GEF Country Portfolio Evaluation: South Africa (1994–2007)

ANNEXES I–M

Evaluation Office
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GEF COUNTRY PORTFOLIO EVALUATION: SOUTH AFRICA (1994–2007)

ANNEXES I–M

Annexes I through M supplement the full report, GEF Country Portfolio Evaluation: South Africa (1994–2007)*, Evaluation Report No. 43. The full version of this report is available in the Publications section of the GEF Evaluation Office Web site, www.gefeo.org.*

Annex I: Global Environment Benefit Assessment Analysis and Environmental Legal Framework Analysis

1. GENERAL CONTEXT OF THE EVALUATION

One of the three key dimensions of the GEF portfolio to be assessed in this evaluation is its relevance to:

- South Africa's sustainable development agenda, environmental priorities and national development needs and challenges
- South Africa's national environmental policy priorities, legislation and strategies in each focal area
- The GEF mandate, through maximizing global environmental benefits, principles and to the objectives of each GEF focal area's operational program and strategies.

This chapter outlines the broad country context, policy, legislative and strategy frameworks in terms of which relevance will be assessed and provides an overview of the GEF, the focal areas and the current GEF4 frameworks of objectives. The emphasis is on the biodiversity and climate change focal areas as projects in these areas predominate in the GEF portfolio.

1.1. OVERVIEW

SA is classified as a middle-income country, with a per capita GDP of approximately R35 970 (or US $5 321) and with an overall GDP of R1 725.828 billion (or US $255.3 billion) in 2006 and a population estimated at about 47 million[1]. However, this classification will be highly misleading if not supplemented by a detailed understanding of the enormous disparities in access to secure, stable livelihoods, to land, jobs and other resources and in the distribution of population, wealth, skills and opportunities. This context is essential to any understanding of the nature, scale and scope of the challenges of sustainable development in South Africa. This section provides a brief sketch of this context.

Table 1.1 General Profile for South Africa[2]	
Surface area (km2)	1.2 million (roughly the equivalent of France, Germany and Italy combined)
Population growth rate	0.9% (2005 estimate)
Distribution by race	▪ African (79.4%); Mixed race (8.8%); Indian/Asian (2.5%); White (9.3%)
Distribution by gender	▪ Male (49.2%); ▪ Female (50.8%)
Distribution by province	▪ Eastern Cape (15%); Free State (6.3%); Gauteng (19.2%); ▪ Kwazulu- Natal (20.6%); Limpopo (12%); Mpumalanga (6.9%); ▪ Northern Cape (1.9%); North West (8.2%); Western Cape (9.9%)
Major sectors, GDP (2004)	▪ Finance, real estate & services 20% ▪ Wholesale, retail, hotels & restaurants 14% ▪ Transport & communications 10% ▪ Manufacturing 20% ▪ Mining 7% ▪ Agriculture 3%
Social grants	▪ 12 million people (3.2& of GDP)

By the end of the apartheid era, South Africa had an economy in crisis and one of the highest levels of inequality in the world. The persistence of this legacy is evident in SA's ranking as 116th most unequal in terms of the Gini coefficient out of 126 countries for which data was

[11] Source, South Africa's MDG Mid-Term Report, 2007 p11 and using a mid-2006 exchange rate of R6,76 to the US$

[2] EU / SA, Cooperation between the European Union and South Africa, Joint Country Strategy Paper 2007 — 2013

available in the UNDP's 2006 Human Development Report[3]. SA also rates relatively low in terms of the UNDP's Human Development Index (HDI) (121st out of 177 countries)"[4] and in terms of the Gender Development Index (GDI) while, in terms of GDP per capita, SA would rank 56th.

Since 1994, economic growth has been positive, expenditure on social grants in the 2005/2006 budget year amounted to ZAR 55 billion[5] and significant gains have been made in redressing the legacy of South Africa's apartheid past. Table 1.2 indicates gains made but also the scale of the challenge entailed by the continuing sharp disparities along racial and gender lines that are still strongly evident and must be factored into any sustainable development agenda.

Table 1.2 Changes in Key Indicators [6]		
Population size	40,5 million in 1996	48,5 million in 2007
School attendance people aged 5–24	63% in 1996	74% in 2007
Adult Literacy rate (& female)	69.6 in 1995 (67.2)	74.2 in 2005 (72.1)
Persons with no schooling	19% in 1996	10% in 2007
GDP Growth	3.2% in 1994	5.0% in 2006
Per capita GDP growth	1.1% in 1994	3.6% in 2006
Unemployment – narrow definition[7]	29.4% in Sept 2001	25.5% in Sept 06
Unemployment – broad definition	40.6% in Sept 2001	37.3% in Sept 06
Per capita income: poorest 10% (%of total income)	R534 in 1993 (0.6%)	R734 in 2006 (0.6%)
Per capita income: richest 10% (% of total income)	R48 412 in 1993 (54.8%)	R70 114 in 2006 (55.9%)
Gini coefficient (measuring inequality)	0.672 in 1993	0.685 in 2006
% of population living below R3 000 per annum	50.1% in 1993	43.2% in 2006
Life expectancy (& female)	54.6 years in 2001	50 in 2007 (48.4)
Households in formal dwellings	64.4% in 1996	70.5% 2007
Households with access to flush toilets	49.1% in 1996	55.1% in 2007
Electricity for lighting	58% in 1996	80% in 2007
Electricity for cooking	47% in 1996	67% in 2007
Electricity for heating	45% in 1996	59% in 2007
HIV prevalence in antenatal surveys	7.6% in 1994	30.2% in 2005
Malaria cases	4 693 in 1991	12 322 in 2006
Tuberculosis cure rate		56%
Motor vehicles registered compared to 1994 (4.9million)	25% increase in 2004 (6.5million)	29% increase in 2005 (6.9million)
Economic contribution of tourism	31.3% in 2000	55.8% in 2005
Surface area protected for biodiversity	5.9% in 1994/5	6.2% in 2003

This context is enormously significant for understanding the opportunities and challenges for the environment in SA. Historically, the imperatives for social and economic development were often seen to be in opposition to concerns regarding the state of the environment. Demands for access to land, resources and services for SA's majority were often characterized as 'threats' to

3 Winkler H & Marquard A, (2007) Energy development & climate change: Decarbonizing growth in SA, input to Human Development Report 2007, Energy Research Centre, University of Cape Town

4 UNDP, Human Development Report 2007 / 2008, Fact Sheet on South Africa

5 Cooperation between the European Union and SA, Joint Country Strategy Paper 2007 — 2013

6 Sources: Statistics South Africa, (2007) Community Survey as well as The Presidency of SA, (2007), Development Indicators; Mid-term Review

7 Definition provided by STATS SA: Narrow definition: Number of people seeking employment and could not find any in last two weeks. Broad definition includes people who have been discouraged from seeking employment.

environmental conservation while concern for the environment was often perceived by the majority as a preoccupation of a white elite involved in conservation for conservation's sake. While both of these positions continue to have residual currency, SA's current policy reflects a commitment to, and understanding of, sustainable development as entailing emphasis on all three dimensions: social, economic and environmental. The following environmental 'snapshot' is from the Department of Environmental Affairs and Tourism's (DEAT) report on the state of the environment and provides an integrated picture of the state of the environment and the environmental sustainability trends through a range of indicators:

Table 1.3 Status & Trends, South Africa's Environmental Sustainability Profile[8]	
Agricultural practices	
Food production per person	😐 DECREASING since 1975, notably for maize, the major crop
Food productivity per unit land area	😐 INCREASING, pointing to increased fertilizer use and technology
Conservation tillage	☺ INCREASING, 500 000 hectares in 1975 to 1.5 million hectares in 2005
Air quality	
Air quality in general	☹ DECREASING, with high sulphur dioxide & particulate matter (PM10) levels
Health problems due to air pollution	☹ INCREASING at an estimated 20% over the next decade
Vehicle exhaust emissions	☹ INCREASING, with various pollutants predicted to increase by 27% by 2007 and up to 44% by 2011 (from 2002 levels) if emission controls are not in place
Biodiversity	
Biodiversity loss	☹ INCREASING, almost 10% of birds & frogs & 20% of mammals threatened
Ecosystem health	☹ DECLINING in general, with aquatic ecosystems in worst condition
Programmes to rehabilitate ecosystems	☺ INCREASING, including budget increase for invasive alien plant clearing program from R25 million in 1995/96 to R442 million in 2003/04
Climate change	
Greenhouse gas emissions	☹ INCREASING, carbon dioxide concentration increasing by 0.6% per year
Greenhouse gas emissions from road transport	☹ INCREASING significantly, with a 38% increase between 1990 and 1994
Greenhouse gas emissions per person	☹ Disproportionately high due to reliance on coal and high energy intensity of the economy
Coastal development	
Uncontrolled coastal development	☹ INCREASING, leading to habitat change and degradation
Blue flag beaches	☺ INCREASING, showing a commitment to coastal management
Energy consumption and efficiency	
Energy consumption	☹ INCREASED by 23% since 1992
Energy efficiency	☹ LOW, but slight improvement in recent years
Environmental governance	
Role of South Africa in international environmental governance	☺ INCREASING, e.g., hosting the WSSD in 2002, 5th World Parks Congress in 2003, 27th Antarctic Treaty Consultative Meeting in 2004
Access to environmental information	😐 IMPROVING, but many citizens not aware of their environmental rights
Enforcement of environmental	😐 IMPROVING, but dedicated attention still needed

[8] DEAT, (2006), South African Environment Outlook

management legislation	
Environmental data	😐 Quality and scope IMPROVING, but many gaps still remain
Freshwater resources	
Use of available water resources	☹ INCREASING, most exploitable sources tapped, freshwater flows decreasing
Water quality	☹ VARIABLE, with overall DETERIORATION
Health of river ecosystems	☹ DECLINING, with effluent pollution continuing to grow Invasive alien species
Spread of alien invasive plants	☹ INCREASING (faster than clearing programs can clear)
Land degradation	
Extent of land degradation	😐 UNCERTAIN whether increased since 1999, lack of data
Land use	
Availability of arable land	☹ DECLINED in 1990s due to expansion of settlements & other activities
Land restitution	😐 INCREASING, but majority of successful land claims are in the urban areas
Marine biodiversity and fish stocks	
Threats to marine biodiversity	☹ All threats, including extractive use, pollution, & mining, expected to INCREASE in the next ten years
Populations of abalone & line fish	☹ Continue to DECLINE dramatically
Species listed as endangered or vulnerable	☹ INCREASING, for e.g. bird species affected by longline fishing
Sardine fishery	☺ RECOVERING after near collapse in late 1960s, currently healthy
Ozone depletion	
Use of ozone-depleting substances	☺ DECREASED significantly since 1990
Persistent organic pollutants	
Concentrations of POPs	😐 UNKNOWN and needing to be quantified
Poverty and human development	
Human Poverty Index	☹ INCREASED from 16.4% in 1995 to 31.7% in 2002, reflecting an increase of 1.7 million people living on less than US$1 per day
Human Development Index	😐 DECREASED after 1995, although increased investment in education
Renewable energy	
Use of renewable energy	😐 INCREASING slowly, mainly solar water heating, experimental wind farms, some landfill gas projects, & testing of wave energy
Urbanization and housing	
Urban sprawl	☹ INCREASING, 58% of population living in urban areas, up from 53% in 1996
Informal settlements	☹ EXPANDING rapidly, around urban centers and periurban areas
Housing backlogs	☹ INCREASING, from 1.5 million units in 1994 to 3 million units in 2000
Use of natural resources	
Natural resources that support livelihoods	☹ RAPIDLY DECLINING, due to over-exploitation, particularly in forests, grasslands, KwaZulu-Natal coastal belt, Cape Floristic Region
Levels of abalone poaching	☹ INCREASING dramatically since 2000, threatening sustainability of fishery
Overall state of the environment: international indicators	
Ecological footprint per person	☹ Higher than the global average, and increased by 2% between 1991 & 01
Environmental Sustainability Index.	☹ DECLINING to an overall rank of 93 out of 146 countries in 2005

1.2 SOUTH AFRICA, SADC & THE NEW PARTNERSHIP FOR AFRICAN DEVELOPMENT

SA plays a key role in regional initiatives aligned to the objectives of the international conventions through the Southern African Development Community (SADC), the New Partnership for African Development (NEPAD) and the African Union, such as the Southern African Botanical Diversity Network, State of the Environment Reporting Programme, and the SADC Protocol on Shared Water Course Systems. The stated objectives of NEPAD are to accelerate growth and sustainable development, eradicate widespread and severe poverty and to halt the marginalisation of Africa in the globalisation process. The principles of NEPAD include sustainable utilization of natural resources and environment. NEPAD includes a strategy for sustainable environmental management and highlights biodiversity, desertification and climate change as key issues in its Environmental Initiative Plan.[9]

Regional initiatives highlighted by DEAT[10] are: NEPAD's Environment Action Plan, Peer Review Mechanism, Short Term Action Plan and Health Strategy; numerous SADC strategies, protocols and plans such as the Protocols on Wildlife Conservation and Law Enforcement and Fisheries, Subregional Action Programme to Combat Desertification, SADC Regional Indicative Strategic Development Plan and Common Agenda; and a host of sector/locality specific agreements and strategies such as the Incomaputo Agreement for Cooperation on the Protection and Sustainable Utilisation of the Water Resources of the Incomati and Maputo Watercourses, the two Conventions and associated protocols on Cooperation in the Protection and Development of the Marine and Coastal Environment of the West, East and Central African Regions, the African Union Maputo Declaration on Agriculture and Food Security, the Agriculture Strategy for the Millennium Africa Programme, and Regional Biodiversity Strategy and Action Plan.

SA's role in the region through these and other initiatives is substantial. A recent analysis by the World Bank indicates that "SA contributes 40 percent of Sub-Saharan Africa's GDP—its nine largest cities alone account for about 24 percent of Africa's GDP. Growth spillovers to the rest of the continent are exceptionally large by international standards: an additional percentage point of South African growth is associated with 0.5 to 0.75 percent GDP growth increases in the rest of Africa, independent of common regional shocks." The same report notes that "South Africa accounted for 45% of the total power produced in all of Africa.[11]"

The UN report on NEPAD and the Environment[12] provides a brief overview of progress, indicating that subregional environment action plans are in the process of development and a that a number of senior environmental experts are to be appointed to integrate environmental issues into the development programs of the different regional economic communities. It also notes the implementation of the "climate change adaptation in Africa" research and capacity-building program, supported by the NEPAD secretariat, and financed by the Department for International Development of the United Kingdom and the Canadian International Development Research Centre. The program has just entered the implementation phase, with 12 projects addressing various capacity-development issues relating to climate change.[13]"

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[9] DEAT UNDP (2004), National Capacity Self-Assessment for Global Environmental Management Project Document p8

[10] DEAT (2006), Draft Strategic Framework for Sustainable Development in SA, Draft for Public Comment p65

[11] World Bank DME (2007), Renewable Energy Market Transformation Project Document , p 8

12 UN, (2007) Report of the Secretary-General, New Partnership for Africa's Development: fifth consolidated report on progress in implementation and international support p 8-9

13 UN, (2007) Report of the Secretary-General, New Partnership for Africa's Development: fifth consolidated report on progress in implementation and international support p 8-9

2. OVERVIEW OF ENVIRONMENTAL RESOURCES IN KEY GEF FOCAL AREAS

2.1 BIODIVERSITY

Overview

South Africa is considered the third most biologically diverse country in the world, and is one of the 17 identified "megadiversity countries. It includes three internationally recognized biodiversity hotspots[14]: the Cape Floristic Region, Succulent Karoo (shared with Namibia is one of only two arid biodiversity hotspots in the world, the other being the Horn of Africa), and the Maputaland- Pondoland-Albany centre of endemism (shared with Mozambique and Swaziland). South Africa is the only country in the world to have on of the six plant kingdom of the world, the Cape Floral Kingdom entirely within its boundaries.

South Africa occupies only 2% of the world's surface area but is home to nearly 10% of the world's plants (approximately 24 000 species), around 7% of the world's vertebrate species, 6% of the world's mammal species, 8% of avifaunal species, 5% of the reptile species, 5.5% of the world's known insect species (only about half of the latter have been described). In terms of the number of endemic species of mammals, birds, reptiles and amphibians, South Africa ranks as the fifth richest country in Africa and the 24th richest in the world. Marine biological diversity is also high. There are over 11 000 species found in South African waters, which is about 15% of global species, with more than 25% of these marine species (or 3 496 species) being endemic to South Africa. A high proportion of species are threatened, especially in river ecosystems (82%) and estuaries (77%). Between 14 and 37% of the country's fauna and flora are considered under threat[15]. About 5.4% of the country's land is protected to maintain biodiversity.

The following presents the status and protection of terrestrial, aquatic and marine biodiversity in South Africa as determined by South Africa's National Spatial Biodiversity Assessment (Driver et al 2005a)[16] as presented in the Country Study for South Africa's National Biodiversity Strategy and Action Plan and summarized in Driver et al (2005b)[17] and the State of Environment Report for 2006[18].

Terrestrial Biodiversity

Ecosystems

Biomes found in South Africa are desert, fynbos, succulent Karoo, Nama Karoo, grassland, savanna, Albany thicket and forest. The vegetation of the country has also been classified at a fine scale with 447 vegetation types mapped at a scale of 1:250 000. The NSBA 2004 found that **34% of South Africa's terrestrial ecosystems are threatened**[19]. Of these, 5% are critically endangered, 13% endangered, and 16% vulnerable. Most threatened ecosystems are in the grasslands, fynbos and forest biomes. However, **this is seen as a conservative estimate, as it is based on** o the 1996 National Land Cover and

[14] areas with especially high concentrations of biodiversity, which are under serious threat

[15] http://www.cbd.int/countries/profile.shtml?country=za, accessed 10 December 2007

[16] Driver, A, Maze, K, Rouget, M, Lombard, AT, Nel, J, Turpie, JK, Cowling, RM, Desmet, P, Goodman, P, Harris, J, Jonas, Z, Reyers, B, Sink, K & Strauss, T. 2005. *National Spatial Biodiversity Assessment 2004: Priorities for Biodiversity Conservation in South Africa.* Strelitzia 17. Pretoria: South African National Biodiversity Institute. http://bgis.sanbi.org

[17] Driver, Specialist Review Paper on Biodiversity, for the National Strategy for Sustainable Development Mandy Driver, Tammy Smith and Kristal Maze South African National Biodiversity Institute November 2005.

[18] ,DEAT 2006, South African Environment Outlook.

some parts of the country such as Kwa-Zulu-Natal, which saw the amount of natural habitat lost increase from 26% of the province's area in 1994 to 36% in 2000.

The Biodiversity Intactness Index (BII), is an overall indicator of the state of terrestrial biodiversity (BII) recently proposed by Scholes and Biggs (2005)[2021]. South Africa's BII is 80%, compared with 84% for Southern Africa. The grassland, fynbos and forest biomes have the lowest BII within South Africa, aligning with the NSBA finding that these biomes have the highest numbers of threatened ecosystems.

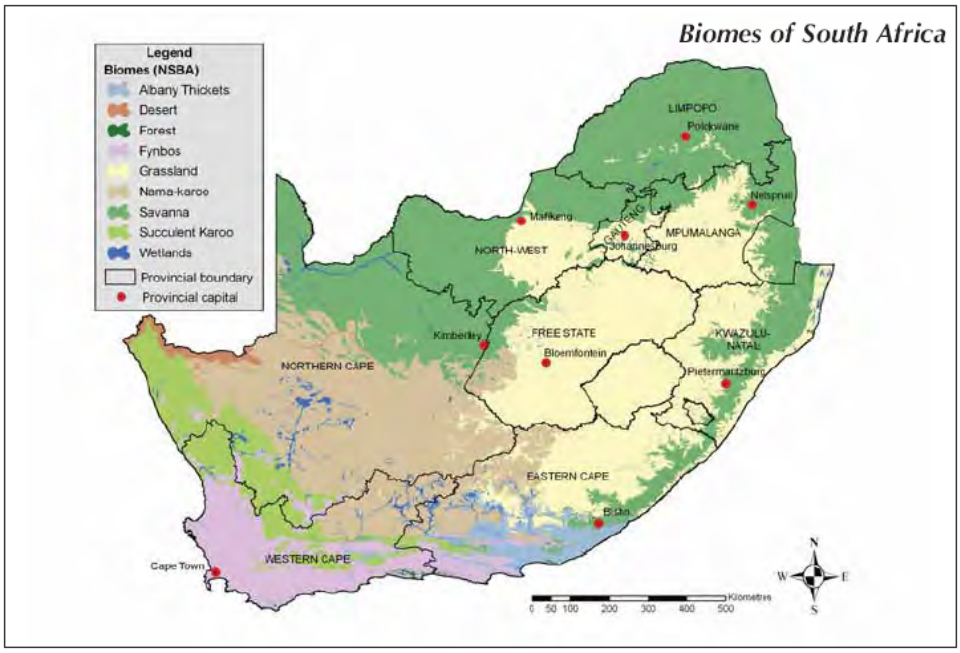


Figure 2.1: Biomes of South Africa (After DEAT, 2006)

Species

A number of assessments of species (e.g. Red Lists) have been conducted, namely for mammals, birds, plants (currently being updated) and frogs. Other species assessments currently being conducted include those for reptiles and butterflies. The Red Data Book of Mammals of South Africa indicates that of the 295 species and subspecies of South African mammals evaluated, 57 (19%) are considered threatened (Critically Endangered, Endangered or Vulnerable), while a further 38 (13%) are Near Threatened. An assessment of the status of birds in southern Africa (South Africa, Swaziland, Lesotho, Namibia, Botswana, and Zimbabwe) indicates that two species are extinct in the region, while 59 species are threatened and 64 are Near Threatened. The Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland indicates that 20 of the 115 recorded species of frogs (17%) are threatened and a further five species are Near Threatened. The Red Data List for plants is being revised but based on a 2004 assessment there are 1262 (more than 10% of the total) threatened plant species in South Africa (181 Critically Endangered, 241 Endangered, and 840 Vulnerable) and 449 Near Threatened (SANBI, 2005b).

20 The BII synthesizes information on land use, ecosystem extent, species richness and population abundance, using an expert assessment approach.

[21] Scholes R. J. and Biggs R. 2005. A Biodiversity Intactness Index. Nature 434, 45–49.

Table 2.1: Status of species in South Africa (after DEAT 2006)

Taxonomic group	% Endemism	Critically endangered species	Endangered species	Vulnerable species
Mammals	16	4	9	27
Birds	8	5	11	42
Amphibians	56	4	5	2
Reptiles	36	1	6	12
Freshwater fish	?	7	6	9
Marine fish	13	5	2	11
Plants	60	175	216	814

Alien Invasive Species

There are about 180 species of invasive alien plants already infesting the equivalent of 10 million ha (8%) of South Africa's surface area. This area is constantly expanding. Woody invasive alien species are estimated to use 7% of the annual flow of South Africa's rivers, the net present cost of which is

Acacia mearnsii

Programme is the key national intervention aimed at addressing this threat. The cost to clear alien plant invasions in South Africa is estimated to be around R12 billion, or roughly R600 million per year for the estimated 20 years that it would take to deal with the problem.

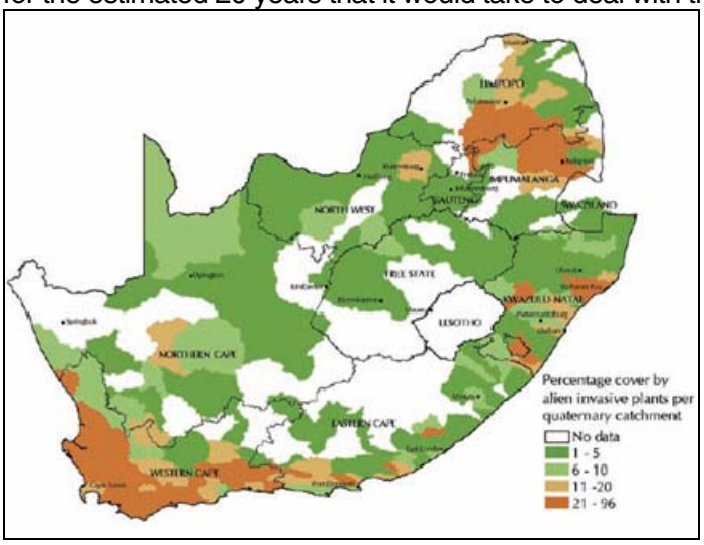


Figure 2.2: Extent and cover of invasive alien plants (After DEAT 2006)

Protection

types are adequately conserved (in relation to their biodiversity targets): 22 types of fynbos, 18 types of savanna, and 7 types of forest. No grassland types are adequately conserved (see table 2.2 below).

South Africa's conservation areas include the formal statutory protected areas (PAs) (Type I); the less formal PAs, such as mountain catchment areas and state forests of the Department of Water Affairs and Forestry (DWAF) (Type II) and informal landowner activities such as game farms and conservancies (Type III). Currently, 5.4% % of land in South Africa is formally protected in Type 1 and Type 2 PAs. The conservation estate consists of 479 Type 1 PAs (representing 77% of the total protected area in Types 1–3) and 471 Type 2 PAs. Only a few

PAs are greater than 100 000 hectares (ha) in area, and most of them cover between 1 000 and 10 000 ha.

Table 2.2: Habitat transformation and protection of biomes in formal protected areas (After DEAT 2006)

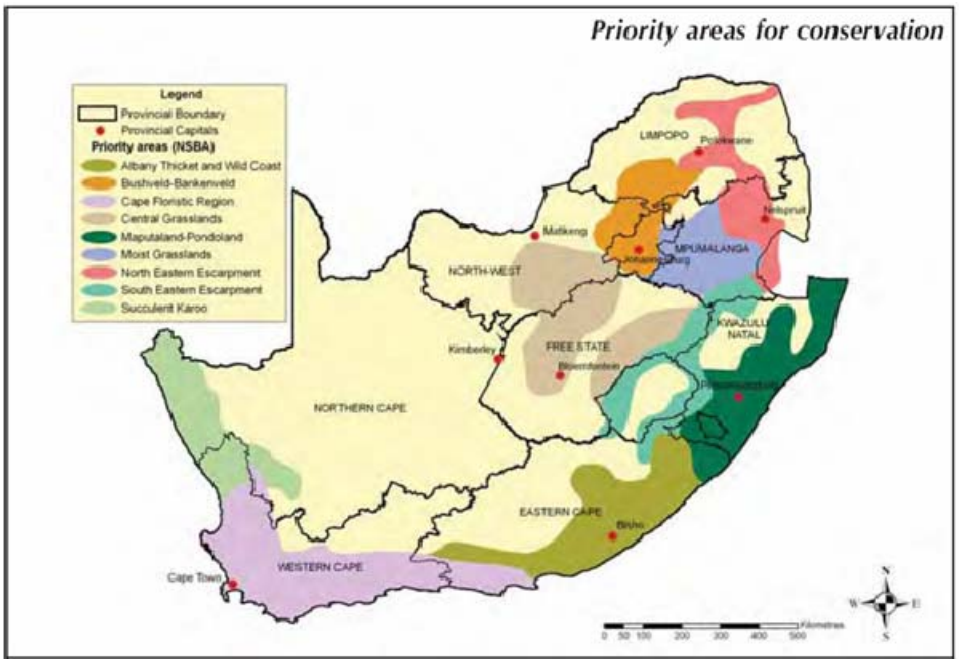
Biome	Area (km^2)	% of total area of the Country	% remaining	% protected
Desert	8 548	0.7	93.4	12.5
Succulent karoo	85 207	6.7	96.5	3.1
Fynbos	84 580	6.7	70.2	11.0
Nama karoo	250 069	19.7	98.4	0.6
Grassland	373 984	29.5	70.8	1.9
Savanna	412 753	32.6	86.1	8.9
Albany thicket	30 256	2.4	91.9	6.3
Forest	4 730	0.4	94.7	39.6
Wetlands	16 790	1.3	92.1	4.6

Box 2.1: South Africa's TFCAs, Biosphere Reserves and World Heritage Sites:

Six ***Transfrontier Conservation Areas*** have been identified: Ais-Ais/Richtersveld Transfrontier Conservation Park; Kgalagadi Transfrontier Park; Limpopo-Sashe TFCA; Great Limpopo Transfrontier Park; Lubombo Transfrontier Conservation and Resource Area; Maloti-Drakensberg Transfrontier Conservation and Development Area.

South Africa has four ***Biosphere Reserves (MAB)***: Kogelberg Biosphere Reserve (listed in 1998); Cape West Coast Biosphere Reserve (listed in 2000 and covering 376 900 ha including a number of threatened vegetation types and important bird-breeding sites. Waterberg Biosphere Reserve in Limpopo (listed in 2001, covering 1,4 million ha, including the Marakele National Park and the Nylsvlei Ramsar Site; Kruger-to-Canyons Biosphere Reserve (listed 2001 and covering more than 3,3 million ha).

South Africa has seven ***World Heritage Sites*** in South Africa (UNESCO): Robben Island; Greater St. Lucia Wetland Park; The Cradle of Humankind; uKhahlamba Drakensberg Park; Mapungubwe Cultural Landscape; Cape Floristic Region; and, The Vredefort Dome.



2.3: Priority Areas for Conservation (after DEAT 2006)

Freshwater Biodiversity

Ecosystems

82% of South Africa's main-stem river ecosystems are threatened

established. Up to 60% of threatened endemic freshwater fish may be threatened by introduced fish species. Invasive alien plant species use 7% of the available surface water in South Africa

Protection
Rivers in particular are poorly conserved and even where they are included in a protected area, they are not adequately protected.

Marine and Estuarine Biodiversity

Ecosystems

65% of South Africa's marine biozones are threatened

exploited and/or collapsed.

There are currently no active control programs for invasive alien species in South Africa's marine environment, although a prevention program aimed at ship's ballast water is being developed.

Status

2.2 CONTRIBUTION TO CLIMATE CHANGE & VULNERABILITY TO CLIMATE CHANGE

Greenhouse Gas Emissions

The most recent inventory of Greenhouse Gases for South Africa was for the years 1990 -1994 and formed the basis for the Initial National Communication[22] (INC) prepared by DEAT in 2004 in terms of the United Nations Framework Convention on Climate Change. Work is currently underway to design a process and approach for preparation of an updated Greenhouse Gas Inventory (GGI) for South Africa. Responsibility for preparation of this inventory lies with DEAT. Summary results from the GGI are as follows:

- The total greenhouse gas emissions for 1990 were 347,346 Gg CO2 equivalents
- The total greenhouse gas emissions for 1994 were 379,842 Gg CO2 equivalents.

[22]This section draws directly or indirectly from the DEAT, (2003). Initial National Communication under the United Nations Framework Convention on Climate Change & DEAT website: http://www.environment.gov.za/ClimateChange2005/National_Greenhouse_Gas_Inventory.htm

Government estimates of future trends in GHG emissions "indicate a rise from just over 300 Mt CO_2 in 2001 to around 600 Mt in 2025, given an expansion in the energy system based on similar energy resources."[23]

Contribution Relative to Other Countries

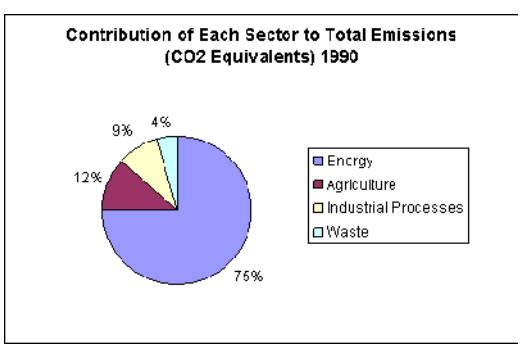
South Africa is by far the largest emitter of GHGs in Africa and one of the most carbon emission-intensive countries in the world, annually emitting some 7 tonnes of carbon dioxide per capita due to the energy intensive economy and high dependence on coal for primary energy.[24] SA's emissions are disproportionately high. Although high income OECD countries are responsible for the vast majority of emissions ("With 15% of the world's population, they account for almost half of all emissions…emitting 6 times our sustainable carbon budget"), SA's emissions are proportionately far higher ("With 0.7% of the world's population, South Africa accounts for 1.5% of global emissions… If all countries in the world were to emit CO_2 at levels similar to SA's, we would exceed our sustainable carbon budget by approximately 340%").[25]

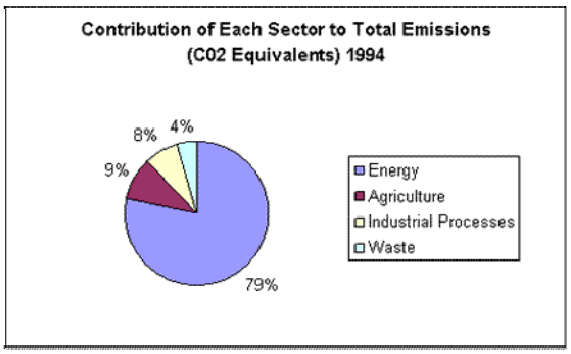
Highly Uneven Contributions from Different Social Groups

One of the most intense challenges SA faces is how to establish greater equality in access to services, secure livelihoods and a decent quality of life while ensuring sustainability in terms of impact on natural resources. The dramatic inequalities in SA society are mirrored in the differential consumption patterns and impact on the environment in general. In one depiction, although SA's overall 'ecological footprint' is double the sustainable level, some sections have a footprint that is 14 times the sustainable level while the footprint of the majority is about half what is regarded as sustainable. The draft Strategic Framework for Sustainable Development notes, "It is highly unlikely that there are sufficient resources to eradicate poverty by increasing the footprint of the poor if the footprint of the rich remains so large.[26]"

Sectors That Are Primary Contributors[27]

The pie charts below illustrate how the different sectors in South Africa contributed to these totals. (The total emissions were calculated as carbon dioxide equivalents).





- Carbon dioxide is the most significant greenhouse gas for South Africa.
- It contributed more than 80% of the total of the three main greenhouse gas emissions (carbon dioxide, methane and nitrous oxide) for both 1990 and 1994.

[23] Winkler H & Marquard A, (2007) Energy development and climate change: decarbonizing growth in South Africa, input to Human Development Report 2007, Energy Research Centre, University of Cape Town p 11
[24] Department of Minerals and Energy (2004), Renewable Energy Policy of South Africa White Paper p9
[25] UNDP, Human Development Report 2007 / 2008, Fact Sheet on South Africa
[26] DEAT (2006), A Strategic Framework for Sustainable Development in SA, draft for public discussion p20
[27] RSA (2003) Initial National Communication under the United Nations Framework Convention on Climate Change

- The main source of CO2 is the energy sector which generated 89.7% of the total CO2 emissions in 1990 and 91.1% of the total in 1994.

The high levels of emissions from the energy sector relate to the high energy intensity of the South African economy, which is dependent on large scale primary extraction and processing, particularly in the mining and minerals beneficiation industries. The only significant sink for carbon dioxide in South Africa is through afforestation, and at present South Africa is undergoing net afforestation. The net uptake of carbon dioxide through afforestation activities has increased from 16 983 Gg in 1990 to 18616 Gg in 1994.

Methane emissions from agriculture, energy fugitive emissions and waste amounted to 2 053 Gg in 1990 and 2 057 Gg in 1994. Enteric fermentation emissions from livestock were the largest contributor to methane emissions, contributing 40% of the total methane emissions. The waste sector contribution increased from 33.5% in 1990 to 36% in 1994 due to extension of waste services to sectors of the population that were previously not serviced.

The total nitrous oxide emissions were 75 Gg and 67 Gg for the years 1990 and 1994 respectively. The main contributor was the agricultural sector, which generated 77% in 1990 and 80% in 1994 – of the total nitrous oxide emissions. Road transportation contributed to more than half of the transport sector emissions, which increased by about 36% between 1990 and 1994.

Energy[28]

The total *primary* energy supply to SA increased from 3,924PJ in 1993 to 4,295PJ in 2000, an increase of 9.5%. In 2000 coal contributed 79% of the total national primary energy supply.

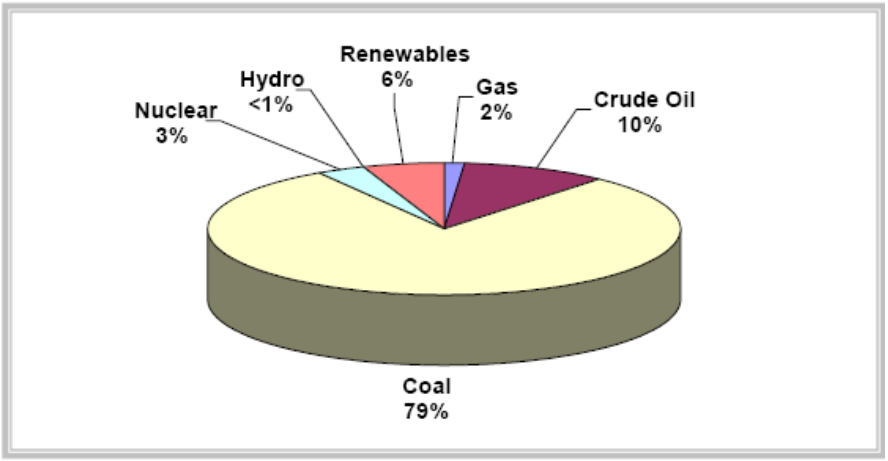


Figure 2.4: 2000 Primary Energy Supply

Sectoral Usage [29]

The final *end-user* energy usage in 2000 was 2,193PJ. The largest energy consuming sectors were industry (including mining, 47%), residential (16.4%) and transport (27%, 97% of which is from petroleum). Although the remaining sectors accounted for less than 10% of final energy demand in 2000, 3.5% of this is in commercial and public buildings.

[28] This section is drawn from Department of Minerals & Energy (2005), Energy Efficiency Strategy of the Republic of South Africa p8

29 Drawn from DME (2005), Energy Efficiency Strategy of the Republic of South Africa pp 28, 30, 32, 34

The extension of services has resulted in significant increases in household electricity use.[30]. However, contrary to conventional wisdom, it would appear that the impact of extending electrification to the majority of the population since 1990 (from an estimated 30% in 1990 to a current estimated rate of 75%) has had relatively little impact on electricity consumption. The result of gaining around three million new (primarily low-income) residential customers between 1990 and 2004 only increased Eskom's sales by around, whereas growth in Eskom's industrial sales in the same period added 17% to energy consumption based on the 1990 total."[31] Hot water heating represents around 30% of all household electricity use[32]. Figure 2.5 depicts the sectoral split of final energy use, and excludes "non-energy use" carriers, such as solvents and lubricants.

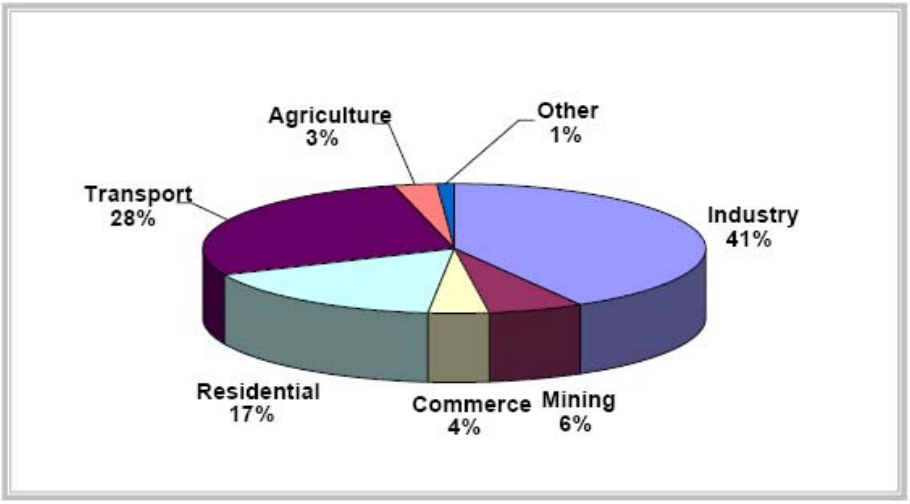


Figure 2.5 Final Energy Use by Sector

Key Features of the Main Energy Using Sectors[33]

Industry and Mining Sector

- Industrial energy usage is dominated by a small number of energy intensive industries including ferrous and non-ferrous metals processing, mining, pulp and paper, and the petrochemical industry;
- The energy intensities in these industrial sectors are typically higher than those of other first world countries.

Residential Sector

- A key energy source is still biomass in the rural areas, but electricity use is increasing;
- Savings can be made in thermal energy; in incorporation of energy efficiency measures (thermal insulation) in new housing, in implementation of appliance labelling and standards and through massive education and awareness campaigns.

Transport Sector

- Road transport of passengers and freight represents 84% of energy use;
- Transport fuels represent a significant portion of the country's imports into the economy.

Commercial and Public Buildings Sector

- The Commercial sector is undergoing significant growth which presents the opportunity to capture energy efficiency at the design stage of new stock.

[30] This section is drawn from Statistics South Africa, (2007) Community Survey
[31] Winkler H & Marquard A, (2007) p6
[32] Interview: Harald Winkler, Energy Research Centre, University of Cape Town
[33] Drawn from Department of Minerals & Energy (2005), Energy Efficiency Strategy of the Republic of South Africa pp 28, 30, 32, 34

Mitigation: Options

A central issue for mitigation options is that "given the challenges of development to meet basic needs, mitigation policies and measures have to be integrated with development goals."34 The South African government's policy on Renewable Energy notes that "emission constraints could have a significant impact on the South African economy and trade."[35]

The analysis of the feasibility, potential cost, practicability and likely impact of various mitigation options is the subject of ongoing and heated debate. The following is based on the work of the Energy Research Centre at the University of Cape Town, which in turn draws on a wide range of other research. We have also tried to reflect some key divergent views where possible and relevant but will not have been able to cover the full spectrum of research based analyses and projections.

The Energy Research Centre divides South Africa's mitigation options into three broad categories[36]:

- energy efficiency (which reduces demand for energy, or uses it more efficiently for the same service) and can be implemented in the short term and where the cost implications are well understood;
- changing the fuel mix (moving to lower or non carbon-emitting energy sources) which would require a longer time frame linked to the life span of refineries and power stations; and
- structural changes to the economy made over the long term, which lower the energy intensity of the economy as a whole by shifting economic activity and investment to less energy-intensive sectors, or taking other measures to reduce the need for energy services, such as changing urban planning practices to reduce transport requirements.

The Centre points out that, even if the energy efficiency based options and the options for changing the fuel mix outlined below were all implemented, this "would reduce CO_2 emissions likely to occur by 143 Mt (24%), but these would still be 30% higher than the 2000 level."[37] Only significant changes to the structure of the energy system and, therefore, of the economy, as outlined below, will significantly change this result.

Energy Efficiency (EE) Mitigation Options[38]

- Industry: improvements in industry, could save around 770 Mt of CO_2 over the 25-year period, reduce emissions by 44 Mt, and save a net R18 billion (2000 Rands). The energy efficiency program would aim at a reduction of 12% from the reference case by 2014.[39]
- Commercial: (also with a target of 12% by 2014) is also a significant option, with a net saving of around R13 billion, and a reduction in CO_2 emissions in 2025 of 12 Mt of CO_2 interventions consist primarily of improved building design and improved HVAC efficiency

[34] Winkler H & Marquard A, (2007) Energy p1
[35] DME (2003), White Paper on Renewable Energy, p8
[36] Winkler H & Marquard A, (2007) p18
[37] Winkler H & Marquard A, (2007) p19
[38] This and the following sections on mitigation options draws directly on the modeled scenarios outlined in Winkler H & Marquard A, (2007) p 17
[39] A target of 12% by 2014 was used for the scenario-modelling. These figures are very close to the government's 2005 National Energy Efficiency Strategy targets (12% by 2015), and those additionally specified in the National Energy Efficiency Accord (15% by 2015 for mining and industry), but not identical.

- Residential: a combination of 'cleaner and more efficient residential energy' measures would save around R1 billion, and reduce CO_2 emissions in 2025 by 4 Mt. Implementation of these scenarios would require 'significant policy intervention.
- Transport: there are significant efficiency gains to be made in the transport sector in South Africa through motor efficiency improvements, mode-switching (particularly road and air to rail), and the development of integrated urban transport networks.

Lowering the Carbon Content of the Energy Mix[40]

- Gas: increased use of imported gas primarily as fuel for combined-cycle turbines for electricity generation would cost a little more than R95 million but save around 200 Mt CO_2 over the study period, with a reduction of 12 Mt in 2025.
- Hydroelectricity: two sources potentially available, construction of a new plant of around 1300MW and/or at the Inga Falls on the Congo River in the Democratic Republic of Congo, which could potentially provide from 40 000 to 100 000 MW of capacity and save R11 billion, as well as save 167 Mt of CO_2 emissions, as well as 17 Mt in 2025.
- Nuclear: the deployment of Eskom's indigenous nuclear reactor concept, the Pebble Bed Modular Reactor (PMBR), assuming that the technological challenges are successfully met, around 4500MW of baseload nuclear capacity would be added to the electricity, adding R4.6 billion to existing costs and avoiding 246 Mt of CO_2 including avoiding 32 Mt CO_2 emissions in 2025, "subject to the usual complications and constraints of nuclear power".
- Electricity-generating renewable technologies: (a combination of biomass, solar thermal technologies and wind energy), adding R4.5 billion in costs and avoiding 180 Mt of CO_2 emissions, and cutting CO_2 emissions in 2025 by 15 Mt
- Biofuels: could provide around 8% of liquid fuels by 2025, cost R2 billion more than current modes, and would save 31 Mt of CO_2 over the period, and around 5 Mt in 2025.
- Supply-side options: are new coal technologies, including fluidized-bed combustion and others, as well as carbon capture and storage combined with coal gasification (many of which are being researched by Sasol and Eskom).

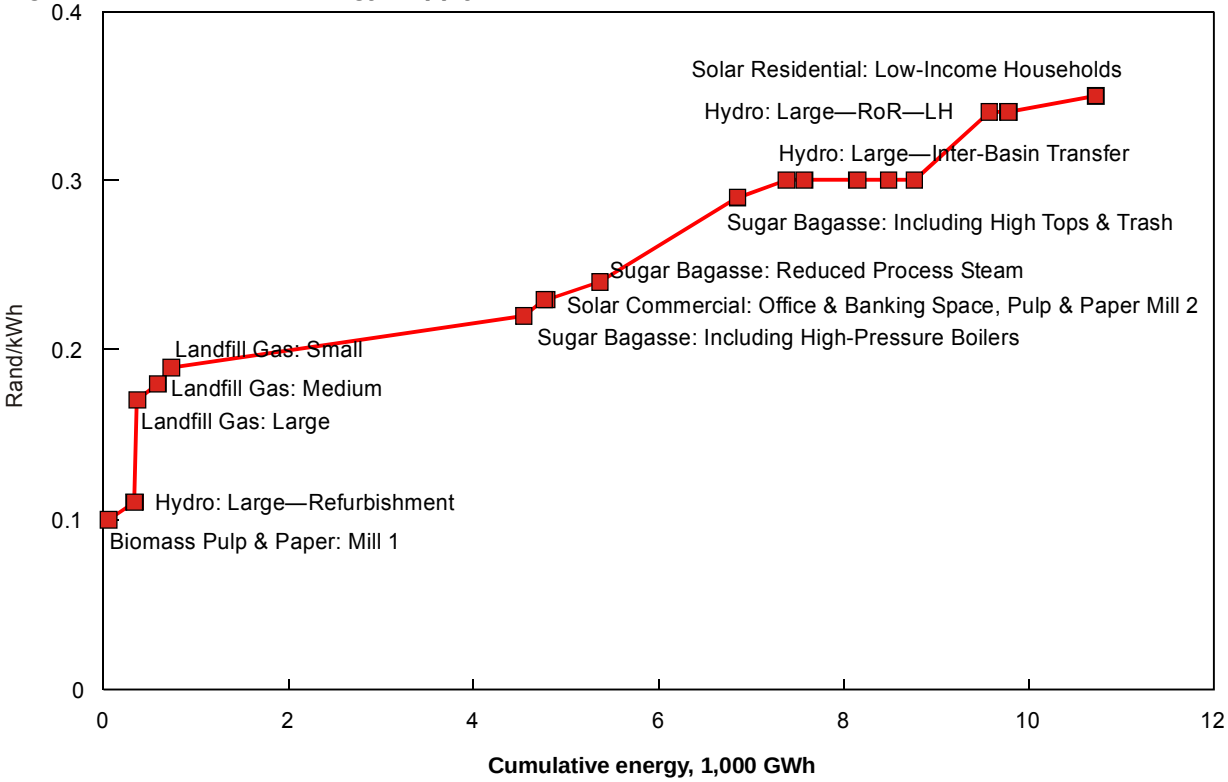
Renewable Energy Potential

The Energy research Centre notes that the "extent of renewable energy deployment in these scenarios (outlined above) is relatively modest. The electricity target is in line with the state's target of achieving 10 000 GWh of generated electricity by 2014 (see above), but current thinking in government is that ¾ of this target will now be met through biofuels."[41]

A further estimate of the potential of renewable energy in SA indicates that there are sufficient renewable energy resources in South Africa to provide for about 13 percent of the electrical demand by 2020, and easily 70 percent or more by 2050 using a conservative estimate and, with a rapid shift, renewables could provide up to 20% of electricity by 2020, and more than 60% of the total energy demand by 2050[42]. The project document for the Renewable Energy Market Transformation Project uses the analysis of the potential and cost of various renewable sources provided in Figure 2.6 to show the relative cost-effectiveness of solar energy in the commercial sector as it is not much more expensive than other options but has the potential to provide significant energy.[43]

[40] Winkler H & Marquard A, (2007) p19
[41] Winkler H & Marquard A, (2007) p19
[42] Banks, D and Schäffler , J (2005), The potential contribution of renewable energy in SA, commissioned by Sustainable Energy & Climate Change Project (SECCP), Project of Earthlife Africa Johannesburg p53
[43] World Bank (2007), Renewable Energy Market Transformation Project Document p 11

Figure 2.6: Renewable Energy Supply Curve—The First 10,000 GWh



Source: Conningarth Economists, June 2004.

Structural Changes to the Economy[44]

- *Adjust state incentives* (including industrial incentive programs and special dispensations on low electricity prices) to avoid attracting further energy-intensive investments on terms which would severely restrict future mitigation options, and shift these incentives to lower carbon industries.
- *Application of a much more rigorous mitigation program* to the non-energy-intensive[45] section of the economy, since the international competitiveness of this part of the economy would not be significantly affected by higher energy prices, which would be ameliorated by energy efficiency improvements in the medium term. An exception would be low-income households – policy would have to ensure that safe and adequate energy services were delivered at an affordable cost, which might include state (or other agency) subsidized energy efficiency measures.
- *Investment and enabling local alternatives:* Encourage a shift to another area of competitive advantage with low-carbon characteristics, which makes use of local resources. One of the best prospects is a solar thermal energy industry, since South Africa has some of the best solar resources in the world. South Africa could become a world leader in solar thermal technology, with the right supporting measures. These would be a combination of measures, including the creation of a local market (commitment by Eskom and IPPs to commission a certain number of plants), state incentives and support (including technology support and public investment), and risk-sharing with international partners, either from the private sector, or through multilateral agencies.

[44] Winkler H & Marquard A, (2007) p 19 - 20
[45] Energy-intensive industries could be identified by the percentage of their costs spent on energy.

- *Reform the energy-intensive sector itself*, by gradually reducing its energy intensity while protecting employment and existing investment.
- *Tax on energy use*: a tax equivalent to R50/ton of coal would mitigate 28 Mt of CO_2 over a 20-year period and add a mere R23 million in cost.

Barriers to Renewable Energy Implementation

Many commentators have noted that, unlike many developing countries, South Africa does not suffer from lack of technological capacity, in terms of skills and expertise, or lack of access to finance[46]. The key constraints, according to the Energy Research Centre and DME are[47]::

- low energy prices, which are probably the most fundamental constraints to more extensive RE and EE programs and, while they are set to increase to fund new plant development, are predicted to remain below marginal cost of production for a number of years making it difficult for a renewables market to develop and not incentivizing efficiency in use;
- technological capacity largely limited to specific areas of energy efficiency and renewable energy technologies; and
- constraints arising from current structures of institutions and policy domains.
- Lack of consumer awareness on benefits and opportunities of renewable energy.
- Centralisation of electricity generation, gas supplies and liquid fuel provision - Eskom, the vertically integrated state-owned utility controls the generation, transmission and largely the distribution of power.
- Financial, legal, regulatory and organisational barriers to implementation of renewable energy technologies and the development of markets.
- Lack of non-discriminatory open access to key energy infrastructure such as the national electricity grid, certain liquid fuels and gas infrastructure.
- Market power of utilities

The whole area of alternative energy is the subject of vigorous debate and many of the barriers to renewables identified are contested. A study conducted in 2005, for example, concludes that an analysis of cost data undertaken "indicates that costs of power from renewables are already less than those from conventional resources in some selected cases."[48]

Current Energy Crisis

SA is currently experiencing power shortages and load shedding, as generation capacity has not increased over the past ten years, despite a steady growth in demand for electricity. "Increasing power shortages in South Africa could pose a serious threat to sustained economic growth and international competitiveness. Eskom is currently planning to build 1,500 MW of power capacity each year over the next five years to meet the growing demand.[49]"

The power shortages could pose both an opportunity and a threat. Various measures mooted by government to create an enabling environment for improved efficiency and mix in terms of energy have come strongly back onto the agenda, such as the adoption of a mandatory feed-in tariff and a voluntary green electricity trading scheme to promote renewable energy development. Eskom has begun an aggressive solar water heater program to mitigate the power shortage. The REMT project document notes that "solar water heaters have a large

[46] Winkler H & Marquard A, (2007) Energy development and climate change: Decarbonizing growth in South Africa, input to Human Development Report 2007, Energy Research Centre, University of Cape Town p24 & 25
[47] DME (2003), White Paper on Renewable Energy, p10
[48] Banks, D and Schäffler , J (2005), The potential contribution of renewable energy in SA, commissioned by Sustainable Energy & Climate Change Project (SECCP), Project of Earthlife Africa Johannesburg p 54
[49] World Bank DME (2007), Renewable Energy Market Transformation Project Document (REMT), p 8

replication potential to reduce greenhouse gases by replacing fossil fuel combustion. Furthermore, the power tariff for newly built power plants has increased to 3.6–4.3 U.S. cents/kWh, according to the National Energy Regulator of South Africa (NERSA). With additional revenue streams from carbon financing, some renewable energy technologies can be financially viable at this tariff level."

The shortages also pose threats, however, as government seeks to expand power generation as fast as possible, with the potential that RE and EE technologies with a potentially longer lead-in time, but important from a long term sustainability perspective, may be put aside once again.

Vulnerability[50]

Potential changes to the South African climate over the next 50 years identified in the INC pose significant threats and include: a warming of between 1°C and 3°C; a potential reduction of approximately 5 to 10% of current rainfall; increased daily maximum temperatures in summer and autumn in the western half of the country; increased incidents of flood and drought; and, enhanced temperature inversions exacerbating air pollution problems."[51] These changes are likely to impact most negatively on those already made vulnerable by poverty. The South African Country Studies Programme identified the health sector, maize production, plant and animal biodiversity, water resources, and rangelands as areas of highest vulnerability to climate change, and proposed suitable adaptation measures to offset adverse consequences.

Health impacts include problems related to sun exposure and indirect health impacts such as an increase in the incidence of water-borne diseases and vector-borne diseases such as malaria. The modelling predicted that the area of the country potentially prone to malaria will more than double in 50 years, and that 7.8 million people will be at risk, with 5.2 million of these people not previously resident in malaria risk areas.

Water resources, South Africa's rainfall is already highly variable in spatial distribution and unpredictable, both within and between years. Much of the country is already arid or semi-arid and the whole country is subject to droughts and flood and desertification is already a problem in South Africa.

Rangelands, 70% of the land surface of South Africa consists of natural and semi-natural ecosystems which provide rangelands for large herbivore species. Modelling suggests a general aridification of this type of land and increased fire outbreaks.

Maize production, About 70% of total grain production in South Africa consists of maize. Crop yield modelling predicts that, under a hotter drier climate, maize production will decrease by up to 20%, mostly in the drier western regions. In addition, an increase in pests, diseases and invasive plants would also have a detrimental effect on the agricultural sector.

Biodiversity is important for South Africa because of its key role in maintaining ecosystem functioning, its proven economic value for tourism and its role in supporting subsistence lifestyles. Climate change modelling suggests a reduction of the area covered by the current biomes by up to 55% in the next 50 years. The largest losses are predicted to occur in the western, central and northern parts of the country. Species composition is expected to change, which may also lead to significant changes in the vegetation structure in some biomes, and, in

50 DEAT (2004), A National Climate Change Response Strategy for South Africa

[51] RSA (2003) Initial National Communication under the UN Framework Convention on Climate Changep4

some extreme cases, even leading to total species loss. With regard to animal taxa, climate modelling predicts that most animal species will become increasingly concentrated in the proximity of the higher altitude eastern escarpment regions, with significant losses in the arid regions of the country. Some species are predicted to become extinct. *Marine biodiversity* is not expected to be impacted by the predicted ranges for rise in sea level. However, the predicted rise in sea surface temperature would result in the migration of species residing along the coast. Changes in sea temperature may increase the intensity and frequency of upwelling events which will have significant impact on rocky shore ecosystems.

2.3 LAND DEGRADATION

Overview:

Both degradation[52] and desertification[53] are important forms of land transformation and are among South Africa's most critical environmental issues, intricately linked to food security, poverty, urbanization, climate change, and biodiversity. As much as 91% of South Africa comprises drylands, this together with the "unreliablility" of rainfall and droughts, soil types which are vulnerable to degradation, and unsustainable land use practices, make it susceptible to degradation and desertification. Over exploitation and unjust land policies have left large tracts (conservative estimate in National Action Programme: 250 000 ha) of SA degraded, especially in the historical communal and commercial farming areas[54]. This poses a serious threat to ecosystem functioning, biodiversity, household food security, and rural livelihoods in a context where 42% of the population living in rural areas depends on livelihoods derived from the natural resource base. Global climate change threatens to worsen desertification in some parts of the country, making it even more difficult to feed a rapidly growing population[55]. Predictions of trends and impacts from climate change show SA to be highly vulnerable to intensified degradation and desertification. Although the importance of desertification and its potential impacts on agriculture, food security, and biodiversity and links to poverty are acknowledged, there have been no comprehensive and replicable national-scale studies of land degradation and desertification trends.

Land Degradation: Status and Trends:

In January 1995, South Africa signed the Convention to Combat Desertification, which was ratified on 30 September 1997. As required by the United Nations Convention to Combat Desertification, the National Action Programme to Combat Land Degradation and Alleviate Rural Poverty was been developed and approved by cabinet in 2004. This recognizes the need to reverse land degradation, both to improve livelihoods and protect biodiversity. To inform the NAP, a national assessment of land degradation was undertaken by Hoffmann et al in 1999[56], the major findings of which are summarized below. Key to addressing land degradation is ongoing monitoring and assessment, however the 1999 study is difficult to repeat for monitoring purposes. It is therefore not yet possible to develop a clear

[52] 'Land degradation refers to the reduction or loss of biological or economic productivity of agricultural lands, woodlands, and forests that result mainly from human activities.

[53] Desertification refers to land degradation in drylands from both climatic variability and human activities. Desertification occurs when several degraded patches of land expand and join to form large, unproductive areas. Desertification occurs over a larger scale than land degradation and results in the 'permanent' loss of productivity and supply of ecosystem services

[54] Polices of "betterment and land legislation created densely populated communal areas while policy aimed at securing rural labor for mining, industry and commercial agriculture caused depressed prices and labor shortages in these areas. Coupled with inappropriate land use practices and poor government support, this resulted in some of the best agricultural land in South Africa becoming seriously degraded.

[55] Hoffman T, Todd S, Ntshona Z. & Turner S, 1999. Land degradation in SA. Final report. DEAT.

[56] This study was based on the perceptions of more than 400 agricultural extension workers and resource conservation technicians, it is not, however, a quantitative analysis of observable measurements.

picture of national trends since 1999, and it is hard to say with certainty whether or not the condition of land has improved, deteriorated, or remained the same (SoE, 2006).

Land Potential and Land Cover

About 81% of the total land area of South Africa is 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 (NAP 2004). Large areas of land in South Africa are still covered by natural habitat – in 2002, 18% of the country's land was transformed and 82% was natural. Although only about 13,5% of South Africa is arable, 80% of the land is used for agriculture. Hoffman *et al* presented the status of land degradation in 'spatializing' three indices: Soil degradation index (SDI); Veld degradation index (VDI); and, Combined index of soil and veld degradation (CDI)[57] The following is an adapted summary of these findings presented in the SoE 2006.

Soil Degradation

Most SA soil is unstable. SA loses an estimated 500 mt of topsoil annually through erosion by water and wind[58]. Soil degradation is most severe (and generally perceived to be occurring at an increasing rate) in most communal croplands, grazing lands, and settlements in SA. Soil degradation in the form of sheet and gully erosion is estimated to cover an area of 0.72 million ha. As is the case worldwide, water erosion is also SA's most widespread soil degradation problem and affects 70% of the land. About 25% of SA is highly susceptible[59] to wind erosion and, by 1985, an estimated 2.2 million ha were severely affected by it. Relative to global levels, SA has more widespread and serious physical soil degradation, in the form of crusting (surface sealing) and soil compaction. Crusting is an increasing problem in overgrazed, bare patches and where there is overhead and microirrigation, and it continues to be a serious problem in the rainfed, grain-producing areas of the Western Cape. Serious soil compaction problems in high-potential cropland in Mpumalanga are caused by opencast and strip coal mining. Soil compaction is also a problem in forestry areas. Quantitative national-scale data on chemical soil degradation are scarce. Soil acidification, caused by chemicals, is a major issue in SA and is increasing, especially in low income cropping areas. The mining and coal-burning industries (primarily the electricity generation activities) in Gauteng and Mpumalanga cause acidification and pollution of soils. Soil fertility degradation is serious in small-scale farming areas and also in some commercial cropping areas.

[57] Soil & veld degradation indices are measures of the severity & rate of soil & vegetation degradation in the provinces. The combined degradation index is the sum of the provincial soil and veld degradation indices.
[58] RSA 2006. South Africa Yearbook 2006/2007.
[59] Areas particularly prone to wind erosion include the western half of the summer rainfall cropland in the western Free State and the greater part of the North West province.

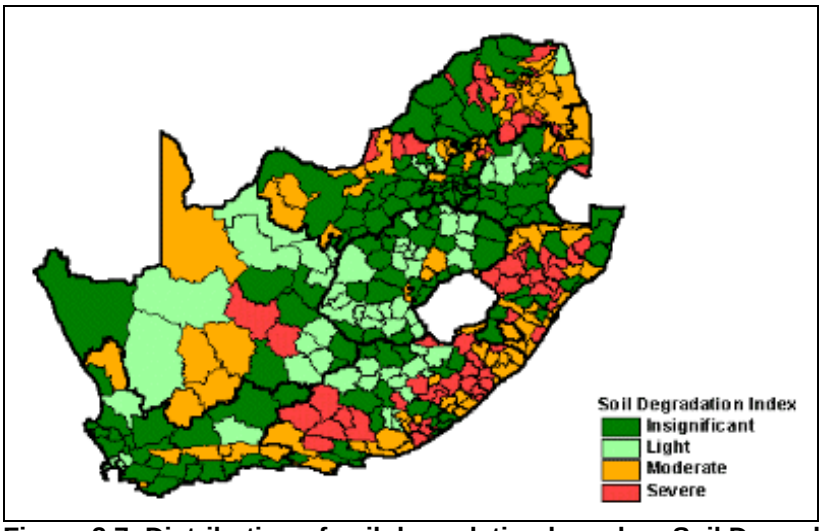


Figure 2.7: Distribution of soil degradation based on Soil Degradation Index (Hoffman et al 1999)

Vegetation Degradation

Limpopo and Kwa-Zulu-Natal and the communal areas of the Eastern Cape are the areas with the highest rates of vegetation degradation. With high proportions of grazing lands, these areas experience problems of decreased vegetative cover, bush encroachment, alien plant invasions, and changes in species composition. Shrub land bush encroachment is also severe in the dry areas of the Northern Cape, the western parts of North West, and the southern and south-western Free State, mainly on privately owned or state-managed land.

Alien plant invasion is one of South Africa's most critical environmental issues and an important contributor to vegetation degradation and loss of productivity of land. Deforestation is a significant form of vegetation degradation in several districts of Limpopo, in KwaZulu- Natal, and in the Eastern Cape, and it is on the increase in communal areas in these provinces. It results from the clearing of trees for cultivation, settlement, or the use of wood and non-wood forest products, and large areas of woodland (estimated at 1.2 million ha) have been converted to fields and settlement sites. The deforestation of closed forests is less extensive but remains a threat to some forest types.

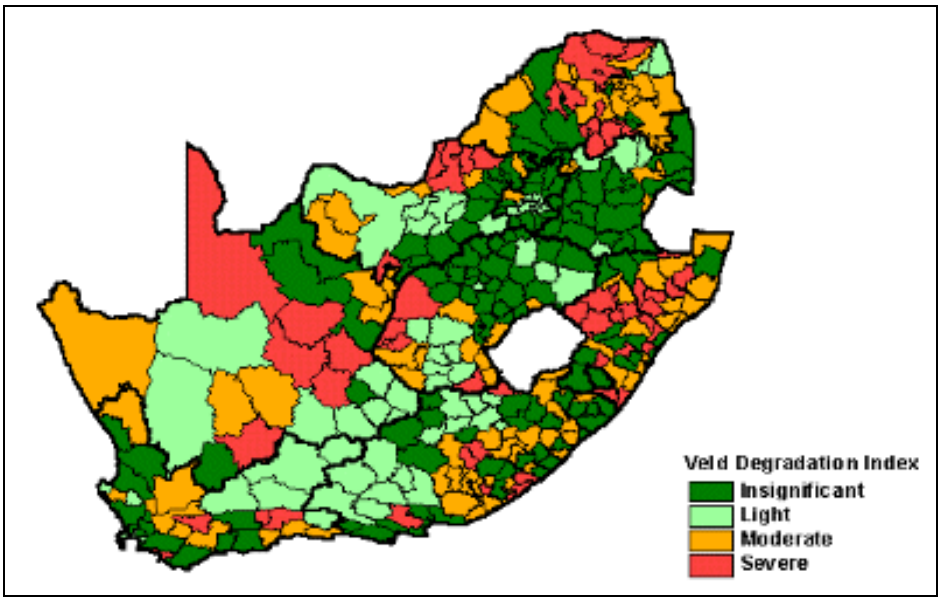


Figure 2.8: The Distribution of Veld Degradation in South Africa as Represented by the Veld Degradation Index (after Hoffman et al 1999)

Combined Land Degradation Index[60]

Areas experiencing the most severe degradation (degradation of both soil and vegetation) and desertification in South Africa are perceived to correspond closely with the distribution of communal rangelands, specifically in the steeply sloping environments adjacent to the escarpment in Limpopo, KwaZulu-Natal, and the Eastern Cape. Many communal areas in the Limpopo, North West, Northern Cape, and Mpumalanga provinces are also severely degraded. The commercial farming areas with the most severe degradation are located in the Western and Northern Cape provinces. Wind and water erosion are the major natural causes of soil degradation, while change in species composition, loss of plant cover, and bush encroachment are the most frequent forms of vegetation degradation. The three provinces with the lowest combined degradation index are (in decreasing order) the Western Cape, Gauteng and the Free State.

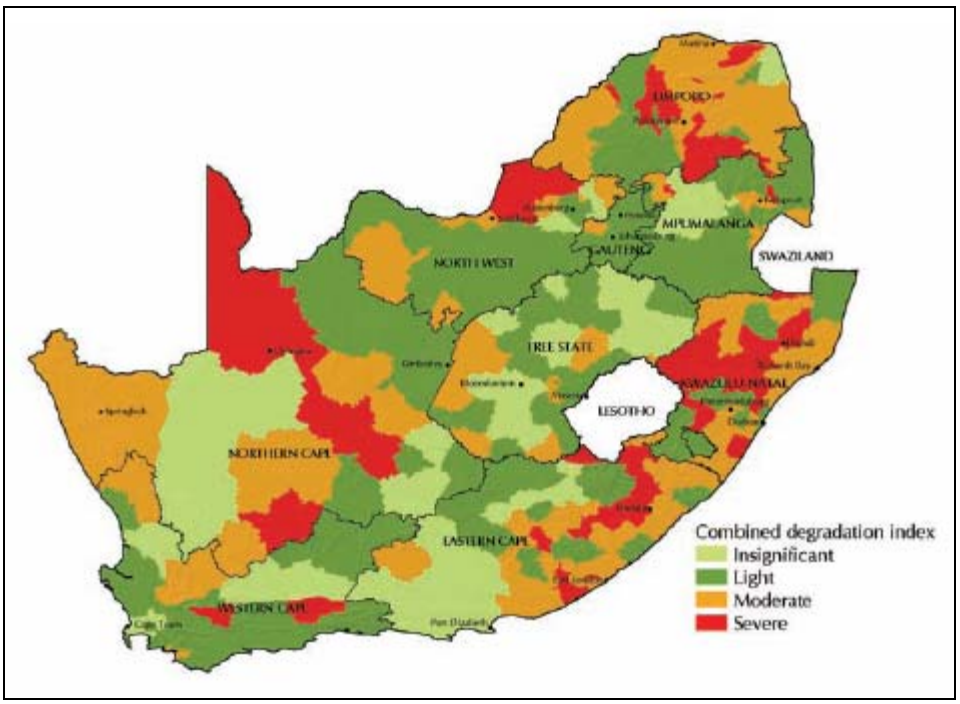


Figure 2.9: The Distribution of Land Degradation in South Africa as Represented by the Combined Degradation Index (after Hoffmann *et al*, 1999)

[60] The soil and veld degradation indices are measures of the severity and rate of soil and vegetation degradation in the provinces. The combined degradation index is the sum of the provincial soil and veld degradation indices (Hoffman et al 1999).

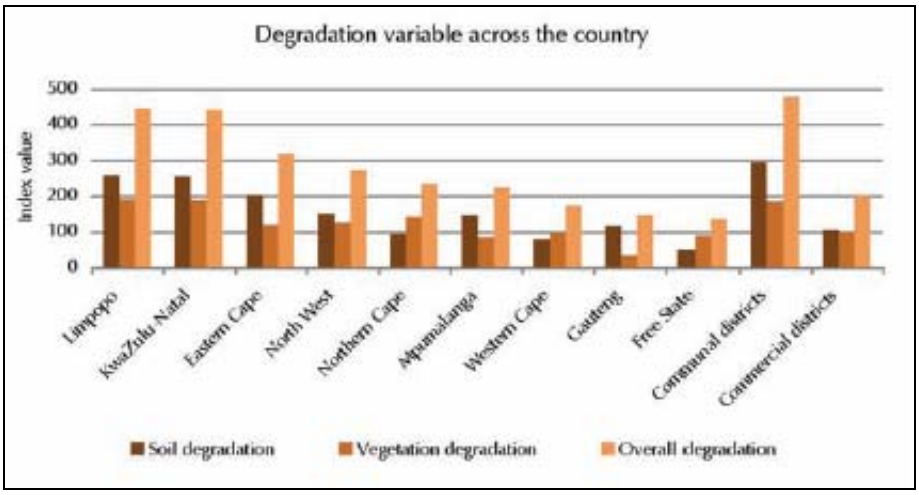


Figure 2.10: Levels of Soil, Vegetation, and Overall Degradation in South Africa (after Hoffman et al 1999)

Costs and Consequences of Land Degradation (extract from SoE 2006)

Land degradation undermines the productive potential of land and water resources with significant diverse consequences for the goods and services provided by natural ecosystems which impact directly human welfare and the persistence of biodiversity.

Degradation of catchment areas results in the deterioration of the quality, quantity, and ecological integrity of surface water resources, including rivers, dams, and estuaries. More specifically, soil erosion results in sedimentation of dams, while increased invasion by alien species has serious impacts on stream flows, land productivity, and biodiversity. South Africa's dependence on local agricultural production for food provision combined with the disastrous effects of droughts on agriculture leads analysts to the conclusion that degraded, less productive soils increasingly impair the country's ability to feed its growing population[61] and to sustain livelihoods, particularly among the rural poor.

Between one quarter and one third of households cannot meet their children's dietary requirements, particularly in rural areas (most notably in the Eastern Cape and Mpumalanga). In addition, food production per capita is decreasing while agricultural and food imports are increasing. Future climate change alone may force marginal agriculture out of production, thereby causing downstream losses in farm labour and general loss of livelihoods. In combination with the loss of productivity of land through degradation, these indicators present concerns for sustained food provision.

Although the true costs of land degradation are poorly understood, it has considerable effects on the economy. In South Africa, about 35% of the country's net agricultural income is overstated because the environmental costs are not currently included in the accounts. Soil degradation alone costs South Africa an average of nearly R2 billion annually in dam sedimentation and increased water treatment costs, whereas the nutrient loss from soil in SA is estimated as having a cost of R1.5 billion per annum. The loss of water to alien plant invasion is estimated to reduce overall available water by 7% (expected to double in 15 years if there is no adequate response). The costs associated with neutralizing the effects of acid rain (caused by

[61] Malnutrition has been worsening, with the prevalence of underweight children increasing from 9.3% to 10.3% in the late 1990s; and stunting rose from 22.9% of children aged 1–6 years in 1994 to 23.3% in 1999.

energy generation) on soils in Mpumalanga are estimated at R25 million per year Land impacted by the loss of grazing potential due to bush encroachment is estimated to be 10 million ha.

Other costs to rural poor include: loss of wood fuel and woodland products (75% of rural families in SA depend on fuelwood for energy) of which a 1% decline represent a cost of R150 million per annum; health costs associated with poor water, reduced rural productivity, severity of flooding and reduced mobility through gully erosion and increasing costs of road maintenance.

Priorities for Sustainable Land Management in South Africa

Focus for interventions for improved land management:
Some former homeland areas have higher agricultural potential than present commercial farming areas, and much of this high potential land is underutilized for arable production. Although the communal areas are in greatest need of government support to combat land degradation, it is the commercial farming areas that currently contribute most to South Africa's food security. It is therefore essential that the government continue to support sustainable land use practices in these areas. Research, monitoring and agricultural statistics that can support further prioritisation and reporting particularly in respect of the threat of global climate change is the most pressing priority (Hoffman 1999; SoE 2006).

Climate Change and Adaptation
Climate change may make existing land degradation worse. The areas predicted to dry the most: the Western Cape, Northern Cape, North West, and Limpopo provinces – may suffer increased land degradation. This would lead to reduced agricultural productivity, subsistence livelihoods, and biodiversity.

Most, but not all, climate model projections suggest less rainfall in the eastern and northern parts of South Africa where degradation is currently most severe. The rising temperature will lead to greater evaporation, which will result in drier soils, even if rainfall does not decrease. This effect will partly be offset by increased water-use efficiency by plants due to the higher atmospheric concentration of carbon dioxide. There is clear scientific evidence of the impacts of global change on South African ecosystems. Elevated atmospheric carbon dioxide concentrations have strong differential effects on tree and grass growth. There is a major risk associated with the acceleration of bush encroachment predicted to come from this, a predication supported by experimental findings and observations in nature. Climate change is predicted to profoundly affect the ecosystems of the western half of the country, with massive loss of biodiversity. Scientists have detected early signals of these impacts (SoE 2006). At various weather stations in South Africa, summer temperature increases of 0.8–2.7^{o}C have been measured over the last 50 years. An unusually dry period during the last two decades of the twentieth century raised concerns that average annual rainfall could be decreasing. One of the climate change predictions is that weather patterns will become more extreme. However, people rather than climate have been most responsible for land degradation in South Africa (Hoffman *et al* 1999).

Food Security
The impacts land degradation accelerated by climate change on food productivity will have adverse implications for the 13.3 million South Africans who are vulnerable to food insecurity. This could drive further increases in the import of food.

Disaster Management

Impacts of land degradation and climate change are likely to result in the increasing magnitude and severity and of natural disasters such as droughts and floods, placing rural poor people at the greatest risk in terms of health and safety as well as food security.

Land Reform:
The land reform program had settled 70% of a total of 68 878 claims by December 2004. Despite this achievement, only 812 315 hectares representing less than 1% of commercial agricultural land was transferred. Some communities with successful claims on conservation land have entered into contractual park arrangements with the state. Delivery will have to be increased five-fold to meet the target of transferring 30% of all agricultural and to black South Africans by 2014. Reasons for the limited success of land reform to date include inadequate budgets and lack of capacity in government departments to support beneficiaries. Further emphasis is needed on post-settlement support and the implementation of the *Guidelines for the Integration of Environmental Planning into Land Reform*.

Biodiversity:
Land degradation is perceived to be the greatest threat to biodiversity in the future[62]. Scholes and Biggs (2004) suggest that the greatest opportunity for protecting biodiversity is the avoidance of degradation in grazed landscapes: "…*results suggest that the policy action with the greatest potential to prevent further loss of biodiversity in southern Africa is to prevent the extensive areas currently under moderate extractive use from becoming degraded. Moderately used land (for example, grazed within stocking norms) has almost the same level of biodiversity as protected areas*".

2.4 PERSISTENT ORGANIC POLLUTANTS[63]

Persistent Organic Pollutants (POPs) are chemical substances that are toxic, persist in the environment for long periods of time, and bioaccumulate as they move up through the food chain. POPs pose risks to human health and to the environment. Evidence of long-range transportation of these substances to regions where they have never been used or produced, as well as the threats they pose to the environment of the Earth as a whole, the international community has called for urgent global actions to reduce and eliminate releases of these chemicals.[64]

Data
There is little or no current data on Persistent Organic Pollutants in SA and an inventory has not been established. DEAT's latest State of the Environment Report[65] notes that the current situation regarding the concentrations of Persistent Organic Pollutants is unknown and recommends that they be quantified establish existing concentrations of key POPs, and updated annually.

[62] Scholes, R.J. and Biggs, R. (2004). Ecosystem Services in Southern Africa: A Regional Assessment. Millennium Ecosystem Assessment. Council for Scientific and Industrial Research, Pretoria.
[63] The majority of this section is drawn directly from DEAT, (2006), South African Environment Outlook, Chapter 8, except where references indicate otherwise
[64] DEAT, (2006), South African Environment Outlook p211
[65] DEAT, (2006), South African Environment Outlook Summary p39

Intentional Production and Use

Table 2.3: Status of POPs in South Africa (pre-2002)[66]		
COMPOUND	**REGISTRATION STATUS**	**DATE OF EFFECT**
Aldrin	Withdrawn	1992
Chlordane	Withdrawn for agricultural use Withdrawn for all uses	1970 2001
DDT	Withdrawn except for malaria vector control	1983
Dieldrin	Withdrawn	1983
Endrin	Withdrawn	1980
Heptachlor	Withdrawn	1976
Mirex	Not used in South Africa	-
Toxaphene	Not used in South Africa	-
Hexachlorobenzene	Withdrawn	1983

Exemptions under the Stockholm Convention: DDT and Malaria

During the POPs negotiations in 2000, South Africa negotiated the continued use of DDT for malaria vector control. DDT had been phased out at the beginning of 1999 and replaced with products containing pyrethroids but a significant increase in the number of malaria cases and mortalities was observed due to resistance of mosquitoes to pyrethroids. DDT was reintroduced in SA on the basis that "The extent of [DDT's] usefulness has been demonstrated by a successful malaria-spraying program in Southern Africa resulting in the saving of millions of lives."[67] This is also seen to be a key adaptation strategy to climate change.

Capacity

Progress in taking effective remedial action has been painfully slow in the view of the latest environment report, mainly because funds are lacking. In nearly a decade of activity, less than 3 000 tonnes of obsolete pesticides have been destroyed. South Africa is one of 14 countries participating in the first phase of the Africa Stockpiles Programme (ASP), funded by the GEF, to find sustainable solutions to the problem of obsolete pesticide stockpiles. The scale of the problem and SA's lack of reliable information is implicit in the fact that ten times more obsolete pesticides were found in one of SA's nine provinces than had been estimated for the whole of SA[68].

Unintentional Production and Use

The following industrial activities in SA were identified in the project document for the NIP[69] as potential sources of polychlorinated dibenzo-*p*-dioxins, dibenzofurans and hexachlorobenzene:

- waste incineration (municipal and industrial),
- pulp and paper manufacturing, and
- thermal processes in the metallurgical industry.

[66] Source: UNEP DEAT (2002) Project Document for Enabling Activity for Stockholm Convention on POPs, a National Implementation Plan for SA

[67] DEAT (2000), SA Delegation to the INC 5 on POPs Media Statement, December 2005

[68] Interview: Thandi Gxaba, Senior Environmental Specialist & Eugenia Marinova, Country Officer, WB

[69] UNEP DEAT (2002) Project Document for EA for Stockholm Convention on POPs, a National Implementation Plan for SA

The NIP was intended to provide a source inventory of these and the following additional sources:

- Open burning of waste, including burning on landfill sites;
- Residential combustion sources;
- Fossil fuel-fired utility and industrial boilers;
- Firing installations for wood and other biomass fuels;
- Specific chemical production processes releasing unintentionally formed POPs;
- Crematoria;
- Motor vehicles, particularly those burning leaded petrol;
- Destruction of animal carcasses;
- Textile and leather dyeing; and
- Waste oil refineries.

Emerging Pollutants

The latest Environmental Outlook (2006) lists a number of POPs that are increasing in significance as pollutants and are likely to require increased attention in the future: persistent organic pollutants such as dioxins and furans, finer particulate fractions, e.g. PM2.5 (particulate diameter < 2.5 µm), and indoor air pollutants which are unrelated to fuel burning for cooking and space heating (e.g. formaldehyde and radon).

2.5 OZONE[70]

The consumption of several ozone-depleting substances in South Africa decreased from 1998 to 2002 but there was a dramatic increase in HCFC-124 consumption in 2001 and 2002. South Africa has almost completely phased out the use of ozone-depleting substances such as CFCs and carbon tetrachloride, and it stopped using ozone-depleting CFCs in aerosol spray-can propellants as far back as July 1992.

The SA Yearbook[71] notes that, although SA is classified as a developing country, its consumption of chlorofluorocarbons (CFCs), halons, methyl chloroform and carbon tetrachloride was equal to that of some developed countries. Its success in phasing out these substances makes it the only developing country in the world to align with the phase-out schedule for developed countries.

According to the Environment Outlook, a small amount of legal CFCs are imported and exported to fill asthma inhalers as well as air conditioners and refrigerators manufactured before 1996. The CFC methyl bromide (used as a pesticide in the agricultural sector) is still imported and used. The DEAT is formulating a full phase-out plan, but might need to seek United Nations assistance, as the replacement products are very expensive.

Air Quality: Key Sources of Emissions

DEAT list the following as atmospheric sources that contribute to air quality limits being exceeded and to an increase in associated emissions: road vehicle exhaust emissions, coal-fired power stations, airport releases (specifically international airports), poorly controlled industrial operations, the growth of road transportation and power generation. Increasing attention is being paid to a number of atmospheric sources, including filling stations, landfill gas emissions, spontaneous combustion emissions from coal discard dumps and open cast mines,

[70] This overview is drawn directly from DEAT, (2006), South African Environment Outlook pp227-8

[71] RSA 2006. South Africa Yearbook 2006/2007. Compiled and published by GCIS. Fourteenth edition. http://www.gcis.gov.za/docs/publications/yearbook07/environment p242

wastewater treatment works, emissions from tyre burning, and fugitive releases related to commercial agriculture.

Emerging Priority Pollutants

A number of pollutants are singled out by government[72] as important due to their widespread exposures and risks. Notable amongst these are inhalable particulates (PM10), nitrogen dioxide, ozone, and benzene. PM10 concentrations are elevated across the country with significant exceedances of human health limits. Increasing emphasis is being placed on PM10 by health organizations such as the WHO. The spatial extent and frequency of nitrogen dioxide air quality limit exceedance is anticipated to increase due to increased vehicle activity. Ozone concentrations exceed health limits at most sites at which this pollutant is measured. Benzene is a concern as it is a carcinogen and related to vehicle exhaust emissions.

2.6 INTERNATIONAL WATERS

Marine Resources

SA has a coastline of some 2 798 km, extending from the Orange River in the west, on the border with Namibia, to Ponta do Ouro in the east, adjacent to Mozambique. The coastal shelf area is 1 839 582 km^2 with the western coastal shelf being highly productive due to nutrient rich water upwelling. The east coast is considerably less productive but has high species diversity, including both local and Indo-Pacific species. The national fishing zone (excluding Prince Edward Islands): is 688 926 km^2 (FAO Country Profile)[73]. South Africa shares the responsibility with its neighboring countries in co-ordinating responses to the sustainable management of the Benguela Current and Agulhas and Somali Current Large Marine Ecosystems (UNEP 2006)[74].

It is estimated that about 12 million people live within 60km of the coast, which constitutes about 30% of the population. There are indications that increasing population pressure and the over-exploitation of coastal and marine resources and environmental degradation of the coast are reducing the ability of coastal systems to sustain human activities (South Africa Yearbook 2006/07).

The South African fisheries sector plays a small part in direct economic terms in the economy of the country, contributing only about one percent to GDP. However, fisheries play a major role in the economy of the Western Cape which is the centre of industrial fisheries, and is the dominant employer in areas such as Saldanha Bay and St Helena Bay and is valued at R3 billion per annum (SoE 2006). In 2002, the total catch for South Africa totaled 746 808 tonnes (BCLME website[75]). The South African fishing industry, which was once concentrated in the hands of a few, largely white-owned companies, has undergone intensive transformation over the past 10 years.

Marine pollution from land-based discharge to sea is ameliorated by a very high-energy coastline which diffuses wastewater readily within the oceanic waters. Discharge of wastewater from industrial and domestic premises is regulated through a licensing procedure with water quality criteria for seawater having been established Since 1965, fourteen major deep-sea outfalls have been constructed, which discharge industrial and sewage wastewater in excess of 600,000 m^3 per day. There are also a number of outfalls with shorter pipelines along the coast,

[72] DEAT, (2006), South African Environment Outlook p229

[73] FAO country profile ://www.fao.org/fi/fcp/en/ZAF/profile.htm

[74] UNEP. 2006. Challenges to International Waters – Regional Assessments in a Global Perspective. United Nations Environment Programme, Nairobi, Kenya. Global International Waters Assessment.

[75] BCLME Country Profile for South Africa, www.bclme.org/

some discharging within the surf zone. In total, marine outfalls account for approximately 86% of the total discharges (UNDP 2002[76]).

The primary sources of sea-based pollution are from the shipping industry, including accidental oil spills; deliberate discharge of oily wastes from ships at sea, deliberate discharge of ballast, plastics and other pollutants released from ships, and ship maintenance activities. South Africa is situated on one of the major global oil tanker routes with an estimate of 80% of the world's oil tankers passing its coast. This together with its notoriously rough sea conditions makes it highly vulnerable to oil spills.

Off-shore diamond mining contributes to 10% of SA total diamond production, while and oil and gas exploration has resulted in 20 gas and 9 oil discoveries. The Mossgas gas field is currently in production, as is the Oribi Oil Field, which is expected to produce 18 million barrels over four years (BCLME website).

Inland Water Resources

Like most of Southern Africa, South Africa is a water-stressed area, with a water availability of only 1 100 m^3/person/annum. The average rainfall in South Africa is about 450 millimeters per year (mm/annum) - about half the world average of 860 mm/annum. The geographical distribution of rainfall, and subsequent availability for water supply, is highly variable, with the eastern and southern part of the country receiving significantly more rain than the northern and western regions. Water resources are currently allocated to 19 Water Management Areas (WMAs) covering the country and, because of the uneven distribution of water resources, a significant amount of water transfer needs to take place between WMAs, both nationally and internationally. Substantial transfers take place from the Upper Orange to the Lower Orange (1 886 million m3/annum), the Upper Vaal to the Middle Vaal (790 million m3/annum), and from Lesotho into the Upper Vaal (600 million m3/annum). Most of South Africa's water requirements are provided by surface water supplies (rivers and dams). Generally, these surface water resources are highly developed over the country, with about 320 major dams having a total capacity of more than 32 400 million m^3, which is some 66% of the total mean annual runoff of about 49 000m^3/annum[77].

Groundwater is used extensively, particularly in rural and arid areas where surface water is inadequate such as in the greater Orange River catchment. This water source contributes significantly to base flow in the perennial rivers along the eastern escarpment and wetter northeastern parts of the country, but groundwater resources tend to be limited in South Africa because much of the underlying geology is hard rock. The six major aquifers in South Africa include the Dolomites, Table Mountain Group sandstones, coastal sand deposits, basement granites, Karoo dolerites, and alluvium along perennial rivers. Most exploitable groundwater occurs in the eastern and northeastern parts of the country and in the Western Cape, where aquifers are concentrated. Although the results of studies vary considerably as to the estimated quantity of groundwater in South Africa, the latest data indicate that of a total of 235 000 million m^3/annum that is stored, between 10 000 million and 16 000 million m^3/annum are available for use in an average rainfall year, and 7 000 million m^3/annum in a drought year. Significant constraints on increasing the abstraction of groundwater include inadequate water quality, which may fail to meet user requirements due to excessive concentration of chloride, nitrate, and other

[76] UNDP. 2002.South Africa Country Profile for the WSSD.

[77] This includes about 4 800 million m3/annum draining from Lesotho into South Africa and a further 500 million m3/annum draining from Swaziland to South Africa.

salts, all of which are costly to remove. Over-abstraction can also result in adverse impacts on groundwater-dependent ecosystems, including estuaries, wetlands, and springs (SoE 2006).

In terms of water users in South Africa, the irrigation sector has the largest water demand of all water sectors in South Africa at 54% of the country's total demand. Industry uses 11% and forestry 8%. The major areas for demand growth are likely to be the domestic, urban and industrial sectors. Water demands in South Africa have grown at 4 – 5% per annum since the 1930s (UNDP 2002).

The Water Quality Status Report published by DWAF in 2002, using data from over 150 representative sites. The results of this study provide an "indication of the spatial variation in water quality of surface water resources. Median values from the WMS for the years 2000–2004 were assessed to highlight temporal changes, especially the temporal trends of nitrate/nitrite content (an indicator of nutrient status) and total dissolved solids (an indicator of salinity). The results indicate that nitrate levels tend to be stable or are improving, with an indication of deterioration evident at only 10% of the sites. Nitrate concentrations link to organic matter content in water, influencing dissolved oxygen content and pH, so a definitive conclusion cannot be drawn without a detailed assessment of all these factors. In contrast, salinity levels tend to be variable. There is an increase (a deteriorating trend) in the case of 46% and a decrease (improvement) in only 17% of the sites" (SOE 2006).

South Africa shares the following river basins with its neighbors:

- Inkomati Umbeluzi Maputo River basin (Mozambique, SA and Swaziland);
- Limpopo River Basin and, (Botswana, Mozambique, SA and Zimbabwe)
- Orange/Senqu River basin (Botswana, Lesotho, Namibia and SA), the latter covering xx km^2 of South Africa's land surface.

3 ENVIRONMENTAL LEGAL, OPERATIONAL & POLICY FRAMEWORK IN SOUTH AFRICA

SA joined the GEF in the same year as the first democratic elections were held in SA. This, in itself, is a powerful indicator of SA's commitment to the environment. "South Africa is emerging from a period of unsustainable and inequitable development, one outcome of which was environmental degradation, which has significant economic and social impacts. "[78] The task of ensuring a transformation to development that is economically, socially and environmentally sustainable has required a new way of thinking as much as a redefinition of policy, the legislative framework, strategy and the management of implementation.

Sustainable Development Framework

The Draft National Strategic Framework for Sustainable Development (SFSD) was issued for public discussion in 2006. Its premise is that "fundamental to understanding sustainable development is recognizing the interdependence between the way in which we devise and manage our economic, social and environmental systems.[79]" The scope of the challenge involved in ensuring sustainability while correcting the distortions in social and economic development that were the legacy of apartheid has been outlined above. This is the central challenge for policy.

The draft SFSD, that is currently under discussion, makes the point graphically by noting that, while SA's ecological footprint[80] overall is already far too high (more than double the sustainable level), this masks the fact that the majority of the population in SA is responsible for less than a half of what is regarded as a sustainable footprint per person. On the other extreme, a large proportion of SA's ecological footprint is contributed by a small well-off minority whose footprint per person is between five and fourteen times the sustainable level. The conclusion of the draft SFSD is that "It is highly unlikely that there are sufficient resources to eradicate poverty by increasing the footprint of the poor if the footprint of the rich remains so large.[81]" The image of the ecological footprint helps demonstrate graphically the central challenge of sustainability in SA, that initiatives for environmental sustainability cannot ignore the imperatives of social and economic development in SA and these imperatives cannot be sustainable if issues related to the environment and the sustainable use of natural resources are not factored into planning and practice at all levels, in all spheres and by all stakeholders. The draft SFSD notes that although it may look as if this presents a hopeless prognosis for development and equity, the key will be to 'decouple' social and economic development from the current trajectory of intensive natural resource use.

The core of SA's sustainable development agenda and priorities, according to the draft SFSD, will be to find ways of reducing the footprint of the 'advantaged' minority while ensuring access to rapid social and economic development for the majority without following the same natural resource intensive development path as typified the past. Relevant support to SA will need to align to this central strategic challenge through initiatives such as those related to improved efficiency in natural resource use, initiatives that promote increased economic and social development through low resource consumption and waste-production paths, initiatives that

[78] DEAT (2000), White Paper on Integrated Pollution & Waste Management for South Africa p12
[79] DEAT (2006), A Strategic Framework for Sustainable Development in SA, Draft for Public Comment. P16
[80] "Footprinting" is an accounting tool that measures how much biologically productive land is required to support the living standards of an individual, a city or a country. This includes the land required to produce the physical resources consumed, absorb the wastes generated, and sequester CO2 emissions associated with energy demand.
[81] DEAT (2006), A Strategic Framework for Sustainable Development in SA, A Draft for Public Comment. p20

ensure a more equitable development trajectory by significantly increasing the availability of decent jobs and promoting sustainable livelihoods for all.

Additionally, as the SFSD points out, this challenge is magnified by the fact that current and existing levels of natural resource depletion and degradation threaten to worsen poverty levels and undermine efforts to promote development. "It is the poor who often experience the economic costs of ecosystem degradation most directly because the majority of poor households depend on natural resources and ecosystem services such as good soils and productive seas containing sufficient fish for sustainable harvesting. Similarly, poor people often pay the heaviest price in urban areas when it comes to air pollution, expensive water, and long travel distances.[82]" Efforts to promote sustainable social and economic development will need to be supplemented by deliberate action to restore and protect from further degradation and depletion those natural resources on which the poor most depend. This makes measures for adaptation to the negative effects of climate change and specifically for halting desertification, land degradation and pollution of central importance.

The draft SFSD does not provide a detailed prioritized plan against which to assess the relevance of the GEF portfolio. It outlines "South Africa's national vision for sustainable development and indicates its intended interventions to re-orientate South Africa's development path towards sustainability. It does not present detailed strategies or actions, but rather proposes a national vision, principles, trends, strategic priority areas and a set of implementation measures that will enable and guide the development of the national strategy and action plan.[83]" Although a concrete strategy is not yet finalized, the draft SFSD is based on a range of policy and strategy documents that have tackled various dimensions of sustainable development in SA. The broad agenda and priorities of the SFSD are outlined in five 'critical pathways' for action that the document identifies:

- Enhancing systems for integrated planning and implementation
- Sustaining our ecosystems and using resources sustainably
- Economic development via investing in sustainable infrastructure
- Creating sustainable human settlements
- Responding appropriately to emerging human development, economic and environmental challenges

3.1 THE CONSTITUTION

The Constitution of South Africa (Act No. 108 of 1996) provides the legal basis for allocating powers to different spheres of Government. The Constitution enshrines a Bill of Rights and includes specific environmental rights in this. It provides that:

"Everyone has the right

(a) to an environment that is not harmful to their health or well-being; and

(b) to have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that –

(i) prevent pollution and ecological degradation;

(ii) promote conservation; and

(iii) secure ecologically sustainable development and the use of natural resources while promoting justifiable economic and social development."

[82] DEAT (2006), A Strategic Framework for Sustainable Development in SA, Draft for Public Comment. P38

[83] DEAT (2006), A Strategic Framework for Sustainable Development in SA, Draft for Public Comment p25

Thus, the right to a healthy environment is entrenched in SA's new constitution. The extensive and far reaching development after 1994 of South Africa's policy and legal framework designed to protect and secure the environment is evidence of the recognition that a healthy environment is a necessary condition for a robust society and sustained economy. After years of isolation as violator of human rights were ended, the new democratic SA joined with other nations of the world in making a contribution to international environmental governance and commitments to the international environmental conventions.

The continuing challenges have not been avoided or denied by SA. The most incisive analyses of the ongoing challenges and problems come from documents produced by government. Its determination and commitment were recognized in 2005 when South Africa was presented with the 'Champion of the Earth Award' in recognition of outstanding achievements in the field of environment. For the last 15 years, South Africa has approved and put into implementation laws and policies on all aspects of environmental management.

The latest MDG report notes that "much has been transformed in SA's first decade of democracy. Among the most remarkable turnarounds has been the attitude of South Africans towards their environment."[84] DEAT, in its response to its latest Environmental Outlook report, reiterates the South African government's commitment and indicates that it 'will continue to champion a national sustainable development agenda and is putting in place programs, strategies, policies and legislation to respond to emerging global, regional and national environmental challenges, and in so doing, support economic growth, poverty eradication and human well-being.'

3.2 BROAD NATIONAL POLICY FRAMEWORK

Since 1994, social and economic policies have largely been informed by three strategies: the White Paper on Reconstruction and Development (1994), and its program "for integrated and coherent socio-economic progress[85]", the macro-economic strategy, Growth, Employment and Redistribution (GEAR) and the Accelerated and Shared Growth Initiative (AsgiSA) (2006). The draft Strategic Framework for Sustainable Development in South Africa (2006) that is currently open for public discussion is intended to provide a framework for ensuring coherent integrated action and sustainability in the three dimensions: social, environmental and economic.

Reconstruction and Development Programme

The Reconstruction and Development Programme (RDP) is focused on five programs: meeting basic needs, developing human resources, building the economy, democratizing the state and society, and implementing the RDP. It sets a number of concrete development targets, such as building 2-3 million houses by aiming to build 300 000 units each year for the first five years, redistributing 30% of the land, providing basic services of water and sanitation (short-term target of 25 litres of water per person per day) and connecting 2.4 million unelectrified households to the grid between 1994 and 1999 (an average of over 400 000 households per year). The Energy Research Centre indicates that this is one of the few that was exceeded. [86]

Growth, Employment and Redistribution Macroeconomic Strategy[87] (GEAR)

The GEAR Strategy of 1996 placed its emphasis on two core strategies:

- . Promoting growth through exports and investment; and

[84] South Africa's MDG Mid-Term Report, 2007 p41
[85] RSA (1994), White Paper on Reconstruction and Development p71
[86] Winkler H & Marquard A, (2007) p5
[87] RSA (1996), Growth, Employment and Redistribution Strategy

- . Promoting redistribution by creating jobs and reallocating resources through the budget.

"While relatively successful in addressing macro-economic problems, the policies did not create employment or address poverty at the required rate, and the government acknowledged that the role of the market in addressing problems such as unemployment was more limited than was assumed. By the end of the 1990s, the government saw the state playing a much more significant role in development. Plans to privatize parastatals were shelved, and these came to be seen as vehicles for infrastructure development and service delivery."[88]

The Integrated Sustainable Rural Development Strategy (ISRDS)
The Integrated Sustainable Rural Development Strategy (ISRDS 2000) was "designed to realize a vision that will attain socially cohesive and stable rural communities with viable institutions, sustainable economies and universal access to amenities, able to attract and retain skilled and knowledgeable people, who are equipped to contribute to growth and development"[89].

Accelerated and Shared Growth Initiative (AsgiSA)
AsgiSA was developed in 2006 and "proposed a large-scale state-led infrastructure development program, specific sectoral development plans (including business process outsourcing, tourism, biofuels and agro-processing), national skills development, an overhaul of regulation and policy-making, and measures to eliminate the 'second economy' (i.e. create opportunities to participate in the formal economy for those excluded from it). Growing and diversifying the economy, alleviating poverty, and lowering unemployment remain key development goals. Clearly the state seeks to diversify the economy away from the apartheid-era development path, based on the energy-intensive 'minerals-energy complex', but these sectors represent one of the key areas of international competitiveness of the South African economy, and still form the basis for a large proportion of the economy, an even more important share of exports, and are currently attracting significant local and international investment."[90]

General Institutional framework
There are three elected tiers of government: national, provincial and local. Nine provinces are further subdivided into local authorities that are now constituted along non-racial lines. This configuration is the result of a decade of changes to deal with the apartheid divisions. Co-ordination across departments is designed to take place through Cabinet 'clusters' or subcommittees focused on specific areas of government such as environment or safety and security. The Energy Research Centre point out that, although there has been significant redesign of structures, "Government departments have maintained the same institutional structure inherited from the apartheid era, based loosely on the post-war UK civil service."[91]

3.3 BIODIVERSITY

Legal and Policy Framework
Biodiversity conservation in South Africa is enabled through the following key policies and legislation (edited extract from a biodiversity review completed for the NFSD, 2005 by Driver, Smith & Maze (2005b):

Policy

[88] Winkler H & Marquard A, (2007) p5
[89] RSA (2000), Integrated Sustainable Rural Development Strategy
[90] Winkler H & Marquard A, (2007) p5
[91] Winkler H & Marquard A, (2007) Energy development and climate change: Decarbonizing growth in South Africa, input to Human Development Report 2007, Energy Research Centre, University of Cape Town p10

- White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity (1997) emphasizes that sustainable resource use depends on the conservation of biodiversity.
- White Paper on Environmental Management Policy (1998) recommends a co-ordinated action is needed to conserve natural resources and use them sustainably.

Legislation:

- framework governing environmental management in South Africa. It provides for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment. One of these principles is sustainable development, which requires the consideration of a range of factors including that the disturbance of ecosystems and loss of biological diversity be avoided, or, where they cannot be altogether avoided, are minimized and remedied.
- National Environmental Management Biodiversity Act (10 of 2004) (NEMBA) forms part of the National Environmental Management suite of legislation. It provides for the management and conservation of South Africa's biodiversity, the protection of ecosystems and species, the sustainable uses of biological resources, and the fair and equitable sharing of benefits arising from bio-prospecting of genetic material. It also provides for the development of a National Biodiversity Framework and the publishing of Bioregional Plans and Biodiversity Plans which must be taken into account in decision-making. Further a range of mechanisms exist within the Act to support the implementation of such plans including the listing of threaten ecosystems and threatening processes.
- Protected Areas Act (57 of 2003 as amended 2005) forms part of the National Environmental Management suite of legislation. It provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes, the establishment of a national register of national, provincial and local protected areas, and the management of these areas according to national norms and standards.
- Marine Living Resources Act (18 of 1998) provides for the conservation of marine ecosystems, the long-term sustainable utilization of marine living resources, the orderly access to exploitation, utilization and protection of certain marine living resources, and the exercise of control over marine living resources in a fair and equitable manner to the benefit of all citizens of South Africa.
- Environment Conservation Act (73 of 1989) has largely been replaced by NEMA.
- National Water Act (36 of 1998) provides for the management of South Africa's water resources including, inter alia, the protection of aquatic and associated ecosystems and their biological diversity as well as the reduction and prevention of pollution and degradation of water resources,
- Nature and Environmental Conservation Ordinance: No19 of 1974 as amended by the Amendment Act N0 3 of 2000 is currently being updated to fall in line with NEMBA.
- Veld and Forest Fires Act (101 of 1998) is to prevent and combat veld, forest and mountain fires in South Africa. It provides for the establishment, registration and sets out the duties and functioning of fire protection associations which must deal with all aspects of veld fire prevention and fire fighting.
- Conservation of Agricultural Resources Act (43 of 1983) provides for control the over-utilization of agricultural resources in order to promote the conservation of soil, water resources and vegetation, as well as combating invasive aliens.

Key relevant regulations in terms of the NEMBA include those on Bioprospecting and Benefit Sharing (2007), Threatened and Protected Species (2007), Invasive Alien Species (2007) and Norms and Standards for Publishing Bioregional Plans (2007). Regulations have also been published in term of the NEMPA for the Proper Regulation of Special Nature Reserves, National Parks and World Heritage Sites (2005).

Operational Framework:

Environmental Affairs and Tourism being primarily responsible for the conservation of biodiversity in South Africa. The Department of Environmental Affairs and Tourism is the main decision-making Department at national level. It has two statutory bodies, the South African National Parks and the South Africa National Biodiversity Institute answering to it. Other key departments include the departments of Agriculture; Arts, Culture, Science and Technology; Health; Trade and Industry; and Water Affairs and Forestry. The Committee for Environmental Coordination is the statutory structure for coordination between Departments with environmental functions. The Min-MEC, Min-Tech and Working Group on Biodiversity, Conservation and Heritage structures, serve as coordinating mechanisms between the national Department, its statutory bodies and the nine provincial departments dealing with nature conservation functions. At provincial level most biodiversity related functions are regulated in terms of provincial legislation. Nature conservation is a concurrent responsibility of national and provincial governments.

Major groups influencing decision-making include private landowners and agricultural unions, Traditional Healers Association, NGOs such as the Wildlife and Environment Society of South Africa, Birdlife South Africa, the South African Botanical Society, the World Wide Fund for Nature-South Africa, the Endangered Wildlife Trust and IUCN (the World Conservation Union).

Strategies and Frameworks:

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Implementation of the Convention on the Conservation of Biological Diversity and Measures to Achieve the 2010 Targets:
National Biodiversity Strategy Action Plan

privately and communally owned land. Key in this process are developing enabling policy and incentives for conservation and sustainable use on privately-owned land and in production sectors.

The Biodiversity Act, adopted in 2004, calls for the development of a National Biodiversity Framework and a series of bioregional plans to enable integration of biodiversity considerations into sectoral plans, programs and policies (a key action identified in the NBSAP) especially development planning and land-use decision-making at provincial and local level. The bioregional planning approach to conservation and protected area management uses the outputs of a systematic spatial conservation assessment to identify areas of conservation priority as well as constraints and opportunities for securing them. These plans form part of multi-sectoral partnership programs that aim to link biodiversity conservation with socio-economic development. Bioregional programs include: the Cape Action for People and the Environment (CAPE); The Succulent Karoo Ecosystem Programme (SKEP); the Subtropical Thicket Ecosystem Planning Programme (STEP) and the National Grasslands Biodiversity Programme. Other landscape based initiatives adopting a similar approach include the Wild Coast Conservation and Sustainable Development Programme and the Maloti-Drakensberg Transfrontier Project. Key gaps in biome-level interventions include the savannah and Nama karoo.

A number of large, cross-sectoral conservation and sustainable land management programs have been initiated in SA during the past decade, focusing on development and poverty alleviation. Examples include the Working for Water, Working for Wetlands, LandCare, Coast Care and Integrated Sustainable Rural Development programs.

A Draft National Biodiversity Framework was been published in 2007 and attempts to present a co-coordinated plan for all spheres of government to work together in attaining five-year targets.

Targets for Protected Areas
Since 1994, five new national parks have been established and 379 000 ha have been added to the parks system. South Africa has established the targets for protected areas for 2010: 8% of land surface area in protected areas by 2010 and 20% of coastline in Marine Protected Areas by 2010.South Africa has developed. In June 2006, the national Minister announced that in terms of priorities identified in the NBSAP, another 230 000 ha would be added to the national parks to ensure the inclusion of underrepresented biomes, such as grasslands. A National Protected Areas Expansion Strategy has also been compiled recently.

Initiatives for Indigenous Knowledge Systems

Key Policy Issues: Gaps and Contradictions:

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  These instruments and mechanisms are currently being researched and national government is looking towards greening its budget.
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- Clarification in the application of NEMA, specifically as relates to cultivation of virgin lands (DoA) and mining authorisations (DME), given that loss of natural habitat is the biggest pressure on biodiversity

Regional Initiatives

- ***In 2005, the SADC developed a Biodiversity Strategy[92]. This strategy is rooted in integrated natural resource management and*** its Member States have signed and/or ratified a number of biodiversity related protocols. The protocols provide legally binding frameworks for regional collaboration among Member States and demonstrate the region's political and technical will to mainstream the environment (including biodiversity) into its development strategies.

3.4 CLIMATE CHANGE

South Africa's response to climate change is founded on the need to simultaneously respond to the huge and urgent social and economic development imperatives that are the legacy of apartheid as well as limit Green House Gas (GHG) emissions and ensure sustainability. This is not an easy task and the overall policy, legislative and strategy framework in the area of climate change is still evolving. "Given the challenges of development to meet basic needs, mitigation policies and measures have to be integrated with development goals."[93] Some tensions and even contradictions between policies and strategies in these areas persist, especially in relation to industrial and energy policy as is outlined below. The operational framework is also evolving with significant challenges in terms of ensuring coherence, intergovernmental cooperation and coordination and the allocation of clear mandates. Some of the key challenges are briefly sketched at the end of this section.

Policy and Legal Framework[94]

South Africa signed the United Nations Framework Convention on Climate Change (UNFCCC) in 1993, and ratified it as a non-Annex 1 country in 1997, acceding to the Kyoto Protocol in

[92] SADC. 2005. Biodiversity Strategy.
[93] Winkler H & Marquard A, (2007) Energy development and climate change: Decarbonizing growth in South Africa, input to Human Development Report 2007, Energy Research Centre, University of Cape Town
[94] This section is drawn from DME (2003), White Paper on Renewable Energy

2002. “Climate change-related policymaking began in earnest in the mid-1990s with the establishment of the Government Committee on Climate Change (GCCC), an interdepartmental committee consisting of representatives from key government departments (Agriculture; Science and Technology; Foreign Affairs, Health, Housing, Local and Provincial Government, Minerals and Energy, Trade and Industry; Transport), and a stakeholder group, the National Committee on Climate Change (NCCC), including the above government departments, some provincial and local government representatives, civil society organisations, labour and business, and major emitters of GHGs (particularly Eskom and Sasol).[95]”

According to the Energy Research Centre, climate change policy was structured by South Africa’s international commitments to the UNFCCC. “In the late 1990s, the NCCC commissioned a Country Study as a basis for an Initial National Communication, which included a GHG emissions inventory and a range of studies on vulnerability, mitigation and adaptation. The Initial National Communication (INC) was submitted to the UNFCCC at COP 9 in 2003.

Initial National Communication South Africa signed the United Nations Framework Convention on Climate Change (UNFCCC) in 1993, and ratified it as a non-Annex 1 country in 1997, acceding to the Kyoto Protocol in 2002. The Initial National Communication (INC) was submitted to the UNFCCC at COP 9 in 2003. The Communication reports on: the national circumstances, the national inventories of greenhouse gases for 1990 and 1994; South Africa’s vulnerability to climate change and its potential to adapt; the systematic observation and research undertaken in this field; education, training and public awareness programs required; projections and policies made and measures taken; mitigation options and possibilities for adaptation; and a preliminary needs assessment. The INC outlined 2 possible scenarios for mitigating GHGs linked to energy:

- *Demand side management* could reduce greenhouse gas emissions by a total of 265 000 Gg of carbon dioxide during the period 2001 to 2025.
- *Use of a cost-effective mix of options of electricity generating processes*, by the year 2025, the energy-generating plant mix was assumed to be 10% nuclear, 9% combined cycle gas turbine, 12% imported hydropower, 1% generated by renewable sources and the balance by coal-fired power stations. It was estimated that during the period 2001 to 2025, a total reduction of 1 055 000 Gg of carbon dioxide could be achieved. (see Figure below) [96]

[95] Winkler H & Marquard A, (2007) Energy development and climate change: Decarbonizing growth in South Africa, input to Human Development Report 2007, Energy Research Centre, University of Cape Town p12
[96] RSA (2003), Initial National Communication under UN Framework Convention on Climate Change p73

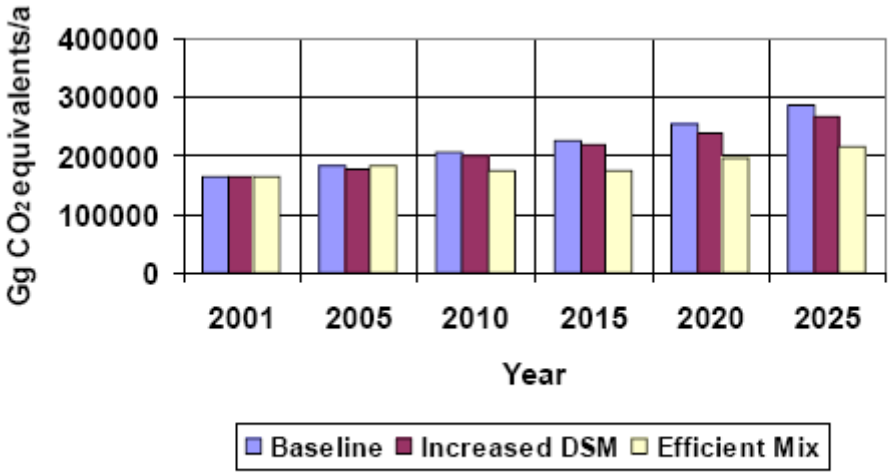

Figure 7.1: GHG emissions from electricity generation according to the different scenarios

*National Climate Change Response Strategy for South Africa (*NCCRS)
The INC served as a basis for the key statement of South African climate change policy, the 2004 NCCRS, which outlined a framework for action. The main principle of the strategy was based on attempting a harmonisation between development challenges and climate change by integrating both into a sustainable development program:

> The South African Government's national priorities include, inter alia, the creation of employment, the alleviation of poverty and the provision of housing, which implies a commitment to the process of sustainable development and advancement. Thus South Africa's position is to view climate change response as an opportunity for achieving these aims. "

The challenge of ensuring climate change is factored into policy given the pressures and urgencies in the SA context is highlighted in the Climate Change Response Strategy, "Officials in other departments, within all spheres of government, often do not see climate change as a priority and some even see it as working against national development priorities. They are concerned that South Africa has a huge backlog of service delivery where the performance of each department is measured by how effective and efficient it is on service delivery.[97]"

The Energy Research Centre summarize the 12 key interventions outlined in the strategy as "a mix of process-oriented measures (accessing funds, promoting education, training and awareness, maintaining presence at UNFCCC and related meetings, and setting a 'timeframe for action' for implementation of specific policies and measures), adaptation and mitigation policies and measures.[98]" The adaptation measures required to adapt to the effects of climate change are summarized above (Section 3.2.2). The mitigation measures were mainly based on implementation of the Government's policy and strategy frameworks: 2003 *White Paper on Renewable Energy* and 2005 *Energy Efficiency Strategy*, as well as the establishment of a CDM Designated National Authority in the DME. The Centre notes that "seven of the 12 'key actions' are entirely dependent on other government departments and agencies for implementation (DME, DST, DTI, DWAF, DA, IDC, etc), which would require these departments to develop a specific capacity, estimated to cost around R5 million, which emphasizes the critical role of co-

[97] DEAT (2004), A National Climate Chance Response Strategy for South Africa p8
[98] Winkler H & Marquard A, (2007) Energy development and climate change: Decarbonizing growth in South Africa, input to Human Development Report 2007, Energy Research Centre, University of Cape Town p12

ordination within the government, and particularly co-ordination with the Treasury, as a central requirement for implementation.

In 2005, a large-scale National Climate Change Conference was held, attended by 600 delegates from government, including cabinet ministers, business, academic institutions and civil society. The conference resolved to increase cross-government co-ordination, use the 2004 Air Quality Act to regulate GHG emissions, establish a SA National Energy Research Institute, develop a technology needs assessment, establish a National Energy Efficiency Agency, compile sectoral plans to augment the National Climate Change Response Strategy, and inaugurate a scenario-building process to examine how best South Africa can meet GHG reduction targets and development goals at the same time. In 2006, DEAT initiated a Long-Term Mitigation Scenario project, in which various scenarios are being developed using energy and macroeconomic models to explore the consequences of various policy interventions aimed at reducing GHG emissions. The scenario process aims to inform a long-term climate policy.[99]"

Energy

Constitution and the RDP

In addition to the general environmental rights in the *Constitution* (Act No. 108 of 1996) outlined above, the Constitution contains a number of rights specifically relevant to the national energy policy. The *Constitution* states that Government must establish a national energy policy to ensure that national energy resources are adequately tapped and delivered to cater for the needs of the nation. Energy should be made available and affordable to all citizens, irrespective of geographic location. The production and distribution of energy should be sustainable and lead to an improvement in the standard of living of citizens.

As outlined above, the energy system, energy efficiency measures and the types of fuel used will have the most direct influence on SA's GHG emissions. The key policy framework for the energy sector is contained in the 1998 *White Paper on Energy*, and the subsequent 2003 *White Paper on Renewable Energy* and 2005 *Energy Efficiency Strategy*, which have been made key pillars of South Africa's climate change mitigation strategy.

White Paper on the Energy Policy of the Republic of South Africa, 1998[100]

In this White Paper, DME sets out Government's policy with regard to the supply and consumption of energy for the next decade from 1998. The policy addresses all elements of the energy sector.

The policy[101] asserts that the electricity sector reform will be based on introducing competition into the industry by restructuring Eskom generation into separate generation and transmission companies. It recognizes that South Africa has neglected the development and implementation of renewable energy applications. However, the significant medium and long-term potential of renewable energy is recognized. The White Paper states that government policy on renewable energy is concerned with meeting the following challenges:

- Ensuring that economically feasible technologies and applications are implemented through the development and implementation of an appropriate program of action.

[99] Winkler H & Marquard A, (2007) Energy development and climate change: Decarbonizing growth in South Africa, input to Human Development Report 2007, Energy Research Centre, University of Cape Town p12

[100] DME (1998), White Paper on Energy Policy

[101] Summary of key tenets of the policy is drawn from DME (2003), White Paper on Renewable Energy p8

- Ensuring that an equitable level of national resources is invested in renewable technologies, given their potential and compared to investments in other energy supply options.
- Addressing constraints on the development of the renewable energy industry.

The policy on renewable energy and improving energy efficiency:
"Significant potential exists for energy efficiency improvements in South Africa. In developing policies to achieve greater efficiency of energy use, government is mindful of the need to overcome shortcomings in energy markets. Government would create energy efficiency consciousness and would encourage energy efficiency in commerce and industry, will establish energy efficiency norms and standards for commercial buildings and industrial equipment and voluntary guidelines for the thermal performance of housing. A domestic appliance-labeling program will be introduced and publicity campaigns will be undertaken to ensure that appliance purchasers are aware of the purpose of the labels. Targets for industrial and commercial energy efficiency improvements will be set and monitored."

Specific Policy on Transport:
"Vehicle purchasers do not generally consider the vehicle's fuel consumption as a major criterion. This is due in part to a lack of accurate information on vehicle fuel efficiency. The Department of Minerals and Energy will provide information on the fuel use characteristics of new vehicles. Energy consumption information should be included in all advertising, vehicle test reports and vehicle specifications.[102]"

The Energy Research Centre believes that this policy was not concrete and specific enough to guide practice. "The policy focuses on the furthering of programs to provide affordable energy to the poor, improving energy sector governance (including the introduction of integrated energy planning), addressing the environmental impacts of energy production and use, reform of energy markets, and emphasis on a demand-side approach to energy policymaking. However, the framework was weak on the details of specific measures. Lack of capacity in the DME, combined with changing priorities of the new government, have led to uneven implementation of the policy framework.[103]"

White Paper on Renewable Energy, 2003

- Current government policy on renewable energy is still very much under development. In 2003 DME published a White Paper on Renewable Energy. This sets what has been regarded as a 'modest' target of "10 000GWh of final energy demand to be produced from renewable sources by 2010, which is an average of around 1000GWh per year, which is 0.15% of total final energy demand in 2002. In order to achieve this modest aim, a number of 'strategic, goals, objectives and deliverables' were set out, which included financial and fiscal instruments, legal instruments, technology development, and 'awareness raising, capacity-building and education'.[104]"

So far three concrete actions have been taken: 1) the establishment of a Clean Development Mechanism Designated National Authority (CDM DNA) in the DME; 2) the establishment of a modest capital subsidy program for renewable energy projects (tens of millions of rands

[102] DEAT (1998), White Paper on the Energy Policy
[103] Winkler H & Marquard A, (2007) Energy development and climate change: Decarbonizing growth in SA, input to Human Development Report 2007, Energy Research Centre, University of Cape Town p12
[104] DME (2005), Energy Efficiency Strategy of the RSA

annually) in the DME; and 3) the establishment in the Central Energy Fund of the Energy Development Corporation in 2004, which invests in renewable energy projects.[105]"

Energy Efficiency Strategy, 2005[106]
This DME policy is the key policy aimed as reducing energy demand. It set a target for national improvement in energy efficiency of 12% by 2015 to be implemented through a series of sectoral strategies.

ERC note that, in the wake of the Strategy, a voluntary Energy Efficiency Accord was signed by the Minister of Minerals and Energy and 31 (later 37) businesses (primarily energy intensive industries and energy supply industries, but also a bank, a retail chain and the cement industry association), whereby the businesses committed to meeting the targets set out in the Strategy, with a higher target of 15% adopted by mining and industrial signatories. Accord signatories have established a Technical Committee to develop a detailed program. The state has also established an Energy Efficiency Agency under the auspices of the Central Energy Fund, the state-owned company overseen by the DME which holds the state's energy sector assets.

DME's Energy Efficiency Strategy (2005) also highlights the areas of overlap between Renewable Energy and Energy Efficiency and outlines some practical measures to achieve gains in both areas. "A widespread installation of solar water heating in industrial and commercial buildings and houses has the potential to defer the need for building new power plants, as the combined heating requirements of these sectors consume the energy produced by three average power stations. The main constraint on implementing a national solar water heating program in the Residential Sector relates to cost, which is a function of the current small market and lack of economies of scale. This lack of demand in itself is due to low public awareness of the technology or its economic benefits. Currently the cost of a domestic solar water heater would take in excess of 5 years to pay back. However, it is a different story when it comes to large commercial installations. Because of the size, and electricity tariff at peak times, these solar water heaters are competitive with electric geysers and hotels are installing them. The main barrier again remains lack of information about the technology.

Thermally efficient housing – houses designed to save energy, can reduce household space heating requirements. The Department of Housing in collaboration with DME has developed appropriate guidelines for the construction of thermally designed housing incorporating passive solar design. The household sector requires the following measures:

- Regulation of low-cost energy efficiency measures in housing;
- Incorporating passive solar design;
- Heat insulation in homes;
- Replacement of electric geysers by solar water heaters..[107]"

NEM: Air Quality Act (Act No 39 of 2004) provides for a national framework to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development, which will bind all organs of state. It requires that each

[105] Winkler H & Marquard A, (2007) Energy development and climate change: Decarbonizing growth in SA, input to Human Development Report 2007, Energy Research Centre, University of Cape Town p14
[106] DME (2005), Energy Efficiency Strategy of the RSA
[107] DME (2005), Energy Efficiency Strategy of the RSA

national department or province prepare air quality management plans and provides for listing of activities that result in atmospheric emissions, which would require emission licenses [108]

Mitigation Initiatives

Some key initiatives designed to mitigate GHG emissions through improved energy efficiency or fuel substitution through a renewables program are listed below, but the ERC notes[109] that they represent little in the way of implementation of the policy framework:

- The National Treasury lowered fuel taxes on biofuels to incentivize their manufacture in the country and there are a number of very small-scale biofuels projects recycling used cooking oil into biodiesel.
- The most significant renewable energy project currently underway is the Darling Wind Farm, a 5MW facility on the West Coast which has recently signed a power purchase agreement with the City of Cape Town.
- A by-law proposed by the City of Cape Town, which should be enacted this year, to make solar water heaters compulsory on new residential properties over a certain value (to exclude poor households, which will continue to use electricity or other fuels for water heating).
- DME's off-grid concession program, under which private concessionaires install solar PV systems on households in isolated rural areas remote from the grid. The motivation for this program is not climate change mitigation, however, and its impact on emissions is limited. Energy efficiency measures are largely being investigated through the voluntary National Energy Efficiency Accord between business and government; while promising, the initiative has not yet delivered measurable efficiency gains.
- CDM Projects: Only 37 proposals were recorded as pending and 6 as registered from the inception of the CDM. The Energy Resource Centre estimates that these together will reduce CO_2-equivalent emissions by 0.27 MT per year. Three are fuel-switching projects in industrial plants, switching from coal to natural gas or biomass; one plans to utilize landfill gas, and one is a small biofuels project. The last project is an innovative initiative in Cape Town, the Kuyasa project, which combines GHG mitigation with a number of sustainable development objectives by retrofitting low-income households with energy-efficient technology, including ceiling insulation, low-energy light bulbs and solar water heaters. Other small demonstration projects include a number of solar water heater installations for low-income households, and several building efficiency projects in local government.
- Government subsidies: The government established a Renewable Energy Subsidy Fund (about US$500,000-700,000 per year), managed by DME, to subsidize renewable energy power projects. The aim of the initiative is to build experience and understanding of the nature of the projects that are likely to emerge in the future. This will also assist with estimating the extent of subsidies that would be required to reach the 10,000 GWh target. The government has committed the majority of this Subsidy Fund as co-funding to the GEF/SA project on Renewable Energy Market Transformation for which the World Bank is the IA, according to the project documents[110].

[108] (CSIR. 2006. *Integrated Veldfire management in South Africa*.)
[109] Based largely on Winkler H & Marquard A, (2007) p15
[110] World Bank (2007), Renewable Energy Market Transformation Project Document p 21

Policy Coherence, Coordination and Alignment

The ERC note that "there is still a significant gap between development and sustainable development."[111] The dependence of DME for implementation of the Climate Change Response Strategy on other departments and spheres of government has been noted above. The Energy Research Centre highlights a range of areas in which energy policy related to improving efficiency, reducing demand and extending the use of renewables and energy policy linked to the industrial strategy are at odds.

"While the DME is the official custodian of energy policy in the country, in many instances the policymaking activities of other departments and spheres of government have a determinate effect. Three of these are particularly important: the Department of Trade and Industry (DTI), the National Treasury (NT), and the Department of Public Enterprises (DPE) have a significant impact on the formulation and implementation of energy policies. These three departments play a key, policy-determining role in the 'Economic cluster'.

The core goals of industrial policy since 1994 have been to meet key development goals by accelerating economic growth, largely through diversifying the economy (in structure, ownership and participation), and mitigating the impact of 'the apartheid government's support for large-scale capital-intensive industries…(There have been) very significant developments in traditional energy-intensive, resource-based industries, who were best able to thrive in the globalized economy of the 1990s. State incentives have mainly been taken up by these industries. For instance, Sasol, the most energy-intensive liquid fuels producer in the world, alone accounted for four projects under the Strategic Industrial Projects incentive, which amounted to 24% of the available tax allowances.

While other more employment-intensive industries such as textiles contracted as a result of the lowing of tariff barriers, energy-intensive industries were able to compete globally on account of low SA energy prices. The current cycle of state-driven infrastructure development, specifically in electricity and transport infrastructure, is based on an expectation of more resource- and energy-intensive investments, which are further encouraged by two further factors. First, the DTI recently introduced a 'Developmental Electricity Pricing Programme', under which below-price electricity tariffs are negotiated with potential international investors in new energy-intensive projects. The aim of the incentive is to encourage investors who 'would in the absence of DEPP not invest in the Republic', by guaranteeing them (through lower electricity prices) 'an IRR that will ensure that the applicant will invest in South Africa' (DTI 2005). Second, the state is encouraging the development of beneficiation industries under its new mining policies, to add value to South African-produced raw materials, and is currently exploring ways to link beneficiation to mining licenses.[112]"

Pollution, Air Quality and Waste Management

South Africa currently has a number of laws relating to the protection and management of the environment or aspects of the environment that directly link to climate change. The overarching legislation is contained within the provisions of the National Environmental Management Act of 1998. Some of the key legislation that explicitly refers to climate change White Paper on Integrated Pollution and Waste Management of 2000, the White Paper on a National Water Policy for South Africa, 1997, and the National Environmental Management: Air Quality Management Act, 2005. Other relevant legislation in the areas of pollution, air quality and waste

[111] Winkler H & Marquard A, (2007) Energy development and climate change: Decarbonizing growth in SA, input to Human Development Report 2007, Energy Research Centre, University of Cape Town p23

[112] Winkler H & Marquard A, (2007) p10-11

management is The Air Pollution Prevention Act, 1965, the Dumping at Sea Control Act, 1980, the Marine Pollution Act, 1981and recent National Framework for Air Quality Management, 2007.

Transport

The White Paper on National Transport Policy aims to achieve sustainable development in the transport sector by minimizing the energy usage and environmental impact of transport. The *Moving South Africa* project that was implemented in 1998 sets out the strategy for the transport sector in South Africa until 2020. Specific proposals include implementation of integrated development planning and promoting the use of public transport. The scenarios explored in the INC for transport emissions for the business-as-usual scenario and the potential mitigating options are outlined in Figure 3.1.[113]

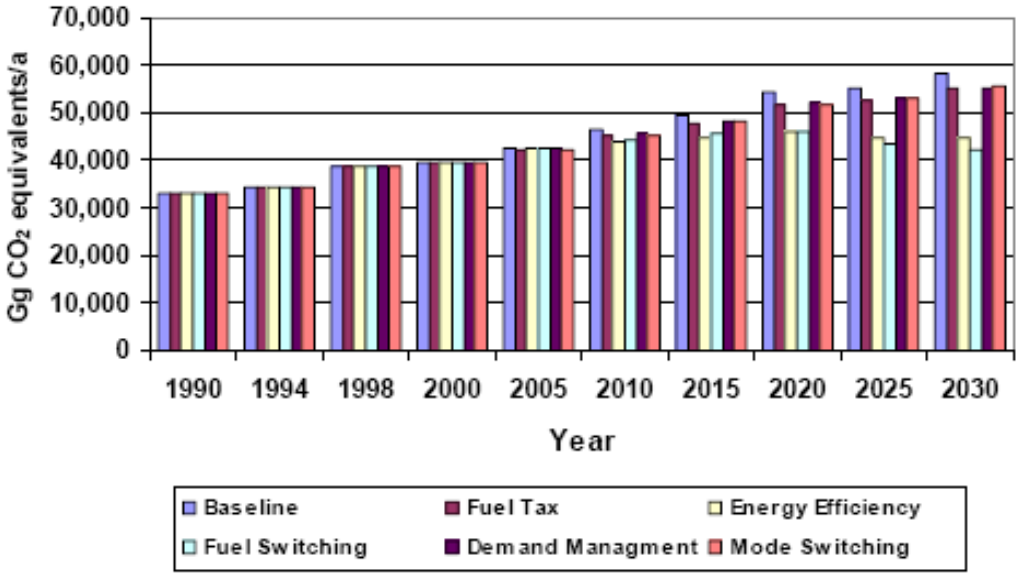

Figure 3.1: GHG emissions from transport sector using different scenarios for period 1990 to 2030

Operational Framework

The complexity of the operational framework, and specifically of the allocation of the mandates relevant to climate change, has been alluded to above. South Africa's Climate Change Response Strategy notes that "Although the Department of Environmental Affairs and Tourism has been designated as the lead agency for climate change response in South Africa, it is recognized that this is a cross cutting issue that has ramifications for diverse activities in other government departments. A national climate change strategy will thus require that many government departments work together in a coordinated manner, to ensure that response measures are properly directed, acceptable to all and carried out with a national focus. General awareness within government on the likely impacts of climate change is somewhat limited in those departments not directly involved with the issue."[114]

Decision making that impacts on climate change is widely distributed across government, with the following being a summary of key government entities and their areas of responsibility[115]:

[113] RSA (2003), Initial National Communication under UN Framework Convention on Climate Change p76
[114] DEAT (2004), A National Climate Chance Response Strategy for South Africa p(v)
[115] Draws on UN (2002), WSSD South Africa Country Profile p16 and Winkler H & Marquard A, (2007) Energy development and climate change: Decarbonizing growth in South Africa, input to Human Development Report 2007, Energy Research Centre, University of Cape Town p7

- The focal point for climate change in South Africa is the Department of Environment Affairs and Tourism (DEAT)
- Energy. The Department of Minerals and Energy (DME) is responsible for decision-making processes in the energy sector and for making energy related policy decisions. DME formulates and implements energy policy, and oversees a group of associated institutions, including:
    - The NER, the National Nuclear Regulator (which oversees nuclear safety),
    - The Nuclear Energy Corporation of South Africa (which undertakes nuclear research) and,
    - The Central Energy Fund, which is the holding company for the national oil company PetroSA, as well as owning the recently-established South African National Energy Research Institute and the Energy Development Corporation (formed to promote renewable energy).
- Atmospheric. The Department of Environmental Affairs and Tourism (DEAT) is responsible for atmospheric pollution.
- The Department of Transport (DoT) is responsible for transportation.
- The Department of Trade and Industry (DTI) is responsible for industrial policy.
- International negotiations are conducted in partnership with the Department of Foreign Affairs (DFA) in the context of South African foreign policy, the relevant principles of which are a focus on Africa, South-South co-operation (specifically Brazil-India-South African co-operation and more broadly through the G77&China), and a commitment to rule-based multilateralism.[116]
- The DME has a facilitating role in respect of the fuel quality, from a technical, environmental and air quality perspective.
- The electricity sector is dominated by the state-owned national utility Eskom, which owns and operates more than 90% of generation assets, the whole transmission grid, and a significant portion of the distribution industry, especially in rural areas. Local authorities have a right of supply in their areas of jurisdiction, although for a number of historical reasons Eskom distributes electricity in many local authorities. Eskom is most cases also sells electricity directly to large industrial customers. Electricity is regulated by the National Energy Regulator of South Africa (NERSA), which licenses all operators and approves tariffs.[117]
- The Constitution provides for the local government to be responsible for electricity and gas reticulation, and bylaws that address vehicle or factory emissions.

The Centre for Energy Research note that "energy policy is also closely monitored, and at times influenced, by a group of industry stakeholders…Historically, the energy supply industry (specifically mining companies, Eskom and the oil companies) have been very closely involved in making energy policy in South Africa. After 1994, the process broadened somewhat to include a wider range of stakeholders (NGOs and Trade Unions), but lack of state capacity in energy policymaking has meant that industry continues to play a significant role.[118]" Key influences include:

- The South Africa Petroleum Industries Association (SAPIA) representing oil companies (including Sasol),

[116] Winkler H & Marquard A, (2007) Energy development and climate change: Decarbonizing growth in South Africa, input to Human Development Report 2007, Energy Research Centre, University of Cape Town p 11
[117] Winkler H & Marquard A, (2007) Energy development and climate change: Decarbonizing growth in South Africa, input to Human Development Report 2007, Energy Research Centre, University of Cape Town p7
[118] Winkler H & Marquard A, (2007) Energy development and climate change: Decarbonizing growth in South Africa, input to Human Development Report 2007, Energy Research Centre, University of Cape Town p7

- The Chamber of Mines representing mining companies (including coal mines),
- The Energy-Intensive Users Group whose 25 members consume 40% of the country's electricity, and
- The Chemicals and Allied Industries Association representing chemicals industries.
- The South African Local Government Association (SALGA)

Coordination

As coordination and alignment of policy and implementation across government is a key challenge, various committees have been established to assist DEAT in this task. "Three key committees[119] have been established to guide DEAT staff on their approach to climate change and ozone layer protection issues:

- The National Committee on Climate Change (NCCC)
- The Government Committee on Climate Change (GCCC)
- The National Committee for Ozone Layer Protection (NCOLP)

National Committee on Climate Change (NCCC)

The purpose of the National Committee on Climate Change (NCCC) is to advise and consult the Minister of Environmental Affairs and Tourism, through the Director General of DEAT, on matters relating to national responsibilities with respect to climate change – and particular in relation to the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. The composition of the NCCC is designed to provide representation from the main stakeholder groups involved in climate change issues across South African society.

The NCCC meets four times per annum and has the following functions:

- To set its own agenda and timetable, within a framework as determined by the Minister and Department of Environmental Affairs and Tourism
- To make recommendations to the Department and the Minister of Environmental Affairs and Tourism on issues related to climate change, and to express the concerns of key stakeholders
- To design and participate in a process leading to the formulation of a national climate change policy and a national implementation strategy
- To propose studies that need to be undertaken in support of the national climate change policy process, what their scope, timetable, budget an deadlines should be and within the limits of the available funds, advise the Department to perform them, and review and disseminate the results.
- To communicate developments within the national and international climate change arena to their constituencies
- To delegate its functions and responsibilities to sub-committees as needed
- To assist with structured process of capacity building and technology transfer/development.

Government Committee on Climate Change

The purpose of the Government Committee on Climate Change (GCCC) is to advise the Sub-directorate for Climate Change and Ozone Layer Protection on matters relating to national responsibilities with respect to climate change, and in particular, in relation to the UN Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol.

[119] This outline of the committees is drawn directly from DEAT's website: http://www.environment.gov.za/ClimateChange2005/National_Greenhouse_Gas_Inventory.htm

3.5 LAND DEGRADATION

In order to give effect to the implementation of the United Nations Convention to Combat Desertification (UNCCD), South Africa developed a National Action Programme (NAP) to Combat Land Degradation and Alleviate Rural Poverty aimed at addressing issues related to desertification, land degradation and alleviating rural poverty. The NAP was approved by Cabinet on 16 November 2004 and is being implemented by the national and provincial governments, public entities and non-governmental organisations. The NAP (i) follows an integrated approach that addresses natural and socio-economic aspects of the process of land degradation and drought; (ii) synergizes the implementation of the three RIO Conventions, UNCCD, CBD and UNFCCC) and (iii) promotes the use of existing bilateral and multilateral financial mechanisms and arrangements that mobilize financial resources to affected country Parties in combating land degradation and mitigating the effects of drought.

The following summaries are based on the analysis for South Africa's NAP (RSA 2004).

Policy and Legal Framework

Relevant legal and policy frameworks fall into the broad areas of: macro and micro economic policy; integrated rural development; land and land reform, environment, agriculture, water; forests and energy mining and minerals.

A key challenge for implementing the NAP is enabling effective integration in the policies and administration of these laws by the sectorally focused departments and agencies mandated with their implementation. While the NAP envisaged a "natural resources management framework" to enable this integration, this has not yet been developed. Further, the expectation that the NBSAP would address land degradation in a sufficiently integrated manner has also not been met (pers. Comm. L. Sello, DEAT). The draft National Biodiversity Framework is also seen as deficient in this regard.

Key legal conflicts in terms of the respective legal mandates include those between environmental and specifically, biodiversity, mining and agriculture.

The Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983), provides for the conservation of agricultural resources by maintaining the land's production potential, eliminating and preventing erosion and bush encroachment, protecting vegetation, and combating weeds and invader plants. The Conservation of Agricultural Resources Act, Act 43 1983, will be replaced by the Sustainable Utilisation and Protection of Agricultural Resources Bill, is a central statute in land management, providing for regulation of land management to secure sustainability. There are linkages and overlaps with the Land Use Management Bill and the Communal Land Rights Act (2004). The regulations regarding weeds and invader plants overlap with the Biodiversity Act (2004) and the draft regulations for the control and management of invasive species recently published for public comment.

Operational Framework

The achievement of sustainable land use management requires a co-ordinated strategy involving almost every national department and all spheres of government. State Departments dealing with the natural resources, each with its own agenda and priorities, include the National Department of Agriculture (NDA) with its nine Provincial Departments of Agriculture PDAs), the Department of Environmental Affairs and Tourism DEAT), the Department of Water Affairs and Forestry (DWAF), the Department of Land Affairs, to an extent, the Department of Science and Technology under which all Research Councils resorts. Others like the Department of Minerals and Energy are also concerned. Through the NAP, South Africa hopes to promote policies to

combat desertification and at the same time strengthening frameworks to promote co-ordination and co-operation between the donor community, government at all levels and local and rural communities.

Three main national programs that are directly aimed at addressing land degradation and poverty: LandCare, the Comprehensive Agricultural Support Programme and the Integrated Sustainable Rural Development Programme. The LandCare Programme has been developed into subprograms: SoilCare (based on the implementation program for the Soil Protection Strategy 2005); WaterCare and VeldCare all aimed at sustainable land management. Other programs focused on rehabilitation of degraded areas are the Working for Water Programme and the Working on Wetlands Programme.

National Government aims to develop and gazette a drought-management plan in line with the Disaster Management Act, 2002 (Act 57 of 2002), which will respond to drought-related disasters that affect farmers, and provides for animal feed and water. Long-term interventions by the department include improved research, a fully functional early warning system and agricultural sector strategies to address disaster-management issues.

A Resource Mobilisation Strategy for the implementation of the NAP is being developed and implemented currently, based in a private sector survey conducted in 2003. The key thrust of this strategy will be to develop a fund to finance delivery on the NAP.

Research and monitoring initiatives
A National Agricultural Research System (NARS) is concerned with determining a country's national research program, implementing it and communicating appropriately interpreted conclusions to users. The Agricultural Research Council is a key role player responsible for the National Land Type Survey, completed in 2001, which assists and informs land-use planning and decision-making. Data from this and other more detailed soil and climate surveys are integrated into the comprehensive Agricultural Geo- Referenced Information System (AGIS).

The Land Degradation Assessment Programme is an international research program, being driven by the ARC in South Africa. Its purpose is to develop tools and methods to assess and quantify the nature, extent, severity and impacts of land degradation on dryland ecosystems, watersheds and river basins, carbon storage and biological diversity at a range of spatial and temporal scales. It will also build the national, regional and international capacity to analyse, design, plan and implement interventions to mitigate land degradation and establish sustainable land use and management practices. The LADA Programme will develop standardized and improved methods for dryland degradation assessment, with guidelines for their implementation in a range of scales. Using these methods, it will assess the regional and global baseline condition of land degradation with the view to highlighting the areas at greatest risk. These assessments will be supplemented by detailed local assessments that will focus on root cause analysis of land degradation and on local (traditional and adapted) technologies for the mitigation of land degradation. Areas where land degradation is well controlled will be included in the analysis. Best practice guidelines will be developed and widely disseminated.

International and Regional Co-operation
Under the Regional Indicative Strategic Development Plan (RISDP), the fifteen year blue print for SADC, Environment and Sustainable Development is identified as one of the key intervention areas. RISDP aims to create a harmonized policy environment as well as legal and regulatory frameworks to facilitate regional cooperation in natural resources and environmental management. Ensuring a coordinated regional implementation of Multilateral Environmental Agreements such as the United

Nations Convention to Combat Desertification (UNCCD) is one of the focus areas under Environment and Sustainable Development. The SADC Sub Regional Action Programme identifies seven priority areas as follows: Capacity Building and Institutional Strengthening; Strengthening of Early Warning Systems; Cooperation in the Sustainable Management of Shared Natural Resources and Ecosystems; Information Collection, Management and Exchange; Development and Transfer of Appropriate Technology to the Community Level; Development of Alternative Sources of Energy; and Socio-economic issues[120].

South Africa is the Co-ordinator for the Valdivia Group for Desertification which fosters innovative approaches to research and monitoring. The Group involves countries in the southern hemisphere, namely Australia, New Zealand, Argentina, Chile, Uruguay, South Africa and Brazil, whose aim it is, among other things, to foster scientific and technological co-operation.

The NEPAD Comprehensive Africa Agriculture Development Programme (CAADP) was endorsed by the African Ministers of Agriculture and Rural Development in June 2002, as a blueprint for renewal and recovery of the continent's agricultural sector. NEPAD will develop broad programs under each of the four pillars identified in CAADP, i.e.: extending the area under sustainable land management and reliable water control systems; improving rural infrastructure and trade-related capacities for improved market access; increasing food supply and reducing hunger; and complementary to these first three, strengthening agricultural research and extension systems in Africa. The Ouagadougou consultative meeting held in September 2002 marked the beginning of a new partnership between the UNCCD and NEPAD. UNCCD National Focal Points met, as part of a series of African meetings, to promote activities to combat desertification in the context of NEPAD.

3.6 PERSISTENT ORGANIC POLLUTANTS

South Africa and the Convention[121]

The Stockholm Convention on Persistent Organic Pollutants (POPS) was ratified by SA in 2002 and came into force in 2004. SA has not yet prepared a National Implementation Plan (NIP) as required under Article E of the Convention, involving three main activities: undertaking a baseline study, developing a strategy for mitigating emissions and preparing an accompanying implementation framework."[122]

In 2006 DEAT indicated in its report to GEF that "the release of persistent organic substances, including some pesticides and industrial chemicals is recognized as a serious problem in South Africa in light of the serious threats to human health and bioaccumulation within the food chain. The objective over the medium-term is to lay the groundwork for implementing the Convention on POPS, and interventions to be pursued under the programmatic approach. The major program to be initiated relates to the preparation of the National Implementation Plan (NIP). South Africa will prepare a National Implementation Plan (NIP) as required under Article E of the Convention, involving three main activities: undertaking a baseline study, developing a strategy for mitigating emissions and preparing an accompanying implementation framework."[123]

[120] SADC. 2004. SADC Sub-Regional Progress Report on the Implementation of the United Nations Convention to Combat Desertification (UNCCD) in Southern Africa.
[121] Drawn directly from DEAT, (2007) National Framework for Air Quality Management p15 & 16
[122] DEAT, (2006) Status Report on South Africa's Engagement with the Global Environment Facility (GEF) and Implementation of its Medium Term Framework p8
[123] DEAT, (2006) Status Report on South Africa's Engagement with the Global Environment Facility (GEF) and Implementation of its Medium Term Framework p8

Key national legislation dealing directly or indirectly with hazardous chemicals management and, in certain instances, specifically with POPs, include: the Hazardous Substance Act, No. 15 of 1973; Fertilizers, Farm Feeds, the Agricultural Remedies and Stock Remedies Act, No. 36 of 1947; and the Occupational Health and Safety Act, No. 85 of 1993. The key to effective policy in this area will be the development of the NIP which is currently under development so

Policy and legal framework

The policy, legislative and strategy frameworks impacting on POPs are numerous and complex. As this focal area is barely represented in the GEF portfolio, a very brief outline of some key policy and legislation will be made. The key to effective policy in this area will be the development of the NIP mentioned above as currently under development. It is urgent that a reliable inventory is made so that any policy and strategy is based on sound data.

Targets

The DEAT Strategic Plan, 2004 – 2007 sets out to "Obtain measurable decrease (i.e. >10% on 2003 base and GDP) in the generation of Persistent Organic Pollutants (POPs)."[124]

Chemicals Management, including Pesticides

A recent country strategy paper between the EU and SA outlines SA's support for "the Strategic Approach for International Chemicals Management (SAICM) which was adopted on 6 February 2006 in Dubai and is party to the Stockholm Convention on Persistent Organic Pollutants and to the Rotterdam Convention on the prior informed consent for certain hazardous chemicals and pesticides in international trade. South Africa is furthermore committed to implement the Globally Harmonised System for Classification and Labelling of Chemicals (GHS). As the recently adopted new EU Chemicals legislation, REACH will be of global importance, South Africa as well as other
states are being involved in the preparations of guidelines for the implementation of REACH.'[125]

The South African Year Book[126] outlines the following initiatives on 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 labor representatives, aimed at integrating legislation.

In 2006, the Department of Agriculture issued a Pesticide Management Policy[127] notes that with regard to compliance with the Stockholm Convention on Persistent Organic Pollutants (POPs): "With the exception of Dichloride Diphenyl Trichloroethane (DOT), South Africa has already

[124] DEAT Strategic Plan, 2004 – 2007 p23
[125] EU / SA, Cooperation between the European Union and South Africa, Joint Country Strategy Paper 2007 — 2013 p17
[126] RSA 2006. South Africa Yearbook 2006/2007. Compiled and published by GCIS. Fourteenth edition. http://www.gcis.gov.za/docs/publications/yearbook07/environment p240
[127] Department of Agriculture (2006), Pesticide Management Policy in terms of the Fertilizer, Farm Feeds, Agricultural Remedies and Stock Remedies Act of 1947 p19

banned all the POPs listed under this Convention. South Africa will work with international communities to prevent the production and use of substances with POPs characteristics."[128]

The main legislation related to pesticides and the departments responsible are as follows:

- Agriculture, Fertilizer, Farm Feeds, Agricultural Remedies and Stock Remedies Act (No 36 of 1947
- Agriculture, Agricultural Products and Standards Act (No 119 of 1990)
- Health, National Health Act (No 61 of 2003)
- Health, Hazardous Substances Act (No 15 of 1973)
- Health, Foodstuffs, Cosmetics and Disinfectants Act (No 54 of 1972)
- Labour, Occupational Health and Safety Act (No 85 of 1993)
- DEAT, National Environmental Management Act (No 107 of 1998)

The following is a summary of the key national legislation provided in the project document that formed the basis for funding provided for the National Implementation Plan (NIP)[129]:
The Hazardous Substance Act provides for the control of substances that may cause injury, ill health or otherwise adversely affect human beings.
The Fertilizers, Farm Feeds and Agricultural Remedies Act provides for a range of matters including the regulation or prohibition of import, sale, acquisition, disposal or use of fertilizers, farm feeds and agricultural remedies.
The Occupational Health and Safety Act imposes a number of responsibilities on employers in respect of the health and safety of its employees and of the public in general. The regulations also stipulate measures regarding labelling, packaging, transport, storage and disposal of hazardous chemicals.

The NIP project document notes that An Interdepartmental Committee on the Management of Chemicals and Hazardous Waste includes representatives from the DEAT, the Department of Health and the Department of Labour to address the requirements of Agenda 21. The project document notes that a project for the development of a National Chemical Profile for Chemicals Management was initiated as a first step toward effective management of chemicals including POPs. It also notes that "the current fragmentation and duplication of legislative responsibilities and management of chemicals in South Africa has resulted in an uncoordinated approach to monitoring and enforcement. In addition, enforcement is constrained by a lack of coordination and resources. South African customs and excise legislation provides for the regulation of specific imports. Prior Informed Consent procedures are currently implemented on a voluntarily basis although their implementation is also hampered by a lack of resources.

Waste Management and Prevention and Landfills

DEAT (2000), White Paper on Integrated Pollution and Waste Management for SA[130] represents a paradigm shift from dealing with waste only after it is generated (i.e. "end of pipe") towards:

- pollution prevention
- waste minimisation
- cross-media integration
- institutional integration, both horizontal and vertical, of departments and spheres of government, and
- involvement of all sectors of society in pollution and waste management.

[128] Department of Agriculture (2006), Pesticide Management Policy in terms of the Fertilizer, Farm Feeds, Agricultural Remedies and Stock Remedies Act of 1947 p17
[129] UNEP DEAT (2002) Project Document for Enabling Activity for Stockholm Convention on POPs for SA
[130] DEAT (2000), White Paper on Integrated Pollution & Waste Management for South Africa p11

In 2005 DEAT indicated that "Government follows an approach to waste management that aims at ensuring that in all sectors, the approach to waste, is first to reduce it, through the introduction of 'clean' and improved technology; secondly to reuse the waste through recycling initiatives of various kinds; and only in the final instance to dispose of it permanently to landfill or to sewer (in the case of liquid waste). In implementing this cradle to grave, waste manifest system, DEAT has identified key waste streams and activities that require regulation and intervention. For example, work is underway to promulgate regulations that will phase out the use of asbestos in SA, in line with a Cabinet decision made some years ago. Likewise various studies are being undertaken to look at the effect of chemicals such as methyl bromide on the environment and to identify safer alternatives with which it could be substituted. (Methyl bromide is a highly toxic chemical used by farmers to fumigate the soil against nematodes and other pests, and is a serious contributor to ozone depletion.)"[131]

The Waste Management Bill that is currently before parliament will have a significant impact on improving SA's capacity to sustainably manage waste.

Key Laws related to waste management and prevention

- Environment Conservation Act 73 of 1989 (ECA)
- National Water Act 36 of 1998 (NWA)
- National Environmental Management Act 107 of 1998 (NEMA)
- Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA)
- Hazardous Substances Act 15 of 1973
- Prevention & Combating of Pollution of the Sea by Oil Act (No. 6 of 1981)
- International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties Act (No. 64 of 1987)
- Dumping at Sea Control Act (No. 73 of 1980)
- Prevention of Pollution from Ships Act (No. 2 of 1986) and regulations
- Conservation of Agricultural Resources Act (No. 43 of 1983)
- Nature Conservation Ordinances of the various provinces
- Antarctic Treaty Act (No. 60 of 1996)
- Nuclear Energy Act (No. 113 of 1994)
- National Water Act (No. 36 of 1998),
- Environment Conservation Act (No. 73 of 1989), and
- National Environmental Management Act (No. 107 of 1998).

Policies

- National Waste Management Strategy
- Integrated Pollution Control and Waste Management Policy (1997)
- Environmental Management Policy White Paper (1998)

Air Quality (See also under Climate Change focal area above)
National Environmental Management: Air Quality Management Act, (the AQA) is designed to represent "a distinct shift from exclusively source-based air pollution control to holistic and integrated effects based air quality management. It focuses on the adverse impacts of air pollution on the ambient environment and sets standards to control ambient air quality levels. At

[131] DEAT (2005), 10 Year Review 1994-2004

the same time it sets emission standards to minimize the amount of pollution that enters the environment."[132] The objects of the legislation as stated in Chapter 1are as follows:

- "to protect the environment by providing reasonable measures for the protection and enhancement of the quality of air in the Republic;
- the prevention of air pollution and ecological degradation; and securing ecologically sustainable development while promoting justifiable economic and social development; and generally to give effect to Section 24(b) of the Constitution in order to enhance the quality of ambient air for the sake of securing an environment that is not harmful to the health and well-being of people."[133]

"The AQA requires ambient air quality targets to be set, which will drive the reduction of emissions. Existing ambient air quality guidelines do not protect people's health and well-being. With the exception of SO2, South Africa's limits for particulates, NO2, ozone (O3), and lead (Pb) are more lenient than internationally accepted international health thresholds. Although updated air quality limits for common pollutants have been published by the South African Bureau of Standards (SABS) and the DEAT7, the Department has not yet adopted them. A supplementary standard was also published in 2004 to provide a framework for the (future) setting and implementation of the required national ambient air quality standards."[134]

The Environment Outlook report notes that a key provision of the AQA is the "proactive air quality management planning by local authorities. Under the NEMAQA, local authorities take responsibility for monitoring air pollution and meeting nationally to set ambient air quality limits. To facilitate these activities, Air Quality Management Plans (AQMPs) are to be compiled, documenting sources of non-compliance and emission reduction strategies, which then become part of Integrated Development Plans. By October 2005, the City of Johannesburg, Ekurhuleni Metropolitan Municipality, and the City of Cape Town had already developed AQMPs."[135]

The National Framework for Air Quality Management has been developed in terms of AQA "serves as a blueprint for air quality management and aims to achieve the air quality objectives as described in the preamble of the AQA."

Water

The DWAF state in their most recent Year Book that they are "designing water-resource monitoring programs to assess and report on the radiological (radioactivity) and toxicological quality status of South African water resources. The National Toxicity Monitoring Programme will also report on the status of DDT (dichloro-diphenyl-trichloroethane) and other persistent organic pollutants in South Africa. This information will be reported internationally to the Stockholm Convention through the DEAT."[136]

Operational Framework[137]

The operational framework in the POPs focal area is extremely complex and would need to be simplified, if possible, in the PIP, when one is developed. DEAT is the competent authority for the Intergovernmental Forum for Chemical Safety, and the Department of Health is the competent authority for the Intergovernmental Programme on Chemicals Safety. DEAT

[132] DEAT, (2007) National Framework for Air Quality Management
[133] National Environmental Management: Air Quality Management Act, 2005 p11
[134] DEAT, (2006), South African Environment Outlook Summary p6
[135] DEAT, (2006), South African Environment Outlook p215
[136] DWAF 2006/2007 South Africa Year Book p5
[137] Drawn directly from UN (2002), WSSD SA Country Profile p58

coordinates the management of chemicals in issues related to environmental protection. The Department of Health coordinates issues related to occupational health and the Department of Labour coordinates issues related to occupational safety.

The project document for the NIP[138] notes that the complex requirements of chemicals management systems (for industrial and consumer chemicals, agrochemicals and pharmaceuticals) have resulted in legislative functions being spread over a number of national government departments.

- *Department of Environmental Affairs and Tourism:* Co-ordinates matters relating to the safe management of chemicals in support of the national sustainable development goals. Responsible for legislation dealing with environmental pollution, excluding water. Water related matters are coordinated through the Department of Water Affairs and Forestry.
- *Department of Agriculture*: Administers legislation controlling the use of pesticides as part of its resource conservation and quality control functions.
- *Department of Health:* Administers legislation dealing with medicines and hazardous substances. It is also one of three departments that have responsibility for addressing occupational health issues.
- *Department of Labour:* One of the three departments that have responsibility for addressing occupational health issues.
- *Department of Trade and Industry:* Administers legislation to protect consumers, manage foreign trade relations, promote specific industrial sectors, including the chemical industry, and manages technology policies and strategies.
- *Department of Transport:* Administers legislation on freight transport, including dangerous goods.

3.7 OZONE DEPLETION

South Africa and the Convention[139]

South Africa acceded to the Vienna Convention for the Protection of the Ozone Layer in January 1990 and the Montreal Protocol on Substances that deplete the Ozone Layer was ratified the protocol in January 1990, the London Amendment in May 1992, and ratification of the Copenhagen Amendment is in process. DEAT indicate that South Africa is currently in full compliance with the conditions of the protocol.

Policy and Legal Framework

DEAT indicate that "The issue of ozone depleting substances was not addressed in the SA GEF Medium Term Framework due to an undertaking made by South Africa within the Montreal Protocol. In order for South Africa to be reclassified within the Montreal Protocol from a developed to a developing country we undertook not to access multi-lateral funds. However South Africa was successful in convincing the GEF Council to approve that South Africa could utilize GEF resources under the Ozone focal area to deal with the issue of methyl bromide."[140]

The Montreal Protocol controls the use of ozone depleting substances (ODS) for the protection of the ozone layer and the London Amendment restricts the use of CFCs and halons. The SA Outlook of 2006 indicates that "South Africa's current (2005) development of an Ozone Layer Protection strategy will indicate response measures necessary to mitigate ozone layer depletion. The DEAT, as the designated custodian of the environment in South Africa, has

[138] UNEP DEAT (2002) Project Document for Enabling Activity for Stockholm Convention on POPs for SA
[139] Drawn directly from DEAT, (2007) National Framework for Air Quality Management p15 & 16
[140] DEAT, (2006) Status Report on South Africa's Engagement with the Global Environment Facility (GEF) and Implementation of its Medium Term Framework p9

started the process of developing a national strategy for phasing out ozone depleting substances and is formulating a full phase-out plan for methyl bromide. The local use of ozone-depleting substances has decreased substantially following South Africa's signature and its ratification of the related amendments as noted above.[141] This strategy is still being developed.

As there is an overlap between the legislation related to POPs and that related to the Ozone focal area, especially in terms of the Air Quality legislation, the outline will not be repeated here.

Operational Framework[142]

Monitoring and research of the ozone layer, solar radiation, as well as measuring atmosphere trace gases and ozone-depleting gases are undertaken by the South African Weather Services (SAWS)[143].

As with the other focal areas, DEAT is responsible for coordinating decisions related to the protection of the atmosphere. The Committee for Environmental Coordination (CEC), consisting of provincial environmental departments, national departments, and South African Local Government Association, facilitates co-ordination among different levels of government. Also central to decision-making in this area are the Departments of Transport and DME. The Department of Transport is concerned with providing cost effective, efficient and safe transport systems which are economically and environmentally sustainable, and which minimize negative side effects. The DME gives guidance on emissions at power stations.

South Africa sent delegates to INC-9, -10 and -11 and also to the Conference of the Parties (COP), COP-1 and COP-2. The Chamber of Mines of South Africa, as well as labour and NGOs, have participated in the United Nations Climate Change negotiations since June 1998 as part of the official South African delegation. Implementation of the Montreal Protocol is undertaken through working groups from industry and government, including working groups for Solvents, Foams, Aerosols, Automotive Air Conditioning, Refrigeration, Mining, and Methyl Bromide. An "environmental levy" of ZAR 5 per kilogram is imposed on Ozone Depleting Substances (ODSs). Imports and production of ODSs are regulated by import, or production permits.

3.8 INTERNATIONAL WATERS

Marine Resources

Policy and Legal Framework:

The National Marine Fisheries Policy of 1998 formed the basis of the Marine Living Resources Act (MLRA), Act No. 18 of 1998. The essential principles of this policy are: optimization of long-term social and economic benefits to the nation; promotion of sustainable utilization and the replenishment of living marine resources; management and development of fisheries shall in all material aspects comply with the principles of the Constitution of South Africa and the long-term objectives and principles of the Reconstruction and Development Programme (RDP). Since the promulgation of the MLRA subsequent issuing of medium-term rights in 2003, a new set of policies that included a General Policy as well as sector-specific policies were released in the first half of 2005. The Act and associated regulations are being reviewed with the allocation of long-term rights in 2006. Key to the allocation of rights is the splitting of applicants into medium-term rights holders and prospective new entrants. Strict evaluation criteria are laid down, as well

[141] DEAT, (2006), South African Environment Outlook p229

[142] Drawn directly from UN (2002), WSSD SA Country Profile p28

[143] RSA (2003) Initial National Communication under the United Nations Framework Convention on Climate Change

as specific criteria for vessels and management measures (such as the Ecosystem Approach to Fisheries).

Other key legislation pertaining to the marine and coastal environment include the National Water Act, Act 36 of 1998 (as well as key regulations and guidelines for water quality), the National Environmental Management Act, Act No. 107 of 1998, the Environmental Conservation Act, Act No. 73 of 1989; the National Environment Biodiversity Act, Act 10 of 2004 and the Integrated Coastal Management Bill (2006). Policy initiatives by the DEAT are also addressing specific needs, for example National Policy for Seals and Seabirds, which aims to manage the impact of fishing activities on marine and coastal biodiversity.

Operational Framework
The Department of Environmental Affairs and Tourism (DEAT) is responsible for integrated coastal zone management, marine pollution control and sustainable use and conservation of marine living and these functions are mostly delegated to the Directorate of Marine and Coastal Management (MCM). MCM include directorates for research, resource management, compliance, and administration (finance, licensing, etc.).

The Department of Environmental Affairs and Tourism has boosted its compliance unit to counter illegal activities along the 3 000-km coastline, as well as the country's 1 155 000 km^2 Exclusive Economic Zone (EEZ). It has appointed more than 80 fishery control officers (FCOs) and 100 honorary FCOs, after the implementation of the Honorary Fishery Control Officers Policy. Four new environmental protection vessels have been deployed as part of measures to protect marine and coastal resources. The department has also developed the National Contingency Plan for the Prevention and Combating of Pollution from Ships, in consultation with the South African Maritime Safety Authority and the Department of Transport. This includes disposal, recovery or stabilisation of the spilt oil and the rehabilitation of the environment. Further, the department is making it obligatory for fishing vessels to have satellite technology on board so that it can monitor their movements. "Five coastal nations in the SADC have taken the innovative step of linking their vessel-monitoring systems. South Africa, Namibia, Angola, Mozambique and Tanzania have signed an MoU that will allow them to share information about the movement of licensed boats in southern Africa" (SoE 2006).

The DEAT has initiated Sustainable Coastal Livelihood Initiatives which are being implemented at provincial level. Further, a national poverty relief program, CoastCare engages and trains unemployed people in skills and work associated with coastal management.

International co-operation
South Africa is signatory to close to 40 international treaties, conventions and agreements in international waters (see table 3.1). South Africa also participates in a number of international commissions, such as the International Commission for the Conservation of Atlantic Tunas, the Commission for the Conservation of Antarctic Marine Living Resources, and the International Whaling Commission.

Key GEF funded international Waters Initiatives in The region Are:
- Benguela Large Marine Ecosystem Programme (BCLME)
- Benguela Fisheries Interaction Training (BENEFIT) Programme
- West Indian Ocean Land-Based Activities Project (WIO-LaB) deals with the protection, prevention and management of marine pollution from land-based activities.
- Toward an Ecosystem Approach to the Sustainable use of the Resources of the Agulhas and Somali Current Large Marine Ecosystem (A&S LME Program)

- Western Indian Ocean Marine Highway Development and Coastal and Marine Contamination Prevention Project
- Development and Protection of the Coastal and Marine Environment in Sub-Saharan Africa
- Southwest Indian Ocean Fisheries Project (SWIOFP)

Inland Water Resources

Policy and Legal Framework:

South Africa's national legal framework for water resources management is considered one of the most advanced in the world. The White Paper on a National Water Policy for South Africa White Paper (DWAF, 1997) and the National Water Act, Act 36 of 1998 (NWA) have established the key principles in the management of water resources in South Africa: equity, sustainability and optimal use (efficiency). They establish the catchment as the "unit of management" for water resources and further provide for the establishment of water resource management institutions (Catchment Management Agencies). The NWA requires that water resource protection imperatives (including conservation and demand management) should be balanced with water resource development imperatives to achieve sustainable utilisation of the resource.

Emphasis on meeting international obligations regarding shared resources is emphasized in the NWA prioritizing these obligations together with "the Reserve" over any other use. The Act also provides for transboundary water bodies and management frameworks.

Operational Framework

The Department of Water Affairs and Forestry (DWAF) is the responsible national Department for decisions regarding water quality and quantity, the management and development of water resources, and also for the provision of water supply and sanitation. Coordination between different national Departments is achieved through the constituted Committee for Environmental Coordination and joint technical committees between Departments on crosscutting issues. Mutual cooperation takes place in terms of drafting overlapping legislation, setting best practices, carrying out research and development and ensuring cooperative governance with key partner Departments. Decision-making regarding water resources use and allocation is currently at national level, with a strategy in place to devolve this responsibility to local level once the Catchment Management Agencies have been established (UNDP 2002).The development of key national strategies, namely, Water Conservation and Demand Management National Strategy (1999) and National Water Resources Strategy (2004) is further enabling the ambitious water management reform in South Africa. Key national partnership programs include the River Health Programme as well as the Working for Water Programme.

Regional Initiatives:

At regional level the guiding instruments for water resources management are the SADC Regional Water Policy (RWP) and Regional Water Strategy (RWS), whereas the Regional Strategic Action Plan 2 (RSAP 2 – 2005-2010) spells out the concrete projects that are implemented in the region. Both the RWP and the RWS subscribe to the overarching principle of Integrated Water Resources Management (IWRM) (Malzbender and Earle 2007)144.

South Africa's inter-governmental cooperation with neighboring states includes agreements, joint technical committees and working groups in shared basins with all neighbors. Shared river basins are jointly developed and managed with partner countries, notably the Limpopo River Basin study, the Inkomati River Basin project and the Katse Dam project. Some of the agreements date back to the

[144] Malzbender, D and Earle, A. 2007. Water Resources of the SADC: Demands, Dependencies and Governance Responses. Compiled by the African Centre for Water Research (ACWR) for the Institute for Global Dialogue's (IGD) and Open Society Initiative for Southern Africa's (OSISA).

1960s. South Africa is a participant in international organisations such as the World Health Organisation, the International Water Association and the World Meteorological Organisation (WMO) that have numerous programs and projects in the region. South Africa is a lead agent in implementing the WMO sponsored pilot SADC-Hycos Hydrological Monitoring Network. The regional web-site is maintained by DWAF.

Malbenzer and Earle (2007) note that water resources governance framework in the SADC has seen significant changes in the past decade, which has largely been influenced by South Africa's changing role in the region. Where previously cooperation over shared water resources has happened mostly on a bilateral basis, cooperation is moving away from bilateral cooperation towards regional and basin-wide cooperation. On the regional level the SADC states concluded the SADC Protocol on Shared Watercourse Systems in 1995145. "Basin-wide agreements are being concluded and basin organisations established where all basin states are being represented. A good example is the Orange-Senqu River Basin shared between Botswana, Lesotho, Namibia and South Africa. While the bilateral organisations between Lesotho and South Africa (Lesotho Highlands Water Commission, LHWC) and Namibia and South Africa (Permanent Water Commission, PWC) are still in place, they now have to liaise with the basin-wide Orange-Senqu River Commission (ORASECOM) that was established between the four basin states in 2000. Basin-wide Commissions have also been established for other major rivers in the region, e.g. Limpopo, Okavango and Zambezi".

3.9 RELEVANT INTERNATIONAL TREATIES & PROTOCOLS

The following lists the key conventions to which South Africa is a party. [146]

Table 3.1: International Conventions[147]	Date Ratified
Biodiversity	
Convention on Wetlands of International Importance	Mar 1975
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	Jul 1975
Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)	Dec 1991
Convention on Biological Diversity	Nov 1995
Convention on the Conservation of the World Nature and Cultural Heritage	Jul 1997
Cartagena Biosafety Protocol	2003
Southern African Developing Countries Protocol on Wildlife Conservation and Law Enforcement in the Southern African Development Community	Oct 2003
Land degradation	
United Nations Convention to Combat Desertification (UNCCD)	Sept 1997
Climate change	
United Nations Framework Convention on Climate Change	Aug 1997
Kyoto Protocol	Jul 2002
Persistent Organic Pollutants	
Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and the Disposal	May 1994
Stockholm Convention on Persistent Organic Pollutants	Sept 2002
Rotterdam Convention on Prior Informed Consent	Sept 2002
Ozone	
Montreal Protocol - Protection of the Ozone Layer[148] Amendments have yet to be ratified	Jan 1990
International waters	
Convention on Prevention of Marine Pollution by Dumping of Wastes & other matters	1978
Convention on the Conservation of Antarctic Marine Living Resources	1982
United Nations Law of the Sea Convention (UNCLOS)	1997

[145] The Protocol has subsequently been revised in order to reflect the principles of the 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses

[146] Sources GEF (2006), Review of GEF Portfolio in South Africa (GEF Website) and DEAT, (2006), South African Environment Outlook

[147] These represent only the major conventions. SA is a signatory to other important conventions.

[148] SA acceded to the Montreal Protocol and Vienna Convention on the date mentioned above

SEAFO convention - The Convention on the Conservation and Management of Fishery Resources in the South East Atlantic Ocean	2001
(Abidjan) Convention for Cooperation in Protection & Development of Marine & Coastal Environment of East & Central African Region & related protocol	Nov 2002
Convention for Cooperation in Protection & Development of the Marine and Coastal Environment of the East African Region and related protocol (Nairobi Convention)	Nov 2002
UNCLOS – Management & Conservation of Straddling Fish Stocks & Highly Migratory Fish Stocks	2003
SADC Fisheries protocol	2003
Albatrosses and Petrels Agreement	2003
Southern African Developing Countries Protocol on fisheries	July 2003

3.10 ODA

Unlike the situation in many developing countries, ODA makes up a very small percentage of overall South African Government budget. ODA to the country currently amounts to between 1 and 1.5% of its annual budget149. According to the Government's policy framework on official development assistance, ODA in South Africa can play a key role in providing solutions and tools that enable the country to use its own resources more effectively, thereby stimulating development for the most disadvantaged sections of the population150. ODA therefore should not be regarded primarily as an additional source of finance, which in most cases should be accessible domestically. The report further highlights that, the quality of ODA and its ability to spearhead new and more effective approaches for enhancing service delivery are thus considered much more important than the mere quantity of ODA in South Africa.

According to the South Africa Environment Outlook, Donor assistance to the DEAT constituted less than 4.5% of its annual budget in 2004/2005, having declined from 20% in 1999/2000 budget and the assistance was estimated to decrease further in the 2007/08 financial year. The country is currently exploring the possibilities of establishing a South African Development Agency.

[149] http://www.dcis.gov.za/

150 IDC, National Treasury and the EC Delegation, South Africa Consultancy to Review, Advice and Update the Policy Framework and Operational Guidelines for the Management of Official Development Assistance Lot 7: 2006/125408 ODA Policy Framework and Guidelines 2007 – DRAFT January 2007

4. THE GEF & THE SOUTH AFRICAN FOCAL POINT MECHANISM

4.1 THE GEF

The GEF is an international financial mechanism whose goal is to provide new and additional funding, in the form of grants and concessionary funding, to cover the additional agreed incremental cost of measures necessary to achieve global environmental benefits in the areas of:

- biological diversity, in accordance with the Convention on Biological Diversity;
- climate change, in accordance with the UNFCCC;
- international waters;
- depletion of the ozone layer, in accordance with the Montreal Protocol;
- POPs, in accordance with the Stockholm Convention;
- land degradation, in accordance with the UNCCD;

GEF activities are carried out through three Implementing Agencies: the World Bank, UNDP, and UNEP. Since 2004, seven Executing Agencies have been approved—regional banks; the Food and Agriculture Organization (FAO), the International Fund for Agricultural Development, and the United Nations Industrial Development Organization to execute GEF activities, although the great majority of projects are still implemented through the three IAs. GEF support modalities can be summarized as follows:

- Full-size projects (funding of over $1 million)
- Medium-size projects (funding of under $1 million)
- Small grants (funding of under $50,000), directed to NGOs and local organizations; small GEF grants are structured into a global program (the SGP) administered by UNDP
- Enabling activities, intended to help countries meet their obligations under the various conventions the GEF services
- Project development facility (PDF) modality, which provides funding for project preparation and development at three levels of support ; block A grants are for up to $50,000, block B for up to $500,000, and block C for up to $1 million

4.2 GEF 4 AND THE RAF

Officially, the GEF began with a two-year pilot phase from 1992 to 1994. This was followed by three regular four-year replenishment periods: GEF-1 (1994–98), GEF-2 (1998–2002), and GEF- 3 (2002–06). In July-2006, GEF-4 was initiated and will continue until 2010. Through GEF-3, allocation was not made by country. Eligible GEF member countries submitted their requests to the various windows through the different IAs/ExAs.

In September 2005, the GEF Council adopted the Resource Allocation Framework (RAF), a system for allocating GEF resources to recipient countries for the biodiversity and climate change focal areas, to be implemented in GEF-4. Depending on the index assigned to each country based on their potential biodiversity and climate change global benefit and their country performance of the country, these allocations might be made individually (country allocation) or to a group of countries (group allocation).

The RAF system was set up to allocate resources to countries in a transparent and consistent manner based on global environmental priorities and country capacity, policies and practices relevance to successful implementation of GEF projects. The RAF is built on two key pillars. The first pillar, a country's potential to generate global environmental benefits, reflects the mandate of the GEF to provide incremental costs financing to generate global environmental benefits. The second pillar, country performance, reflects the national policies and enabling environment that facilitate successful implementation of GEF projects. Funding allocations to countries for the International Waters, Sustainable Land Management, Persistent Organic Pollutants and Ozone focal areas are not subject to the RAF.

SA is one of the few countries with an individual allocation for both focal areas in the region of $20 million each for biodiversity and climate change. SA's indicative allocation for climate change, for the Fourth GEF cycle (2006-2010) is US$ 23.9 million based on a GEF Benefit Index of 120 649, which represents 1.7% of the total GBI share (i.e. US$11.95 million allocation for each of two 2-year cycles). The initial Indicative Allocation for biodiversity is US$ 22.5 million (or US$ 11.3 million for each of 2-year cycles).

4.3 THE GEF FOCAL POINT MECHANISM IN SOUTH AFRICA

The political focal point for the GEF is the Director General of the DEAT and the operational focal point is a Chief Director in DEAT's directorate dealing with international governance. In terms of the formal roles, the political focal point is responsible for GEF governance issues and policies. The operational focal point is responsible for ensuring effective engagement and coordination at the country level. The mechanism is supplemented by the appointment of technical focal points for all FAs.

Roles and responsibilities

General responsibilities of GEF **Political Focal Points** include facilitating communication between the Secretariat and SA, serving as a contact point for Council Members and facilitating in-country consultations on GEF governance matters.

Responsibilities of GEF **Operational Focal Points** include:

- to ensure that GEF proposals and activities in the country are consistent with country priorities and country commitments under global environmental conventions,
- to facilitate broad based in-country consultations on GEF operational matters,
- to identify project ideas to meet country priorities,
- to endorse project proposals, and
- to provide feedback on GEF activities, including implementation of projects.

Annex J: Project Review Protocol

Project Name:		
GEF ID:		
Country		
Type of project (FS, MSP, EA)		
GEF phase in which project was approved		
Was project intended as a pilot project?		
Stakeholders	**Name**	**Contact**
GEF Agency(s):		
Executing Agency (institution implementing the project)		
Beneficiaries (disaggregated for poor communities, women, black people, disabled people, youth)		
Focal Area		
Focal Area		
Operational Program(s)		
Strategic Priorities (SP)		
Project Financing	**Approval**	**Completion**
GEF financing		
Co-financing (broken down by financier):		
Total Project Cost:		
Project Cycle	**Dates**	**number of days between steps**
Status: pipeline, approved (but not effective), under-implementation, completed		
Pipeline entry ("official" entry into GEF project cycle)		
CEO Endorsement (for all projects):		
GEF Agency approval		

Begins disbursement (effectiveness for WB or prodoc signature in UN)		
Proposed Closing:		
Actual Closing:		
Project Ratings	**Last PIRs**	**Terminal Evaluation**
Date		
Implementation Progress		
Outcome		

2. Project Objectives and Components as proposed and any changes during implementation					
	Proposed	**Achievements**			
a. Global Environmental Objectives:					
b. Development Objectives:					
(geographic coverage: province/ecosystem)					
c. Outcomes:	**GEF Focal Areas Expected Outcomes**	**Expected**	**Actual or likelihood of achievements as of today**	**How achievements were measured?**	**Indicators/GEF4**
Climate Change mitigation	energy efficiency (residential and commercial buildings; industry sector) through market penetration and technologies				
	growth in the renewable energy markets	▪			
	sustainable energy production of biomass (adoption of modern and sustainable practices in the biomass production, conversion and use)		▪		
	innovative sustainable public transport systems are promoted, created and adopted				
Climate change adaptation	increased adaptive capacity				
	reduced vulnerability				
Others					
Contribution from GEF					

CROSS-CUTTING ISSUES		
1. Capacity Building	**Description**	**Method used**
Individual		
Institutional		
2. Catalytic Effect/achievements		
1. **INCENTIVES:** To what extent have the project activities provide incentives (socio-economic / market based) to catalyze changes in stakeholders		
2. **INSTITUTIONAL CHANGE:** To what extent have the project activities changed institutional behaviors		
3. **POLICY CHANGE:** To what extent have project activities led to policy changes (and implementation of policy)?		
4. **CATALYTIC FINANCING:** To what extent did the project led to sustained follow-on financing from Government and / or other donors? (this is different than co-financing)		

3. Relevance				
3.1. Relevance to national sustainable development agenda and development needs and challenges		**Rating**	**Justification/Comments**	**Lessons learned**
	National Sustainable Development Strategy			
	Direct benefit to targeted beneficiaries (poor communities, women, black people, disabled people, youth)			
	ASGISA			
	RDP			
	draft National Capacity self-assessment (NCSA)			
3.2. Relevance to national environmental framework, agenda and priorities (including GEF supported ones)		**Rating**	**Justification/Comments**	**Lessons learned**
	MTPF Framework used in Status report 2006			
	National Environmental Management Policy (White Paper)			
	National Environmental Management Act (Framework Act)			
	SA GEF Medium Term Priorities 2001			
	1st National Communication on Climate Change			
	Climate Change policy & plans			
	Energy policy and plans			
	National Air Quality policies			
	National Capacity Self-Assessment			
3.3. Relevance to regional sustainable development and environmental framework, agenda and priorities		**Rating**	**Justification/Comments**	**Lessons learned**
	SADC			
	NEPAD			
3.4 Relevance to GEF focal areas strategies and operational programs		**Rating**	**Justification/Comments**	**Lessons learned**
	Climate Change			
	Ozone			
	POPs			
	Global environmental benefits			

	GEF principles			
3.5. Relevance and linkages with GEF Agencies national strategies/frameworks		**Rating**	**Justification/Comments**	**Lessons learned**
	World Bank CAS			
	UNDP	Yes		
	UNDAF			
	UNEP			
	AfDB			
	FAO			
	IFAD			
	UNIDO			
3.6. Relevance to other GEF projects				
	.			
3.7. Country ownership and drivenness		**Comments**	**Lessons learned**	
	What is the origin of the project?			
	Government's commitment			
	Civil society commitment			

4. Efficiency		
	Cost of project preparation and management	**Comments/Lessons**
	Preparation costs (any project facility development, project preparation grant?)	
	GEF Agency project fee	
	how much of the project budget is for management/implementation cost?	
	Total preparation and implementation cost	
	Any component or part of the project cancelled?	
	Cost vs. results (by component if necessary)	
	Describe the extent to which the project has assessed and incorporated the trade-offs between environment and development issues?	
5. Project Learning		**Comments/Lessons**
	Indicate how the project has incorporated lessons from other comparable projects during design and implementation; or the project has incorporated and adapted to changes during implementation.	
	How is the project sharing experiences/knowledge?	
6. Project Interaction with stakeholders		
	How has project interacted with other GEF projects?	
	How has project interacted with government agencies?	
	How has the project interacted with other donor programs?	
	How has the project interacted with other NGO programs?	
	Are roles and responsibilities clear?	
7. Risk of project results/sustainability		**Comments/Lessons**
	Are there any financial risks that will jeopardize the sustainability of project results?	
	Are there any socio-economic and / or political risks that will jeopardize the sustainability of project results?	
	Are there any institutional framework and/or governance related risks that will jeopardize the sustainability of project results?	
	Are there any environmental risks that will jeopardize the sustainability of project results?	
	Adequate plans for sustainability	

	Institutional sustainability	
	Financial sustainability	
	Political sustainability	
	Economic	
	Environmental	
	Exit Strategy	
8. Project synergies with:		**Comments/Lessons**
	Among IAs/EAs	
	Among government agencies	
	Among donors	
9. M&E		**Comments/Lessons**
	Assess quality of M&E system of the project design and / or implementation	

Annex K: Summary of Project Results

Biodiversity Focal Area Results

GEF FA Expected Impacts	Expected Impact	Actual or likelihood of achievements
Biodiversity resources are conserved, sustainably used or genetic resources shared	17 *Conservation of Globally Significant Biodiversity in Agricultural Landscapes through Conservation Farming* Contribute to sustainable development and conservation of biodiversity by evaluating conservation farming practices in SA that have globally significant biodiversity so that these can be more widely applied. The project was largely a research project with information and training outputs contributing to improved knowledge and understanding of the costs and benefits of conservation farming. There are no clear statements of planned impact and the influence of the research on policy and practice and these have not been measured or evaluated.	1. Farmers in the study areas with better knowledge about conservation farming. 2. Scientists with better knowledge about conservation farming. 3. Project has contributed knowledge to other GEF projects in South Africa. 4. Linkages to implementation have been discussed and are under consideration. 5. A book on conservation farming is expected to receive funding allowing for a far wider audience to be reached. Terminal Evaluation identifies integration of findings in planned related bioregional programs (STEP, SKEP, MDTP and CAPE) and NBSAP enabling long-term impact on policy and practice. Prepared SANBI's administrative systems for GEF engagements Interview: I Nanni). No clear statements of planned impact and the influence of research on policy and practice and these have not been measured or evaluated.
	20 Conservation Planning for Biodiversity in Thicket Biome 1. Development and use of a strategic and flexible conservation plan for the protection of biodiversity of Thicket Biome ecosystems and 2. Enhanced capacity in GIS-based conservation planning among planners in national provincial and regional planning and land management authorities	1. Improved methods for the analysis and conservation planning of plant biomes of South Africa, 2. enhanced plan exists for conservation of an important vegetation type in South Africa; 3. threats to the thicket vegetation better understood; 4. greater awareness about the value and role of the vegetation type; 5. local government implementation capacity built to conserve the thicket; 6. better understanding of problems of building community based conservation activity in parts of the E. Cape; 7.Uptake of detailed plan into the provincial biodiversity conservation plan, but limitation in application of scale to cadastral land-use decision-making needs, SANBI appoints EC Regional co-ordinator, Biodiversity advisors; improved understanding of how megaconservancies can work through research for PhD. Institutional capacity development plan for provincial and national responding to capacity needs.
	134 Cape Peninsula Biodiversity Conservation Project The rehabilitation and sustainable protection of globally significant flora and related fauna of the Cape Peninsula (Table Mountain National Park- formerly Cape Peninsula National Park) including surrounding marine ecosystems and the initiation of planning and conservation activities for the entire Cape Floral Kingdom (CFK).	Significant impact directly and catalytically for biodiversity conservation in South Africa 25 000 ha and MPA. The TMNP and marine ecosystems have improved protection within legally mandated SANParks, the Park is financially sustainable and generating significant economic benefit to the region. TMF is contributing significantly to the conservation of the CFR (Includes a CEPF funded capacity building program) through its support of the CAPE Strategy; the CAPE Programme has attracted significant investment and served as a model Bioregional Programme in the implementation of the NBSAP.
	659 Sustainable Protected Area Development in Namaqualand Promotion of the sustainable development of PAs in Namaqualand through the: 1.Identification and establishment of a PA system for conserving the globally significant biodiversity of Namaqualand. 2.(i) encouraging land owners to conserve biodiversity and (ii) building support for the Park amongst the community.3.Assess the values of different forms of land use.	1. Improved conservation of Namaqualand through incorporation of land into formally protected areas which exceeded the predicted targets for Hectares converted to PA status (318,201) by over 22,000ha – 340,874 –approximately 6.8% of the region; successful negotiation with farmers and mining companies to add to the land under Namaqualand PA from 980ha to 150,000ha. The PA will ensure the protection of 1,232 plant species; 102 are red listed and 47 are endemics. Supported the creation of the Namaqualand Marine PA covering 970,000ha.. 2.Surrounding communities perceive Park as economic and social asset, injecting US$1.3 million in wages into the surrounding community, providing

GEF FA Expected Impacts	Expected Impact	Actual or likelihood of achievements
		training for 883 individuals (page 9) from 16 communities (environmental training). Created approximately 351 contract / short-term work opportunities. Only 4 are permanent contracts with SANParks. Spontaneous growth of conservation based businesses has not occurred -one new full time guesthouse opened. 3.Value study academic in nature and of little practical use to SANParks – should have been activity not objective (US$30,000) Resulting protected areas: Namaqua National Park; Namaqua Corridor; Namaqua Coastal Park; Richtersveld TFCA; Goegab & Knersvlakte
	1782 Richtersveld Community Biodiversity Conservation Project Contribute to protection of globally significant biodiversity (in Succulent Karoo biome) in the Richtersveld, by establishment of a strong system of community-based biodiversity conservation in partnership with other key stakeholders.	No reports available, Richtersveld attracted significant funding, part of greater !Gariep TFCA; Richtersveld nominated as WHS in 2006.
	1055 Agulhas Biodiversity Initiative Biodiversity conservation and socio-economic development on the Agulhas Plain are significantly enhanced through effective management and coordinated stakeholder involvement - 1: Land under legally binding conservation management: 112,000 ha; 2: 80% of the threatened vegetation types will be conserved; 3: Priority wetland ecosystems recovered to restore the natural hydrological regime by the end of the project. 4: Conserving biodiversity to maintain critical processes (identified targets); 5 Reduction of alien infestation in areas with high, moderate and low density; 6. Reduce the unplanned and uncontrolled fires;7 Proportion of benefits arising from ABI to historically disadvantaged groups increase by 40% by the end of the project (target 1200 families).	Considerable progress towards achieving ecological goals. Agulhas National Park consolidated through land purchases expanded by 6,179 ha to 16,806 ha. Five protected areas in the Agulhas Plain (67,197 ha) receive baseline METT Scores that are at an acceptable standard of management. 1.Total of 95,749 hectares of conservation land was secured, with 4,500 about to be purchased (Waterfeld) compared to the mid-term target of 100,000 hectares. 2. PIR (2005,2006) confirm Project is achieving its mid-term targets for conservation of threatened vegetation types. Status of natural vegetation on private land was improving. 3. Rehabilitation of wetlands in the Nuwejaars area and the de Mond floodplain. ;4. 1032 families benefiting
	1167 Greater Addo Elephant Park Project 1. Globally significant biodiversity maintained and enhanced through incorporation of key broad habitats under protected area management, ultimately including 63% of the gAENP footprint. 2. Monitoring of key indicator ,species shows enhanced biodiversity goals achieved global environmental objectives to be monitor according to GEF Guidelines	Targets have been revised - see above, however the Park is well on the way to being established. Data on key indicator species in the process of being compiled. See outcomes below
	1516 C.A.P.E Biodiversity Conservation and Sustainable Development Project 1. Increase in extent of PA system to meet conservation targets identified in CAPE 2000 (4000 km2); 2. Number of biodiversity-related jobs increases by 20% in project intervention areas; 3. Revenue generated from protected areas in the CFR doubles.	1. Just over 100,000 ha has been secured (53,384 additional ha secured in protected areas, 46681 ha of critically endangered habitat in stewardship sites) (Programme Co-ordinator's report). 2. Temporary jobs created under the Extended Public Works, Poverty Relief, Working for Water, and Fire programs (209,999 person days to June 2006 within Cederberg, Baviaanskloof, GRI and Gouritz Initiative domains – no further breakdown available.). A number of permanent positions in conservation and nature-based tourism have also been created and are increasing according to annual projections. 3. No data reported
	836 Critical Ecosystems Partnership Fund CFR: 1. Support civil society involvement in the establishment of protected areas and management plans in Cape Floristic Region biodiversity corridors. 2. Promote innovative private sector & community involvement in conservation landscapes surrounding Cape Floristic Region biodiversity corridors. 3. Support civil society efforts to create institutional environment that enables effective conservation action. 4. Establish a small grants fund to build	CEPF has contributed to the 204,612 ha protected in CFR - Baviaanskloof Mega-reserve (expanded from 213,937 to 237,764 hectares):23,827; Tokai Forest (expanded from 1 to 3.5 hectares): 2.5; St. Francis Conservancy:5,600; Blaauwberg Conservation Area: 1,000; Die Oog:1.3 ; Baviaans Conservancy:52,821; Cape winelands set aside for conservation: 45,000; Garden Route protected areas expanded from initial 146,328 ha to 222,689 ha:76,361, Impacting 16% of priorities; and 97,979 ha in the Succulent Karoo -

GEF FA Expected Impacts	Expected Impact	Actual or likelihood of achievements
	capacity of institutions & individuals working on conservation in the Cape Floristic Region. SKEP: 1. Expand protected area corridors through public-private-communal partnerships in priority areas of Bushmanland Inselbergs, Central Namaqualand Coast, Namaqualand Uplands, Knersvlakte, Hantam-Roggeveld, Central Little Karoo and Sperrgebiet; 2. Engage key industrial sectors in meeting conservation objectives identified by SKEP; 3. Retain & restore critical biodiversity in areas under greatest land-use pressure; 4. Mainstream conservation priorities into land-use planning & policy-making 5. Increase awareness of the Succulent Karoo hotspot; 6. Create capacity to catalyze the SKEP program.	Namaqua National Park: 30,000; Area in the Bushhmanland Conservation Initiative set aside and managed by Anglo as protected area:24,000; Knersvlakte:43,979. Cape Floristic Region: committed grants $ 6,133,169; funds leveraged and cofinancing $3,839,326 Succulent Karoo: committed grants$5,788,689; funds leveraged and cofinancing $2,600,229.
	1056 Conservation and Sustainable Use of Biodiversity on the South African Wild Coast (i) expanding PA coverage, and improving management effectiveness in PAs along South African Wild Coast, so contributing to improved bio-geographic representation in the national system; (ii) augmenting the management tool box, by establishing a paradigm for co-management of protected areas, that may be replicated in protected areas established on or adjacent to communal lands and; (iii) providing a model for integrating PA management and poverty alleviation programs operative on communal lands, and applicable to the poorest regions of the country. 1. Increase of protected areas estate coverage through strategic additions to the conservation estate (percentage of total indigenous state forests incorporated into formal PA estate; % of total coastal conservation area with the legal tenure secured; increase in number of ha managed as provincial PA; . extent of communal land included into resource use PA estate); 2. Inclusion of the priority vegetation types into PA estate contribute at least 10% of the regional conservation targets for PA; 3. Compatibility of economic returns (R/ha), employment opportunities (person days/year) and entrepreneurial opportunities (number of micro-enterprises) from PA estate with existing and competing land uses.	No reports available yet
	2615 National Grasslands Biodiversity Program 1. Contribution of NGBP towards achievement of biodiversity target for grasslands biome - target is 22.3% of vegetation types within natural areas in the grasslands biome by end program 4%; 2. Biodiversity Intactness Index; no less than 2% decline (65 is baseline). Degradation indicator – % of biome degraded – no major increase in degradation.	Project being initiated. Too early to present results

GEF FA Expected Outcomes	Expected Outcomes	Actual or likelihood of achievements
in situ and sustainable biodiversity conservation in protected areas (catalyzing sustainability of systems)	*17 Conservation of Globally Significant Biodiversity in Agricultural Landscapes through Conservation Farming* The objective of the project is to identify and evaluate the ecological costs and benefits of different farming practices/management strategies; to develop and compare ecological economic models for farming strategies; and to evaluate the role of conservation farming as part of national and regional strategies to conserve biological diversity; transfer information to targeted user groups. The	1.Project successful in identifying and evaluating the economic and ecological costs and benefits (in terms of biodiversity, carbon sequestration, and ecosystem health) of conservation farming practices compared with more widespread land use and management practices (measured across 4 sites, 27 farms and 18 land uses). 2.Project successful in developing &comparing ecological economic models for land use and management practices. The models help assess the implications of conservation farming. 3. Information on conservation farming in SA successfully synthesized - database posted on project website. Historical perspective on development of conservation farming completed - contribution to a

GEF FA Expected Outcomes	Expected Outcomes	Actual or likelihood of achievements
		World Bank publication on mainstreaming biodiversity.4. Provides sound basis for evaluating role of conservation farming in strategies to conserve biological diversity - showed how & where conservation farming can make a contribution. 5. Information from Conservation Farming Project has been transferred to target groups through workshops with stakeholders, presentations in scientific meetings, reports, maps, and a project website. Twenty technical reports completed, 20 scientific papers published, & 10 academic theses (Hons., M.Sc. and PhD) completed.
	134 Cape Peninsula Biodiversity Conservation Project 1. Table Mountain National Park established, viable and rehabilitated 2. TMF established and viable having supported 30 projects 3. Plan for the CFK completed	Rehabilitation & sustainable protection of globally significant flora and related fauna of Cape Peninsula including surrounding marine ecosystems, through establishment of a financially & institutionally viable Park has been achieved. (a) revised target of nearly 85% of invasive woody species achieved, all cleared areas are under maintenance; (b) in areas cleared of alien invasive plants, three endangered plant species have expanded their range and numbers; (c) No extinction of tracked species; (d) levels of fire-preparedness significantly higher than at project inception; (e) marine protected area has been proclaimed and is being implemented under an agreed management plan; and (f) TMNP is financially in surplus - used as a model for other parks in the country. TMNP second most profitable of 22 parks run by SANParks. GoSA and other domestic co-funding of the component in the project period: $77.8 million, exceeding appraisal target by $8.2 million. 2. Table Mountain Fund considered 'model' trust fund' to support biodiversity & conservation in area, provided catalytic resources for over 60 projects (many community-based) of $2.5 million in past 6 years. In at least 80% of cases, TMF provided seed funding, leveraging resources & building partnerships. Institutional development - influence is seen in GoSA's biodiversity conservation policy and protected area management. The TMNP Integrated Environmental and Management System (IEMS, based on ISO 14000) represents South African best practice, and served as a model for implementing systems throughout SANParks (TE, pp8). TMF and CFR Strategies considered best practice (TE). 50% targeting of trained contractors achieved.
	6591 Sustainable Protected Area Development in Namaqualand Biodiversity is preserved in a minimum of 6.5 % of the world's only significant arid land hotspot.2 Tangible benefits from reserve system to four communities on communal lands; 3. Demonstrable improvement in attitudes of local communities towards conservation as a form of land use; 4. Establishment of at least two eco-businesses in communal lands; 5 Ecologically and economically appropriate land use policies are enacted.	1. Exceeded the predicted targets for Hectares converted to PA status (318,201) by over 22,000ha – 340,874 –approximately 6.8% of the region. 2. The park has injected US$1.3 million in wages into the surrounding community and provided training for 883 individuals (page 9) from 16 communities (environmental training). The project created 351 contract / short-term work opportunities. 4 permanent contracts with SANParks. 3. The project successful negotiated with farmers and mining companies to add to the land under Namaqualand PA from 980ha to 150,000ha. 4 .1 new full-time guest house. 5. Land use policies being incorporated into planning through STEP and provincial biodiversity planning.
	20 Conservation Planning for Biodiversity in the Thicket Biome 1) To provide a detailed spatial analysis of the various thicket types. 2) To assess, together with key stakeholders, the extent of transformation. 3) To develop, together with key stakeholders, an	1. The vegetation mapping exercise produced comprehensive analysis of thicket types. Whereas previously only 5 types were recognized, now 112 types have been described and mapped. 2. The extent of thicket transformation, caused by a range of factors, has been spatially assessed with the help of key stakeholders. 3. In collaboration with the key

GEF FA Expected Outcomes	Expected Outcomes	Actual or likelihood of achievements
	understanding of the threats. 4) To locate and design, together with key stakeholders, potential conservation areas to achieve explicit representation goals. 5) To suggest, together with key stakeholders, explicit conservation actions, in priority order. 6) To provide information for incorporation into regional Structure Plans and national Environmental Management Frameworks. 7) To provide planning guidelines for the relevant working group of the national Committee for Environmental Co-ordination. 8) To provide a capacity building service in GIS-based conservation planning, especially in the institutionally weakened Eastern Cape. 9) To guide investors from the public and private sectors in the selection of land for thicket biome-based commercial ventures. 10) To create an awareness of the value and plight of the Thicket Biome.	stakeholders, a good understanding of the threats to thicket has been developed and spatially expressed. 4. With assistance from the key stakeholders a Conservation Priority Map has been prepared. The map identifies and ranks areas that are important for conducting ecologically sustainable land-use practices. 5. Explicit conservation actions were identified and prioritized in a strategy workshop, which was attended by key stakeholders. 6. The spatial planning guidelines from the project were made available to local, provincial and national government agencies tasked with land-use planning activities, including the compilation of spatial planning frameworks. 7. The planning guidelines were provided to the biodiversity section of the National Department of Environmental Affairs and Tourism for incorporation into the national planning framework and to inform the activities of Working Group 1 of MinTech and the CEC.8. A series of capacity building workshops, well attended by the decision makers and planners from public and private sectors, were organized at three locations. While scope of the GIS based conservation planning was reduced due to severe capacity constraints, as an alternative activity a handbook was compiled to make the project planning tools more accessible to local government planning authorities. 9. A framework and co-operative strategy for conserving landscapes and enhancing livelihoods in the Thicket Biome was developed. In addition, a preliminary set of explicit guidelines, focusing on a spatial component, were developed for potential investors of the game-based ventures.10. The project significantly increased the general awareness on the value and plight of the thicket biome, both within and outside the project area, through an outreach program comprising a media campaign and development and release of project related literature. The conservation planning outputs are integrated into a biodiversity conservation plan for the Eastern Cape; SANBI has intention of enabling implementation; SANBI has taken responsibility for implementation (Biodiversity Advisor Posts); Eastern Cape Co-ordination Unit; increased awareness of incorporation of biodiversity priorities.
	1055 Agulhas Biodiversity Initiative Outcome 1: A Landscape Level conservation management and planning system is established by public private partnerships negotiated by a well capacitated extension service. Outcome 2: Ecologically, socially and economically sustainable harvesting of wild fynbos is demonstrated as a viable land-use on Agulhas Plain. Outcome 3: A participatory and responsible tourism strategy is implemented in the Agulhas Plain and contributes to sustainable livelihoods. Outcome 4. Increased local support for biodiversity conservation in the Agulhas Plain is generated through a broad-based conservation awareness program.	1. A total area of 41,767 added to the protected Area Estate under various categories. Well capacitated and integrated conservation-agriculture extension service in place. Systems for integrating landscape management are emerging through collective action at the landholder level (e.g. Conservancies) and by linking farm planning into Municipal planning and zoning systems. Progress is highly satisfactory, but work will not be complete by the end of Project. 2.Technical assessments of the ecological and economic sustainability of fynbos harvesting developed, and considerable progress towards certification. Long term viability of fynbos harvesting in question and threatened by the viability of development partners such as Cape Nature and FVCT; 3.Poorly formulated and over-optimistic output - good work but gone nowhere near achieving this goal. 4.Poorly formulated and over-optimistic, however, ABI has done a fair job implementing a poorly conceived project component.

GEF FA Expected Outcomes	Expected Outcomes	Actual or likelihood of achievements
	1167 Greater Addo Elephant National Park Project 1. 236,000 ha of globally significant terrestrial biodiversity and 120,000 ha of marine protected area clustered around the AENP falling under protected area management; 2. Globally significant biodiversity maintained and enhanced through the protection of five key biomes under 63% of the gAENP footprint 3.Additional 46 000 ha of private land (conservation partnerships) included into the Park by year 6; 4.Formal proclamation of a contiguous Addo Marine Protected Area (MPA), inclusive o f the two island groups; 5. A monitoring and evaluation system will be implemented to determine improvements in ecosystem health, safeguarding of endemism and recovery of threatened species (Monitored according to the Guidelines for Monitoring and Evaluation of GEF Projects).6. Employment levels in the gAENP increased by 30% over the current baseline case	1. 164,000 ha of terrestrial area and 7,400 ha of MPA gazetted or contracted. MPA target remains valid but the terrestrial area target will need to be reduced to 205,000 ha because land prices have escalated.. 2. No reporting ; 3. 17,600 ha incorporated so far - final target needs to be reduced to 30.000 – land price increased and 16,000 ha sought by SANParks for Addo acquired by the Coega Industrial Development Corporation. 4. Four outcome indicators are reported (rhino, elephant impact on vegetation and two marine fish species) - The Environment MIRS, renamed State of Biodiversity (SOB), is designed, approved by SANParks, tested in 4 parks - will be implemented and scaled up once the final instruments are developed. 5. 2004 Survey shows that the industry in the footprint employs 1,228 people (baseline). New survey is due in 2007/08 and in the last year of the project. 6. gAENP possesses qualified and suitable staff except for the MPA - but this will improve. gAENP has established several forums to consult stakeholders.
	1782 Richtersveld Community Biodiversity Conservation Project 1. An operational conservation planning framework established; 2.Community conservancy and network of conservation areas and grazing plan implemented; 3 New nature-based businesses based on need to conserve the region's environment established; 4. Environmental awareness about the regions biodiversity is enhanced; 5. Bio-monitoring system as well as community-based rapid environment response system established; 6.Environmental management enhanced as cross cutting theme	No reports available
	1516 1. C.A.P.E Biodiversity Conservation and Sustainable Development Project All C.A.P.E. signatory institutions directly support implementation of the Project; 2. The number of registered civil society stakeholders and individuals participating in the Project increases by 30%. 3. A CFR-wide conservation education strategy is successfully designed and implemented across the Project area.4. The Baviaanskloof, Cederberg and Garden Route protected areas have been consolidated and expanded through critical lowland habitats. The target is to consolidate 50% over baseline; 5. The number of jobs directly associated with conservation and nature-based tourism in Project intervention sites increases by 20%; 6. Spatial development frameworks in six representative lowland local municipalities' sites incorporate conservation priorities.7.Five-year targets for protected area status for irreplaceable broad habitat units in lowlands and watersheds are met as defined by the C.A.P.E. 2000 strategy	1. Twenty four C.A.P.E partners regularly attend meetings (June 2006). Level of commitment and alignment varies; SANBI has integrated the program and taken on the funding of one senior staff position from the Project. 2. From a 2002 baseline of 1,850, there were 3,644 individuals registered on the stakeholder database by June 2006 (an increase of almost 100%). 3. A comprehensive strategy has been developed and is being implemented, flexible and responsive to emerging needs, 'graduates' already deployed within projects (e.g. Cederberg) and cooperating agencies/departments.4. 2004 baseline shows 615,081 ha under formal management agreements, including (a) voluntary with management plans, (b) contractual and (c) statutory categories. Actual total by June 2006 was 717,158 ha, an increase of 16%.Targets may not be realized by 2009, given current rates of progress. 5. Numerous temporary jobs have been created under the Extended Public Works, Poverty Relief, Working for Water, and Fire programs (209,999 person days to June 2006 within Cederberg, Baviaanskloof, GRI and Gouritz Initiative domains – no further breakdown available.). A number of permanent positions in conservation and nature-based tourism have created and increasing according to annual projections.6. Fine scale planning and land use planning initiatives continue to provide local planning authorities with defensible biodiversity conservation priorities and guidelines and have been incorporated into four Spatial Development Frameworks (SDFs) including Overstrand (through the ABI project), Cape Agulhas, Theewaterskloof and Drakenstein (supported through the CEPF funded Putting Biodiversity Plans to Work project) although legal mechanisms for ensuring compliance are yet to be tested. 7. Private land

GEF FA Expected Outcomes	Expected Outcomes	Actual or likelihood of achievements
		stewardship - 19,276 ha have been secured to early 2007 (June 2004 baseline is 16,115 ha & target for June 2009 is 56,402 ha.
	1056 Conservation and Sustainable Use of Biodiversity on the South African Wild Coast Outcome 1: Institutional framework and capacity to facilitate co-management systems for PAs is in place. Outcome 2: Management effectiveness is enhanced within a rationalized and more representative system of protected areas (Type 1 PAs), operating under co-management agreements with local communities and the private sector. Outcome 3:A functioning network of managed resource use protected areas (Type 2 PAs) is in place, and is being effectively managed in active collaboration with local communities. Targets: 1. Greater than 60% of staffing in the key management institutions meet the targeted occupational levels, competence and skills; 2. The average score of staff performance evaluations for the key implementing agencies is equal to or exceeds 3/5 (or equivalent by the end of the project); 3. Management effectiveness index of all PAs is increased by 25-40% as monitored by METT; 4. Communal land included into expanded PA estate greater than 10,000 ha (additional to existing estate); 5. The budget amount appropriated for PA operational management costs will have increased by 250% for the expanded PA estate, with additional revenue secured from park usage/concession fees, new concession financing mechanisms and a reduction in the HR: operations budget ratio to 60:40; 6. Awareness and understanding levels of co-management by municipal and community structures exceeds 40%; 7. All Type 1 protected areas are integrated into a properly funded and managed integrated IAS control and eradication program; 8. Six co-management structures established, maintained and functioning effectively and two co-management structures replicated on communal land elsewhere in southern Africa based on the tested models developed by the project.	No Reports available
	2615 National Grasslands Biodiversity Program Outcome 1: Enabling environment for biodiversity conservation in production landscapes in the grasslands biome is strengthened Outcome 2: Mainstream grassland biodiversity conservation objectives into agriculture Outcome 3: The forestry sector directly contributes to biodiversity conservation objectives in the grasslands biome Outcome 4: Grassland biodiversity management objectives mainstreamed into urban economy in Gauteng Outcome 5: Biodiversity management secured in coal mining sector - TARGETS by end of project:1.1. 45% of biome covered by gazetted bioregional plans;1.2. Number of key affiliated private and public sector organisations that have entered into MoU with NGBP contributing towards conservation target; 1.3 Institutional mainstreaming effectiveness scorecard SANBI GDACE, Forestry SA; 2.1Sustainable Land Use Management Act passed and DWAF's SFRA includes some agricultural activities; 2.2 Industry led marketing scheme for certified produce in place; 2.3 Amount of agricultural land in demonstration districts where: 1. BMGP is being implemented: 180 000 2. Stewardship has secured biodiversity: 22 000 3.1 Amount of forestry estate in grasslands biome under	Project being initiated. Too early to present results

GEF FA Expected Outcomes	Expected Outcomes	Actual or likelihood of achievements
	3.1.1 Plantation 3.1.2 Options areas, i.e. existing unplanted forestry company owned land that is better managed 3.1.3 Formal conservation areas; 3.2 No new plantation development in biodiversity priority areas within the grasslands biome 3.3 Industry certification system and standards better incorporate grassland biodiversity objectives; 4.1. 20% increase in overlap; 4.2. 30 000ha with protection status; 4.3 30% increase in management effectiveness score in relevant Local Authorities; 5.1 2 000ha of wetlands protected through offsets; 5.2 MBCP used by Mp DME & all big companies	
Enabling activities	*246 First National Report to the CBD* The principal objective of this enabling activity is to enable South Africa to meet its obligations under the Convention on Biological Diversity (CBD) by preparing its first national report to the Fourth Meeting of the Conference of the Parties to the CBD.	Resulted in the first national report against the CBD indicators.
	564 Clearing House Mechanism Enabling Activity This project will assist the national Government to meet its obligations under the Convention on Biological Diversity.	Has provided for web access in relation to meeting obligations for the CBD
	1376 Development and Implementation of National Biodiversity Strategy and Action Plan (NBSAP) in SA This Biodiversity Enabling Activity for South Africa assists DEAT in developing a National Biodiversity Strategy and Action Plan (BSAP). The BSAP will build on and reinforce other existing national policies, particularly the White Paper on the Conservation and Sustainable use of South Africa's Biological Diversity (1997) setting out the National Biodiversity Policy. The project adds to previous support allowing South Africa to participate in the Clearing House Mechanism of CBD, and in assisting the preparation of the first country Report to the Conference of Parties (COP)	NBSAP produced providing a framework for national action over 20years as well as intermediate targets. The NBSAP has informed the National Biodiversity Framework

Climate Change Focal Area Results

GEF Focal Areas Expected Impacts	Expected Impact	Actual or likelihood of achievements
Reduction or avoidance of GHG in the areas of renewable energy, energy efficiency, and sustainable transport	*1894 Renewable Energy Market Transformation (including Commercial Solar Water Heaters, CSWH)* RE power generated, fossil fuel power generation avoided, & CO2 emissions avoided. 85 GWh power generation avoided; CSWH 0.75m tons CO2 emission avoided by 2011.	Too early to assess. Only just getting going but current context favorable to achieving impact.
	1311 Pilot Production and Commercial Dissemination of Solar Cookers Direct fossil fuel savings from use of 50,000 solar cookers ranges from 135,000 to 225,000 tonnes of CO2; i.e. 37,000 to 61,000 tonnes of Carbon. Target: 135 ktCO2e to 225ktCO2e. Therefore a target of 209 ktCO2e over the 7 year crediting period	5.1 ktCO2e (approximately 2.5% of the target)
	1338 South Africa Wind Energy Programme (SAWEP) Phase 1 Wind power capacity to be installed reaches at least 5.2 MW (2008), 50.2 MW (2013) and 150 MW (2020); wind power output & sales of at least 362,010 GWh/year at the end of year 2020. Direct	Too early but lack of progress on enabling conditions & removing barriers could limit impact of project. However, more favorable current context arising out of power shortage could promote rapid progress. 20 year Power purchase agreement (PPA) between Darling Independent Power Producer (Darlipp) with CCT at a green premium

GEF Focal Areas Expected Impacts	Expected Impact	Actual or likelihood of achievements
	annual reduction of 11,000 tCO_2 per year (due to installation of 5.2 MW Darling IPP), direct post-project reduction of 95,000 tCO_2 annually (linked with installation of an additional 45 MW of wind power, for which feasibility analysis has been supported by SAWEP) and an additional 126,000 tCO_2 reduction (due to installation of 100 MW wind power as indirect impact in the longer run of the project). Total: 232,000 tCO_2 annually and 4.6 million tCO_2 (assuming a 20-year lifetime)	price will favor effective impact.
	2604 Sustainable Public Transport and Sport: A 2010 Opportunity 1. Reducing or avoiding CO2 emissions in the order of 423,000 tonnes of CO2 (over a 10-year period). Indirect CO2 emission reduction due to replication approx 2 million tCO2 -equiv over a ten year period 2. 30% Improvement of air quality (despite economic and traffic growth) as measured by levels of PM, SOx, NOx, and CO in the corridors 3. 25% Decrease in ambient noise levels in corridors. 4. Annual number of person trips on sustainable transport modes promoted under project increased by 20%	Too early. Only just approved under GEF 4.
	3022 Sub-project 1st Group/Plug Power - under the Global Fuel Cells Financing Initiative for Distributed Generation Applications (Phase 1) Support the creation of sustainable markets for fuel cells in suitable stationary power applications in GEF Eligible countries to enable reduction of the GHG emissions. Stage 1: 5-7 MW of installed fuel cells in 3 demonstrations by 2005. Stage 2: 50 MW by 2008 in 3-5 countries.	Too early. SA chosen as phase 1 test case but no documented specific impact targeted. Not clear why delayed. First award in SA in Dec 2005. No record of progress since. Targeted end date 2005
	805 Solar Water Heaters (SWHs) for Low Income Housing in Peri Urban Areas Achieve global stabilization by reducing carbon dioxide emissions. No targets for GHG reductions or for cost reduction of the unit	No impact on GHG documented but can be inferred in general
	19 Concentrating Solar Power for Africa (CSP-Africa) Decreasing the region's dependence on fossil fuels (predominantly coal) by employing a more environmentally friendly (in terms of GHG emissions) option. No specific targets.	No indication of development of STE projects in South Africa or in the SADC – one Eskom project. Evaluation: results: 'STE does not offer any possibility of being a baseload option for region, since Eskom provides low-cost baseload power throughout the region but that STE technologies could find a niche application as a peak power option, if thermal storage is incorporated.' Changes in context since project closure may indicate stronger potential impact if followed up.
Increase resilience to the adverse impacts of CC of sectors and communities	No projects	

GEF Focal Areas Expected Outcomes	Expected Outcomes	Actual or likelihood of achievements
Energy efficiency (residential & commercial buildings; industry sector) through market penetration and technologies	No projects	

GEF Focal Areas Expected Outcomes	Expected Outcomes	Actual or likelihood of achievements
growth in the renewable energy markets	*1894 Renewable Energy Market Transformation (including Commercial Solar Water Heaters, CSWH)* • Policy & regulatory frameworks & institutional capacity required for meeting SA's renewable energy target. (Government & electricity regulator prepared legal, policy, & regulatory frameworks for grid-based renewable energy power, and submitted for government approval by December 31, 2009 & operational in 2010) • An established CSWH industry (14 firms assisted; Formulation of industry standards & codes; 200 CSWH systems installed) • Increased renewable energy (RE) investment, contributing to government's long-term RE target of 10,000 GWh (Investments in CSWH systems of $9m by 2011) • External to scope of project progress in meeting SA's overall 10,000 GWh RE target • Investments in renewable energy power generation • Reductions in cost difference of RE power and Eskom's cost of fossil fuel generation	Too early to expect results. Current context favorable to progress & results.
	1311 Pilot Production and Commercial Dissemination of Solar Cookers ▪ 3 new solar cooker enterprises. ▪ Revised figure 10,000 (fr 50 000) cookers sold or 58 000 people cooking with solar energy. ▪ Every cooker sold = savings of one third costs. ▪ Ex factory price cost reduction of 50%.	7 new solar cooker enterprises are listed. 1243 cooker sold or 7209 people, approx 12% of revised target. Use rates: 25% - 31% Fuel savings 38% Monetary Savings R68 average Time Savings 36% - 33 hrs per month No notable price reduction even in nominal terms. No improvement consumer financing access & transaction costs of CDM credits prohibitive. < income for 31 companies & 1000 households.
	1338 South Africa Wind Energy Programme (SAWEP) Phase 1 A. To install and operate up to 5.2 MW Darling wind farm and prepare the development of 45 MW combined wind farms **and/or** B. Technical assistance to the SA Government in terms of the development of the most appropriate financial and policy instruments	A. Installation of wind farm at Darling begun B. No information on any results in this area No clear explanation for delay between Council approval (04) and CEO endorsement (07)
	3022 Sub-project 1st Group/Plug Power - under the Global Fuel Cells Financing Initiative for Distributed Generation Applications (Phase 1) Stage I is to provide experience & lessons for commercial business arrangements & financing modalities needed to introduce fuel cell technology in distributed power niche markets in selected GEF-eligible developing countries. Best practices to engage various stakeholders will be developed, and will inform the design of the larger financing initiative in the second stage.	No SA specific analysis of context & barriers or targets set. Not clear why it is so delayed. First award in SA made in Dec 2005 & no record of progress since. Was due to end in 2005.
	805 Solar Water Heaters (SWHs) for Low Income Housing in Peri Urban Areas Improve the quality, accessibility, affordability & job prospects of SWHs in SA & transform the market from the middle income sector. The end result should be a higher uptake of this technology from the middle-income residential sector.	▪ New standard completed & accepted at SA Bureau of Standards (SABS). Final minor amendment still to include vacuum tube solar water heaters. The new national SABS standard is SANS1307-2007. ▪ The Code of Practice (CoP) for installation and maintenance of domestic SWH published by SABS in 2006. SABS will house and update the CoP as required or requested by industry. ▪ NGO alliance held awareness workshop to & publications in 5 newspapers with 1.6m readers ▪ Market survey completed & validated ▪ Research shows no financing mechanism needed just marketability, roll out in 3 provinces

GEF Focal Areas Expected Outcomes	Expected Outcomes	Actual or likelihood of achievements
	19 Concentrating Solar Power for Africa (CSP-Africa) 1. Evaluate the leading solar thermal electric technology options with regards to their current and future potential for South Africa. 2. Conduct a broad site assessment to identify most attractive areas for potential plants. 3. Identify preferred system(s) that could be economically feasible for Eskom to implement in the coming decade 4. Evaluation of viability of STE implementation & identify specific constraints that must be addressed to attain a sustainable deployment of solar thermal electric systems in SA	1. Completed during technology screening phase. Two promising near-term options were identified. 2. Upington in South Africa was identified 3. Operation of 140 plant designs were simulated and evaluated 4. Cost of systems, electricity produced over life of plant, technical viability & ability to dispatch as required by regional usage patterns analysed.
Innovative sustainable public transport systems are promoted, created & adopted	*2604 Sustainable Public Transport and Sport: A 2010 Opportunity* Implementation of transport system improvements in 7 2010 venue cities Strengthened capacity & increased knowledge (to plan, manage & implement sustainable transportation options) Monitoring, learning, adaptive feedback and evaluation	Too early. Just approved under GEF 4.
Sustainable energy production of biomass	No projects	
Enabling Activity	*487 Enabling Activities for the Preparation of Initial National Communication Related to UNFCCC* To enable SA to fulfil its commitments & obligations as required by articles 4.1 & 12.1 of the Convention, especially preparation & reporting of its initial communication as required by article 12.1 (a), (b) & (c) of the Convention based on the recommended COP2 guidelines & format for non-Annex 1 Parties	Achieved, including 1. GHG inventory for 1994 . 2. Identification, analysis & assessment of mitigation options 3. Identified vulnerability & adaptation challenges & options & strategies for monitoring & responding to CC impacts 4. Policy framework: implementing adaptation & response strategies (limited)

International Waters Focal Area Results – Five Regional and National Projects

GEF Focal Areas Expected Impacts	Expected Impact	Actual or likelihood of achievements
Political Commitments to improved multi-country cooperation supporting sustainable economic development opportunities, stability, water-related security in transboundary water systems.	*610 Removal of Barriers to the Effective Implementation of Ballast Water Control and Management Measures in Developing Countries* To assist developing countries, encompassing a wide variety of environmental, geographic, and socioeconomic conditions, in reducing the transfer of harmful organisms and pathogens in ship ballast water by increasing adherence by these countries to the then current IMO voluntary guidelines on ballast water management, and assist these countries to prepare for the implementation of the IMO mandatory regime when it came into force.	SA has ratified the Convention and a South African Company is pioneering technology for processing BW. Adequate conditions have been created for the successful implementation of the IMO Guidelines and the new IMO Convention, and that the six demonstration countries are in a strong position to continue in a leadership role on ballast water issues at the regional and international level.
	2098 Western Indian Ocean Marine Highway Development and Coastal and Marine Contamination Prevention Project Help prevent ship-based environmental contamination (such as oil spills from groundings and illegal discharges of ballast and bilge waters) and unsustainable exploitation of marine resources (such as illegal fishing and fishing practices) & to strengthen the capacity of countries to respond to	Approved less than 1 year ago so no reports available. Slow getting approval from 2005.

GEF Focal Areas Expected Impacts	Expected Impact	Actual or likelihood of achievements
	an oil spill emergency in the region.	
	789 Implementation of the Strategic Action Programme (SAP) Toward Achievement of Integrated Management of the Benguela Current Large Marine Ecosystem (LME) The ecological Integrity of the Benguela current large marine ecosystem is sustained through integrated trans-boundary ecosystem management	The establishment of the Benguela Current Commission (the first of its kind) provides for the ongoing sustained, integrated transboundary management of the BCLME.
Participating states demonstrate the necessary ability to reduce over-exploitation of fish stocks, reduce land-based coastal pollution, & balance competing water uses in basins & report subsequent water-related improvements.	*2571 Distance Learning and Information Sharing Tool for the Benguela Coastal Areas (DLIST-Benguela)* To improve global management of trans-boundary water systems by increasing capacity to replicate best practices and lessons learned in each of the GEF International Waters Operational Programs.	No clear statement of expected or actual impact available. Project working with UNDP to develop impact and output indicators and targets. Supporting wide range of initiatives, direct support to BCLME as per project design is not clear. Primarily catalytic, establishing communities of practice around issues as they arise.
	849 Development and Protection of Coastal & Marine Environment in Sub-Saharan Africa To assist sub-Saharan African countries in achieving sustainable management of their coastal and marine environment and resources	Project resulted in a robust basis on which to prioritize interventions within coastal and marine resources as well as a portfolio of projects, many of which have been incorporated into country strategies or LME programs in Southern Africa.

GEF Focal Areas Expected Outcomes	Expected Outcome	Actual or likelihood of achievements specific to SA
Restoring & sustaining coastal & marine fish stocks & associated biodiversity	*610 Removal of Barriers to the Effective Implementation of Ballast Water Control and Management Measures in Developing Countries* 1. Increase knowledge of and potential solutions for ballast water related transfer of non-indigenous organisms at the port, national and regional level, for each pilot site. 2. Undertake initial risk assessment at each pilot site to provide the level & type of risks of introductions at each pilot port, the resources & values threatened & management response required & a port biota survey. 3. Compliance & monitoring programs to ensure compliance with IMO provisions & protection of most sensitive values 4. Creation & operation of Regional/ Sub-Regional Task Forces to increase regional awareness, cooperation & eventual replication of project results. 5. Identify opportunities for increased project self-financing	1. Training courses developed & run, including at regional level 2. Surveys done & a case study of flagellate affecting mariculture in Saldanha Bay was done but sampling & surveys done individually by ports, not standardized 3. SA actively participated in drafting of Convention & is currently assessing what measures will be necessary to ensure compliance with the Convention 4. Regional task force was established & training provided. Regional meetings held, including Madagascar & Kenya Still regional requests for assistance with National Action Plans. SA established linkages to the Nairobi and Abidjan Conventions 5. SA National Ports Authority is independently funding port assessments at the remaining six ports, tied to its decision to seek ISO 14000 environmental certification for all port facilities.
	789 Implementation of the Strategic Action Programme (SAP) Toward Achievement of Integrated Management of the Benguela Current Large Marine Ecosystem (LME) Participating countries and their institutions sharing the Benguela Current Large Marine Ecosystem have the understanding and capacity to utilize a more comprehensive ecosystem approach and to implement sustainable measures to address collaboratively	1. Institutional Structures established - the PCU and 3 Activity Centres for Environmental Variability (Cape Town), Living Marine Resources (Swakopmund) and Biodiversity, Ecosystem Health and Pollution. (Luanda). Specific advisory and consultative groups have also been formed. 2. Over 75 projects addressing transboundary environmental issues undertaken under the program by government institutions, universities, private companies and BENEFIT (a regional fisheries science program).3

GEF Focal Areas Expected Outcomes	Expected Outcome	Actual or likelihood of achievements specific to SA
	transboundary ecosystem related environmental concerns.	Significant training and capacity building undertaken in the three BCLME countries mainly in Angola and Namibia, with about 20% of the funds being spent. Covered various technical training workshops, short-term specialized courses, post-graduate science courses and on-the job training in laboratories and at sea. 4. High level of co-operation reached by the fisheries institutions of the three countries as well as with the other ministries involved in the Programme i.e. Mines and Energy, Environment and Petroleum. 5. Good progress made on the development and subsequent implementation of the ecosystem approach to fisheries management (EAF) - countries actively participating in workshops and examining different options including risk and cost benefit analyses. 6. Cutting edge contributions made in marine science and management for environmental variability in LMEs. This culminated in the publication of a book "*Benguela – Predicting a Large Marine Ecosystem*" which represents major work undertaken by the BCLME Programme over the last few years.7. Considerable advances made in addressing the targets of the Johannesburg WSSD (2002), the UN Millennium Development Goals, the FAO Code of Conduct for Responsible Fishing and the Reykjavik Declaration on EAF (2001) through BCLME projects 8. Co-operative international links established with GOOS-Africa, IOC-UNESCO, FAO, NOAA, GEF: IW LEARN, and marine science institutions in Norway, France, Germany and USA. BCLME works closely with BENEFIT, SEAFO, SADC and NEPAD.
Reducing nutrient over-enrichment & oxygen depletion from land-based pollution of coastal waters in LMEs consistent with the GPA	*2098 Western Indian Ocean Marine Highway Development and Coastal and Marine Contamination Prevention Project* • All eight participating countries will have aligned national policies, regulations etc to prevent & respond to oil & chemical spill emergencies. • Four or more countries will have aligned national policies, regulations etc for port state control by the end of the project. • Two regional bodies will be strengthened by the end of the project. • Three countries will have demonstration technologies and management practices in place by the end of the project.	Approved less than 1 year ago so no reports available. Slow getting approval from 2005.
	2571 Distance Learning and Information Sharing Tool for the Benguela Coastal Areas (DLIST-Benguela) To bridge the information gap by using innovative ICT applications to provide access to training and to increase the flow of information between experts, institutions and networks & coastal players including communities, as well as between themselves, so a "common pool of knowledge" is created and maintained**:** 1. Establish innovative, user friendly IT platform for coastal stakeholders **2** Offer coastal players a distance learning course on sustainable development in coastal areas **3** Promote free access and flow of information between coastal players **4** Make the ICT platform accessible to coastal communities	Not really outcome, only output indicators. 1. Offers electronic discussion forum & kiosks. 390 users in SA. Also used by Namibian stakeholders but less so in Angola. Also uses community radio, film & music festivals. 2. 1 distance learning course at Cape Peninsular University of Technology established 3. 5 moderators involved in online facilitation and information management in Cape Town 4. 3 formal node administrators of focal points appointed: Walvis Bay, Port Nolloth & Luderitz.
	849 Development and Protection of Coastal & Marine Environment in Sub-Saharan Africa	Project prepared national reports & regional consolidated analysis which covered eleven coastal

GEF Focal Areas Expected Outcomes	Expected Outcome	Actual or likelihood of achievements specific to SA
	(a) To identify areas, sites or living resources of regional or global significance that were suffering measurable degradation (i.e., hot spots); (b) To determine the sources and causes of the degradation and associated scales of impact (national, regional and global) to provide a basis for calculating incrementally on regional and extra-regional scales; (c) To identify areas, sites and resources of regional significance that, although not currently degraded, are threatened with future degradation either because of the sensitivity of the receptor or the magnitude of the activity posing the threat; (d) To determine, through root cause analysis, the fundamental causes of the damage or threat posed; (e) To design a program of interventions, including demonstration projects and pre-investment studies, addressing problems of regional priority that could be presented to the Partnership Conference; (f) To present the program of interventions (i.e. subprojects) to the Partnership Conference in order to solicit support for the implementation of the program.	states, identified hot spots (areas affected by degradation) & sensitive areas (at risk of suffering degradation); provided root cause analysis of environmental degradation & recommendations on interventions at the national level, as well as transboundary issues across eleven coastal states. Reports provided comprehensive info. on biophysical aspects, priority issues requiring urgent intervention, & severity of impacts on communities & ecosystems. Prepared a portfolio including 19 framework subproject proposals based on sound scientific information in five thematic areas: coastal erosion; management of key habitats; sustainable use of living resources; tourism; and pollution. The proposed regional and national subprojects cover the hotspots and sensitive areas identified. Many subproject proposals were built on existing national and regional projects and programs. Many of the subprojects not only address IW issues but also contribute to the new GEF multifocal area integrated ecosystem management. Linking the African Process to NEPAD, the African Union and the Johannesburg Summit promoted importance of coastal and marine resources development issues - support by national Governments and the international community. Increased sustainability of the African Process. NEPAD has embraced the program of interventions Results for South Africa are not available in the current documents. The project did identify the following hotspots and sensitive areas. Hot spots; Richards Bay, Knysna, False Bay Sensitive areas; Maputoland, Pondoland, Saldanha-Langebaan
Balancing overuse & conflicting uses of water resources in surface & groundwater basins that are transboundary in nature		
Reducing persistent toxic substances & testing adaptive management of waters with melting ice		

Multi-Focal Area Results

Expected Impact	Actual or likelihood of achievements
1472 Best Environmental Practice in Hosting World Summit on Sustainable Development The objective of the project is to derive global benefits from ensuring that the organization and management of the WSSD is planned and undertaken in such a way that it demonstrates best environmental practices, and makes a significant contribution to enabling sustainable development and national benefits in SA.	No clear indicators or targets for impact or outcome but substantial list of outputs, many designed to create awareness, may well have had some impact.
2479 National Capacity Self Assessment for Global Environmental Management Within 2 years the Committee for Environmental Coordination (CEC) will	This enabling activity has not been achieved and little progress made since inception in 2004. DEAT has indicated that the project is now

have agreed a Strategy and Action Plan for Capacity Building in the areas covered by the UNCBD, the UNCCD and UNFCCC, and related environmental management initiatives	moving forward again.
Small Grants Programme: Global environmental benefits secured in the GEF Focal Areas through community based initiatives and actions (in the areas of biodiversity, climate change, and international waters through community-based approaches that also generate local benefits and improve the quality of life of all, particularly rural communities)	No specific indicators or targets set. Impact can be inferred at very general level from spread of projects & fact that they are community driven but the long period during which projects were not supported will have had a negative impact on what could be achieved.
Expected Outcomes	**Actual or likelihood of achievements**
1472 Best Environmental Practice in Hosting World Summit on Sustainable Development 1. Demonstrated best practices for hosting events in an environmentally sustainable manner in developing countries; 2. Minimized negative environmental impacts, & maximize environmental benefits of Summit; 3. Creation of opportunities for employment and economic activity; 4. Increased awareness of environmental best practice requirements in sectors involved in the planning of the Summit; 5. Increased environmental awareness regarding the importance of sustainable development in South African society; 6. Improved environmental performance (both during and after the Summit) through upgrading of selected infrastructure used for the Summit.	1. Developed Handbook on organizing "Green" events. Guidelines & criteria established including waste, procurement, water management, responsible tourism 2. & 3. It seems event organization overtook the project & only a limited number of conference arrangements could be influenced. 4. & 5. Over 3,000 volunteers sensitized, projects & exhibitions showcased, including on recycling. Approx 7,863,535 people reached through print & R5,322,780.00 through electronic media. 6. Multi-bin recycling stations designed for use in Johannesburg after the Summit & mechanism for incorporating green power into the power grid was developed. A five-year strategy for the Provincial Government of Gauteng, (DACEL) local Agenda 21 program.
2479 National Capacity Self Assessment for Global Environmental Management I) To take stock of capacity building activities, plans and strategies within the thematic areas of biodiversity, desertification/land degradation & climate change & take stock of other related cross-cutting & synergistic activities of relevance to the NCSA process. II) To develop, in a participatory manner, a strategy & action plan based on priority capacity building needs for the NAP, NBSAP &future actions envisaged for Climate Change, to meet global environmental management obligations.	An initial workshop was held and DEAT reports that progress is now being made.
Small Grants Programme 1. Demonstrate and pilot community-level environmental management strategies and technologies that are capable of generating local benefits, and simultaneously reducing threats to the global environment if they are replicated over time; 2. Draw lessons from community-level experience, and support the replication of successful community-level strategies and innovations among CBOs and NGOs, host governments, development agencies, the GEF, and others working on a larger scale; 3. Build partnerships and networks of local stakeholders to support and strengthen community, CBO and NGO capacity to address environmental problems and promote sustainable development.	1. Local benefits in improved awareness, habitat & species preservation, CC adaptation capacity, receptiveness to RE & land management skills are reported from visits to 9 of 36 projects. The limited information available suggests that many potentially valuable projects are undertaken but improvements in M&E are necessary to show this & to enable projects to establish reliable lessons & approaches that can be of help to others. 2. Little evidence available to the evaluation team of documentation & dissemination of lessons from community experience 3. Two workshops attended by 48 community & civil society organisations. Evidence of networks & partnerships promoted but no clear analysis.

Persistent Organic Pollutants Focal Area Results

GEF Focal Areas Expected Impacts	Expected Impact	Actual or likelihood of achievements
Reduce and eliminate production, use and release of POPs	*1785 POPs Enabling Activities for the Stockholm Convention on POPs National Implementation for South Africa* Within the overall objective of the Stockholm Convention on POPs, which is to protect human health and the environment from POPs, the project's objectives are to: i) Allow South Africa to meet its reporting obligations under the Stockholm Convention on POPs; ii) Prepare the ground for implementation of the POPs Convention in South Africa; and	No impact

	iii) Strengthen national capacity to manage POPs and chemicals management capacity generally.	
GEF Focal Areas Expected Outcomes	**Expected Outcomes**	**Actual or likelihood of achievements specific to SA**
strengthening capacity for NIP development and implementation	*1785 POPs Enabling Activities for the Stockholm Convention on POPs National Implementation for South Africa* i) A National Implementation Plan (NIP) for the implementation of the POPs Convention as called for in Article 7 of the Convention; ii) Specific Action Plans that identify effective national responses, processes and measures that would reduce the release of POPs, including a specific action plan to control the use of DDT for malaria vector control; iii) Strengthened POPs institutional arrangements; and iv) Enhanced knowledge and understanding amongst government departments, decision-makers, industry, environmental managers and the public at large.	No real achievements yet. No NIP yet but seems to be in process again after a lull in activity since 2002. Consultants were appointed in 2007 and their products are reported to be close to conclusion.

Annex L: Small Grants Programme Projects

Operational Phase	Full/ Planning Grant	Project Category	Project Name	Grant Amount (US$)	Grant Recipient Type	Grant Recipient	Focal Area	Project State	Start Date	Cofinancing in Cash	Cofinancing in Kind
Phase 2	Full	Regular	Support to the Mawuleni Community to Combat Land Degradation through promoting Sustainable Land Use practices	$50,000.00	Non-government Organization	Keep the Dream Association	Multifocal Area	Currently under execution	Nov-03	$0.00	$0.00
Phase 2	Full	Regular	Cultivating Medicinal Plants for human needs, biodiversity conservation and enterprise development	$50,000.00	Non-government Organization	The Rural Action Committee	Biodiversity	completed	Nov-03	$39,936.00	$26,837.00
Phase 2	Planning	Regular	Planning Grant to Assist the Sireletsa Somarela Environmental Organisation, Bakgatla Community to develop their Traditional herbalist Project.	$2,000.00	Non-government Organization	Sireletsa Somarela Environmental Organisation	Biodiversity	Currently under execution	Nov-03	$0.00	$0.00
Phase 2	Planning	Regular	GREEN Network's Gender and Renewable Energy Project	$2,000.00	Non-government Organization	GREEN Network	Climate Change	completed	Nov-03	$0.00	$0.00
Phase 2	Full	Regular	Support to the Nyandezulu Falls Pilot Project	$18,855.00	Non-government Organization	Vulindlela Association	Biodiversity	Currently under execution	Dec-03	$0.00	$0.00
Phase 2	Full	Regular	Limpopo Heartland: Adding Community Land for Sustainable Biodiversity Conservation through the promotion of Community Private Partnerships	$50,000.00	Non-government Organization	African Wildlife Foundation	Biodiversity	Currently under execution	Dec-03	$0.00	$92,601.00
Phase 2	Full	Regular	Implementing a Community Energy Shop, based on community energy needs and requirements	$47,547.00	Non-government Organization	Welanga Consulting	Climate Change	Currently under execution	Jul-04	$0.00	$11,176.00
Phase 2	Planning	Regular	Supporting the Ntwane (Kwarrielaagte) Community to Combat Land degradation through promoting sustainable land use activities	$2,000.00	Community Based Organization	Ntwane Soil Conservation and Landcare Programme	Multifocal Area	Not active yet	Jul-04	$0.00	$0.00
Phase 3	Full	Regular	Seed Security and Agricultural Biodiversity for Sustainable Livelihoods	$45,101.00	Non-government Organization	Biowatch	Biodiversity	Not active yet	Jul-04	$191,444.00	$0.00
Phase 2	Full	Regular	Gender and Renewable Energy Project	$50,000.00	Non-government Organization	GREEN Network	Climate Change	Not active yet	Aug-04	$19,400.00	$0.00

Operational Phase	Full/ Planning Grant	Project Category	Project Name	Grant Amount (US$)	Grant Recipient Type	Grant Recipient	Focal Area	Project State	Start Date	Cofinancing in Cash	Cofinancing in Kind
Phase 2	Full	Regular	Support to the Richtersveld Community Based Natural Resource Management Programme: Richtersveld Community Based Research Station	$50,000.00	Community Based Organization	Richtersveld Community Property Association	Biodiversity	Currently under execution	Sep-04	$0.00	$0.00
Phase 2	Full	Regular	Capacity Building, Livelihood Planning and Participatory Land Use Planning for the Coastal Region of the Richtersveld and the Orange River Mouth	$50,000.00	Non-government Organization	International Knowledge Management	Multifocal Area	completed	Sep-04	$287,540.00	$0.00
Phase 2	Full	Regular	Capacity Building for Community Conservation Enterprises in the Lebombo Transfrontier Conservation Area	$50,000.00	Non-government Organization	Wildlands Conservation Trust	Biodiversity	Currently under execution	Sep-04	$66,050.00	$0.00
Phase 2	Planning	Regular	Ecological Building Design, Construction and Demonstration project	$2,000.00	Non-government Organization	Rural Educational Development Corporation	Climate Change	Not active yet	Sep-04	$0.00	$0.00
Phase 2	Full	Regular	Ecological Building Design and Construction Demonstration Project	$50,000.00	Non-government Organization	Rural Educational Development Corporation	Climate Change	completed	Dec-04	$0.00	$6,000.00
Phase 2	Planning	Regular	Towards sustainable management of natural resources in two communities in Giyani	$2,000.00	Non-government Organization	Ndlandlamuka Local Project	Land Degradation	Not active yet	Dec-04	$0.00	$0.00
Phase 2	Full	Regular	Support to the South African Council of Churches to establish an Ecumenical Environmental Institute	$50,000.00	Non-government Organization	South African Council of Churches	Multifocal Area	completed	Dec-04	$1,700.00	$5,025.00
Phase 2	Full	Regular	Umgungundlovu Indigenous Institute	$48,987.00	Non-government Organization	PondoCrop & Amadiba Coastal Community Development Association	Biodiversity	Currently under execution	Feb-05	$8,591.00	$0.00

Operational Phase	Full/ Planning Grant	Project Category	Project Name	Grant Amount (US$)	Grant Recipient Type	Grant Recipient	Focal Area	Project State	Start Date	Cofinancing in Cash	Cofinancing in Kind
Phase 2	Full	Regular	Promoting the dissemination of sustainable energy use technologies	$50,000.00	Non-government Organization	Sustainable Energy Africa	Climate Change	Not active yet	Feb-05	$0.00	$0.00
Phase 3	Full	Regular	Combating Land Degradation on the Wupperthal Rooibos Lands	$43,680.00	Non-government Organization	Environmental Monitoring Group	Land Degradation	Currently under execution	Jun-05	$0.00	$28,073.00
Phase 3	Full	Regular	Alleviation of Poverty through the Provision of Local Energy Services (APPLES)	$50,000.00	Non-government Organization	Switch on Energy Services	Climate Change	Not active yet	Jun-05	$830,129.00	$280,012.00
Phase 3	Full	Regular	Combating Land Degradation and enhancing Sustainable Livelihoods in the Suid Bokkeveld	$41,173.00	Community Based Organization	Heiveld Cooperative	Land Degradation	Currently under execution	Aug-05	$0.00	$72,175.00
Phase 3	Full	Regular	Community-driven Biodiversity Conservation & Integrated Environmental Education	$50,000.00	Non-government Organization	EcoPort RSA	Biodiversity	Currently under execution	07-Aug	$0.00	$0.00
Phase 3	Full	Regular	The Umzi Wethu Indalofor displaced Children in South Africa	$50,000.00	Non-government Organization	Wilderness Foundation	Biodiversity	Currently under execution	07-Mar		
Phase 3	Full	Regular	Uruke Livelihoods Projects	$50,000.00	Non-government Organization	South African San Institute	Land Degradation	Currently under execution	07-Aug		
Phase 3	Full	Regular	POPs Capacity Building Project - KwaZulu-Natal in South Africa	$50,000.00	Non-government Organization	Institute of Zero Waste in Africa	POPs	Currently under execution	07-Aug		
Phase 3	Full	Regular	Community Ecological Governance (CEG) Sustainable Livelihoods and Environmental protection in Vhembe District, Limpopo, South Africa	$50,000.00	Non-government Organization	SEED	Biodiversity	Currently under execution	07-Jul		
Phase 3	Full	Regular	Integrated Energy Planning Project	$50,000.00	Non-government Organization	Sustainable Energy and Climate Change Project-SECCP	Climate Change	Currently under execution	07-Jul		

Operational Phase	Full/ Planning Grant	Project Category	Project Name	Grant Amount (US$)	Grant Recipient Type	Grant Recipient	Focal Area	Project State	Start Date	Cofinancing in Cash	Cofinancing in Kind
Phase 2	Full	Regular	Improved environmental governance through civil society participation	$30,000.00	Non-government Organization	GroundWork Trust	Climate Change	Not active yet	07-Nov		
Phase 2	Full	Regular	Adaptation to climate change by small-scale Rooibos tea farmers in the Suid Bokkeveld area of the Northern Cape Province of South Africa	$50,000.00	Non-government Organization	SouthSouthNorth	Climate Change	Not active yet	07-Dec		
Phase 4	Full	Regular	Rainwater Harvesting for Welverdiend Schools in the Kruger to Canyon Biosphere (K2C) in the Mpumalanga Province	$50,000.00	Non-government Organization	Resource Africa	Climate Change	Not active yet	07-Dec		
Phase 4	Full	Regular	Rare and Endangered Plants Project	$50,000.00	Non-government Organization	African Conservation Trust	Biodiversity	Not active yet	07-Dec		
Phase 4	Full	Regular	Village by village bio-gas rollout program for Southern Africa	$50,000.00	Non-government Organization	Trade plus Aid	Climate Change	Not active yet	07-Dec		
Phase 4	Full	Regular	Africulture Project	$50,000.00	Non-government Organization	Umthathi Training Project Trust	Biodiversity	Not active yet	07-Dec		
Phase 4	Full	Regular	Initiative Programme	$50,000.00	Non-government Organization	Community Organization Resource Centre	Climate Change	Not active yet	07-Dec		
Phase 4	Full	Regular	African Heritage and Indigenous Knowledge Systems	$2,000.00	Non-government Organization	Icamagu Institute	Biodiversity	Not active yet	07-Dec		

Annex M: Scope of Regional/Global Projects in which South Africa Participates

Focal Area	Regional Projects	Global Projects
Biodiversity	• Assisting governments of the region to implement their objectives and obligations under the Convention on Biodiversity • Conservation and sustainable use of biological resources • Improving the availability and accessibility of biodiversity information and its application in conservation, planning and management • Developing national and regional institutional capacity including sustainable human development for co-ordination and implementation of biodiversity conservation and sustainable use activities • Contribute to community development through income generation • To promote collaboration amongst specific countries in the management of shared natural resources	• Build local, national, regional and global capacities • Develop and implement tools, methodologies, strategies and best practices • Determine best practices and disseminate the information
Climate Change		• Development and creation of sustainable markets for energy technologies
International Waters	• Sustainable and integrated trans-boundary ecosystem management • Training and capacity building. • Improved information base and identification of hotspots and sensitive areas (environment baseline assessments) • Legislative and management reforms. • Assist governments of the region to implement their objectives and obligations under the Nairobi and Abidjan Convention	• Communication, education and creation of awareness • Knowledge sharing and regional replication • Legislative reforms through country compliance and monitoring programs • Developing financing mechanisms
Land Degradation	• Capacity building and raising awareness • Formulation of strategic and legal frameworks • Develop and implement participatory land use tools and plans for sustainable land management • Vulnerability reduction strategies	
POPs	• Contribute to the goal of the Stockholm Convention • Awareness raising, improved policies, regulatory framework and institution building • Design of clean up and disposal operation • Prevent the creation of new stockpiles	
MFA	• To develop institutional and human capacity through training and career building • Develop and facilitate inter country exchanges of findings and policy alternatives	

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