



REPUBLIC OF SOUTH AFRICA

# MILLENNIUM DEVELOPMENT GOALS

**Goal 7**  
**Ensure environmental sustainability**





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## 7.1. Targets and indicators

<p><b>Target 7A:</b> Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources</p>	<p><b>Performance Summary:</b> Target can possibly be achieved</p> <p><b>State of supportive environment:</b> Fair</p>
<p><b>Target 7B:</b> Reduce biodiversity loss, achieving by 2010 a significant reduction in the rate of loss</p>	<p><b>Performance Summary:</b> Target can possibly be achieved</p> <p><b>State of supportive environment:</b> Fair</p>
<p><b>Target 7C:</b> Halve by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation</p>	<p><b>Performance Summary:</b> Target has been achieved</p> <p><b>State of supportive environment:</b> Strong</p>
<p><b>Target 7D:</b> By 2020 to have achieved significant improvement in the lives of at least 100 million slum dwellers</p>	<p><b>Performance Summary:</b> Target will unlikely be achieved</p> <p><b>State of supportive environment:</b> Good</p>
<p><b>Standard MDG indicators</b></p>	<ol style="list-style-type: none"> <li>1. Proportion of land area covered by forest</li> <li>2. CO2 emissions, total per capita and per \$1 GDP (PPP)</li> <li>3. Consumption of ozone-depleting substances</li> <li>4. Proportion of fish stocks within safe biological limits</li> <li>5. Proportion of total water resources used</li> <li>6. Proportion of terrestrial and marine areas protected</li> <li>7. Proportion of species threaten with extinction</li> <li>8. Proportion of population using an improved drinking water source</li> <li>9. Proportion of population using an improved sanitation facility</li> <li>10. Proportion of urban population living in slums<sup>1</sup></li> </ol>
<p><b>Additional indicators</b></p>	<ol style="list-style-type: none"> <li>1. Proportion of land area covered by Savannah Woodlands, Albany Thicket, commercial plantations</li> <li>2. Proportion of households with access to electricity</li> <li>3. Proportion of population using solid fuels as primary source of energy (cooking, heating)</li> <li>4. Number of illegally designed landfill sites</li> </ol>

<sup>1</sup> Replaced by informal dwellings

## 7.2. Facts and figures

ENSURE ENVIRONMENTAL SUSTAINABILITY					
Goal 3 Indicators	1994 baseline (or closest year)	Current status 2010 (or nearest year)	2015 target	Target achievability	Indicator type
Proportion of land area covered by forest	No data	36.55 (2008)			<b>MDG</b>
Proportion of land area covered by forest:	No data	0.41 (2008)			<b>Domestic</b>
• Natural forests		32.72 (2008)			
• Savannah woodlands		2.39 (2008)			
• Albany Thicket					
• Commercial plantations	1.04 (2007)	1.02 (2009)			
CO <sub>2</sub> emissions:	358 93 (1994)	433 53 (2007)	34% reduction from “business as usual” by 2020	<b>Possible</b>	<b>MDG</b>
• Total (million metric tons of CO <sub>2</sub> )	8.86 (1994)	8.82 (2007)			
• per capita (metric tons of CO <sub>2</sub> )	1.29 (1994)	0.98 (2007)			
• per \$1 GDP (PPP)					
Consumption of ozone-depleting substances (metric tons)	2410.6 (HCFC) (2005)	5718.2 (HCFC) (2009)	Freeze by 2013 and phase out by 2040	<b>Likely</b>	<b>MDG</b>
	160.0 (BCM) (2005)	0 (BCM) (2009)			
	132.0 (MeBr) (2005)	615.0 (MeBr) (2008)	Phase out by 2015		
Proportion of fish stocks within safe biological limits	No data	No data			<b>MDG</b>
Proportion of total water resources used	26.61 (1990)	25.03 (2000)	No target		<b>MDG</b>
Proportion of area protected (as a percentage of total)	5.18 (1994)	6.20 (2010)	9	<b>Possible</b>	<b>MDG</b>
• terrestrial	0 (1994)	6.54 (2010)	14		
• marine					



ENSURE ENVIRONMENTAL SUSTAINABILITY					
Goal 3 Indicators	1994 baseline (or closest year)	Current status 2010 (or nearest year)	2015 target	Target achievability	Indicator type
Number of species (vegetation) threatened with extinction	676 (1990)	2458 (2010)	No target		MDG
Proportion of population using an improved drinking water source	61.1% (1996)	92.4 (2009)	81	Achieved	MDG
Proportion of population using an improved sanitation facility	58.5 (2001)	72.2 (2009)	79.2	Likely	MDG
Proportion of urban population living in slums	13.0 (2002)	13.4 (2009)	0	Unlikely	MDG
Proportion of households with access to electricity	76.8 (2002)	82.6 (2009)	≈100	Possible	MDG
Proportion of population using solid fuels as primary source of energy	35.7 (Heating) (1996)	19.8 (Heating) (2009)	< 35.7	Achieved	MDG
	27.6(Cooking) (1996)	15.7 (Cooking) (2009)	< 27.6		
Number of legally designated landfill sites	No data	817 (2010)	No target		Domestic

### 7.3. Introduction

The Millennium Development Goals and associated targets and indicators for Goal 7 i.e. “Ensure environmental sustainability,” are the following:

- (i) The integration of the principles of sustainable development into country policies and programmes, and reverse the loss of environmental resources;
- (ii) Reduce biodiversity loss, achieving by 2010 a significant reduction in the rate of loss
- (iii) Halve, by 2015, the proportion of people without sustainable access to safe drinking water; and
- (iv) By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers.

To ease the report writing process Goal 7 was divided into two parts. The first part of the report was confined to environmental indicators whereas the second part discussed indicators on access to services. Although the reports were initially written by two different authors they were later integrated in a single report.

The inclusion of environmental rights in the South African Constitution, the development of a plethora of new environmental management policies committed to sustainable development, and a marked increase in donor funding for environmental management are positive changes in the South African political context. These changes have arisen from both national and international drivers, and are impacting on redirection of resources within the country from traditional conservation to people-centered sustainability management.

The rapid development of environmental policies was however not matched with proportional growth in financial and human resources associated to their implementation. The implementation of these policies must occur within the overall government objectives and as part of the 12 outcomes and 10 priority areas of government but there are still big challenges in measuring and reporting environmental programs that have been implemented by government effectively. (DEA 2006)

#### **7.4. Land area covered by forest**

The forest resources of South Africa consist of three main types, namely, natural forests, woodlands and commercial plantations. The woodland forests cover the bulk of the forests land in the region covering some 39 million hectares, depending on the classification system used. This is about one third of South Africa's total land area and about 5.7 million hectares of woodlands are in protected areas (DWAF, 2007). This must be seen in the context of the South African legal definitions which deals with forest law, viz. the National Forests Act, 1998, as amended (NFA), i.e.: "Forest" includes -

- (a) a natural forest, woodland and a plantation;
- (b) the forest produce in it; and
- (c) the ecosystems which it makes up.

"Natural forest" means a group of indigenous trees –

- (a) whose crowns are largely contiguous; or
- (b) which have been declared by the Minister to be a natural forest under 8.7(2).

"Woodland" means a group of indigenous trees which are not natural forest, but whose crowns cover more than 5% of the area bounded by the trees forming the perimeter of the group.

#### **Indicator: Proportion of land area covered by forest**

South Africa has about 1.5 million hectares of forest plantations (World Rainforest Movement, 2010)<sup>2</sup> i.e. 1.23% of total area of South Africa (121.91 million hectares)

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<sup>2</sup> The information given [by the FAO] in respect of the total area covered by forest in South Africa is misleading as there are probably more than 3 million hectares of alien monoculture industrial timber plantations and thickets included in your total of 8.9 million ha. In fact, a more accurate figure for actual forest would be 4.5 million ha. Industrial timber plantations are a temporary crop with rotations of 7-20 years and an average of

(Meadows, 1999). The forestry area decreased from 1.384 to 1.257 million hectares from 1998 to 2008, i.e. 127,000 ha (9.1%). South Africa's plantation area by type of tree and broad ownership categories is presented in the Table below.

**Table 7.1: Plantation area (hectares) by ownership and species (1993)**

Species	Private	Public	Total
Pine	334,000	277,000	611,000
Eucalyptus and wattle	576,000	54,000	630,000
Total	910,000	331,000	1,241,000

Source: African Development Bank (1993); IDRC (2010)

**Indigenous forests:** It is estimated that the country only has 330,000 hectares of indigenous forest, of which 54,000 hectares are privately owned (African Development Bank 1993). South Africa is experiencing limited deforestation because most of the indigenous forests were cleared over the past 100 years. The main reasons for deforestation are conversion of forests for agriculture and harvesting for construction, timber, and fuel wood.<sup>3</sup>

**Commercial plantations:** It is estimated that 73% of the total planted area is owned by the private sector; 27 percent is owned by the state through the South Africa Forestry Company (SAFCOL). The planted area consists of pine (50%) and the rest is planted with eucalyptus and wattle. (ADB 1993).

**Table 7.2: Proportion of land area covered by commercial forest in 2007 and 2008**

Province	2007		2008	
	Hectares	%	Hectares	%
Limpopo Province	48,096	3.8	47,982	3.8
Mpumalanga Province	514,831	40.7	510,263	40.6
North West Province	126	0	126	0
Free State		0		0
KwaZulu-Natal	486,967	38.5	486,020	38.7
Eastern Cape	155,079	12.2	153,380	12.2
Western Cape	61,097	4.8	59,570	4.7
Total	1,266,196	100	1,257,341	100

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about 10. They destroy indigenous culture and biodiversity, displace communities, and irreversibly degrade the land. It is thus misleading to classify them as forests."

This definition does not take into account the quality (which can be perceived very differently depending on the point of view). It is simply a gross value for "areas with trees", if using a very loose explanation. This gross value can be used as is, for instance for carbon balance calculations, or be broken down for more specialised analysis. Themes for these more specialised analyses can be "naturalness", "wood supply capacity", or any other.

<sup>3</sup> Correctly sourced from idrc, however cannot verify the source they used namely ADB 1993.



<b>% of RSA</b>	<b>1.042%</b>	<b>1.031%</b>
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Source: *Cadastral dataset, Forestry, 2007, 2008*, Department of Agriculture, Fisheries and Forestry; Stats SA (2010g)

**Table 7.3: List of forest wilderness areas (2010)**

<b>Official Name</b>	<b>Management Authority</b>	<b>Date of first proclamation</b>	<b>Area (ha) April 2010</b>
Boosmansbos Wilderness Area	Western Cape	1978	14,005.42
Doringrivier Wilderness Area	Western Cape	1988	9,520.26
Groendal Wilderness Area	Eastern Cape	1976	21,750.15
Groot-Winterhoek Wilderness Area	Western Cape	1985	24,311.18
Mdedelelo Wilderness Area	KwaZulu-Natal	1973	25,915.10
Mkhomazi Wilderness Area	KwaZulu-Natal	1989	7,404.37
Mlambonja Wilderness Area	KwaZulu-Natal	1989	6,730.11
Mzimkulu Wilderness Area	KwaZulu-Natal	1979	28,475.16
Ntendeka Wilderness Area	KwaZulu-Natal	1975	5,264.86
Sederberg Wilderness Area	Western Cape	1973	62,793.54
Upper Mkhomazi Wilderness Area	KwaZulu-Natal	1973	49,022.31
Wolkberg Wilderness Area	Limpopo	1977	19,297.46
<b>Total</b>			<b>274,489.92</b>

Source: Statistics South Africa (2010b) (Personal Communication??? Certainly there should be a source attached to the personal communication)

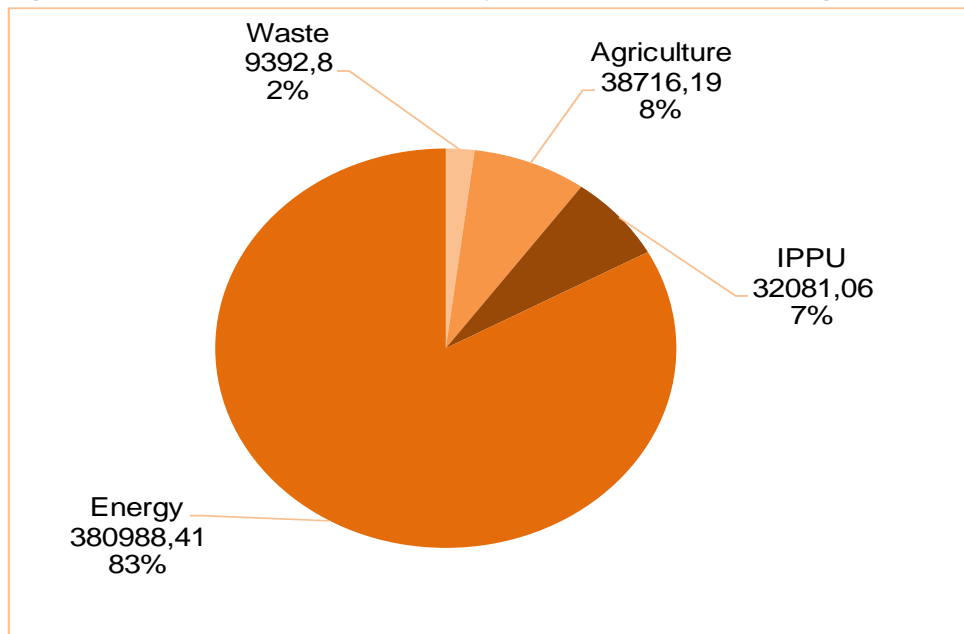
## 7.5. Carbon dioxide emissions

### Indicator: CO<sub>2</sub> emissions, total per capita and per \$1 GDP (PPP)

South Africa's total emissions (without Land use, land-use change and forestry (LULUCF)) in 2000 were estimated to be 461,178.5 Gg CO<sub>2</sub>e<sup>4</sup> (461 million tonnes CO<sub>2</sub>e) (DEA, 2009). Close to 83% of emissions were associated with energy supply and consumption (380,988 Gg CO<sub>2</sub>e) with smaller contributions of 7% from industrial processes (32,081 Gg CO<sub>2</sub>e), 8% from agriculture (38,716 Gg CO<sub>2</sub>e) and 2% from waste (9,393 Gg CO<sub>2</sub>e) as presented in figure below. These figures exclude emissions or sinks from LULUCF activities within the Agriculture, Forestry & Land Use (AFOLU sector). These AFOLU activities contribute 2,057 Gg CO<sub>2</sub>e as a source but also provide a sink of 20,751 Gg CO<sub>2</sub>e to provide a net sink of emissions of 18,694 Gg CO<sub>2</sub>e. Total emissions with LULUCF for the 2000 inventory total were 442,284.5 Gg CO<sub>2</sub>e or 442 Mt CO<sub>2</sub>e. When the Agriculture and LULUCF sectors are combined on the basis of 2006 IPCC guidelines, total net emissions from AFOLU is 20,022 Gg CO<sub>2</sub>e or 20.0 Mt CO<sub>2</sub>e. The sector contribution with LULUCF, are as shown in the Figure below.

<sup>4</sup> CO<sub>2</sub> emissions

**Figure 7.1: Total GHG emissions by sector with LULUCF (GgCO<sub>2</sub>e)**



Source: DEA (2009)

The general trend in sector GHG emissions showed both increasing and decreasing trends between years 1990 and 2000, see table 7.4 below. Energy sector emissions showed a consistently increasing trend from 1990 to 2000. Between 1994 and 2000 energy sector emissions increased by 28%, and between 1990 and 2000 there is an increase of 46%. Industrial Processes and Other Product Use emissions showed an increase of 6% between 1994 and 2000, and an increase of 4% between 1990 and 2000. Agriculture showed an increase of 9% between 1994 and 2000, but a decrease of 4% between 1990 and 2000. The Waste sector showed a decrease of 43% between 1994 and 2000, and a decrease of 38% between 1990 and 2000. It is acknowledged that some of these changes are attributable to more sources and better quality data, as well as changes in emission calculation methods and allocation of source categories, and not necessarily increased level in the sector activities. It should also be noted that use of 2006 IPCC Guidelines for the 2000 inventory may make trend emission comparison difficult for some sectors, particularly emissions or sinks from forestry, land use and land use change.

Carbon dioxide (CO<sub>2</sub>) is the main GHG contributing 79% of total emissions with methane (CH<sub>4</sub>) contributing 16%, and nitrous oxide (N<sub>2</sub>O) 5 %. The GHG emission trend from 1990 shows uniform increase in emissions for carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>). CO<sub>2</sub> emissions increased by 15% between 1994 and 2000, and show a general increase of 29% between 1990 and 2000. Methane emissions shows the highest percentage increase of all gases, recording an increase of 74% between 1994 and 2000, and an overall 74% increase between 1990 and 2000. Nitrous oxide showed an increase of 6% between 1994 and 2000, but a general decrease of 6% between 1990 and 2000.

**Table 7.4: Greenhouse gas emissions by gas (excluding LULUCF), percentage change from 1990 and 1994 to 2000**

GHG Emissions	Gg CO <sub>2</sub> e 2000	% of total	% change from 1994	% change from 1990
CO <sub>2</sub>	362,071	79	15	29
CH <sub>4</sub>	75,062	16	74	74
N <sub>2</sub> O	21,827	5	6	-6
CF <sub>4</sub>	1,971	0.4	-	-
C <sub>2</sub> F <sub>6</sub>	248	0.05	-	-
Total (without LULUCF)	461,178	-	21	33

Source: Department of Environmental Affairs (DEA 2009)

**Table 7.5: Total GHG Emissions in South Africa per Sector in 2000**

GHG source and sink category	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O, HCCO <sub>2</sub> equivalent (Gg)		PFCs	SF <sub>6</sub>	Total
Total (Net Emissions)	341,319.88	76,324.97	22,620.65	0.00	2,219.05	0.00	442,484.54
1. Energy	333,429.43	45,408.75	2,150.23				380,988.41
A. Fuel Combustion (Sectoral Approach)	307,132.06	529.05	2,123.23				309,811.34
B. Fugitive Emissions from Fuels	26,273.04	44,879.70	NA.NO				71,177.07
2. Industrial Processes and Product Use	28,641.12	3.38	1,217.52	NA.NO	2,219.05	NA.NO	32,081.06
A. Mineral Products	6,025.41	NA.NO		NA.NO			6,025.41
B. Chemical Industry	656.31	0.08	1,217.52	NO	NO	NO	1,873.91
C. Metal Production	21,959.40	3.30	0.00	NA	2,219.05	NA.NO	24,181.75
3. Agriculture, Forestry and Land Use	-20,750.67	22,136.94	18,636.00				20,022.27
4. Waste	0.00	8,775.90				616.90	9,392.80
Memo Items:							
International bunkers	11,645.83	17.11				95.56	11,758.50
CO <sub>2</sub> Emissions from biomass	5,171.24						5,171.24
	Total CO <sub>2</sub> equivalent emissions without land use, land-use change and forestry						463,235.22
	Total CO <sub>2</sub> equivalent emissions with land use, land-use change and forestry						442,484.54

Source: 2000 GHG Inventory Chapter: Input to the South Africa's Second National Communication to the UNFCCC, Department of Environmental Affairs, DEA (2010h); NA stands for "Not Applicable", NO stands for "Not Occurring", PFC stands for "Perfluorocarbons", SF<sub>6</sub> stands for "Sulphurhexafluoride", LULUCF stands for Land Use, Land Use Change and Forestry", IPCC stands for "Intergovernmental Panel on Climate Change"

The Table below provides a breakdown of energy sector emissions in 2000 by sub-sector and by greenhouse gas. The energy sector is the largest sector in the South Africa and was responsible for approximately 83% of emissions (380,988Gg CO<sub>2</sub>e) in 2000. Energy emissions are made up of two sectors namely, fuel combustion (sectoral approach) and fugitive emissions from fuels. Fuel combustion produced approximately 81% of the energy emissions with fugitive emissions from fuel contributing the remainder of 18,68%.

**Table 7.6: Energy Sector emissions in 2000**

Energy	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	Total
	CO <sub>2</sub> equivalent (Gg)			
A. Fuel Combustion (sectoral approach)	307,132	529	2,150	309,811
1. Energy Industries	218,314	79	1,097	219,491
2. Manufacturing Industries & Construction	38,879	66	146	39,091
3. Transport	38,624	258	629	39,511
4. Commercial/Institutional	1,902	0.4	9	1,911
5. Residential	5,547	122	259	5,928
6. Agriculture/Forestry/Fishing	3,706	3	10	3,718
5. Other	160	0.06	0.1	161
B. Fugitive Emissions from Fuels	26,297	44,880	NA.NO	71,177
1. Solid Fuels	24	40,366	NA.NO	40,391
2. Oil and Natural Gas	26,273	4,513	NO	30,786
<b>Total</b>	<b>333,429</b>	<b>45,409</b>	<b>2,150</b>	<b>380,988</b>

Source: 2000 GHG Inventory Chapter: Input to the South Africa's Second National Communication to the UNFCCC, Department of Environmental Affairs, DEA (2010h)

Emissions from the combustion of fuel are divided into six subsectors. Energy industries emit approximately 71% of the combustion emissions and approximately 58% of the energy sector emissions; manufacturing industries and construction contribute close to 13% of the combustion emissions, and around 10% of the energy sector emissions; transport contributes around 13% of the combustion emissions and 10% of the energy sector emissions. All other combustion subsectors contribute the remaining 3% of the combustion emissions and 2.6% of the energy sector emissions.

**Table 7.7: CO<sub>2</sub> emissions, total, per capita and per \$GDP (PPP)**

Type	Greenhouse gas emissions (without LULUCF)		Total greenhouse gas emission in South Africa in 2000	
	% change from 1990	% change from 1994	Greenhouse gas source and sink category	CO <sub>2</sub> (Gg CO <sub>2</sub> e)
<b>Sector</b>			<b>Total (net emissions)</b>	<b>341,319.88</b>
Energy	46		<b>1. Energy</b>	<b>333,429.43</b>
IPPU	4		<b>A. Fuel Combustion (Sectoral Approach)</b>	307,132.06
Agriculture			<b>Energy Industries</b>	218,314.02
Waste	-38	-43	<b>Manufacturing Industries and Construction</b>	38,879.34
<b>Total (excluding LULUCF)</b>			<b>Transport</b>	38,623.88
<b>Gas</b>			<b>Commercial/ institutional</b>	1,901.59
<b>CO<sub>2</sub></b>			<b>Residential</b>	5,547.25

Type	Greenhouse gas emissions (without LULUCF)		Total greenhouse gas emission in South Africa in 2000	
	% change from 1990	% change from 1994	Greenhouse gas source and sink category	CO <sub>2</sub> (Gg CO <sub>2</sub> e)
CH <sub>4</sub>			Agriculture/ forestry/ fishing	3,705.54
N <sub>2</sub> O			Other	160.42
CF <sub>4</sub>			<b>B. Fugitive Emissions from Fuels</b>	26,297.37
C <sub>2</sub> F <sub>6</sub>			Solid Fuels	24.33
<b>Total (excluding LULUCF)</b>			Oil and Natural Gas	26,273.04
			<b>2. Industrial processes and product use</b>	<b>28,641.12</b>
			A. Mineral Products	6,025.41
			B. Chemical Industry	656.31
			C. Metal Production	21,959.40
			<b>3. Agriculture, forestry and land use</b>	<b>-20,750.67</b>
			A. Enteric fermentation	
			B. Manure management	
			C. Forest land	-13,020.52
			D. Cropland	-7,730.15
			F. Wetlands	
			I. GHG Emissions from biomass burning	IE
			M. Indirect N <sub>2</sub> O emissions from managed soils	
			<b>4. Waste</b>	<b>0.00</b>
			A. Solid waste disposal on land	
			B. Waste-water handling	
			<b>MEMO ITEMS:</b>	
			International bunkers	11,645.83
			Aviation	2,906.25
			Marine	8,739.59
			CO <sub>2</sub> Emissions from biomass	<b>5,171.24</b>

Source: *GHG Emissions Inventory: 2000*, DEA; Stats SA (2010h) CO<sub>2</sub> stands for "Carbon Dioxide", CH<sub>4</sub> stands for "Methane", N<sub>2</sub>O stands for Nitrous Oxide; CF<sub>4</sub> stand for Carbon Tetra fluoride", C<sub>2</sub>F<sub>8</sub> stands for "Sulphurhexafluoride", LULUCF stands for Land Use, Land Use Change and Forestry".

In March 2006 the South African Cabinet commissioned a process to examine the options available to mitigate greenhouse gas emissions, backed by the best available information. The first phase of this study has been completed. The process was set up as a dialogue between stakeholders from all sectors of South Africa and four research teams, which

together made up a scenario building team. The key findings of the long term mitigation process were (Raubenheimer, 2007):

1. Growing without carbon constraints may be good for South Africa's economic growth, but will result in rapidly increasing emissions. A four-fold increase in emission by 2050 is likely to be unacceptable to the international community and is a high-risk approach on other grounds, such as rising oil prices, carbon constraints in trade and advancing impacts.
2. If all countries, including high emitters in the developing world, adopted this approach, climate change impacts in South Africa would be extensive.
3. A massive effort by South Africa to achieve emissions reduction sufficient to meet the 'required by science' target<sup>5</sup>. The gap between where South Africa's emissions are going and where they need to go is large (1300 Mt CO<sub>2</sub>-eq, more than three times annual emissions of 446 Mt in 2003).
4. Certain quantifiable strategic mitigation options are immediately implementable, even if they require significant efforts. These include energy efficiency, especially in industry; electricity supply options; CCS; transport efficiency and shifts; people-oriented strategies; supported by awareness. These potential strategies show good emissions reduction results: with costs to the economy ranging from affordable to significant. Significant mitigation action can have net public benefits, such as savings in energy bills and increased employment.
5. Within the quantifiable mitigation strategies, South Africa can choose both regulatory and economic instruments. Neither of these, however, completely closes the gap. With an escalating tax, economic instruments go the furthest in closing the gap. But they are not intrinsically more effective than regulation.
6. Hence much preparation of a range of further, more uncertain and for now less understood actions needs immediate exploration. These range from future technology to changes in social behaviour.
7. Key to success will be strong, committed and engaged South African leadership in government, business and civil society, coupled with international alignment and active support.

## 7.6. Ozone-depleting substances

### **Indicator: Consumption of ozone-depleting substances**

The thinning of the stratospheric ozone layer is caused by ozone-depleting substances, including chlorofluorocarbons (CFCs), halons, and other chemicals that are used in refrigerators, spray cans, air conditioners, and as foam blowing agents and solvents. When these substances reach the stratosphere, ultraviolet radiation from the sun breaks them apart to release chlorine (Cl) or bromine (Br) atoms, which react with ozone and start chemical cycles of ozone destruction that deplete the ozone layer.

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<sup>5</sup> Required by Science' target" is a target which assumes that if by 2050, South Africa had all the resources and technology readily at its disposal to contribute significantly to the global mitigation effort that is required to stabilise the climate. In the Scenario with this target, South Africa joins the world community in taking similar action to stabilize GHG concentrations, and negotiates a target as its fair contribution to this shared vision.



The Department of Environmental Affairs (DEA) has recently published a report on the Consumption of Ozone Depleting Substances (ODS) and their substitutes in South Africa: Second Report (DEA, 2010f). This report sets out the latest information on the consumption of ODS and replacements for the period June 2004 to June 2009. The report also provides analysis on the export of these substances.

According to the report, between June 2004 and June 2009 the consumption of hydrochlorofluorocarbons (HCFCs) constitute 81,4% (25,759 tons) of the total ODS consumed during the past five years. This is the highest consumed substance as opposed to the rest: hydrofluorocarbons (HFCs) at 10.9% (3,439 tons); Hydrofluorocarbon blends (HFC blends) with 3.4% (1,089 tons); Methyl bromide (MeBr) with 2.4% (747 tons) and bromochloromethane (BCM) at 2% (624 tons). The consumption of HFC and HFC blends is actually rising as consumers are seeking the use of alternative substances to HCFCs. However, this is alarming since these substances have increasingly high global warming effects. The HCFC-22 is also listed as the most consumed ODS in South Africa.

The report also contains the list of countries that supply substances to South Africa. India, China and the Netherlands are reported to be the most important sources of HCFC. Israel and Belgium are the greatest suppliers of MeBr; Germany and China the greatest suppliers of HFC; Israel and Germany the greatest suppliers of BCM; China, Netherlands and India the greatest suppliers of HFC blends.

South Africa is also an ODS exporting country. It seems that most of the companies that import ODS into South Africa do so to export the substances to neighboring countries such as Angola, Botswana, Malawi, Mozambique, Swaziland, Zimbabwe and Zambia. The exported substances are primarily HCFCs, secondly the MeBr and CFCs. Due to the unavailability of this information from the DEA database, this analysis is based on data sources from SARS

Furthermore, actual consumption of HCFCs (4,879 tons) for the year 2008 decreased by 20% as compared to projected consumption (6,111 tons). This can be attributed to a number of factors described below:

- The knock-on effect associated with acceleration of the phase-out of HCFCs by changing the freeze consumption date from January 2015 to January 2013;
- The awareness campaign by the Department's ozone unit on the accelerated phase-out of HCFCs; and
- The conduction of a preliminary HCFC survey with affected stakeholders.

It is important to understand that the consumption and management of ODS and substitute substances for the following reasons:

1. To ensure that sound strategies are developed based on informed decisions for phasing out ODSs. This will also facilitate better implementation of these strategies.
2. To better understand the implication of the increased use of ODS substitutes such as HFCs on climate change.
3. The specific use of ODS: ODS substitutes are mostly used in applications such as refrigeration, air conditioning, fire suppression and foam blowing.
4. To be able to align the management of ODS with that of green house gases as per the Kyoto Protocol.

It is important to improve the management of ODS in South Africa and the export of ODS from South Africa. The regulation should be made by requesting companies to apply for licenses/permits to export ODS. This will also improve the quality of the data that is collected.

**Table 7.8: Total consumption of ozone-depleting substances**

Substance (tons)	2005	2006	2007	2008	2009
CFC	-	-	-	-	-
HCFC	2410.6	4840	8640.6	4149.3	5718.2
BCM	160	0	153.9	310.1	0
MeBr	132	-	-	615	-
HFC	648	546.4	750.6	716.3	777.9
HFC blends	20	522.6	138	195.9	212.7

Source: *Pollution Carbon Emission report 2005-2009*

In July 2009 the first workshop on ozone layer protection and phasing out of HCFCs was organised by the DEA (Buissonne, 2009). The main purpose of the workshop was to:

1. Draft regulations for the phase-out of HCFCs
2. Develop an HCFC management plan for South Africa.

The Montreal Protocol has proposed an accelerated phase out of HFCs and South Africa is a signatory to the Protocol. The DEA is in the process of drafting policies and legislation towards its implementation. The scope of the proposed legislation is extensive covering all major market segments that use ozone depleting substances, namely, refrigeration and air conditioning, fire protection, solvents, aerosol propellants, and methyl bromide.

Although South Africa successfully phased-out CFCs in 1995<sup>6</sup> without the need of any legislation the phasing out of HCFCs needs to be carried out through legislations. South Africa needs to start complying with the obligations of the Montreal Protocol starting from January 2013; with consumption level of only 2,5% of HCFC by all companies in 2030.

In the short term this is a major undertaking which requires combined efforts from government and industry. The first course of action is to finalise the framework which consist of (a) completion of the regulations for the phase out of HCFCs; (b) the development of the phase out strategy; (c) develop an action plan per sector. The South African Fluorocarbon Association (SAFA) suggested the inclusion of more environmentally-responsible practices ('sustainable' practices) in preparing the necessary legislation. The implementation of sustainable practices includes:

- a) *Raising safety standards:* A concern was raised in the industry about the number of poorly or unqualified people handling refrigerants. This creates physical as well as environmental risk. This resulted in the subsequent proposed revision of section 17 of the Occupational Health and Safety Act, which is to include refrigerant gases and vessels under pressure.
- b) *Training:* The provision of appropriate training for artisans and workers working with appliances and equipment that have refrigerants will be the responsibility of ACRICSA.

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<sup>6</sup> This was achieved through a joint effort by government and industry working together, and ultimately phasing out CFCs on a voluntary basis.

These initiatives will increase safety in the industry. South Africa has 4000 practicing refrigeration practitioners, with only 1267 of them registered with the Safe Handling of Refrigerants (SHoR) Programme. Therefore it is about necessary for the country to develop legislation which only allows registered or qualified technicians to work on refrigerants.

- c) *Product stewardship programme*: A crucial component of the proposed legislation is the stopping of ODS escaping to the atmosphere. Poor maintenance, international ‘venting’ and the venting of residue gas left in cylinders results in system leakages. The maintenance of system logs is now a requirement of in some countries that record all ODS movements. A record of all services and maintenance must be kept by owners e.g. refrigerant added, leak checks carried out, and who has carried out the work etc. Our local industry may benefit from some of these measures.,

It is necessary for the end user to take much responsibility of the activities within their systems including personnel working on the system; this is closely related to the training and qualifications of technician. Legislation is currently non-existent with regards to the disposal of refrigerants. A guideline classified under the Occupational Health and Safety (OHS) Act , the SANS 10147 Code of Practice (refrigeration systems including plants associated with air-conditioning systems) has however been introduced. The legislation must include a section which specifies the minimum levels required to be operational in this industry, especially, the implementation of a cradle-to-grave product stewardship programme. It will include the enforcement of the correct usage of packaging (i.e. that of returnable cylinders), that any used product is fully recoverable (rather than being vented to atmosphere) and regulated where possible. In the event of a part of a product that is irrecoverable, an environmentally safe mode must be implemented for its destruction. The National Environmental Management Act of 1998 (NEMA) recommends the practice mentioned above, in which it states that:

- ‘*Development must be socially, environmentally, and economically sustainable*’.
- ‘The costs of remedying pollution, environmental degradation, and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects, must be paid for by those responsible for harming the environment’.
- ‘Pollution and degradation of the environment are avoided’.
- ‘Global and international responsibilities relating to the environment must be discharged in the national interest’.

This said, of specific concern to SAFA is the sale of refrigerant in disposable containers. This one-way packaging has the following detrimental impacts:

- i. Safety hazards: Despite clear indications on the packaging of the can that it is non-refillable, and a special valve that will only allow the cylinders to be filled once, many cylinders are being tampered with to allow re-filling. In some instances it has been reported that a refillable valve is welded onto the rupture disk which circumvents the main safety feature of these cans. The dangerous nature of this practice is confirmed by several reports of cans having exploded.
- ii. Environmental concerns: It was estimated in 2007 that 150,000 disposable containers were sold in South Africa. As there is no legislation in place to ensure that the steel can or cardboard packaging is recycled, the entire unit ends up on the scrap heap. Assuming that a 5% heel of residue product remains in these cans when ‘empty’, it is estimated that 102mt of gas will be emitted into the atmosphere when these cans are pierced and thrown into landfill which in itself poses a threat to the environment.
- iii. Illegal product: The Environmental Investigation Agency (EIA) has issued numerous publications on illegal trade of R123, which is by far the majority of cases reported

were in disposable containers. The illegal trade of R12 has diminished. SAFA is concerned that this illegal trade may spiral once again as soon as the legislation to phase out HCFCs is imposed. This problem of illegal trade is amplified by the complexities of the South African Customs Union. To this end SAFA are proposing that the sale of refrigerant is banned in disposable containers as the industry strives for improved safety standards and zero emissions.

- d) *Raising awareness:* As was the case with the phase out of CFCs, the ultimate success of the phase-out of HCFCs will be dependent on industry and government keeping each other updated on its progress. This information will be shared at:
- Regular working groups held between industry and government on a sector basis
  - Updates through the various trade journals
  - Ongoing communication between the importers, wholesalers, and the end users.

In conclusion, a lot of work has already been completed by both the Department of Water Affairs and the Department of Environmental Affairs, with a final push required jointly between government and industry. Based on the successful phase out of CFCs in South Africa, SAFA is confident that the same can be achieved with the phase out of HCFCs, and at the same time, we are hopeful that government will use this opportunity to raise the standards in our industry. The HCFC Phase out Schedule is set out in the Table below (Buissonne, 2009).

**Table 7.9: HCFC phase out schedule**

<b>Period</b>	<b>Action</b>
2008	Monitor consumption
2009 to 2010	Baseline consumption established (average of 2 years)
2013 (1st January)	Consumption freeze at baseline level
2015	10% reduction from baseline
2020	35% reduction from baseline
2025	67.5% reduction from baseline
2030	97.5% reduction from baseline
2030 to 2039	Max consumption 2.5% servicing only
2040	Full phase out

Source: Buissonne (2009)

**Table 7.10: Methyl bromide phase-out schedule**

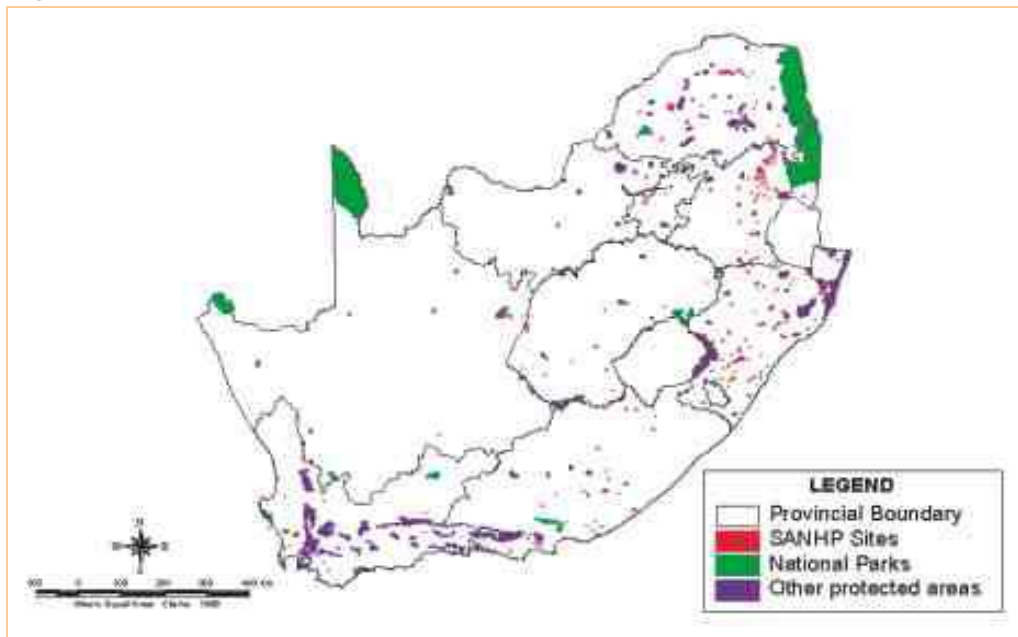
Period	Action
2004	2004 20% OF 2001 consumption 232 775
2005	2005 -20% OF 2004 155 620
2006	2006 -20% OF 2005 124 496
2007	2007 -20% OF 2006 99 397
2008	2008 -20% OF 2007 79 317
2009	2009 -20% OF 2008 63 253
2010	2010 -20% OF 2009 50 202
2011	2011 -20% OF 2010 40 161
2012	2012 -20% OF 2011 32 129
2013	2013 -20% OF 2012 26 103
2014	2014 -20% OF 2013 21 82
2015	2015 (0) zero 82 0 (zero) with the provision that critical exemptions and quarantine usage may be granted

Source: Theunis (2009)

### 7.7. Protected areas

South Africa has the third highest level of biological diversity of any country in the world (DEA, 2010a). Estimates of the total number of species in the country vary from 250,000 to 1 million, a richness and diversity which is due to the broad range of climatic, geological, soil and landscape forms found in South Africa. Some 18,000 vascular plant species occur within our boundaries (7.5% of the global total), of which 80% occur nowhere else.

**Figure 7.2: Conservation areas in South Africa**



Source: State of the Environment in Southern Africa (DEA, 2010a)

## Indicator: Proportion of terrestrial and marine areas protected

The high level of species richness, diversity, and endemism of vascular plants also earns South Africa the privileges of having two internationally renowned biodiversity "hot spots", the Succulent Karoo and the Cape Floral Kingdom. There are also five southern African hot spots which occur wholly or partially in South Africa. South Africa is home to 5.8% of the world's mammal species, 8% of the world's bird species, 4.6% of the world's reptile species, 16% of marine fish species and 5.5% of the world's recorded insect species. Over 10,000 coastal species of animals and plants (almost 15% of the global total) are found in South African waters, with about 12% of these occurring nowhere else.

A high proportion of the terrestrial vertebrate fauna and the flora of South Africa is preserved in terrestrial nature reserves and Marine Protected Areas. However, currently 3,435 (15%) of South Africa's plant species, 102 species of birds (14%), 72 species of reptiles (24%), 17 species of amphibians (18%), 90 species of mammals (37%), and 142 species of butterflies (22%), are listed as threatened in the South African Red Data Books. It is also estimated that the total number of threatened plant taxonomy doubled between 1980 and 1995 (from 1,893 to 3,268). There are 582 protected terrestrial areas in South Africa. Although the extent to which viable populations are conserved in such areas is not known, about 74% of South African plant species, 92% of amphibian and reptile species, 97% of bird species, and 93% of mammal species are estimated to be represented in the present protected area system.

**Table 7.11: Proportion of terrestrial and marine areas protected (1994 and 2010)**

	1994 (ha)	2010 (ha)
Marine areas	0	440,270
Terrestrial sites	6,312,851	7,561,419
<b>Total</b>	<b>6,312,851</b>	<b>8,001,688</b>
Area of South Africa	121,909,000	121,909,000
Inland waters (marine component)	930,807	930,807
Territorial waters (up to 12 nm)	5,798,623	5,798,623
Marion & Prince Edward islands	33,589	33,589
<b>Total territorial area</b>	<b>128,672,019</b>	<b>128,672,019</b>
Total area protected <sup>a</sup> (%)	4.91	6.22
Total marine area protected <sup>b</sup> (%)	0.00	6.54
Total terrestrial area protected <sup>c</sup> (%)	5.18	6.20

a. To calculate total territorial area, the total land area (including inland waters) + territorial waters (out to 12 nm), that is protected:  $(\text{Total area protected} / \text{total territorial area}) \times 100$

b. To calculate total marine area, the area from the high water line out to 12 nautical miles, that is protected:  $(\text{Total marine area protected} / \text{total area of territorial waters}) \times 100$

c. To calculate total terrestrial area, the land area [including inland waters], that is protected:  $(\text{Total terrestrial area protected} / \text{total land area}) \times 100$

Source: Stats SA (2010d) (Original Source: Department of Environmental Affairs)



Commercial exploitation of many fish species for national and international demand has depleted these resources severely, particularly pilchards, anchovies and red-eye; whereas subsistence exploitation of the rocky shores has led to the decline in rock lobster, abalone, mussels, crabs, and other species.

The most limiting resource to national development is fresh water. South Africa in its semi-arid state only has 8,6% of rainfall as surface water. This is one of the lowest conversions in the world. When compared to other countries, South Africa's groundwater resources are also very limited. In 1996 urban and domestic demand totalled 2 million cubic metres, mining and industry used 1,5 million, agriculture and afforestation used 12 million. In addition, it was estimated that alien vegetation, in comparison with natural vegetation used a volume of approximately 3,3 billion cubic metres. Fresh water is being over-exploited by wasteful users, vegetation and plantations and the demand are likely to increase by over 50% by the year 2030, due to the rapid population growth.

Main contributors to vegetation and soil degradation are the over-collection of woody biomass for fuel, intensive livestock grazing, and cultivation of marginal soils in old-"homeland" areas, and rapid demand for agricultural produce in commercial areas. In commercial areas it occurs through over-use of agrochemicals, monoculture, and intensive grazing pressure. Estimates show that water erosion affects 6.1 million hectares of cultivated soil in South Africa, and wind erosion affects an estimated 10.9 million hectares. These erosion effects causes an estimated mean annual soil loss of 2.5 tonnes per hectare, which is eight times faster than its replacement by natural processes. Over 2.5 million hectares of soil are estimated to have become acidified, reducing production potential and ability to meet future needs. Approximately 8% of South Africa's land surface has been severely infested by uncontrolled introductions of alien animal and plant species. This is due to poor management of cultivated and grazing lands which allowed for the increased population mobility. In addition, a large proportion of lands are being affected by bush encroachment (whereby woody plant species dominate naturally grassland areas). This alters the grazing capacity.

The percentages of endemic and threatened species in South Africa are given in the Table below.

**Table 7.12: Numbers of threatened and endemic species in South Africa (1994)**

<b>Taxon</b>	<b>Total number of species in South Africa</b>	<b>% which are threatened<sup>7</sup></b>	<b>% which are endemic</b>
Mammals	247	10.12	10.93
Birds	790	2.03	0.89
Reptiles	299	12.04	27.09
Amphibians	95	16.84	37.89
Freshwater fish	94	36.17	-
Invertebrates	23 000	4.14	-

Source: World Conservation Monitoring Centre (1994) - Biodiversity Data Source Book, WCMC Biodiversity Series No. 1. World Conservation Press, Cambridge, UK

<sup>7</sup> These figures were included by the author and cannot be verified directly from a source.

**Table 7.13: Plant biodiversity loss**

<b>Monitoring Category</b>	<b>Previous Assessment</b>	<b>Current Assessment</b>
Not Threatened	20,601	16,716
Threatened	676	2,458
Not Evaluated	0	1,765
Extinct	58	40
Insufficient Data	1,023	1,379
<b>Total</b>	<b>22,358</b>	<b>22,358</b>

Source: *Red Lists of South African plants 2009*, *Strelitzia* 25, Raimondo, et al. (2009). South African National Biodiversity Institute, Pretoria

The Marine Protected Areas (MPAs) are modelled on the success of the iSimangaliso Wetlands Park with strict zoning of both marine and coastal protected areas. There are about 30 MPAs in South Africa, e.g. Aliwal Shoal on the south coast of KwaZulu-Natal; the coastal and marine environment next to Pondoland in the Eastern Cape; Bird Island at Algoa Bay; and, the Cape Peninsula in the Western Cape. Some of the protection measures to be implemented in the MPAs are restrictions for people who want to fish, as well as restrictions for stowing fishing gear when fishing from a vessel (South Africa Online, 2010).

There are substantial threats to South Africa's coastal and marine resources which, as a result of over-harvesting along with urban and industrial development, are already extensively degraded. To avoid losing these resources all together South Africa needs improve its management of ecosystem integrity as well as coastal sensitivity to development at once. The lose of its coastal and marine resources will have a significant effect on South Africa's ability to achieve the necessary economic growth as well as its ability to sustainably meet its basic need. While attempting to ensure the sustainability of its marine and coastal resources the country may need to consider other environmental issues such as Global warming and the rise in sea levels.

The National Coastal Management Policy for South Africa makes provision for the use of resources in a sustainable fashion as well as for integrated coastal management. To ensure the production potential of the coastal and marine systems well into the future, the National Coastal Management Policy must be widely publicised and adequate resources, capacity and funding are made available in order for the policy to be efficiently implemented and enforced.

South Africa's coastline stretches for 300km around the tip of Africa between Namibia and Mozambique. Its coastline can be described as rugged, as it consists of rock shores which are exposed to strong winds and an extensive amount of wave energy. There are only a few bays along the coast which offer protection from the large waves.

Two thirds of South Africa's 343 estuaries are situated on the east coast between Cape Padrone in the Eastern Cape and Mtunzini in KwaZulu-Natal. Warmed by the Agulhas current the water on the east coast of South Africa is relatively warm (20-25°C) and boasts a great diversity of marine species. The west coast of South Africa has much colder waters (9-14°C) due to the nutrient rich Benguela current, which is also responsible for the greater quantity of marine life that is found on the west coast compared to the east coast. The west coast marine life is not as diverse as the marine life on the east coast. The south coast of South Africa has more moderate waters with temperatures ranging between 16°C and 21°C.

Population growth and development are driving environmental change in the coastal regions. With South Africa's economy transforming to be more centred around manufacturing and services and less centred on the sale of natural resources, South Africa is becoming reliant on ports for the export of manufactured products. This need for ports has resulted in major industrial and urban development around South Africa's seven large commercial ports.

South Africa faces the problem that some of the fish stocks being over fished, with a number of species facing local extinction. This destruction of resource as a result of unsustainable harvesting is and will have major effects on the South African economy and especially on the communities who depend on the marine resources for their subsistence. The separation of national, provincial and local governments has led to inconsistencies in the environmental management of coastal regions, with some approaches even contradicting each other.

As the population grows so does the demand for housing, infrastructure, food and fresh water. This increased demand is in turn placing pressure on the coastal region of South Africa. While this pressure is most notable in the urban coastal centers its effects can also be seen in the more rural areas where fish, mussels, crayfish and abalone are being harvested at a high rate.

Human activity along coastal regions has a significant effect on the environment through habitat transformation. The building of houses around estuaries cuts the estuaries off from the surrounding habitats, while agriculture and urban activities further up stream result in more sediment being deposited in estuaries. This has an effect on the ecosystems present in the estuaries as the organisms have adapted to survive in the conditions naturally present in the estuary. Key characteristic of estuaries is the salt concentration present. Humans use of fresh water from rivers and estuaries cause the salt concentration within the estuaries to change, resulting in estuarine organisms dying off. All of South Africa's estuaries have suffered some level of degradation. South Africa has 63 ocean sewage outfalls located along the coast; these have contributed to the degradation of the water quality along the South African coast and pose a threat to the health of ecosystems and humans.

Shipping also poses a danger to the water quality along the South African coast, due to oil spills and the discharge of ballast water a waste from the ships.

The major urban nodes situated along the South African coastline tend to be located within the bays. As a result of the urban development, the ecosystems present within the bays have been extremely degraded. The degradation of the estuarine ecosystems has been primarily caused by habitat loss and fragmentation, extensive pollution and resource exploitation. For the majority of these ecosystems the damage is irreversible. As a result there has been a substantial reduction on the productivity of these ecosystems and hence reducing the overall productivity of the South African coast.

In general, there has been a significant reduction in all coastal and marine living resources from over-fishing, in particular rock lobster, pilchards, anchovies and red-eye. Reasons for this decline are improvements in fishing methods, increasing in fishing effort and establishment of associated fishing industries in coastal towns and cities. Another factor which is raising serious concern around the sustainability of the current fishing practices in South Africa is the rising levels of toxic pollutants in fish stocks.

Loss of ecosystem integrity is the main impact on the natural coastal environment due to:

1. the deterioration in marine water quality as a result of pollution,
2. resource decline due to over-exploitation, habitat elimination and fragmentation,
3. reduced freshwater inflow into estuaries, and
4. the combined impact of all of the above.

The substantial disruption of ecosystem process seen on the South African coast can be largely attributed to human population growth. The loss of biodiversity and the depletion of coastal and marine harvestable resources can also be attributed to the rising human population. Population of ecosystems has an effect on human health especially due to recreational activities such as bathing. While larger pollution incidents such as oil spills will cause an impact on the environment through the loss of bird and fish life and it can also cause damage to beaches and coastal habitats. Another contributing factor to the loss of biodiversity is the degrading of estuaries which is preventing natural regulation of water quality and natural cycling of nutrients. Rising seas will cause greater degradation of the coastal regions through damage to infrastructure and the loss of habitats due to flooding.

South Africa's implementation of policies and laws relating to environmental management has in the past been fragmented in implementation and responsibility. In the past five years new laws and policies with a national focus have been developed in an attempt to address this problem. The new laws and policies aim to achieve more effective and efficient management of all South Africa's natural resources as well as to prevent or minimise degradation of South Africa's marine resources and ecosystems.

## **7.8. Endangered species**

### **Indicator: Proportion of species threatened with extinction**

Plantation forestry has contributed to the protection of natural habitats and species due to the legal requirement that all forest permit holders insure that at least 25% of the land under plantation is conserved. This has resulted in around 300-400 hectares of land being set to conservation areas and many of South Africa's declared natural heritage sites being located on forest estates (DEA, 2010c). There has also been negative impact on the biodiversity of terrestrial plant species as the forestation has led to a loss in local biodiversity and changes in species composition. An example of this can be seen in Mpumalanga province, where a significant impact can be seen on the species diversity in grassland birds particularly in globally threatened grassland birds, as a result of the forestation (Allan et al, 1997).

**Table 7.14: Proportion of vegetation species threatened with extinction (2009)**

Monitoring Category	Previous Assessment	Current Assessment
Not threatened	20,601	16,716
Threatened	676	2,458
Not threatened	0	1,765
Not evaluated	58	40
Extinct	1,023	1379
Insufficient data	22,358	22,358

Source: Stats SA (2010e) (Original Data Source South African National Biodiversity Institute SANBI)

Perennial plant diversity and abundance has been shown to decline under sustained grazing pressure (Todd, 1997 and Todd & Hoffman 1999) and weedy species tolerant of grazing become dominant resulting in the decline of other species (Hoffman and Cowling, 1990). This reduction in biodiversity has an effect on other organisms within the ecosystem such as insects and small mammals. At least three plant species which are listed as globally extinct in the South African Red data list, have had their extinction attributed to over grazing (Hoffman and Cowling, 1990). Six of the 48 species that are listed in the "Indeterminate" category (potentially extinct) in the Red data list, have been affected by agricultural activities in the major rangeland regions (Hoffman et al. 1999).

Within the metropolitan city of Cape Town only, 294 plant species are under immediate threat of extinction (Wood *et al.* 1994) and five plants species (*Erica pyramidalis*, *E. sociorum*, *E. verticillata*, *Asparagus variegata*, and *Romulea papyracea*) have become extinct within the region (Hall and Ashton, 1983). This is significant as Cape Town is expanding within an internationally recognised floristic hotspot.

The trade of plants for medical and horticultural purposes is having an adverse effect on the biodiversity of terrestrial plants. Traditional healers have harvested plants in accordance with traditions which have reduced over-harvesting in the past, though as demand grows so does the incentive to harvest plants using less discrimination (van Wyk *et al.* 1997). It is estimated that 75% of the population of South Africa uses traditional plant based treatments (Ellis, 1986) to treat a variety of conditions (Hutchings, 1989). As a result the population to traditional healer ratio is estimated to be 10 to 20 times higher than the population-to-western doctor ratio (Cunningham and Davis, 1997). This coupled with unsustainable harvesting rates and the fragmentation of natural ecosystems is causing for many plant species to be threatened.

Some examples of highly desirable medicinal species that are severely threatened with extinction by harvesting in the wild include *Warburgia salutaris*, the pepper-bark tree (Scott-Shaw *et al.* 1998), *Siphonochilus aethiopicus* (wild ginger, now possibly locally extinct), *Haworthia limifolia* (a succulent species almost extinct), and *Boweia volubilis* (the climbing lily, locally extinct in parts of its range). The extent of the problem can be illustrated by the following. A cultivation guide for indigenous medicinal plants of KwaZulu-Natal features 31 species (Mander *et al.* 1995), of these 26 are described as specially protected and most have declining or depleted populations. There is a significant market for Southern African wild plant medicines in Europe and while it is not known for sure it is thought a major portion of these medicines are made from plants collected in the wild (Lewington, 1993).

Close to 128 of South Africa's succulent species are threatened due to field collectors, who collect plants in an unsustainable manner, and the degradation of the plants habitat. This is according to the Department of Environmental Affairs (DEA, 2006). Fourie and Boyd (1995) estimate that of the 20 cycads of the genus *Encephalartos* in Mpumalanga and the Northern Province 12 are subject to intense collector activity. This estimate is based on 15000 possession permits being issued in the Northern Province, which would allow for the collection of 300 000 plants (Fourie & Boyd 1995). Cycades are slow growing plants which grow in small populations and within small geographical ranges. As a result the removal of such large numbers of these plants has led to local extinction of some populations and in other cases extinction from the wild.

Dwarf species of *Aloe* found in South Africa are a focus international *Aloe* trade which targets rare species from South Africa and Madagascar (Oldfield 1993). *Aloe ferox* which is used heavily for commercial purposes appears to be used in a sustainable way. It is the dwarf *Aloe* which is used for more ornamental purposes whose natural population is being threatened. *Aloe peglerae* (CITES category II) is a dwarf *Aloe* form found on the rocky slopes of the Magaliesberg, Gauteng province. Although it grows in numbers of hundreds per square kilometre the *Aloe peglerae* is illegally collected at an unsustainable rate. This has resulted in some population disappearing completely (Newton and Chan, 1998).

Another contributor to the reduction in biodiversity are exotic invasive organisms. It is estimated that the invasion of alien woody plants in the south western Cape are responsible for 33 of the natural plant species being threatened, which is a large number considering that there are a total of 70 threatened plant species in the region (Hall *et al.* 1980). The alien woody plants have also affected the biodiversity of animals through the reduction of insect feed birds and the increase of seed feeding birds. The invasion of alien trees has also allowed bird which is dependent on trees to expand their ranges, as shown by the 36 indigenous bird species that have invaded the south western Cape, and the further 27 which have increased their distribution range due to alien woody plant invasion (Macdonald and Richardson, 1986).

Three indicators have been proposed in relation to Target 7B (biodiversity loss). The trends with respect to these are examined below.

- i. The first refers to the *proportion of total water resources used*. Progress in this area is hindered by a number of factors associated with highly unequal distribution of water and pressures on water resources, including excessive extraction by agriculture and mining, the depletion of aquifers, increasing water pollution, deforestation and the destruction of catchment basins and replenishment areas. South Africa is relatively poorly endowed with water resources and is exposed to significant risks associated with water quality and availability over time and space. Climate change and rising demand will worsen water availability problems. In the face of these challenges, progress towards the target requires more effective management of South Africa's limited water resources.
- ii. Some progress is visible in relation to indicator: *proportion of terrestrial and marine areas protected*, inasmuch as the total area protected has increased steadily in the past decade. There is evidence in the region of habitat loss as a result of deforestation, often associated with large-scale economic activities, the introduction of non-native species and climate change. As well as protecting specific areas, other conservation techniques must be employed and changes made to national and international financial and regulatory structures in order to ensure that agents internalize the social and environmental cost of biodiversity loss or the benefits of conservation.



- iii. One of the most direct manifestations of biodiversity loss is the rising *proportion of species threatened with extinction*. In this area, information about species threatened with extinction is still precarious. Despite the lack of historical data series, there is evidence of biodiversity loss and the reversal of this loss depends on the consolidation of mechanisms for internalizing the benefits of biodiversity preservation, including different conservation techniques (including protected areas) and an equitable regime for participation in the benefits of exploitation.

#### **Indicator: Proportion of fish stocks within safe biological limits**

Indicator *proportion of fish Stocks within safe biological limits*, could be considered to reflect progress or deterioration with regard to Target 7A, as well as measuring progress towards Target 7B on reducing biodiversity loss. However, *there are no statistics*, to properly measure this indicator. (ECLAC, 2010). “Studies carried out have found that the growth of industrial fishing and aquaculture, changes in habitats and increasing pollution are placing heavy pressure on hydro-biological resources, and this is exacerbated by climate change, which could lead to biodiversity loss.”

Sustainable management principles have been incorporated into management practices for some species, but have yet to be applied universally or on a scale that could lessen the pressure on resources and no solution to these problems are visible for the short and medium terms. The main obstacle to appraising progress in relation to the protection of fish stocks is the lack of systemic data compilation.

### **7.9. Water resource**

#### **Indicator: Proportion of total water resources used**

Since South Africa is largely a semi-arid, water-stressed country, the average rainfall of about 450mm a year is well below the world average of about 860mm a year. Many large storage dams have been built as a mechanism to overcome the problem of variable river flows. However, the already low available water supply is reduced by evaporation from dams, and by commercial afforestation and sugar-cane farming. After allowing for the re-use of return flows, the total net abstraction of water from surface-water resources amounts to about 10.2 billion m<sup>3</sup> a year for the whole country,. This represents about 20% of the total mean annual run-off of 49.2 billion m<sup>3</sup> per year. 6% of the water resources are estimated to be lost through land-use activities and a further 8% through evaporation from storage and conveyance along rivers. This results in a national average of about 66% of the natural river flow (mean annual run-off) that still remains in the country’s rivers (South Africa Online, 2010).

“Water Policy: The first edition of the National Water Resource Strategy (NWRS) was approved in September 2004. The NWRS describes how South Africa’s water resources will be protected, used, developed, conserved, managed and controlled in accordance with the requirements of the National Water Policy, 1997 and the National Water Act of 1998. These

documents are based on government’s vision of a transformed South African society in which every person has the opportunity to participate in productive economic activity and lead a dignified and healthy life.”

United Nations statistics available on this indicator are show in the table below (UN, 2010). From the very limited data available it appears that the percentage of water used slightly decreased. This probably indicated that the economically exploitable water resources are already fully utilised.

**Table 7.15: Proportion of total water resources used, 1990-2005<sup>8</sup>**

Country	1990	1995	2000	2005
South Africa	26.61%	-	25.03%	-

Source: (UN, 2010)

## 7.10. Access to water and sanitation

Access to potable water and sanitation are essential elements for the effective function of human settlements, and are integral to human health and well-being. Since 1994, there has been an improvement in access to clean water. In 2001, 9.5 million households (84.5%) had access to piped water, an increase of 2.4 million households since 1996. The number of households relying on water from sources including dams, rivers and streams, and boreholes declined during this same period, which suggests improved structured access to clean water among rural households. In 2008 it was estimated that only 2.4 million people of the South African population (49.4 million) did not have access to basic water services. Low cost-recovery, limited water availability, and poor training in maintenance of infrastructure, however, have resulted in the variable success of rural water schemes.

**Table 7.16: Access to services**

Year	Water Supply from a safe source (%)	Sanitation at RDP std or higher (%)	Living in informal dwelling (%)	Solid fuels for cooking (%)	Solid fuels for heating (%)	Connection to the mains electricity (%)
2002	88,7	61,9	13,0	20,0	24,4	76,8
2003	89,8	64,0	12,8	19,5	23,6	78,4
2004	90,8	66,0	11,9	18,6	23,3	80,6
2005	91,7	66,7	15,7	15,8	19,6	80,8
2006	92,2	68,2	14,7	19,7	19,4	80,7
2007	92,7	70,1	15,0	14,4	19,0	81,8
2008	92,0	69,7	14,1	16,4	21,8	81,7
2009	92,4	72,2	13,4	15,7	19,8	82,6

Source:

<sup>8</sup> These figures were included by the author and cannot be verified directly from a source.

## Indicator: Proportion of population using an improved drinking water source

There was a progressive increase (4%) in the percentage of households with access to water supply from a safe source between 2002 (88, 7) and 2007 (92, 7%), with slight dip in 2008 (92, 0), and then a rise in 2009 (92, 4%). This data has to be taken in the context of increases in the number of households and consequent increases in the population. The percentage of households with access to water infrastructure above or equal to the Reconstruction and Development Programme (RDP) standard increased from 61, 7% in 1994 to 91,8% in March 2009. Using these data sources, it is estimated that 93% of the population has access to improved drinking water supply in the year 2010. The Department of Water Affairs acknowledges that the supply backlog has been reduced from 41% in 1994 to only 7% in 2010<sup>9</sup>. This means that South Africa has surpassed the MDG of halving the proportion of people without sustainable water in 2005. On the whole government needs to make efforts to see to it that infrastructure is constantly maintained on top of new infrastructure investments especially in the rural areas where households were severely neglected in terms of their access to water in the previous past.

In 1994 South Africa was unique to the rest of the developing world; a new democratic political dispensation, a mixture of first and third worlds where 41% of its population had no access to RDP levels of water supply and 52% sanitation, and an annual population growth rate in excess of 3%, while still undergoing major, legal, institutional and structural reforms. In 1994 the Department, as custodian of water resources, was made responsible for the implementation of water supply and sanitation (water services) projects and operation of schemes, when the Reconstruction and Development Program (RDP) began. The provision of Water Services not only includes water and sanitation services but also regional water schemes, the provision of safe drinking water and the collection and treatment of waste water. In 2002 the implementation responsibility was transferred to the Department of Cooperative Governance and Traditional Affairs but the Department of Water Affairs (DWA), as overall leader and regulator of the South African water sector, nevertheless has the mandated responsibility to ensure that all people have access to both sustainable water services and resources.<sup>10</sup>

**Table 7.17: People living in rural areas with access to water above RDP levels<sup>11</sup>**

Year	Population	Number of people living in rural areas	Number of people in rural areas with access to water above RDP levels	Percentage with access to water above RDP levels
1994	38, 901, 307	16, 742, 749	7, 433, 489	44.4
1995	39, 627, 904	16 968 748	7 546 311	44.5
1996	40, 374 427	17 199 597	7 665 591	44.6
1997	41 141 459	17 435 564	7 804 554	44.8
1998	41 929 619	17 676 584	8 082 143	45.7
1999	42 738 841	17 922 277	8 611 244	48.0
2000	43 571 006	18 173 897	9 075 155	49.9

<sup>9</sup> Department of Water Affairs, 2010. Provisioning of Water and Sanitation Services. Since 1994 in South Africa. Measuring Progress in Line with Millennium Development Goals. Pp. 7 – 8.

<sup>10</sup> Department of Water Affairs, 2010. Provisioning of Water and Sanitation Services Since 1994 in South Africa, Measuring Progress in Line with the Millennium Development Goals.

<sup>11</sup> These figures were included by the author and cannot be verified directly from a source.

2001	44 428 214	18 432 729	9 493 152	51.5
2002	45 499 932	18 734 515	10 936 531	58.40%
2003	46 193 756	18 948 378	10 738 733	56.70%
2004	47 137 186	19 234 806	12 231 153	63.60%
2005	48 081 466	19 519 248	13 469 052	69.00%
2006	48 606 643	19 648 098	14 070 338	71.60%
2007	48 897 554	19 765 269	14 914 433	75.50%
2008	49 447 753	19 921 962	15 686 628	78.70%

Source: *Water Services National Information System*, Department of Water Affairs and Forestry, (DEA, 2010g)

The disparity in access to a (clean) drinking water source is one of the many indicators of the glaring inequality in the post-apartheid South African conjuncture. The United Nations clearly recognizes access to drinking water as one of the qualitative indicators of the development and improvement of people's lives, more so in the developing world, which lags behind in a panoply of these "development" indicators. The apartheid policy regime and structural regime clearly had an impact on access to clean drinking water (Earle, Goldin and Kgomotso, 2005)<sup>12</sup>, especially among the black African population living in the rural areas and in high density, black only townships and neighbourhoods.

Prior to 1994 there was no single national government department responsible for water supply and sanitation in South Africa. Responsibility was fragmented and allocated to local governments in the previous four provinces and to ten nominally autonomous homelands, resulting in very different levels of service. Most of the then white local governments offered standards equal to those in industrialised countries. In the rural areas there were often no services, while in black urban areas the situation was mixed. Generally, both urban and rural services for black people were often in a state of disrepair.<sup>13</sup>

At the dawn of democracy in 1994, the South African government in its Reconstruction and Development Plan (RDP) policy document sought to address the service disparities that it had inherited from the Apartheid regime. One of the pillars of the RDP was "Meeting basic Needs" and the government prioritized access to water and sanitation for all South African citizens. According to the Department of Water and Forestry (DWAF)<sup>14</sup> in 1994, there were some 14 million people with inadequate water supply services, while some 21 million people - equivalent to half the country's population then - lacked access to adequate sanitation.<sup>15</sup> Taking cognizance of these inequalities, the South African constitution enshrined in the Bill of Rights the right of access to water and a safe and healthy environment for all citizens. The two Acts that enable government to fulfil these rights through the Department of Water Affairs are:

- The Water Services Act, 1997 (Act 108 of 1997), which created a regulatory framework within which water services could be provided. Schedule Four of the Constitution vests the responsibility for water and sanitation services in local government. National government, however, is responsible for the regulatory function.

<sup>12</sup> Earle, A., Godin, J. and Kgomotso, P. 2005 Domestic Water Supply in the Democratic South Africa – changes and challenges Unpublished Paper, University of Pretoria.

<sup>13</sup> Source: "The National Water and Sanitation Programme in South Africa: Turing the "Right to Water" into Reality [http://www.wsp.org/UserFiles/file/3292007103257\\_afBGRightToWaterRealitySouthAfrica.pdf](http://www.wsp.org/UserFiles/file/3292007103257_afBGRightToWaterRealitySouthAfrica.pdf)

<sup>14</sup> Department of Water Affairs and Forestry 2004 A History of the first decade of Water service delivery in South Africa 1994 to 2004 Pretoria: DWAF

<sup>15</sup> Department of Water Affairs and Forestry 2004 A History of the first decade of Water service delivery in South Africa 1994 to 2004 Pretoria: DWAF

- The National Water Act, 1998, which aims to ensure that water resources are protected, used, developed, conserved, managed and controlled in a sustainable manner, for the benefit of everyone in South Africa.

The Department of Water Affairs aims to ensure that South African water is protected from pollution, conserved and used efficiently. This requires careful management of this valuable resource so that the department can ensure universal access to basic water services to every citizen while simultaneously meeting the needs of economic growth in a way that does not threaten the environmental integrity of water resources. The Department of Water Affairs has to constantly balance the increasing and competing demands on the country's limited water resources, mindful of the fact that water for social development, economic growth and environmental sustainability are all equally important for the success and prosperity of the country. The Framework on Water for Growth and Development, developed in 2008, is the result of two years of consultations with key players in the water sector. The framework is a ground-breaking initiative that aims to set in motion a course of action to ensure that there is sufficient water, in both qualitative and quantitative terms, to support South Africa's growth trajectory and development. The department has to ensure that there is sufficient water available for South Africa to achieve its economic-growth targets. At the same time, it has to ensure it meets its 2014 target for universal access to water and basic sanitation. The framework seeks to address specific challenges associated with water-resource availability to enable projected economic growth and social service-delivery programmes. Besides ensuring water security until 2030, the framework attends to a number of aspects of water, including its availability, usage, threats and people's behaviour. It is premised on the 6% economic growth target and basically aimed at ensuring that every person in South Africa has access to safe drinking water. In guiding the provision of basic water services South Africa has the following RDP criteria are applied<sup>16</sup>:

*Basic water supply:*

- 25 liters per capita per day (6kl per household per month)
- Within 200 meters of a dwelling
- Portable water (SANS 241, Class 1)
- Secure resource (@ 98% assurance of supply)
- Secure flow (10 liters per minute)
- Basic sanitation:
- Clean, safe, healthy, environmentally acceptable and appropriate
- Initially dry sanitation – now wet/dry mix with associated implications

A vital element of DWA's water resource strategy is the progressive decentralisation of the responsibility and authority for water resources management to catchment management agencies (CMAs) and, at a local level, water user associations (WUAs). These institutions, representative of water users and other stakeholders, will eventually facilitate effective participation in the management of water resources in their areas. The Department will lead the creation of these new institutions and support and guide them in the execution of their roles. Other key organisations involved in Water Services include the following<sup>17</sup>:

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<sup>16</sup> Department of Water Affairs, 2010. Provisioning of Water and Sanitation Services Since 1994 in South Africa, Measuring Progress in Line with the Millennium Development Goals.

<sup>17</sup> Department of Water Affairs, 2010. Provisioning of Water and Sanitation Services Since 1994 in South Africa, Measuring Progress in Line with the Millennium Development Goals.

- National Treasury, who financially supports DWA and other departments in fulfilling their support and regulatory roles insofar as these roles relate to fiscal and financial matters.
- The Department of Cooperative Governance and Traditional Affairs (COGTA), who regulates municipal services partnerships, ensures municipal integrated development planning, allocates funds to local government, regulates municipal affairs and intervenes in cases of non-performing local municipalities (LMs).
- The Department of Health, who ensures that all hospitals and clinics are provided with adequate water and sanitation facilities.
- The Department of Education, who is responsible for developing national education curricula that includes appropriate health and hygiene education (related to water and sanitation).
- The Department of Human Settlements, who sets national housing policy which is aligned to local government's water service policies.
- The Department of Public Works, who is responsible for implementing the community based public works programmes.
- Department of Environmental Affairs and Tourism, who ensure that environmental impact assessments for water services infrastructure projects are carried out, while promoting conservation, cleaner technologies and waste minimisation.
- Water Services Authorities (WSAs) (169), who are responsible for planning, ensuring access to, and provisioning of water services within their area of jurisdiction. WSAs consist of metropolitan municipalities, district municipalities (DMs) and authorised local municipalities (LMs). They may provide services themselves and/or contract external water service providers (WSPs) to undertake the functions on their behalf. WSAs are responsible for securing licences from DWA or CMAs to abstract water from, and to discharge wastewater to, the water resource. WSAs also regulate the provision of water services within their local area through by-laws and contracts.
- Water boards (15), who operate water resource infrastructure, and manage bulk portable water supply schemes (selling to LMs and industries), some retail water infrastructure and some wastewater systems.
- Community-based organisations, who manage small water schemes in rural areas.
- Publicly or privately owned companies, who provide water services. Other role-players include research organizations such the Water Research Commission (WRC), the Council for Scientific and Industrial Research (CSIR) and Human Sciences Research Council (HSRC).
- Academic institutions,
- Consultants and professional organisations such as the Cities Network, the Water Institute of South Africa (WISA), the Institute of Municipal Financial Officers (IMFO), and the Institute of Municipal Engineering of South Africa (IMESA).

Water services consist of five core outcome programmes<sup>18</sup>:

- Ensuring basic and social services: formal backlogs and housing related needs
- Ensuring higher levels of domestic service, commercial and business requirements, economic development as well as associated services (school and clinics)

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<sup>18</sup> Department of Water Affairs, 2010. Provisioning of Water and Sanitation Services Since 1994 in South Africa, Measuring Progress in Line with the Millennium Development Goals.



- Ensuring services quality which includes drinking water quality, waste water management, sustained service delivery (interruptions management and resource security) and customer service
- Associated water resources and environmental management

### **Indicator: Proportion of population using an improved sanitation facility**

The right of access to basic sanitation services is enshrined in the Constitution of South Africa (1996): Section 24(a), states that “everyone has a right to an environment that is not harmful to their health or well-being”, and municipalities have an obligation to ensure the realisation of this right.” As at April 2008, the sanitation backlog was put at an estimated 3 311 512 homes, down from approximately 4 759 709 at the time of the 2001 Census. In the past 15 years (1994-2009) the number of households using the bucket system has reduced by 67% from 609 675 to 9 044. The target date for universal access to sanitation is 2014.<sup>19</sup> At this rate, South Africa has made demonstrable progress in terms of sanitation and has met the MDG sanitation goal, although going by data in this report, the goal of eliminating the full sanitation backlog by 2014 may seem too ambitious. The percentage of households with access to sanitation at RDP levels or higher rose from 61,9% in 2002 to 70,1% in 2007. In 2008 there was a decline to 69, 7% and this went up to 72,2% in 2009. As at March 2009<sup>20</sup>, more than 10 million households (77%) had access to sanitation compared to about five million (50%) in 1994. Between 2001 and 2008, approximately 73% of the population had access to basic sanitation services and the basic sanitation backlog was reduced to 27%<sup>21</sup>. By 2010, the sanitation backlog is estimated to have reduced to 21% from a high of 52% in 1994<sup>22</sup>. This represented significant progress in the eradication of the basic sanitation infrastructure backlog. In addition, the government has also significantly moved closer to attaining its objective of eradicating the bucket system in formally established settlements. There is a realization that the bucket system may continue to be used in informal settlements however.

South Africa has build a substantial waste water management industry that comprises of approximately 850 municipal treatment plants, extensive pipe networks, and pump stations, transporting and treating an average of 7,589 Mega litres of wastewater on a daily basis. The country runs a prominent wastewater treatment business with an estimated capital replacement value of >R23 billion and an estimated operational expenditure of >R3.5 b per annum.

Recent studies suggest poor compliance to the various Water Acts which need to be addressed urgently. Furthermore, the conditions of the municipal waste water treatment has been found to be of poor quality and far from meeting the required national standard that have been set in line with the international best practice. Recent investigations and audits

<sup>19</sup> DWAF, 2009 Free Basic Sanitation Implementation Strategy

<sup>20</sup> Department of Water Affairs, 2010. Strategic Plan 2010/11 – 2012/13, Pretoria: Government Printers

<sup>21</sup> Mjoli, N. 2010. Review of Sanitation Policy and Practice in South Africa from 2001 – 2008. Report to the Water Research Commission by Hlathi Development. Services WRC Report No. 1741/1/09 ISBN 978-1-77005-899-6

<sup>22</sup> Department of Water Affairs, 2010. Provisioning of Water and Sanitation Services Since 1994 in South Africa. Measuring Progress in Line with Millennium Development Goals, pp. 11

confirmed that the situation with regard to waste water treatment and compliance with the respective Water Acts must be addressed as a matter of urgency. The municipal waste water services business is generally considered to be far from acceptable, when compared to the required national standards and international best practice.

Access to sanitation in rural areas is important as it is an indication of whether access to basic sanitation has improved within the country. Target 10 of goal 7 of the millennium development goals requires a halving of the proportion of households without sustainable access to safe drinking water and basic sanitation.

An increase access to sanitation is a key component of development and poverty reduction, as it has major health benefits as well as associated social, economic and environmental benefits. Inadequate sanitation can cause several diseases which are transmitted to humans through exposure to sewage. Sanitation is a critical intervention needed to improve living conditions among South Africa's poor and to reduce or prevent diarrhoea and other seriously debilitating conditions, especially among children.

South Africa has reduced the relative proportion of household without sanitation infrastructure from 48% in 1994 to 27.4 % in 2007 (see Table below). Significant progress has therefore been made towards achieving this Millennium Development Goal 7. It should be noted that the figure reflects the provision of infrastructure and does not reflect actual use if the service has been provided.

**Table 7.18: People living in urban areas with access to sanitation<sup>23</sup>**

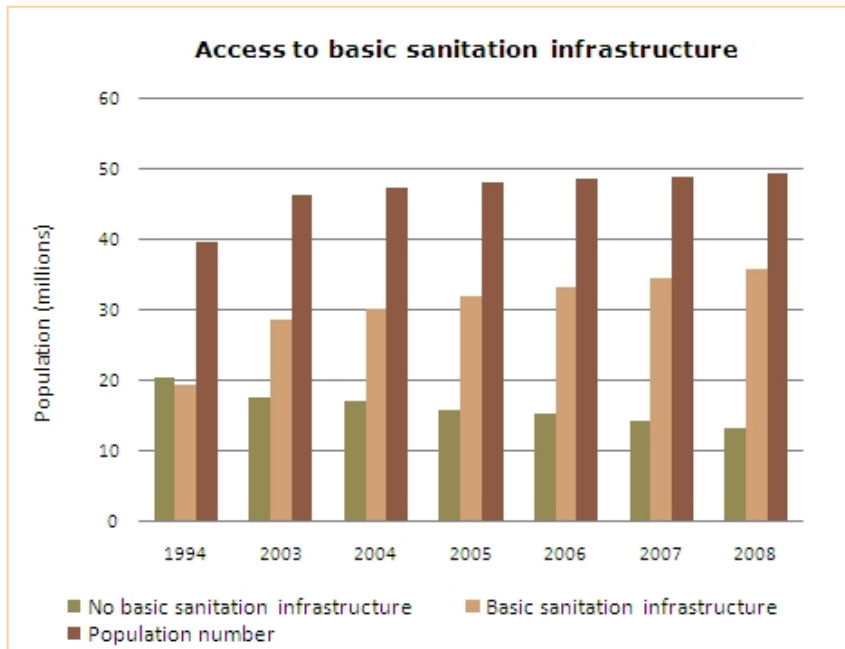
Year	Population	Number of people living in rural areas	Number of people in rural areas with access to sanitation above RDP levels	Percentage in rural areas with access to sanitation above RDP levels
1994	38 901 307	16 742 749	5 438 693	32.5
1995	39 627 904	16 968 748	5 594 153	33.0
1996	40 374 427	17 199 597	5 687 427	33.1
1997	41 141 459	17 435 564	5 778 160	33.1%
1998	41 929 619	17 676 584	5 885 698	33.3%
1999	42 738 841	17 922 277	6 034 838	33.7%
2000	43 571 006	18 173 897	6 134 716	33.8%
2001	44 428 214	18 432 729	6 269 905	34.0%
2002	45 499 932	18 734 515	6 808 438	36.3%
2003	46 193 756	18 948 378	7 562 051	39.9%
2004	47 137 186	19 234 806	8 551 296	44.5%
2005	48 081 466	19 519 248	9 418 081	48.3%
2006	48 606 643	19 648 098	10 188 250	51.9%
2007	48 897 554	19 765 269	11 018 888	55.7%
2008	49 447 753	19 921 962	12 018 634	60.3%

Source: *Water Services National Information System*, Department of Water Affairs and Forestry, available at [www.dwaf.gov.za](http://www.dwaf.gov.za)

<sup>23</sup> These figures were included by the author and cannot be verified directly from a source.

Serious problems are being experienced with the provision of sanitation services in South Africa. An example of this was the cholera deaths in Delmas which were associated with poor sanitation. The Health Ministry said reported: "The latest figure we have is that cholera has so far claimed 15 lives across the country and we have recorded more than 2,000 cases. Death toll at the end of last month was nine," Health Ministry spokesperson Fidel Hadebe said. "Most of deaths were recorded in Limpopo," he said

**Figure 7.3: Access to basic sanitation infrastructure**



Sources: *Water Services National Information Services 2004 – 2008*, Department of Water Affairs and Forestry, (DEA, 2010g)

**Indicator: Proportion of households with connection to the main electricity supply**

The energy sector is critical to South Africa's economy, contributing about 15% to the country's gross domestic product (GDP). Eskom has been playing an integral role in making sure that there are new electricity connections in the country. However, the rate of new electricity connections is slowing down considerably as it now has to be preceded by the establishment of bulk infrastructure. New infrastructure investments are especially crucial in areas which were only partially served or did not have service at all during the previous dispensation. The construction and improvement of energy infrastructure forms an important element of government's focus on infrastructure development, particularly in rural areas. In the long term, better planning of generation, distribution and maintenance is critical for the achievement of the 2014 goal of universal access to electricity.

Between 1991 and 2005, Eskom made over 3,2 million new connections and an additional 1.7 million connection were made by local government.<sup>24</sup> Eskom and government also managed to reach the RDP target of 2.5 million connections by 2000.

In addition 6 324 schools were also connected by 2000.<sup>25</sup> There has been an increase in electricity connections which translates to an increase in the proportion of households with electricity in 1996 at 32% to 70% by 2001.<sup>26</sup> The percentage of households with connections to the electricity mains increased from 76,8% in 2002 to 82,6% in 2009. In the years 2004, 2005 and 2006 connections seem to have slowed down at, 80,6%, 80, 8% and 80,7% respectively. The connections rose again in 2007 (81,8%), 2008 (81,7%) and in 2009 (82,6%). These connections will have to keep pace with population increases and will also have to be in tandem with infrastructure investments and maintenance not to mention the provision free basic electricity to the indigent, many of who continue to use solid fuels for cooking and heating, which has negative impact to their health.

The continued use of solid fuels such as coal, wood, wood pellets, grains, charcoal, and dung for purposes of cooking and heating among the poor in South Africa is a marker of the inequalities that persist in the democratic dispensation. It is likely that the use of solid fuels such as coal and charcoal for cooking and for heating for instance will persist, given that these are very low cost options for the poor.

Between 2002 and 2009 the percentage of households using solid fuels for cooking dropped from 20% to 15,7%. The percentage of households using solid fuels for cooking went down considerable between 2002 and 2007 (14,4%). In 2007 the percentage was at its lowest only to resume an upward trend in 2008 to 16,4%. The marked drop in years up to 2007 can be attributed to the RDP electrification which increased new connections in those years. This shows the necessity of new connections in eradicating the use of solid fuels especially at household level.

In terms of the percentage of households using solid fuels for heating, the percentage dropped from 24,4% in 2002 to 19,8% in 2009. There was a slight drop in the percentage of people using these fuels in the year 2003 (23,6%) and in 2004 (23,3%). The percentage further dropped to 19,6% in 2005, 19,4% in 2006 and 19% in 2007. In 2008 – a year riddled with regular power cuts – the percentage went up to 21, 8% but there was a marked descent to 19,8% in 2009.

### **Indicator: Proportion of urban population living in slums**

As at March 2009, the national housing programme is estimated to have delivered 2.8 million houses providing shelter to over 13.5 million people. Of the 2.8 million houses, over 1.2 million were built from 2004 after the launch of the Breaking New Ground Policy (BNG)<sup>27</sup>,

<sup>24</sup> Greenberg, S. 2009 Market Liberalisation and continental expansion: The repositioning of Eskom in post-apartheid South Africa in MacDonald, D.A. (ed) *Electric Capitalism: Recolonising Africa on the Power Grid* London: Earthscan

<sup>25</sup> National Energy Regulator of South Africa (NERSA) 2001 *Lighting Up South Africa* Pretoria: NERSA.

<sup>26</sup> The Presidency, 2003. Towards a Ten Year Review. Synthesis Report on the Implementation of Government Programme Discussion Document pp. 25

<sup>27</sup> Department of Housing, 2009. "The housing development agency will fast track housing delivery" at: <http://www.housing.gov.za/>

a government programme that has the specific aim of eradicating informal dwellings. This is a notable milestone which is increasingly acknowledged as one of the most expansive in the post apartheid period and it has “.....led to the delivery of more subsidized houses than in any other country in the world.”<sup>28</sup>

As noted in Table 7.15, the percentage of people living in informal dwellings shows a fluctuating trend. The percentage declined from 13,0% in 2002 to 11,9% in 2004 - which was most likely as a result of the BNG programme delivering housing. In 2005 the percentage rose to 15,7% and dropped to 14,5% in 2006. In 2007 the percentage resumed an upward trend to 15% but introduced a downward trend as of 2008 with 14,1% in 2008 and 13,4% in 2009. The data on informal dwelling has to be especially considered in the context of increasing number of households, shifting socio-economic variables and a litany of other factors. The government seems to be facing challenges in meeting the goal on informal dwellings but they are not insurmountable.

The department’s target is to build 220 000 units per year between 2010 and 2014. Additionally, the department is acquiring 6 250 hectares of well-located state land for human settlements development and an enabling environment is being created for the provision of 600 000 new loans in the affordable housing sector. In addition, 500 000 informal settlement dwellings are being upgraded.<sup>29</sup> Through these efforts, the department hopes that by 2014 it will have made significant inroads in ensuring sustainable human settlements and an improved quality of household life. Despite these laudable outcomes, the housing backlog has increased from 1.5-million in 1994 to an estimated 2.1 million. That means approximately 12 million South Africans are still in need of better shelter. The implication is that the department has made limited inroad in reducing the backlog as population growth impacts on this process to a notable level.<sup>30</sup> As a result of the increased demand, the number of informal settlements has ballooned to more than 2 700 70.<sup>31</sup>

The response to informal settlements has largely been informed by national and provincial housing policies and programmes. Policies such the Upgrading of Informal Settlements Programme (Chapter 13 of the National Housing Code) (2004) and Breaking New Ground (2004) (also known as the Sustainable Human Settlements Programme) indicate a significant policy shift in respect of the approach to informal settlements and their upgrading.<sup>32</sup>

Although South Africa is not urbanising as fast as many other African countries, the percentage of the population living in towns and cities is projected to grow to 63% by 2015 compared with 48% in 1975. There is also major inequality in South Africa - despite the relative wealth of the country as a whole - meaning that poor families living in urban areas find it extremely difficult to access land, adequate housing, basic infrastructure and affordable credit with which to invest in improving their living conditions. As a result, many are forced to live in backyard shacks or overcrowded informal settlements (Homeless-International, 2010).

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<sup>28</sup> Rust 2003: 5, cited in Charlton, S., Silverman, M and Berrisford, S. 2003. Review of the Department of Housing’s Programme, Policies and Practice (1994-2003).

<sup>29</sup> Address by the Minister of Human Settlements, Tokyo Sexwale MP, on the occasion of the Human Settlements Budget Vote, National Assembly, Cape Town 21 April 2010 (<http://www.info.gov.za/speeches/2010/10042116151001.htm>)

<sup>30</sup> *Ibid.*

<sup>31</sup> *Ibid.*

<sup>32</sup> Source: Stats SA data generated for the MDG review, 2010

Homeless International worked in partnership with People's Dialogue on Land and Shelter, a South African Non-Governmental Organisation, from the early 1990s until 2005, when People's Dialogue closed down. People's Dialogue worked throughout this period in alliance with the South African Homeless People's Federation (SAHPF), a national network of slum and shack dwelling communities.

SAHPF was also one of the founder members of Slum/Shack Dwellers International (SDI). In common with sister Federations in other Asian and African countries, many of whom Homeless International has also supported, the SAHPF helped communities to organise through the establishment of savings and loan schemes, mapping and settlement enumeration exercises, and pilot housing and toilet developments. You can read more about these 'rituals' by clicking this link about federations. People's Dialogue and SAHPF also built links with national, provincial and municipal governments across South Africa, enabling slum and shack dwellers to access land, claim housing subsidies and tackle other facets of poverty in their communities. Since 2005, SAHPF has significantly restructured and re-emerged as the Federation of the Urban Poor (known informally as FEDUP!). You can read about the major events in this transformation process in a series of bulletins produced by the SDI Secretariat.

With the percentage of South Africans living in squatter shacks remaining static over the past three years (2004/7) at 11%, it appears that government and private sector efforts to alleviate the severe housing shortage are at least keeping the problem at bay. The percentage has remained steady despite population growth and high urbanisation rates (Cyberprop.Com, 2007).

Nevertheless, a lot still needs to be done before South Africa starts making real headway. 11% of the population is still living in squatter shacks. About 14% of the black and 2% of the coloured population live in shacks. The fact the percentage of the population living in shacks has remained static indicates a lot of low-cost and affordable housing is being brought to the market, because the population is increasing. Private-public partnerships are essential in delivering houses. More developers need to enter the (low-cost housing) market and the government has to ensure it is spending the money (for housing delivery) timeously.

Government intend eradicating informal settlements by 2014, and in order to achieve this target the people living under those conditions will have to be accommodated in low-cost, fully subsidised housing, at a cost of about R40,000 per house. For example, mixed-income developments, such as Cosmo City in Johannesburg, is the route to take if South Africa is to meet government's target of eradicating informal settlements by 2014; Cosmo City comprises low-cost, credit-linked and affordable housing. Other good examples of the kind of developments that are needed are the R400m Olievenhoutbosch Ministerial Project, a joint housing project between Absa and the government, and First National Bank's Delft Symphony housing project in Cape Town.

## 7.11. Landfill sites

### Indicator: Number of legally designed landfill sites

Local authorities are mandated to collect, handle and dispose of domestic waste from all households and to ensure an equitable service to their communities. As indicated by the census 1996 and 2001 findings, municipal waste collection has improved, but more than 50 % of the population is not receiving a regular municipal waste collection service. The metropolitan municipalities deliver an almost 100 % service, while the local municipalities in some cases deliver no service at all (DEA, 2010d).

General landfills sites accept domestic waste, commercial and industrial non-hazardous wastes, building waste and garden waste. These sites are more often owned and operated by the local authority. Because many of these landfills do not have records of incoming waste, due to the lack of funds and capacity, up-to-date information is not readily available.

According to the baseline studies published in 1998 however, there could be up to 15,000 unrecorded communal sites in the rural areas. Many illegal waste disposal sites have developed over the years due to a number of reasons such as:

- the lack of a collection services,
- long transport distances to formal disposal sites,
- the refusal by the public or industry to pay landfill fees,
- an indifference to the environmental consequence of poor waste handling, and
- disposal, and the lack of waste education and awareness.

*The potential impacts:* Waste has a varied number of direct and indirect impacts on the environment, which is spurred on by the lack of planning, poor service delivery, inadequate waste site operation, human indifference, a lack of environmental consciousness by industry and the like, and by limited enforcement of statutory regulations. The affect of waste on the environment is primarily negative with certain social and environmental benefits, which can be derived from the waste stream. These include:

- *Negative impacts:* contamination of surface and groundwater resources and soil; affects ecosystems and could change biomes; emissions and releases of contaminants into the air from incineration, illegal burning of waste and releases of volatile organic compounds (VOCs) poses human health risks and increases emissions of greenhouse gasses; waste is odorous; sterilisation of land; poses health and safety risks; attracts vermin and harbours vectors; changes the topography of land; litter and illegal dumping is aesthetically unpleasant and can lead to urban decay; decline in property prices in areas close to landfills; waste in low lying areas could block or impede the flow of water which could result in flooding; and, diversion of natural water courses could result (from planned or unplanned waste activities);
- *Positive impacts:* job creation in terms of reclamation, recycling and reuse of waste; waste can be a resource (fuel, input raw material, etc.); and, recycling reduces usage of virgin material.

Crucial to effective waste disposal is the availability of well designed landfill sites which meet all legal requirements. The table below indicated the current (2010) situation in respect to legal landfill sites in South Africa, number of legal sites in each province.



**Table 7.19: Legal landfill sites by province**

Province	Legal landfill sites
Western Cape	97
Eastern Cape	120
Northern Cape	103
Free State	67
KwaZulu-Natal	119
North West	35
Gauteng	160
Mpumalanga	72
Limpopo	44
Total	817

Source: *Authorisation and Waste Disposal Management Database*

## 7.12. Key challenges to achieving environmental MDGs in South Africa

Achieving the *Environmental Millennium Development Goals* (MDGs) holds the promise of protecting both the human and natural environment in South Africa. Investing in the MDGs and promoting the private sector are critical steps in charting a course towards environmental sustainability (MDG Africa Steering Group, 2008). Since the MDGs are too important to fail, the second half of the MDG period, which began in 2008, must focus squarely on scaling up proven interventions to achieve the Environmental Goal. However, progress towards achieving environmental sustainability remains inadequate.

Sound public policies and investments are central for achieving the MDGs and accelerating economic growth, but they are not enough. The private sector is the engine of innovation and growth providing incomes for rural and urban populations. It is also a tremendous repository of organizational and management expertise that can increase the effectiveness of service delivery. Where possible, South Africa should draw on the private sector to complement governments in designing, delivering and financing interventions to achieve the MDGs.

The challenge of meeting the eight MDGs in South African countries is compounded by the grave long-term risk that climate change poses. Additional resources are required for adaptation since South Africa is particularly vulnerable to the effects of climate change and the growing risk of natural disasters. At least some of these additional resources will be needed to “climate proof” all projects and policies intended to achieve the MDGs and to strengthen the resilience of communities and the environment to the effects of natural disasters. Threats posed by climate change and natural disasters further increase the need for regional cooperation and integration in areas of economic policy, infrastructure (e.g., power pools, transport and communications infrastructure), research, and the management of trans-boundary river basins.

### **7.13. Policies and strategies to fast track achieving MDGS**

A healthy environment underpins human life and well-being by providing food, clean water, disease control, and protection from natural disasters and is thus necessary to achieve each of the Millennium Goals. But the environment is under threat in South Africa because of rising pollution, soil degradation (including rapid desertification), deforestation, destruction of coastal and freshwater fisheries, rising water scarcity, and declining biodiversity. Anthropogenic climate change, already causing environmental change, is projected to threaten agricultural productivity, spread vector borne diseases, and a higher incidence of natural disasters (Sachs, 2005)

Environmental degradation and the effects of climate change are therefore major development issues. The degradation of the environment threatens the very basis of sustained economic growth. Achieving environmental sustainability will require interventions at the national, regional, and international. Unfortunately, the concept of environmental sustainability does not provide clear operational guidance for choosing policies, strategies and outcome targets. The first step is thus to decide which environmental objectives South Africa want to achieve by 2015 and beyond. Perhaps most important, urgent action is required to stabilize greenhouse gas concentration by reducing emissions and promoting carbon sequestration.

Furthermore, South Africa needs to concentrate on integrating environmental strategies into all sectoral policies and more specifically on promoting direct investments in environmental management, considering the effect on the environment when designing sector strategies, promoting regulatory and market reforms to reduce environmental degradation, and improving environmental monitoring. This includes changes in agricultural practices, improved disease monitoring and reporting systems and investments in climate modelling and projections.

Examples of direct investments in environmental management include planting trees to combat deforestation, improving farming and land management practices to combat desertification, treating wastewater to reduce nutrient loads and ecosystems, and preserving critical ecosystems to protect biodiversity.

Targeted sectoral investments are instrumental to improving the environment. Investing in modern cooking fuels to shift away from biomass will not only lower ambient and indoor air pollution, but also reduce pressure on fragile ecosystems. Likewise, improving access to water and sanitation will improve environmental quality. Of particular importance to the environment are improved agricultural practices and investments in soil health and sustainable water management for agriculture, which can stem soil degradation and biodiversity loss. To this end, agricultural extension workers should be trained to promote environmentally friendly practices that can raise yields while minimizing the use of environmental resources. In addition, South Africa should implement strategies to meet the Johannesburg goals by initiating the design of strategies for integrated water resources management.

Reforms to land tenure regimes and an improved regulatory environment to combat pollution are required to minimize the adverse impacts of sectoral policies on the environment. To this end, South Africa will need to invest in strengthening the capacity of environmental protection agencies or equivalent government bodies. This will require a substantial scaling up of human resources, equipment, and operating budgets.

No strategy for environmental sustainability can be successful without better monitoring. Yet, monitoring systems for water flows and quality, air quality, deforestation, and other land degradation are woefully inadequate. Sustained investments in strengthening environmental monitoring systems will thus be essential. An important mechanism for implementing national strategies is the set of multilateral environmental agreements and conventions, such as the Convention on Biological Diversity, the UN Convention to Combat Desertification, the Ramsar Wetland Convention, and the UN Framework Convention on Climate Change. More funding and targeted technical support need to be made available to implement these agreements.

### **Investment in Rural Areas**

In 2009, the Minister of Water and Environmental Affairs, Ms Buyelwa Sonjica, announced that the Department of Water Affairs was investing R500 million in a programme to intervene in high-risk rural and poor areas where there are water challenges. This special intervention programme focuses on<sup>33</sup>:

- Aging infrastructure that leads to discharge of sewerage into rivers;
- Water conservation in stressed systems such as the Vaal and Umgeni;
- Areas where there is illegal abstraction, for example, Upper Vaal; and
- Areas where there is no infrastructure and communities are vulnerable to water-borne diseases.

This investment will address sewerage spillages, target specific treatment facilities and asset management, as well as provide technical assistance to municipalities. The department has identified nodal areas for focused interventions based on the extent of need for refurbishment, the extent of sewage spillages and the age and dilapidation of the infrastructure. There is also an urgent need to increase the amount of free basic water among the poor households across the country especially in rural areas and in poor urban townships and other settlements. In addition, Government is deploying the municipal drinking-water management system in all WSAs to ensure that the water is of good quality across municipalities. The encroachment of free market economic fundamentals on the South Africa economy is a variable which may have a negative impact on this MDG goal though.

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<sup>33</sup> Department of Water Affairs, 2009. Annual Report of the Department of Water Affairs and Forestry 2008/09. Pretoria: Government Printers

## Quality Control Measures

The Department launched the Blue Drop Certification Programme during the Municipal Indaba hosted by the Department in September 2008 as an incentive based regulation approach for drinking water quality management. The initial assessment round (November 2008 to January 2009) saw more than 70% of water services institutions assessed against stringent criteria for effective drinking water quality management. This process is ensuring the sustainable improvement of skills, data credibility, monitoring programmes, quality compliance, incident response protocol and asset management within the drinking water quality domain of all relevant water services institutions.<sup>34</sup> The Green Drop Certification Programme was initiated as a twin project to the Blue Drop Certification programme, focusing on waste water services management. The Blue Drop-Green Drop Certification process, includes clarification of the criteria against which compliance to drinking and waste water legislation, as well as other best practice requirements will be assessed in future. Receipt of a Blue or Green Drop was accepted to represent excellence in managing drinking water quality, or waste water services by a town within a Water Services Authority.<sup>35</sup>

In addition, the Department developed an electronic water quality management system (eWQMS) in order to ensure efficient monitoring of drinking water quality and to provide DWAF with information necessary for effective DWQ regulation through the Drinking Water Quality Regulation system (Blue Drop System).<sup>36</sup> Through the department's efforts alongside the Institute of Municipal Engineers and with the support of the South African Local Government Association (SALGA), a challenging two-year project to monitor all 169 WSAs on their drinking-water quality has been successfully put in place. By June 2008, close to 90% of all WSAs promptly submitted their drinking-water data and on an ongoing basis. The result was an overall improvement in the quality of drinking water and the creation of an enabling environment to ensure the effective management of drinking water. Close to 95% of the municipalities on the system reported that their water quality complied with the national drinking-water standard.<sup>37</sup>

This initiative has been very successful due to intense awareness programmes (which included the first National Drinking Water Quality Conference) as well as support from sector partners such as Institution of Municipal Engineering of Southern Africa (IMESA) and the South African Local Government Association (SALGA). This municipal system is

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<sup>34</sup> Department of Water Affairs, 2009. Annual Report of the Department of Water Affairs and Forestry 2008/09. Pretoria: Government Printers

<sup>35</sup> *Ibid.*

<sup>36</sup> Department of Water Affairs, 2009. Annual Report of the Department of Water Affairs and Forestry 2008/09. Pretoria: Government Printers

<sup>37</sup> Department of Water Affairs, 2009. Annual Report of the Department of Water Affairs and Forestry 2008/09. Pretoria: Government Printers

supplying the Department with regular data on drinking water quality to the Regulation System which enables effective performance monitoring and credible reporting.<sup>38</sup>

### **Masibambane Programme**

The Masibambane Programme is a multi-annual, multifaceted Water Services Sector support Programme (WS-SSP) of the Government of South Africa whose overall objective is to provide basic water supply and sanitation services to selected poor rural communities through institutional support. It is about provision of sustainable service delivery rather than construction of facilities alone. This programme commenced in 2001 and is based on the South African governments' overall sector collaborative approach to water and sanitation service delivery.<sup>39</sup> A mid-term review conducted in 2005 by the department of Water Affairs and Forestry lauded the programme as:

“Africa’s largest water supply and sanitation program (mainly rural)..... It is also one of the first ever water and sanitation sector-wide approaches (SWAPs) where donors provide budget support within a framework for inter-departmental and governmental collaboration to deliver services more effectively to the poor. The Program is notable not only for its scale of vision, but for the forceful way the program has been conceived and implemented, the achievement of decentralised budget management at scale, and its ability to disburse, and the scale of the outputs which expands improved services to more than 1m South Africans a year.<sup>40</sup>”

Phase III of the programme runs from 2007 – 2012 with a comprehensive series of actions and projects in support of the Local Government Support Agenda and involves levels of funding to the tune of R 69 billion from South Africa government and donors<sup>41</sup>. The theme of Masibambane is “Water for Growth and Development” which integrates both water services and water resources and shifts the focus from provision of basic services or eradication of backlogs to being a catalyst for economic growth and development.<sup>42</sup>

As noted hereto, the myriad of programmes the department has initiated have led to substantial progress in providing universal access to water and sanitation services in South Africa. For instance in an effort to remove the economic inaccessibility of water for the citizens, the government announced a policy to provide free basic water – providing a bridge between the need for equity and redress and the goal of economic efficiency. Free Basic Water (FBW) is funded from the equitable share of local government revenue and internal

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<sup>38</sup> Department of Water Affairs, 2009. Annual Report of the Department of Water Affairs and Forestry 2008/09. Pretoria: Government Printers

<sup>39</sup> Department of Water Affairs and Forestry, 2005. Mid-Term Review of Masibambane II Programme

Project 2005 – 154 *Project Evaluation Report* November 2005, pp. 2

<sup>40</sup> Department of Water Affairs and Forestry, 2005. Mid-Term Review of Masibambane II Programme

Project 2005 – 154 *Project Evaluation Report* November 2005pp 4

<sup>41</sup> Department of Water Affairs and Forestry, 2008. Annual Report of the Department of Water Affairs and Forestry 2007/08. Pretoria: Government Printers

<sup>42</sup> *Ibid.*

cross-subsidies from appropriately structured water tariffs. Government is committed to providing access to electricity, water and sanitation as basic services. A further commitment is to ensure that access to these basic services is not solely determined by the ability to pay. In this regard, the government provides free basic services to poor households: 6 000 litres of water a month and electricity worth 50kwh per month<sup>43</sup>. Consequently, access to basic services has improved substantially irrespective of some of the daunting challenges that face the sector as aptly noted in the Fifteen Year Review Document:

While the advance towards universal access has been remarkable, there has been less progress in providing these services at higher standards such as water inside a dwelling and flush toilets. While free basic services have provided relief to poor households, many complain that they are insufficient. There are significant challenges in upgrading standards of services, and maintenance of infrastructure which impacts negatively on quality. Overall, the quality of the country's drinking water is of a high standard but slippages in terms of waste water services has prompted the Department of Water Affairs and Forestry to implement measures to improve effluent control and raw water treatment in those municipalities which may not meet all of the rigorous standards.<sup>44</sup>

In the period 2001/02 (Table 2, pp. 33-34), access to Free Basic Water increased from 7 042 178 households to 11 155 045 households in 2008/09. Additional data retrieved from the Department of Water Affairs (Water Services National information System) confirms that as at June, 2010, the number of poor people in the country was 23, 143, 940 people out of which, 19,790,362 people were served with free basic water (6 kl per capita per month). Poor being defined here as a household earning less than R800 per month, except for the combined income of people who receive social grants. Presently, 86 percent of the poor population are benefiting from this service.<sup>45</sup>

In addition, it was reported that by 2005, the country had already achieved the UN Millennium Development Goal of halving the number of those without access to water. The water supply backlog has been reduced from 41% in 1994 to only 7% in 2010.<sup>46</sup> In essence, access to basic water services had increased from 59 percent in April 1994 to 96 percent at the end of March 2009. Similarly, access to basic sanitation services increased from 49 percent to 75 percent. Although backlogs in water and sanitation services were supposed to have been eradicated by 2008 and 2010 respectively, this target was not reached as a 2008 Cabinet decision aligned the provision of universal access to water and sanitation with the provision of housing and other basic services. The new target of ensuring universal access to basic services and housing is 2014.<sup>47</sup> In sum, the percentage of households with access to water infrastructure above or equal to the Reconstruction and Development Programme

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<sup>43</sup> The Presidency, Towards a Fifteen Year Review, pp. 100. Pretoria: Government Printers

<sup>44</sup> The Presidency, Towards a Fifteen Year Review, pp. 100. Pretoria: Government Printers

<sup>45</sup> Department of Water Affairs, 2010. Water Services National Information.  
[http://www.dwa.gov.za/dir\\_ws/wsnis/default.asp?nStn=pg\\_reports&curReportID=159](http://www.dwa.gov.za/dir_ws/wsnis/default.asp?nStn=pg_reports&curReportID=159)

<sup>46</sup> Department of Water Affairs, 2010. Provisioning of Water and Sanitation Services Since 1994 in South Africa. Measuring Progress in Line with MDGs

<sup>47</sup> Department of Water Affairs, 2010. Strategic Plan 2010/11 – 2012/13, Pretoria: Government Printers

standard increased from 61, 7% in 1994 to 91, 8% in March 2009. The percentage of households with no access to water infrastructure decreased from 35,6% in 1993/94 to 3.5% in 2008/09 period (Table 3, pp. 35 – 36).

Using these data sources, it is estimated that 93% of the population has access to improved drinking water supply in the year 2010. The Department of Water Affairs acknowledges that the supply backlog has been reduced from 41% in 1994 to only 7% in 2010.<sup>48</sup> This means that South Africa has surpassed the Millennium Development Goal (MDG) of halving the proportion of people without sustainable water and is likely to achieve the 2014 goal of universal access to portable water, despite the challenge of ever-increasing number of households. A discussion of the achievements noted in the provision of water supply from a safe source (see Table 2, pp. 33) affirms the observations made herein:

#### **7.14. Key priority activities for Goal 7**

Environmental sustainability underpins the achievement of the majority of the other seven goals. Analyses reveal that environmental preservation is an essential foundation for sustainable development and poverty alleviation. Failure to achieve biodiversity stability for instance will undermine social and economic development efforts. Similarly, poor environmental management practices impact on food security. However, current indications suggest that the timetable for implementing the indicators of MDG 7 will not be met in South Africa. To reverse the situation, greater effort is required to deal with the complex environmental issues to achieve the broader sustainability goals. While no single intervention can be the panacea to achieve the targets of all of the indicators of environmental sustainability, investments in sustainable biodiversity and environmental management can have significant win-win outcomes for South Africa.

In addition, efforts to measure, monitor and report on progress towards the MDG 7 have highlighted the need to improve South Africa's capacity to produce, analyze and disseminate data. Since periodic assessment of the MDGs began over eight years ago, a number of initiatives have been launched in this direction. The 2004 Marrakech Action Plan for Statistics, adopted by aid recipients and donor stakeholders at the Second International Roundtable on Managing for Development Results, was a major step towards assisting developing countries in strengthening their statistical capacity. The Inter-Agency and Expert Group on MDG Indicators is also addressing *statistical capacity-building* together with international agencies, donors and representatives from national statistical offices. The Group is identifying national priorities and making recommendations for improvements in the delivery and coordination of statistical assistance to countries. In 2006, the United Nations Economic and Social Council endorsed a resolution adopted by the United Nations Statistical Commission, comprised of representatives of national statistical services,

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<sup>48</sup> Department of Water Affairs, 2010. Provisioning of Water and Sanitation Services Since 1994 in South Africa. Measuring Progress in Line with Millennium Development Goals. Pp. 7 – 8.



highlighting the urgent need to build statistical capacity in countries where resources are limited.

Building such capacity will require increased and better coordinated financial and technical support from the international community. Achieving success will depend on South Africa taking on ownership and government commitment to spur the institutional changes needed to ensure the sustainability of capacity-building initiatives. South Africa should take advantage of these initiatives and investigate how they can be used to improve the collection of information to aid the monitoring process.

The key role of environment in achieving all the MDGs calls for the need for South African to integrate the principles of sustainable development into its national policies and programmes. International Community should encourage action towards sustainable biodiversity management as a vehicle for sustainable development. In that regards the commitments made by developed countries in the Copenhagen Accord of December 18, 2009 to provide resources amounting to USD 30 billion for the period 2010-2012 with balance allocation between adaptation and mitigation should be concretized. Another additional commitment by developed countries which relates to the mobilization of USD 100 billion a year by 2020 to address the need of developing countries is an opportunity for South African to speed up the implementation of MDG 7.

### **7.15. Strategic partnerships with key stakeholders, CSOs and organised private sector**

The MDGs Forum for Southern Africa was designed to give momentum to the MDGs campaign at the national and sub-regional level. It also sought to contribute to the vision of the New Partnership for Africa's Development (NEPAD) for accelerated development across the whole continent. The wide ranging and intensive deliberations held during the Forum highlighted the key factors that will ultimately determine the degree of success that will be achieved in the move to accelerate the progress towards meeting the MDGs within the timeframes set (UNDP, 2003)

These factors *inter alia* include ensuring country level ownership of development policies and processes, while acknowledging that this ownership also requires accountability, transparency and the need for countries to count on their own resources first before requesting external support, and participation that includes all actors in the development process.

There is a need to improve communication, commitment and enhanced participation by all southern African stakeholders in the NEPAD initiative. Deeper sensitization campaigns on NEPAD that engage civil society organizations and the private sector are required.

The potential entry points for civil society engagement - undertaking analytical/research work, advocacy, disseminating information on the MDGs and monitoring/social watchdog function - need to be better appreciated and utilized in partnerships with all stakeholders. The

effective and strategic realignment of government, private sector and donor initiatives, programmes and budgets allocated to the MDGs will be important in realizing achievements.

## **7.16. Strategies for mainstreaming MDGs into national development agenda**

After an extensive process of public consultation and stakeholder review, the Department of Environmental Affairs (DEA) has released a *draft National Strategy for Sustainable Development* (NSSD) that currently serves as a discussion document within a public consultative process (Enviropaedia, 2010).

To successfully implement our National Strategy for Sustainable Development (NSSD), all sectors of society and government, at all levels, must accept collective responsibility to implement the programmes to achieve South Africa's sustainable development objectives. For this reason, the official launch of the National State of the Environment Report in 2006 (DEA, 2006/8) coincided with the development of a detailed, workable Action Plan, based on broad-based discussion. This Action Plan is an important part of the NSSD to ensure positive political momentum and high-level commitment to the implementation of sustainable development is ensured. It also plays a role in mainstreaming the concept into national structures and public discourse. The Action Plan builds on the NSSD framework by focusing on smart ways of working, using new technologies, strengthening governance structures and sustaining participative processes established during the formulation of the NSSD. A Draft National Strategy for Sustainable Development (NSSD) Report is currently (2010) out for public comment.

The NSSD addresses the need to pursue and assess the key stated objective of increased economic growth via environmental integrity, social equity and economic development. Higher growth must put South Africa on a higher development trajectory that ensures overall improvement in people's quality of life, and that protects our natural resource base for future generations. This will require communication across all levels of government and within society to build unified commitment on the part of all South Africans to these issues, and to a vision that places sustainable economic growth and development at the core of South Africa's endeavours.

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