 000 people. The industry produces 1 301 t of primary and secondary process chemicals annually, making it the largest of its kind in Africa.

Several steps have been taken to align current legislation with the Constitution, 1996 (Act 108 of 1996), and with global chemicals management:

- A special unit has been set up in the Department of Environmental Affairs and Tourism to implement a system aimed at preventing major industrial accidents, as well as systems for emergency preparedness and response.
- The Minister has initiated an integrated safety, health and environment approach for the management of chemicals in South Africa.

This government-level initiative, funded by the UN Institute for Training and Research, will involve a multistakeholder forum, including labour representatives, and aims to integrate legislation. At present, the laws governing chemicals are fragmented.

The Department embarked on a process to develop the South African National Chemicals Profile. The Profile is intended to contribute to a better understanding of the problems relating to the management and impact of chemicals. It will also help to identify important gaps and weaknesses in the existing system, as a first step in defining whether further efforts may be required.

The development of the Profile was motivated by the recommendations of the International Programme on Chemical Safety, as a follow-up to the Rio Declaration on Environment and Development in 1992.

South Africa has signed the Stockholm Convention on Persistent Organic Pollutants, and the Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.

Recycling

Almost every type of paper produced in South Africa has a recycled content. Each ton of waste paper recycled saves about 17 pine trees, and a ton of recycled paper saves 3 m³ of landfill space, meaning that South Africa saves 10 million trees annually.

South Africa follows the USA and Japan as the best collectors of used metal beverage cans in the world. The recovery rate of metal beverage cans sold in South Africa has grown to 63%.

A major role in this regard has been played by the Collect-a-Can project, which was founded in 1993 to reduce litter and optimise the recovery of metal beverage cans. In the process, informal employment has been created for over 30 000 people.

In comparison with other countries, South Africa has a high returnable glass-container

market: 33% of all glass containers produced are returnable or reusable, and these are also recycled.

The Minister of Environmental Affairs and Tourism announced, at the 10th anniversary of Collect-a-Can in April 2003, that 37 773 people were earning or supplementing their income through can recoveries, and that more than R270 million had been paid out to collectors over the last 10 years.

Urban conservation

Rapid urbanisation and its concomitant environmental impact are posing serious challenges for South African planners and environmentalists.

Up to 16 000 ha of farmland is lost to urban development each year. Low-density urban sprawl and the rapid growth of informal settlements contribute to increasing competition between urban land-users for diminishing space and resources.

As a result, many informal settlements are located on marginal and environmentally sensitive land, posing serious threats to human well-being and ecosystems.

The environmentally friendly use and development of land can be promoted through official planning processes such as integrated development plans and land-development objectives.

New planning and environmental legislation provides for environmental concerns in urban planning and development. Regulations making environmental-impact assessments compulsory for certain planned developments were promulgated in September 1997.

Environmental injustices

The Department issued a directive under the National Environmental Management Act, 1998 to Guernica Chemicals (previously known as Thor Chemicals) in KwaZulu-Natal in March 2003. They were ordered to clean up, decontaminate and remove the waste at the plant within 30 days. The waste had resulted in



the mercury-poisoning and death of a number of workers, as well as poisoned communities and livestock, damage to the environment, and contaminated groundwater.

The negative effects of asbestos are other environmental-injustice issues that have received attention from the Department.

The Minister of Environmental Affairs and Tourism announced during the parliamentary hearings on asbestos in January 2003 that the Department was committed to implementing the recommendations of the Parliamentary Portfolio Committee on Environmental Affairs and Tourism, stressing that environmental issues would be a priority during 2003.

Efforts that are being undertaken by the South African Government to deal with the asbestos problem include:

- eradicating mine-dumps
- developing occupational health and safety regulations on asbestos
- developing safety standards and establishing a single compensation office
- formulating a code of best practice for the maintenance, demolition and disposal of asbestos-containing material
- abolishing the use of asbestos in road construction
- gradually phasing out asbestos-use in housing

It was announced in January 2003 that the Department had launched a study with organised labour and business through the National Economic Development and Labour Council, on all the issues surrounding the phasing out of asbestos.

South Africa hosted the SADC meeting on asbestos in February 2003.

International co-operation

South Africa is a signatory to a variety of international agreements dealing with environmental issues.

United Nations Framework Convention on Climate Change (UNFCCC)

South Africa ratified the UNFCCC in 1997. The Convention is a global commitment to take collective responsibility for climate change, and is a mandate for action to address the problem.

The Convention was signed at the Rio Earth Summit in 1992 by Heads of State and other senior representatives from 154 countries (and the European Community), and came into effect on 21 March 1994. As of mid-1998, some 175 states had ratified or acceded to the Convention.

The objective of the Convention is to stabilise greenhouse gas concentrations in the atmosphere at a level that will not have an adverse effect on the climate.

The Convention aims to control the rate of approach to this level over a period of time, in order to:

- allow ecosystems to adapt naturally to climate change
- ensure that food production is not threatened
- enable economic development to proceed in a sustainable manner.

The Convention is guided by four main principles. These are:

- intergenerational equity
- recognition of the specific needs and circumstances of developing countries
- the precautionary principle
- sustainable development, and the need for global co-operation and an open international economic system that will lead to sustainable economic growth.

All countries that have ratified the Convention are required to:

- develop, update and publish national inventories of anthropogenic emissions by sources, and removals by sinks of greenhouse gases (the greenhouse gases exclude those listed in the Montreal Protocol)
- formulate, implement and update national and regional programmes containing measures to mitigate climate change

- promote and co-operate in the development and transfer of technology that controls, reduces or prevents anthropogenic emissions of greenhouse gases
- promote sustainable management, conservation and enhancement of sinks and reservoirs of greenhouse gases
- co-operate in preparing for the adaptation to the impact of climate change
- take climate-change considerations into account where feasible, in relevant social, economic and environmental policies and actions, with a view to minimising the adverse effects on the economy, public health and the quality of the environment
- promote and co-operate in research
- promote and co-operate in the timely and transparent exchange of information, including scientific, technological, socio-economic and legal information
- promote and co-operate in education, training and public awareness, encourage the widest participation in this process, and report to the Conference of the Parties (COP).

Convention on International Trade in Endangered Species

CITES, also known as the Washington Convention, was negotiated in 1973 when it was realised that international trade in wildlife and wildlife products could lead to the over-exploitation of certain species, thereby threatening them with extinction. CITES came into force in South Africa on 13 October 1975. South Africa, together with the other 149 member countries, acts by regulating and monitoring international trade in species which are or may be, affected by this trade.

South Africa views the African elephant, with a population of more than 200 000 in southern African countries, as not endangered. As a result, South Africa is able to sell elephant hides and leather goods, as well as trade in live animals.

Botswana, Namibia, Zimbabwe and South Africa have withdrawn their proposals to sell

ivory stocks. South Africa now has an Appendix II listing and a zero quota for ivory. This means that at future COPs, South Africa will not have to campaign for a downlisting, but rather an amendment to request a quota.

The issue at stake for South Africa is not just ivory. It is about the sustainable use of natural resources and its use for poverty alleviation in rural areas.

The agreement on the downlisting of the African elephant will be restricted to the ivory stockpile in the Kruger National Park.

In October 2001, the Department of Environmental Affairs and Tourism invited interested South African citizens and registered South African non-governmental organisations to assist in the preparation for the 12th COP of CITES. The meeting took place in Chile in November 2002.

During this meeting, South Africa submitted three proposals aimed at ensuring the sustainability of its wild fauna and flora. These proposals included:

- the amendment of the annotation to the Appendix II listing of the South African population of African elephant to allow the initial sale of the Kruger National Park ivory stockpile (of 30 t), 18 months after the adoption of the proposal, and a subsequent annual quota of 2 t
- the transfer of the South African population of Cape parrot from Appendix II (species not necessarily in danger of extinction, but which could become so if their trade were not strictly regulated) to Appendix I (species threatened with extinction that are or could be affected by trade)
- transfer of *Aloe thorncroftii* from Appendix I to Appendix II.

Montreal Protocol

South Africa, as a signatory to the Montreal Protocol, has a national obligation to safeguard the ozone layer from complete depletion. If this is not done, the long-term negative impli-



cations for the whole world will be such that life on earth will be threatened.

To date, South Africa has phased out chlorofluorocarbons (CFCs), halons, methyl chloroform and carbon tetrachloride – making it the only developed country in the world that has achieved so much in line with the phase-out schedule for developed countries. It is a known fact that, although South Africa is classified as a developing country, its consumption of these substances is equal to some of the developed countries. It is for this reason that South Africa did not hesitate to comply with the requirements of the Protocol, more especially because it is also a signatory. To demonstrate the country's commitment towards phasing out ozone-depleting substances (ODSs), the following control measures constitute the overall position of South Africa on the Montreal Protocol:

- working groups were constituted under a neutral chairmanship to assist the Government to implement the Protocol
- regulated ODSs can only be imported or exported after applying for an import/export permit through the Department of Trade and Industry under their Import and Export Control Act, 1963 (Act 45 of 1963)
- ODSs can only be imported after an environmental levy of R5 per kg of CFC is paid
- information is disseminated to interested and affected parties
- Africa Networking Meetings, as arranged by the UN Environment Programme, are attended, where views, experiences and problems are shared in an effort to improve and cooperate within the region.

Obligations include:

- ensuring that South Africa, as a party to the Protocol, protects human health and the environment against harm from human activities

which modify or are likely to modify the ozone layer

- ensuring the protection of the ozone layer by taking precautionary measures to equitably control total global emissions of substances that deplete the ozone layer, with the ultimate objective of totally eliminating them
- reporting and sending data to the Ozone Secretariat on production, imports, exports and consumption of regulated ODSs as collected from dealers and relevant departments
- representing the country affected and interested parties in meetings or COPs to ensure that their interest and that of South Africa is upheld.

Private-sector involvement

Numerous private bodies are involved in conservation activities. There are more than 400 organisations in the country concentrating on conservation, wildlife and the general environment, and more than 30 botanical and horticultural organisations. Among these are:

- BirdLife South Africa
- Wildlife and Environment Society
- WWF South Africa
- Green Trust
- Earthlife Africa
- Endangered Wildlife Trust
- Wilderness Trust of Southern Africa
- Environmental Justice Networking Forum
- Dolphin Action Protection Group
- Keep South Africa Beautiful
- Trees and Food for Africa
- South African National Foundation for the Conservation of Coastal Birds
- Rhino and Elephant Foundation
- EcoLink.

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South Africa.info
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