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COUNTRY PROFILE



UNITED NATIONS

INTRODUCTION - 2002 COUNTRY PROFILES SERIES

Agenda 21, adopted at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, underscored the important role that States play in the implementation of the Agenda at the national level. It recommended that States consider preparing national reports and communicating the information therein to the Commission on Sustainable Development (CSD) including, activities they undertake to implement Agenda 21, the obstacles and challenges they confront, and other environment and development issues they find relevant.

As a result, in 1993 governments began preparing national reports for submission to the CSD. After two years of following this practice, the CSD decided that a summarized version of national reports submitted thus far would be useful. Subsequently, the CSD Secretariat published the first Country Profiles series in 1997 on the occasion of the five-year review of the Earth Summit (Rio + 5). The series summarized, on a country-by-country basis, all the national reports submitted between 1994 and 1996. Each Profile covered the status of all Agenda 21 chapters.

The purpose of Country Profiles is to:

- Help countries monitor their own progress;
- Share experiences and information with others; and,
- Serve as institutional memory to track and record national actions undertaken to implement Agenda 21.

A second series of Country Profiles is being published on the occasion of the World Summit on Sustainable Development being held in Johannesburg from August 26 to September 4, 2002. Each profile covers all 40 chapters of Agenda 21, as well as those issues that have been separately addressed by the CSD since 1997, including trade, energy, transport, sustainable tourism and industry.

The 2002 Country Profiles series provides the most comprehensive overview to date of the status of implementation of Agenda 21 at the national level. Each Country Profile is based on information updated from that contained in the national reports submitted annually by governments.

Preparing national reports is often a challenging exercise. It can also be a productive and rewarding one in terms of taking stock of what has been achieved and by increasing communication, coordination and cooperation among a range of national agencies, institutions and groups. Hopefully, the information contained in this series of Country Profiles will serve as a useful tool for learning from the experience and knowledge gained by each country in its pursuit of sustainable development.

NOTE TO READERS

The 2002 Country Profiles Series provides information on the implementation of Agenda 21 on a country-by-country and chapter-by-chapter basis (with the exception of chapters 1 and 23, which are preambles). Since Rio 1992, the Commission on Sustainable Development has specifically addressed other topics not included as separate chapters in Agenda 21. These issues of trade, industry, energy, transport and sustainable tourism are, therefore, treated as distinct sections in the Country Profiles. In instances where several Agenda 21 chapters are closely related, for example, chapters 20 to 22 which cover environmentally sound management of hazardous, solid and radioactive wastes, and chapters 24 to 32 which refer to strengthening of major groups, the information appears under a single heading in the Country Profile Series. Lastly, chapters 16 and 34, which deal with environmentally sound management of biotechnology, and transfer of environmentally sound technology, cooperation, capacity-building respectively, are presented together under one heading in those Country Profiles where information is relatively scarce.

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LIST OF COUNTRY-SPECIFIC ACRONYMS

AMCEN	African Ministerial Conference on Environment
BRC	Biological Resource Centre
CBD	Convention on Biological Diversity
CBO	Community-Based Organisation
CDM	Clean Development Mechanisms
CIDA	Canadian International Development Agency
DA	Department of Agriculture
DACST	Department of Arts, Culture, Science and Technology
DANCED	Danish Cooperation for Environment and Development
DEAT	Department of Environmental Affairs and Tourism
DFA	Development Facilitation Act
DFID	(British) Department for International Development
DLA	Department of Land Affairs
DME	Department of Minerals and Energy
DoE	Department of Education
DoT	Department of Transport
DSD	Department of Social Development
DTI	Department of Trade and Industry
DWAF	Department of Water Affairs and Forestry
EIA	Environmental Impact Assessment
ELMS	Environment and Land Management Sector (SADC)
EMP	Environmental Management Plan
EST	Environmentally Sound Technology
GBIF	Global Biodiversity Information Facility
GEAR	Growth, Employment and Redistribution strategy
GEF	Global Environmental Facility
GIS	Geographical Information System
GLOBE	Global Learning and Observations to Benefit the Environment
GMO	Genetically Modified Organism
ICDP	International Conference on Population and Development
IDC	International Development Cooperation
IDP	Integrated Development Planning
IEM	Integrated Environmental Management
IFCS	Intergovernmental Forum on Chemical Safety
IPCS	Integrated Governmental Programme on Chemical Safety
IP&WM	Integrated Pollution and Waste Management Policy
ITS	Integrated Intelligent System
LDO	Land Development Objectives
LUMB	Land Use Management Bill
MPRC	Multi-purpose Resource Centres
MTEF	Medium-term Expenditure Framework
NAP	National Action Programme
NEMA	National Environmental Management Act
NGO	Non-Governmental Organisation
NLC	National Land Cover
NORAD	Norwegian Agency for Development Cooperation
NSTF	National Science and Technology Forum
NWA	National Water Account
NWMS	National Waste Management Strategy

ODA	Official Development Assistance
ODS	Ozone Depleting Substances
OECD	Organisation for Economic Cooperation and Development
RDP	Reconstruction and Development Programme
SADC	Southern African Development Community
SANAS	South African National Accreditation System
SEA	Strategic Environmental Assessment
SEACAM	Secretariat for Eastern African Coastal Areas Management
SMME	Small, Medium and Micro Enterprises
TRIPS	Trade Related Property Rights
UNCTAD	UN Conference on Trade and Development
USAID	US Agency for International Development
WTO	World Trade Organisation

CHAPTER 2: INTERNATIONAL COOPERATION TO ACCELERATE SUSTAINABLE DEVELOPMENT IN DEVELOPING COUNTRIES AND RELATED DOMESTIC POLICIES

Decision-Making: The following Government Departments are responsible for decision-making on international cooperation and assistance for sustainable development: Foreign Affairs; Environmental Affairs and Tourism; Water Affairs and Forestry; Agriculture; Land Affairs; Minerals and Energy; Transport; Trade and Industry; National Treasury; Social Development; Health; Housing; Arts, Culture, Science and Technology; and Education.

The Department of Environmental Affairs and Tourism is in charge of the national Committee for Environmental Coordination and fulfils a leadership role in Sustainable Development.

Official Development Assistance (ODA) for the Government of South Africa is not managed from a central point, but facilitated by the National Treasury, Chief Directorate International Development Cooperation (IDC). This unit has a broad mandate to develop an interest in the relationship between development assistance and the sectoral needs of South Africa.

It assimilates current knowledge about donors, funding criteria, objectives, systems and procedures. The unit is also well placed to provide information and services that could enable Government to better access ODA and use its advantages appropriately. This work is important as the right use of donor knowledge, expertise, and resources can contribute to and create ways that advance Government's strategic objectives. Interaction with donors is informed by the national Medium Term Expenditure Framework (MTEF) and by the sector specific MTEFs. South Africa has a series of bilateral agreements with many developed and developing countries all designed around multilateral cooperation related to sustainable development.

Both the Donors and the South African Government do planning. The South African Government has also arranged with donor countries to engage directly with NGOs on relevant projects. The South African Government plays a facilitating role in terms of securing ODA and bringing development partners together.

Programmes and Projects: The main contribution of ODA to South Africa went to the Education Sector (21,76%), followed by Government and Civil Society (18,49%), other Social Infrastructure and Services (12,97%), Water Supply and Sanitation (10,96%), and Health (6,45%). Together, these sectors account for more than 80% of the total ODA commitments. Environmental ODA were received from Danish Cooperation for Environment and Development (DANCED), Norwegian Agency for Development Cooperation (NORAD) and Department for International Development (DFID) of the United Kingdom.

Technical assistance was provided for the following two capacity-building programmes: the European Union (EU) funds the Financial Management Improvement Programme; Promotion of entrepreneurship was funded by EU, Germany, United States Agency for International Development (USAID) and Swedish International Development Agency (SIDA). Most of the partners address poverty relief in their programmes of cooperation with South Africa. Cooperation was received from the United States of America, Germany, Denmark and the Netherlands related to technical and environmental cooperation. USAID cooperation was received for training programmes for local authorities on sustainable development. There are multiple programmes that are multi-layered and are aimed at engaging and uplifting the major groups. No formal mechanisms are in place to involve the major groups.

Status: The total volume of ODA flowing into South Africa from 1994 to 1999 was ZAR 17,57 billion. The allocation of ODA to South Africa shows a steady increase of ODA until a peak was reached in 1997. Two likely factors could explain the upward trend: The South African Government increased the number of bilateral and multilateral agreements as the newly elected democratic administration of 1994 established formal links with donor countries and agencies during the first few years of its rule. Donors also shifted ODA from civil society to Government in recognition of the moral legitimacy, development aspirations and penetrative capacity of Government structures.

The total ODA commitments to South Africa: 1994 - ZAR 2 513 171; 1995 - ZAR 2 830 303; 1996 - ZAR 3 032 671; 1997 - ZAR 3 934 431; 1998 - ZAR 2 973 359; 1999 - ZAR 2 286 978. The perceived linear downward trend from 1997 to 1999 can be attributed to the peaking of multi-year ODA agreements that were negotiated in the

period 1994 to 1999 and that can be characterised as a time of generous affirmation for the first fully democratic Government of South Africa. Approximately ZAR 400 million in external financial resources was received for environment and approximately ZAR 180 million was received from Global Environment Facility (GEF) funding. South Africa is in the process of developing a strategy on sustainable development. This process will provide information on constraints and gaps in the implementation of sustainable development. It will determine the most immediate attention for bilateral and multilateral cooperation.

Capacity Building, Education, Training and Awareness-Raising: A Technical Assistance Team programme, a partnership between the National Treasury and the European Union was initiated during August 2000. The Programme aimed at providing government institutions with management and project management expertise and skills in managing programmes run with donor funds or assistance.

Information: South Africa has made considerable progress towards the establishment of National Environmental Information system. The system, Spatial African Integrated Spatial Information System (SA-ISIS), can be accessed at the web page www.sa-isis.co.za. SA-ISIS also provides an array of decision-making tools and analytical procedures to facilitate decision-making in the region.

Research and Technologies: The technology gap between developed and developing countries has increased significantly since 1992. Improved access and affordable sustainable development technologies for developing countries should be ensured. South Africa is committed to develop and promote Indigenous Knowledge Systems and technology.

Financing: The National Budget allocates 60% of its expenditure to social services and meeting the needs of the poor. Expenditure on social services increased by an annual average rate of 12% from 1995 to 1998. The following external financial resources for sustainable development were made available: EU, development of social infrastructure, private sector support, good governance and democratisation, regional cooperation, poverty alleviation (25,18%); USAID, support for sustainable development (22,63%); EIB, development of social infrastructure, private sector support, good governance and democratisation, regional cooperation, poverty alleviation (20,44%); SIDA, poverty reduction and democratic transformation (6,96%); GTZ poverty alleviation, growth and employment (5,25%); Japan, reduction of poverty and historical inequality (4,98%); DFID, poverty alleviation (4,84%); Denmark, environment (3,83%); Netherlands, poverty alleviation and democratic development (3,54%); Norway, reformation of South Africa's society, support to reconstruction and development (2,6%).

Cooperation: The New Partnership for African Development is a pledge by African leaders to the development of the continent. It is a firm and shared conviction that they have a pressing duty to eradicate poverty and place their countries, individually and collectively, on a path of sustainable growth and development, and to participate actively in the world economy and body politic. It is anchored in the determination of Africans to extricate themselves and the continent from the malaise of underdevelopment and exclusion in a globalising world. South Africa hosted a conference in March 2000, entitled *African Solutions: Towards Sustainable Urban Development*. The conference focused on finding appropriate sustainable development solutions for the African region, with a particular emphasis on the implementation of Local Agenda 21. South Africa is responsible for the coordination of the Southern African Development Community (SADC) finance and investment sector. Prominent international environmental conventions (non-marine) signed, ratified or acceded to by South Africa are:

- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, acceded to on 5 May 1994;
- Convention on Biological Diversity, ratified November 1995;
- Convention to Combat Desertification in Those Countries Experiencing Serious Drought and or Desertification, particularly in Africa, signed on 9 January 1995;
- Framework Convention on Climate Change, ratified in 1997;
- Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora, signed on 12 September 1994;

- Ramsar Convention Wetlands of International Importance Especially as Waterfowl Habitat, signed without reservation to ratification in 1975;
- Vienna Convention for the Protection of the Ozone Layer, as well as the Montreal Protocol on Substances that deplete the Ozone Layer, acceded to on 15 January 1990;
- Convention on International Trade in Endangered Species of Wild Fauna and Flora, ratified on 15 July 1975; and
- Bonn Convention on the Conservation of Migratory Species of Wild Animals, ratified on 1 December 1991.

Several cooperative research programmes exist between South African universities and technikons and similar institutions in other countries. The Government created the South African Accreditation System (SANAS), primarily to promote trade flows by providing internationally recognised accreditation for South African calibration and testing laboratories. International mutual recognition agreements have been concluded with South Africa's main trade partners, ensuring recognition of compliance by trade partners. Recognition includes ISO 14001 compliance and compliance with emission standards.

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CHAPTER 2: INTERNATIONAL COOPERATION TO ACCELERATE SUSTAINABLE DEVELOPMENT IN DEVELOPING COUNTRIES AND RELATED DOMESTIC POLICIES - TRADE

Decision-Making: Institutional responsibility lies with the Ministries of Foreign Affairs and Trade and Industry. There are also many private companies that are involved in the industrial-led initiatives. Exports in certain sectors have increased over the past 10 years, as have environmental policies and regulatory initiatives from the Government. Recognising that there are possible negative impacts of some trade practices on the environment, South Africa's environmental legislation is undergoing significant reform towards objectives of sustainable development. Policy and legislation responses include the Constitutional environmental right; environmental management which provides co-operative governance; establishing principles for decision-making in matters affecting the environment. Legislation specific to natural resources management is designed to minimise possible negative effects of trade based on the resources, e.g. the National Water Act, 1998, the National Forests Act, 1998, and the Marine Living Resources Act, 1998.

In 1996, the Government adopted the Growth, Employment and Redistribution Development Programme. This macro-economic strategy reinforced Government policy to open up the economy to international competition and promote exports. South Africa developed the Strategic Environmental Assessment model to identify opportunities and constraints for development provided by the natural and social environments as well as mechanisms to mitigate negative impacts. South Africa is a full member of the World Trade Organisation (WTO) and United Nations Conference on Trade and Development (UNCTAD). South Africa supports trade liberalisation, especially to create increased market access for the products of interest to developing countries.

Programmes and Projects: Imports of hazardous waste are handled within the framework of the Basel Convention. Industrial-led initiatives include Geographical Information Systems, the introduction of ISO 14000, the ISO 9000 series and an annual Health, Safety and Environmental Report. Investment projects by the Development Bank of South in 1998/99 include the upgrade of storm water draining system and electrification. A project by the DBSA, providing access to potable water, included training of local manpower, creating employment during the execution of the project. The 1998 Presidential Jobs Summit and other job creation initiatives gave rise to a number of programmes to reduce unemployment. The tourism industry has been targeted to create additional 450 000 jobs by 2005. Government, business and the trade unions have separate and joint programmes to create jobs.

Status: Due to the fact that an environmental monitoring system is still being developed, no conclusive statement can be made regarding linkages between environmental hot spots and export-induced production. Gross domestic fixed investment fell from an average of 27% during the 1970s to an average of 17% during the 1990s. Investment levels have increased over the past two years, especially in manufacturing. Although investment has risen as a proportion of Gross Domestic Product (GDP), it remains far below the levels experienced in the mid-1980s. Sectors that have experienced increases in investment during the 1991-1996 period include agriculture, forestry and fishing 1,6% per annum, and food processing 5,5% per annum. Primary sector contribution to GDP has fallen from 11,5% to 10,1% in the last decade. Secondary sector contribution has fallen from 26,5% to 24,5% over the same period. The contribution of the tertiary sector has increased from 53,4% to 56,6%.

The strongest growth sectors over the last decade include electricity (2,9% per annum), transport (4,0% per annum) and financial and related services (2,7% per annum). In term of consumption and production patterns, agriculture has indicated growth in all aspects during the 1991 to 1996 period. Production in the mining sector had declined in 1998, and declined further at an annualised rate of 2% in the first quarter of 1999. The manufacturing sector maintained its slight growth momentum in 1998, but output growth in the utilities sector accelerated in the first quarter of 1999. Activities in the tertiary sector slowed down from an annualised growth of 2,5% in the second quarter of 1998 to 0,5% in the fourth quarter and 1% in the first quarter of 1999.

As far as impact on environment is concerned, agriculture in the primary sector contributes the significantly to carbon dioxide, nitric oxide and volatile organic carbon, while agricultural activities contribute the most to methane (48% of the national total) and nitrous oxide (78% of the national total) emissions. Increases in exports in the manufacturing sector over the last 9 years came primarily from the furniture sector, followed by the electrical sector, with the petroleum sector third.

The electricity-generating sector contributes about 47% of total CO₂ emissions and 41% of NO_x emissions. The transport sector, which experienced a growth of 4% per annum over the last decade, contributes about 44% of total NO_x emissions, 48% of CO₂ emissions and 45% of total national volatile organic emissions.

The strong and sustained fall in international commodity prices since 1994, as well as the emerging market financial turmoil over an extended period of more than 18 months recently, has impacted on capital flow to South Africa, putting pressure on the exchange rate and interest rates. Important structural changes are feeding into the South African economy as it adapts to the dictates of the global economy. These are reflected in fiscal and monetary policy adjustments, while in the real economy the quest for international competitiveness forces industries to achieve efficiency gains.

Capacity-Building, Education, Training and Awareness-Raising: Refer to information provided for **Chapter 36: Promoting education, public awareness and training.**

Information: Industrial pollution is regulated by effluent discharge and atmospheric emission permits. Both of these require data to be submitted to the government. A holistic approach to the management of this data needs to be developed. Information related to trade, investment and economic growth can be found on the following web sites: www.hsrg.org.za (socio-economic statistics); www.dti.gov.za (foreign investment guides); www.tradepage.co.za (trade information); <http://196.33.120.19/environment/nsoer/issues/economic/index.htm> (State of Economic Environment); www.statssa.gov.za (census data); www.resbank.co.za (economic data); www.hg.org/guide-southafrica.html (guide to potential investors); www.sdi.org.za/Index.htm (information on Spatial Development Indicators (SDIs), Integrated Development Zone (IDZs)); www.cbn.co.za/busenq.htm (trade enquiries for the sourcing of products from SA); www.fm.co.za (regular updates on certain key indicators); www.economist.co.uk (economic information).

Research and Technologies: The Government has several initiatives to transfer technology in the development of national information systems such as the National Groundwater Information System, the National Hydrological Information System and the Water Services Information System. The Council for Scientific and Industrial Research, in collaboration with the Agricultural Research Council and supported by the Government compiled the national land cover database in 1998. Satellite images are available *inter alia* from the Satellite Application Centre Hartebeeshoek.

Financing: The Department of Trade and Industry offers incentive schemes designed to eradicate poverty. Two broad approaches are followed, notably encouragement of employment-generating investment in the manufacturing, tourism and service sectors, and economic empowerment including assistance to small enterprises and promotion of black economic empowerment.

The Department offers 37 incentive programmes, managed by institutions such as the South African Revenue Services, Industrial Development Corporation, Khula, the Enterprise Organisation, the Commission for International Trade Administration and the National Research Foundation. See also **Chapter 33: Financial Resources and Mechanisms** of this Profile.

Cooperation: South Africa is a party to several trade agreements with SADC, the European Union and others. Considerable economic and other cooperation takes places through SADC. South Africa has signed the Convention on International Trade in Rare and Endangered Species. It has also signed the Trade Protocol between the countries of SADC.

South Africa recently acceded to the Lomé Convention. However, the important components of the Convention relating to general trade arrangements between members and access to the European Development Fund resources

have not been offered to South Africa. Instead, the European Community offered to enter into a separate trade agreement with South Africa. South Africa has not been excluded from the environmental provisions and although the scope to apply these measures is limited by its exclusion from the trade arrangements, the information sharing component may be used to the country's benefit and the environmental provisions may be used to ensure environmentally responsible practices in those instances where South Africa may be involved in projects between member States. The Cotonou Partnership Agreement as of June 2000 has superseded the Lomé Convention. The Cotonou Partnership Agreement builds on the sustainable development elements of the Lomé Convention. In the Agreement on Trade, Development and Cooperation between the European Community and South Africa, the parties agree to improve the quality of the environment and work together to combat global environmental problems. Special attention will be given to the development of capacity in environmental management. A trade agreement between South Africa and the European Union has also been concluded.

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CHAPTER 3: COMBATING POVERTY

Decision-Making: Poverty eradication is a key national priority. President Mbeki has signed the Millennium Declaration, which includes the target of halving poverty by 2015. The South African Government and all line function ministries are the major bodies responsible for this issue. The overarching policy on Reconstruction and Development (RDP) which the Government committed itself to in 1994 sets as its key tenets and principles the meeting of basic needs, developing human resources, building the economy, democratising the state and civil society and implementing the RDP.

The RDP is Government's national strategy to combat poverty and unemployment, and is underscored by the Growth, Employment and Redistribution Strategy (GEAR). The basic tenets of the GEAR policy are the maintenance of a fiscally prudent policy via a competitive and more labour intensive growth path; an accelerated economic stance compatible with lower inflation rates and ultimately lower interest rates; and accelerated creation of employment growth. The Integrated Sustainable Rural Development Strategy and the Urban Renewal Program provide a framework to address poverty. The aim is to conduct a sustained campaign against rural and urban poverty and underdevelopment, bringing in the resources of all three spheres of government in a coordinated manner. These programmes will entail investment in the economic and social infrastructure, human resource development, enterprise development, the enhancement of the development capacity of local government, poverty alleviation and the strengthening of the criminal justice system.

The SA Government distinguishes between poverty alleviation, which is a matter of welfare, and poverty eradication, which is a matter of employment creation through increased investment in the manufacturing sector, and economic empowerment in addition to financial incentives conducive to the creation of new small enterprises.

Several other policies have been developed which take poverty issues into consideration: the Water Supply and Sanitation Policy, and the National Water Policy, supported by the National Water Act (1998).

Equality in the value of social grants, the amalgamation of the disparate pension system and the introduction of the Child Support Grant represent some of the steps taken by the Government since 1994. A Committee of Inquiry into Comprehensive Social Security was appointed in 2000 to develop options for a comprehensive system of social security that prioritises the most vulnerable in our society.

The Population Policy for South Africa, 1998, places population at the centre of development as its driving force and ultimate beneficiary

Programmes and Projects: Among the programmes are: an Integrated Nutritional Project aimed at improving nutrition and linked to the production of goods that require cheap appropriate technologies; the National Housing Programme aimed at provisions of housing and services while at the same time creating job opportunities and providing training; electrification schemes designed to provide electricity on a mass scale to reduce dependence on wood and fossil fuels; the Land Reform Programme, aimed at the redistribution and restitution of land to previously disadvantaged communities, especially women; the Water Supply Programme, aimed at poorer, rural communities to improve living standards and equity in water provision; and the Social Security and Welfare Systems, to provide assistance to the most severely affected sectors of society.

The Community Public Private Partnership Programme (CPPP) is an initiative of the Government's Department of Trade and Industry to revitalise depressed rural economies through the linking of resource-rich communities with relevant state and private investors interested in the sustainable utilisation of natural assets. See also under

Financing of Chapter 2: Trade

The primary role of DTI in this respect is to facilitate access to sustainable economic activity and employment for all South Africans. The key objectives include: Attracting higher levels of domestic and foreign investment; Increasing market access to foreign investment; and Achieving a fair, efficient and competitive market place for domestic and foreign businesses and consumers.

These processes must lead to specific outcomes of which the most important are the following:

- Promoting the development of Small, Medium and Micro Enterprises (SMMEs);
- Increasing opportunity for Black Economic Empowerment;

- Reducing inequality and poverty;
- Strengthening the international competitiveness of South African business;
- Developing the SADC region; and
- Servicing the economic citizen.

As an example, in the Northern Cape province, projects include an integrated poverty eradication strategy involving previously unemployed persons. The CoastCare Project is aimed at training individuals in business development as well as the sustainable use of living marine resources. Multi-purpose Resource Centres (MPRCs) provide people with access to information via training seminars and the Internet, and are increasingly the focal points for micro projects.

Other poverty alleviation funded projects include the South-North Tourism Route, waste management in coastal and rural towns; the Working for Water Project and, at the Orange River Mouth, a Succulent Plant Nursery and community-based tourism facilities.

Status: Poverty in South Africa is primarily a feature of the historically disadvantaged population. Many households still have unsatisfactory access to clean water, energy, health care and education. It is estimated that 39% of the population is vulnerable to food insecurity.

The report indicated that 72% of South Africa's poor live in rural areas, which are often highly dispersed and difficult to access for support and service.

Of the population, 61% Africans, 38% Coloureds, 5% Indians and 1% Whites can be classified as poor. Poverty is distributed unevenly across the 9 provinces. It is more severe in the Eastern Cape, the Free State and the Northern Province. The report suggests that the poverty rate amongst female households is 60%, compared to 31% for male-headed households. South Africa is also characterised by large-scale unemployment in the formal sector of the economy.

Capacity-Building, Education, Training and Awareness-Raising: Over 10 000 people participated in the NGO Coalition poverty hearings, March to June 1998. The hearings indicated that the incidence of poverty spans a wide range of issues. These include insufficient employment opportunities; dispossession of land; the lack of implements, fertilisers, seeds and water to work the land; the lack of affordable housing and poor standards of houses; inadequate services in relation to water and infrastructure; the inability to afford payments for services such as water and electricity; health related problems such as HIV/AIDS and tuberculosis; education related problems of people not attending school due to the lack of financial resources; social security problems resulting in difficulties accessing grants; environmental problems involving workplace injuries and illness leading to unemployment and death with no compensation, or holding onto unsafe jobs in desperation for survival.

Capacity building efforts at a provincial level include workshops held for women, unemployed youth, leaders from local development forums and disabled youth. Several training workshops have also been held in business skills, marketing, social development and economic capacity building. Self-employment has become an important option.

Information: In the DEAT, a web-based information system has been set up that links projects on the ground to the national poverty alleviation teams. Reports on the lessons learnt are being prepared for projects implemented. Multi-purpose Resource Centres and Poverty Alleviation Projects have strong capacity-building components that aspire to empower local people to take charge of their own projects as rapidly as possible.

Information on incentives to encourage employment-generating investment and the creation of small enterprises is available from the DTI Group Communications at info@dti.pwv.gov.za or on the website www.dti.gov.za

Research and Technologies: The scientific sector undertakes and / or reacts to needs analyses carried out by other organisations or Government institutions, or conducts needs surveys on a contract basis for decision-makers. Examples include the provision of potable water and sanitation to disadvantaged and poor communities in urban and rural settings. In terms of the RDP, the improvement of the quality of life is one of the five national priorities, as are: options for income generation in economically depressed communities; the development of low cost on-site treatment technologies, designed to ensure safe water for human consumption; and the Flagship Programme for

Unemployed Women with Children under Five Years, with the objective of increasing educational and training opportunities for women.

Financing: All line function ministries' budgets are to be revised and funds redirected to priority RDPs. Additionally a central RDP fund is located in the National Treasury. NGOs and communities as well as line function departments for RDP priority can access these funds.

Cooperation: Funds for the RDP and specific programmes of line function ministries have been secured mostly through development aid from foreign countries. Additionally, South Africa participates in all regional and international fora and organisations. Particular mention needs to be made of development programmes, which have a regional development focus with South Africa's neighbours, such as Mozambique. These programmes help develop infrastructure in the region, as well as provide job opportunities and other economic benefits to the southern African region.

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CHAPTER 4: CHANGING CONSUMPTION PATTERNS

Decision-Making: The following national departments deal with different aspects of sustainable consumption and production: Trade and Industry (DTI); Minerals and Energy (DME); Environmental Affairs and Tourism (DEAT); Transport, Land Affairs; Water Affairs and Forestry (DWAF); Agriculture; Welfare; and Defense (DOD). The following provincial departments are responsible for the administration of consumption and production patterns at the provincial level: Mpumalanga Department of Environmental Affairs and Tourism, Eastern Cape Department of Economic Affairs, Environment and Tourism, Free State Department of Environmental Affairs and Tourism, Free State Directorate of Housing and Specialised Services (water supply and sanitation), KwaZulu Natal Department of Traditional and Environmental Affairs, Northern Province Department of Agriculture, Land and Environment, North West Parks Board, North West Department of Environmental Affairs, Gauteng Department of Agriculture, Conservation and Environment, Western Cape Department of Environmental and Cultural Affairs, and Northern Cape Department of Health, Welfare and Environmental Affairs.

All policies are developed in a participatory manner. There is no specific national strategy, or multiyear work programme dealing with sustainable consumption and production patterns. The Growth, Employment and Redistribution Policy mandates the Department of Trade and Industry to contribute to accelerated economic growth, ensuring stronger employment creation and improved standards of living for all South Africans, by implementing a set of integrated trade and industrial policies.

DTI's environmental policy process addresses its conformance with its legal sustainable development obligations and the need for enabling measures to allow industry, and small enterprises in particular, to conform to environmental and social legislation in a feasible way. The White Paper on Integrated Pollution and Waste Management Policy for South Africa acts as a Governmental statement of intent on minimisation and management of South Africa's diverse pollution and waste streams. The Code of Practice for Mine Residue Deposits of the South African Bureau of Standards covers management of mine residue deposits and its environmental impact. The White Paper on Agriculture (1995) promotes maintaining and developing an economically viable, market directed and competitive farming sector. The White Paper on Land Policy (1997) addresses the allocation and utilisation of land. The Draft White Paper on Energy Policy for South Africa (1998) promotes energy efficiency and the use of renewable resources of energy. The White Paper on Conservation and Sustainable Use of Biological Diversity (1997) identifies the necessity for the sustainable use of biological resources. The White Paper on Population Policy for South Africa (1998) links population concerns directly to consumption and production patterns and its impact on the environment. South Africa's National Forestry Action Programme (1997) is designed to facilitate the implementation of the National Forests Act.

The following regulations promote sustainable consumption and production: the Water Services Act (1997); the Atmospheric Pollution Prevention Act (1965); the Conservation of Agricultural Resources Act (1983); the Nuclear Energy Act (1993); the Hazardous Substances Act (1973); the Fertiliser, Farm Feeds, Agricultural Remedies and Stock Remedies Act (1947); the Occupational Health and Safety Act (1993); the Marine Living Resources Act (1998).

The Environmental Impact Assessment regulations underpin legal procedures to ensure rational decision-making regarding sustainable land use against the realities of growing population and economic needs. A variety of laws deal with waste management: the Abattoir Hygiene Act (1992); the Advertising of Roads and Ribbon Development Act (1983); the National Forests Act (1998); and the Water Services Act (1997).

Programs and Projects: The DME supports various programmes on energy efficiency. It launched the Low Smoke Fuel Program in 1994 to promote cleaner and more affordable energy to disadvantaged communities. The DWAF manages a variety of programmes and projects regarding the management of water resources. Cleaner production programmes were launched in industries to focus on sustainable and efficient consumption and production. Several Poverty Alleviation Projects in the Northern Cape province focus on waste management.

The Integrated Waste Exchange (IWE) project runs a database from the website of the Cape Town Municipality to enable industries to convert to more sustainable patterns of consumption of raw materials. IWE extends an open invitation to become a participant in the international exchange of unused raw materials. Link to IWE through www.dti.gov.za

Status: Some examples of activities impacting on changing unsustainable consumption and production patterns include: the installation of two electrostatic precipitators by Caltex Oil resulted in particulate emissions that have dropped to less than 100 mg/m³; the reduction of ash emission by Eskom's coal-fired Matimba Power Station from 6 000 tons a month in 1990 to 232 tons per month in 1998; closed loop cooling systems installed by Saldana steel; the Mondi sulphite pulp mill reduced sodium levels to a third.

The key issues and constraints to implement programmes promoting sustainable consumption and production in South Africa include ensuring equity; poverty alleviation; job creation; price stability and economic growth. Issues restraining implementation are financial limitations, knowledge constraints, insufficient information and training and weak implementation of legislation.

Capacity-Building, Education, Training and Awareness-Raising: Energy efficiency awareness as part of school curricula, industrial training courses on Environmental Law, Environmental Education and Cleaner Production Engineering are developed in tertiary institutions. Training courses related to sustainable production and consumption is provided. The GLOBE Programme builds strong links between schools and local interests related to environmental education and science programs. The Water-Wise campaign promotes the conservation of domestic use of water. Industry and Business in Environmental Education is a forum that conducts sustainable development seminars mainly for industry. The development of sustainable consumption patterns is a focal area of the National Environmental Education Programme of the Department of Education. Education on waste output is a feature of waste management Poverty Alleviation Projects and the CoastCare project in the Northern Cape.

The first Southern African Regional Conference on Cleaner Production was held in South Africa in May 1998. The DME hosted the national energy efficiency awareness campaign in the domestic sector in 1997 and 1998. Other campaigns include an Enerwise/Moneywise campaign and the national Energy Efficiency Awareness campaigns.

Information: The Programme for Development Research collects and disseminates information on all Southern African development issues. The provinces of Gauteng and Mpumalanga, published information documents addressing procedures for implementation of EIAs. The South African Energy Information System is a database with energy information. The Environmental Management Programme Reports revision process and the EMP performance assessment and monitoring regulations are designed to provide information to the regulator. Auditing and monitoring systems that are in use include the Waste Disposal Permit System; the Water Permit System; the South African National Accreditation System ISO 14000 and SABS ISO 14000 certification. The South African Government is developing a Pollutant Release Transfer Register that will give guidance and statistics on the amount of waste produced and pollutants emitted.

Research and Technologies: The National Productivity Institute's annual Productivity Award promotes clean and environmentally sound technologies implemented to improve productivity. Regulations on Environmental Impact Assessment brought a new corporate focus on cleaner production patterns. The National Waste Management Strategy promotes waste minimisation through cleaner technologies. The Government is developing a Pollutant Release Transfer Register that includes cleaner technology certification for all technology transfer transactions.

Financing: The sources for funding include national budget, Official Donor Aid from the UK, Germany, NORAD, USAID, DANCED, SIDA and others, and assistance from the private sector. DANIDA provides technical assistance and co-funding for lead projects on environmental management in industry. The mining industry is the only industry in South Africa for which financial provision for post-closure environmental management is legislated. Each mine has to make financial provision for the reduction of environmental impacts at source during the lifetime of the mine. Industry contributes in terms of research and training funds committed to environmental management systems and investment in cleaner technologies. Private sector partnerships represent joint

investments in technology, equipment and training required to implement agreed environmental management systems.

Cooperation: A bilateral Memorandum of Understanding between the DME and the German Government to collaborate on the promotion of solar cookers in South Africa was implemented in 1997. In addition to its commitment to the implementation of Agenda 21, South Africa is party to *inter alia* the Convention on Fishing and Conservation of the Living Resources of the High Seas; the Convention on the Conservation of the Living Resources of the South-East Atlantic; the Convention of the Prevention of Marine Pollution by Dumping of Wastes and Other Matter. South Africa has either ratified, or signed with the aim of ratification, four SADC protocols, namely the Protocol on Energy, the Protocol on Trade, the Protocol on Mining, the Protocol on Transport, Communications and Meteorology and the Protocol on Combating Illicit Drug Trafficking. South Africa is also a signatory of the SADC protocol on shared watercourses. South Africa has a bilateral agreement with Mozambique, which covers the harvesting of hake in SA waters in exchange for a comparable amount of Mozambique prawns.

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CHAPTER 4: CHANGING CONSUMPTION PATTERNS – ENERGY

DECISION-MAKING: The Department of Minerals and Energy (DME) is responsible for decision-making processes in the energy sector and for making energy related policy decisions. The Department of Environmental Affairs and Tourism (DEAT) are responsible for atmospheric pollution. The Department of Transport is responsible for transportation. In areas of overlap there is general consultation between the Government Departments. The DME has a number of associated bodies to undertake specialised policy implementation/regulation tasks, including the National Electricity Regulator, the National Nuclear Regulator and the National Gas Regulator. The coordination is usually done through the responsible Ministry or line function Department. The Committee for Environmental Co-ordination is a high level interdepartmental committee responsible for co-ordinating environmental functions of organs of state. The DME has a facilitating role in respect of the fuel quality, from a technical, environmental and air quality perspective.

The Constitution provides for the local government to be responsible for electricity and gas reticulation, and bylaws that address vehicle or factory emissions. There has also been consultation with local and provincial governments, traditional authorities and district councils regarding the supply and provision of new and renewable energy sources. The Energy Policy is very vocal on general environmental issues and the Government is developing an Energy Environmental Strategy to address energy related environmental issues and atmospheric concerns. The most important environmental requirement in terms of the Minerals Act, 1991, is that an Environmental Management Plan (EMP) should be developed and implemented, based on an environmental impact assessment which must be submitted and approved prior to the commencement of any prospecting or mining operation.

In terms of the Minerals Act, 1991, regulations have been promulgated for EMP performance assessment and monitoring to determine compliance with environmental requirements and standards and to determine the adequacy of the EMP, which needs to be reported by the mining industry to the DME. New legislation, the draft Mineral Rights Bill, is currently in progress. The Nuclear Energy Act, 1999, and the National Nuclear Regulator Act, of 1999, governs the nuclear energy industry. Policies on sustainable energy and environmentally sound consumption patterns are at an early conceptual stage. The Energy Policy, 1998, sets out policy guidelines for investment and development in the energy sector, to “ensure that developments in the energy sector are socially, environmentally and economically sustainable.” The key policy goal is to increase energy provision and access to energy resources by the millions of urban and rural poor. The Energy Policy will further ensure the promotion and development of affordable energy sources and aims to ensure the security of supply and a qualitative, safe and reliable distribution of energy services at all times.

Household and industrial energy efficiency is one of the key long-term policy issues. The thermal efficiency of households and appliances are being promoted for environmental and efficiency reasons.

Programmes and Projects: The Government, in cooperation with Eskom, the national power utility, has been involved in a massive household electrification project. The project exceeded the projected targets of electrification of 2,5 million household connections from 1994 to 1999. To date over 2,8 million households have been connected to the national grid. Almost 70% of South Africans have access to electricity. The urban and rural levels of electricity access are 79% and 46% respectively. The average grid cost is intended to be below ZAR 3200 per connection. This will include innovative “light” grid supplies and alternatives such as renewable energy (mainly Photovoltaic supplies).

The People’s Power Conference, which took place in 2000, highlighted the need to make energy available for basic household needs but also as a catalyst for economic activity. There are a number of programmes aimed at providing renewable energy sources as alternatives. The emphasis has been on the solar and PV systems for households, clinics and schools electrification in rural areas. The provision of renewable energy technologies to most of the rural communities has been undertaken with Eskom, Shell and grant funding from the international donor partners.

Eskom has implemented new and environmentally sound technologies for power generation. The Government initiated a number of projects to promote new woodland and forest reclamation processes. With the introduction of

unleaded petrol in South Africa the use of catalytic converters was not made mandatory but is relying on the demand drive. The crude oil refineries have been urged by the government to reduce their pollution levels and comply with national emissions standards. The textiles and paper and pulp industries have been identified as industries where potential savings of up to 20% could result from energy efficiency measures. The government, in collaboration with European Union, Energy Technology Support of the United Kingdom (EU/ETSU) and the Energy for Development Research Centre, has embarked on a project to do audits in industrial plants, determine the savings potential, assist in the implementation of the savings measures, ensure that measuring takes place, and then develop case studies which will be used to disseminate information to other industries. Eskom sponsors a programme called the ETA Awards. The aim of the ETA Awards is to promote the more efficient use of energy. The awards are given in six categories namely, agriculture; industrial; commercial and residential buildings; women in energy and schools. Eskom and the International Funding Company have formed a company called BONESA Electricity Pty. Limited. The Efficient Lighting Initiative is aimed at reducing electricity demand, increasing efficiency and reducing emissions through the promotion of compact fluorescent light bulbs.

Status: South Africa relies on coal for 75% of its primary energy. Coal is also South Africa's third highest export earner, and coal mining in South Africa is a major provider of jobs. Coal is used as a basic energy supplier, particularly at household level and mainly among the urban poor. It is also used for power generation and the production of petroleum products and chemicals.

The major industrial and agricultural complexes are heavily electrified. Industry accounts for over 38% of the total electricity consumption in South Africa. The mining and metals industries are some of the key electricity consumers. The key users of energy have been organised into the Energy Intensive Users Group. The transport sector is the third largest consumer of electricity. Electrical energy consumption is mainly based on coal, with a small percentage based on nuclear energy.

Coal is consumed as a feedstock for electricity production and also for the production of the synthetic fuels, through the Fischer-Tropsch process, as well as synthetic fuel production activities at Sasol and Moss gas. Key factors are the affordability of electricity, electrical appliances in rural areas, the availability of fuel wood and other bio-fuels in rural areas and some cultural and traditional choices. There are new developments in the gas sector, but these developments are at an early stage. Fuel-wood is used in the underdeveloped rural areas. This source of energy is largely free and readily available to most communities. While the use of solar and wind energy sources are in the early stages of development, hydro energy on the other hand is a mature technology in South Africa. The Government has developed policies to promote the use of solar energy sources, targeting mainly the rural areas. It is anticipated that Eskom's 5 – 10 MW wind demonstration facility will be commissioned in 2002. A detailed feasibility study on a 110 MW Solar Thermal plant is currently underway. South Africa has limited hydro capacity, but does use pumped storage schemes to meet peak demand in an environmentally efficient way. Installed hydro and pumped storage generating capacity is about 2 061 megawatts. Nuclear energy is a minor component of the South African energy sector, with installed capacity of about 5% of the country's total electricity capacity. The use of biomass has been relatively marginal.

Capacity-Building, Education, Training and Awareness-Raising: A booklet: "*Fuel consumption of passenger vehicles, 1997/98*" was published to promote fuel efficiency among the motoring public. An energy efficiency project has been promoted through radio and leaflets. In collaboration with Eskom, the national television stations have been used to promote energy, electricity conservation and energy efficiency projects. During 1997/98 the curricula for primary, secondary and tertiary institutions included energy and energy efficiency in the new subject "Technology". There are energy-training programmes conducted through the Minerals Energy Environment Training Institute and the Energy for Development Research Centre, with donor money and development funding. The Government has seconded senior officials for training abroad, through the US/SA Bilateral Commission. The Government has engaged, with the assistance of the private sector, in a number of capacity building projects aimed at educating communities about energy and the environment.

Information: The Institute for Future Research published three Government funded publications: *Energy Environmental Scan*; *Energy Futures* and *Energy Balances*. Many of the major parastatals and private sector

organisations involved in the energy sector produce annual environmental and financial reports. Information regarding the energy sector and energy development is captured in the Energy Policy document and the web sites: www.dme.za, www.eskom.co.za, www.sabregen.co.za and www.pbmr.co.za. The Government, in collaboration with CIDA, has funded an energy management publication and the SADC Energy Journal.

Research and Technologies: South Africa has limited potential for hydro electricity generation because of the nature and location of its water resources. It does however have a number of pumped storage schemes that allow for efficient generation of electricity during the short daily demand peaks. The Government has promoted the use of biomass technologies in a number of rural communities. Water heating accounts for between a third and a half of energy consumption in the average South African household. Considering both financial costs and health and safety issues, solar energy is one of the best ways of heating water in South Africa.

The proposed Darling Wind Farm and Eskom's Wind Farm are pilot and research projects on wind electricity generation. Investigations into alternative nuclear reactor technology have been initiated and are ongoing. The above technologies are developed with the overall aim of environmental compliance and competitiveness. There are a number of clean coal technologies for use in power generation and coal utilisation at household level. This includes the production of low smoke fuels and coal briquettes as well as the evaluation of fluidised-bed combustion technology using low-grade coal for electricity generation. These initiatives are at a private sector level with the support of the Government.

Financing: The Government has allocated internal financial resources for the rural electrification projects. This is been a major shift from the past practice where a large part of the multilateral funding was used for rural electrification. Most of the money allocated by Government has been used as bridging finance for foreign funded projects. Eskom spent 1% of its revenue on technical research and development during 2000. The foreign financial assistance on energy projects and programmes will well be over 70% of the total project money available. Global Environmental Facility funding was available for the Efficient Lighting Initiative. A number of bilateral agreements have been signed which have assisted the government to raise the funding for the implementation of energy related projects. Strategic guidelines have also been developed to promote investment in the energy sector.

Cooperation: Eskom and its SADC counterparts engage in an ongoing and constructive manner in the South African Power Pool, which involves information sharing, capacity building and technology transfer throughout the region. There have been bilateral between the Government and the USA on energy technologies and particularly clean energy technology. In this regard a Clean Energy Working Group has been established to cooperate in developing and promoting clean energy technologies. There has been an exchange of technologies for energy provision between South Africa and the German government for electricity provision through solar panels. The Government, Eskom and the CSIR in cooperation with the Danish government have conducted a study to assess the wind potential for bulk energy production in South Africa. The government signed a Memorandum of Understanding with the Dutch government to promote cooperation in the area of energy research and development. The government has bilateral agreements with the Netherlands, Denmark, Norway and the United States on capacity building projects. These governments have funded a number of energy related training projects through institutions such as Energy for Research Development Centre and the Minerals Energy Environment Training Institute. As a Non-Annex 1 Party signatory to the UN Framework Convention on Climate Change, South Africa does not have any obligations to reduce Green House Gas emissions. However, South Africa will participate in the Kyoto Protocol through Clean Development Mechanism and other mechanisms. The key principle of the cooperation agreements is the promotion of renewable energy technologies and clean energy technologies.

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CHAPTER 4: CHANGING CONSUMPTION PATTERNS - TRANSPORT

Decision-Making: The following government ministries and private agencies are involved in the decision-making processes related to transport: National Department of Transport, Provincial Departments of Transport, Local Government, Metropolitan transport authorities and transport authorities under the Land Transport Transition Act (2002), South African National Roads Agency, South African Civil Aviation Authority, South African Maritime Safety Authority, Cross Border Road Transport Agency, Airports Company of South Africa, Air Traffic Navigation Service, South African Rail Commuter Corporation, Road Accident Fund, and Transnet, through the Department of Public Enterprises. Road traffic management instruments have already been developed, including the Road Traffic Management Corporation Act. These instruments will achieve vertical and horizontal coordination in road traffic management between Government departments and involving the private sector in service delivery. The various functional areas within traffic management will be coordinated to work in an integrated system.

The end objective of the Road Traffic Management Corporation Act is to move from fragmentation and varying operational policies to coordination, collaboration and standardised operational policies. The National Transport Policy of South Africa and the National Land and Transport Transition Act address the transport and traffic systems in South Africa.

The Department of Transport is developing a strategy aimed at promoting environmental friendly transport. The transportation strategy is in compliance with the integrated development planning processes in South Africa that looks at planning in a holistic manner. Nuclear material is transported under the provisions of the Nuclear Energy Act (1999), and the National Nuclear Regulator Act (1999). As part of a broader environmental strategy, Government is preparing guidelines that would place restrictions on vehicle emissions.

Programmes and Projects: An integrated rural development strategy is developed that will address transport issues. Several pilot programmes have been undertaken to look into promoting traffic efficiency. The aim is to encourage the use of mass transport modes as an alternative for private car use. Public awareness on “smart driving” is ongoing to improve efficiency in fuel consumption. A holistic strategy document related to reducing traffic-related accidents and damage, has been developed.

The national Government is working with local and provincial governments in the promotion of the use of bicycles as a mode of transport. The rural road networks are a research project that deals with all aspects of rural transport including infrastructure and operations. Various integrated intelligent systems (ITS) related projects have been launched. These systems are developed as islands of advanced technology applications without the inter-connectivity that will provide the benefit of ITS.

Public transport is one of the priorities of Government. The need to focus on the coordination of advanced technology projects in public transport resulted in core components of the ITS technology for minibus taxi recapitalisation, namely a vehicle identification and tracking system; a ticketing system based on the use of smart card technology; a electronic management system and overload control system. Metro-rail has made a request for interest into automatic fare collection and control system.

Status: The adequacy of the provision of transport services in South African cities is better provided with transport services than rural areas. South Africa has initiated various spatial planning activities such as corridor developments, which are strong on the use of public transport system. South Africa has a very fairly developed aviation industry. There are 60 foreign airlines connecting South Africa with the rest of the world, and 3 carriers serve the domestic market. Aviation infrastructure, which is managed by the Airports Company of South Africa and the Air Traffic Navigation Services Company, compares favourably to international standards.

The introduction of unleaded fuel is ongoing. New passenger vehicles sold from 2001 will be fitted with fuel tanks with reduced diameter inlet nozzles, which will only allow the use of unleaded petrol. As a result of an initiative of the Department of Minerals and Energy the sulphur content of diesel will be reduced from 0,55% (mass basis) to 0,33%. The crude oil refineries have been urged by the government to reduce their pollution levels and comply with national emissions standards as outlined by the Department of Environmental Affairs and Tourism. The pollution problem at refineries has been a matter of grave concern to most of the communities in areas surrounding these installations, which have experienced the deterioration of air quality levels in their areas.

Capacity-Building, Education, Training and Awareness-Raising: The awareness of the impact of transport on the environment is done through formal education programs. The national government is running an integrated urban corridor assessment and strategy development initiative for transport authorities and provincial government. The Government educates and creates awareness amongst all road users through print and electronic media campaigns, and formal and non-formal educational programs. Road safety is one of the aspects addressed in the school curriculum to promote an early awareness of the relationship between transport and environment. The use of the South African Developed Road Traffic Safety manual is part of the capacity building programme.

Information: A computerised National Traffic Information System (database) was developed and is in operation at national, provincial and local levels of government. A supporting system, TRAFMAN, is operational at provincial and local traffic authorities. Detailed information on the exact locations of accidents; major contributory causes of accidents at these locations; time-of-day and day-of-week information on accidents at specific locations are also captured and stored in the system. Over peak holiday period's specific information on road conditions is collected and provided to road users through the electronic and printed media and the radio. Research in this regard is envisaged in areas where fog and mist regularly contribute to accidents.

Research and Technologies: A Road Traffic Management Strategy, 2000-2004 - An End to Carnage on South Africa's Roads, is finalised. Issues addressed in the strategy include: improved driver training and testing procedures; improved procedures for testing of vehicles; improved road safety education at schools as well as for adult road users; further implementation of modern technology to assist in the management of drivers, vehicles and traffic control enforcement; implementation of traffic engineering measures in order to improve the road environment; the creation of a Road Traffic Management Corporation Act. See also under **Programmes and Projects**.

Financing: Government deficit funding is the primary source of funding for the building of transport infrastructure. There is growing support for using private public partnerships as a way to injecting private sector capital and improving the quality of services. The South African Government is prepared to make decisive commitments to strategic investment to halt the decline in key areas of the overall transport system. The transport sector operates in an open market environment. Former state enterprises are being instructed, and through this effort creating opportunities for the private sector.

Cooperation: South Africa is aggressively pursuing the negotiation and conclusion of bilateral merchant shipping agreements as well as bilateral search and rescue agreements with selected countries. In respect of aviation, South Africa is actively participating in the worldwide negotiation of air service arrangements through the negotiation of bilateral air services agreements. To date South Africa has concluded bilateral air services agreements with 101 states. South Africa is a member of both the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO). It is also signatory to a number of international conventions on transport. South Africa provides the chair to the Indian Ocean Memorandum of Understanding with 18 signatories with the objective of providing a common system of port state control with the aim of ridding the Indian Ocean of sub-standard ships. As a member of the ICAO, South Africa participates in the activities of ICAO through attending General Assembly meetings and participating in technical workgroups and committees relating to all aspects of aviation. South Africa is also participating in discussions within the SADC region regarding the practical implementation of the Yamoussoukro Decision on the Liberalisation of Access to the Air Transport Markets in Africa. South Africa is also a signatory to the SADC Protocol on Transport, Communications and Meteorology, to establish transport, communications and meteorology systems.

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CHAPTER 5: DEMOGRAPHIC DYNAMICS AND SUSTAINABILITY

Decision-Making: The Department of Social Development is responsible for the implementation of South Africa's Population Policy through the line functions of other departments and their partners in civil society. The Policy addresses population and development concerns that relate to and impact on sustainable (human) development in South Africa. The Policy describes the critical interface between population, development and the environment, and captures the sustainable development aspirations of ordinary South Africans. The Departments of Environmental Affairs and Tourism, Land Affairs, Trade and Industry, Water Affairs and Forestry; Education, Health, the Youth and Gender Commissions, and others, as well as Statistics South Africa, are involved in implementing the Policy. Besides Government structures at national, provincial and local levels, relevant non-governmental organisations and community-based organisations, are key stakeholders in implementing the strategies contained in the policy.

The new Population Policy was developed as a result of the United Nations International Conference on Population and Development (ICPD), held in September 1994 in Cairo. The South African Government endorsed the Programme of Action that emanated from the ICPD. Agenda 21 and the ICPD Programme of Action have several commonalities in terms of issues related to sustainable (human) development. The ICPD signalled a significant international paradigm shift away from a focus on the reduction of population growth through fertility control to the recognition of the complex interrelationships between population, development and the environment, in the context of sustainable human development.

The policy acknowledges the critical interface between population, development and the environment, and captures the sustainable development aspirations of ordinary South Africans. The goal of the policy is to bring about changes in the determinants of the country's population trends, to achieve sustainable human development. Through the new policy, the South African Government places the population at the centre of development as its driving force and ultimate beneficiary. The reciprocal relationship between population, development and the environment is therefore inherent to the approach of the population policy. The basic tenets of the policy concerns are multifaceted and efforts to address them should be multi-sectoral. The policy objectives are achieved through 24 major strategies, of which at least three are relevant to Agenda 21:

- 1) Establishing and continuously updating a national statistical database and information system that will pool pertinent data and information from various departments, making such information accessible to the various planning units and the general public, in order to enhance the sharing and exchange of such information;
- 2) Ensuring environmental sustainability through comprehensive strategies which address population, production and consumption patterns independently; and
- 3) Advocating and facilitating measures that will enable women and girls to achieve their full potential. Overall co-ordination is achieved through forums involving National Ministers and Members of the nine Provincial Social Development Departments. Coordination is achieved on provincial government level through, *inter alia* Local Action Committees and the establishment of an Interim Provincial Forum. Local authorities make their own decisions in terms of integrated issues. Local authorities are technically and financially supported by national Government.

Programmes and Projects: Various multi-sectoral programmes and projects have been implemented by line function departments aimed at addressing population, development and environmental challenges that hinder sustainable development. These include, *inter alia*, programmes and projects aimed at poverty eradication, with a special focus on the empowerment of women and care for children under the age of five, skills development programmes, reproductive health and rights programmes, including programmes to mitigate the adverse impact of HIV/AIDS on sustainable development. These programmes and projects are supported by comprehensive advocacy campaigns, and population information, education and communication programmes, initiated by the National Department of Social Development and other Government Departments in collaboration with a wide range of partners in government and the private sector and civil society.

Status: The main constraints are a lack of trained and experienced human resources especially with regard to integrating population dynamics in development planning, technical capacity and visionary leadership. There is a lack of technical and strategic guidance in terms of ensuring an integrated approach towards policy-making and planning in all spheres of Government.

Poverty alleviation projects by the DEAT address concerns and needs surrounding natural resource use as defined by local communities and government. Most importantly, concerns addressed in Chapter 5 can be incorporated into Government decision-making at local level through the Integrated Development Planning (IDP) process. Such concerns can be taken into district and provincial level integrated development planning.

Capacity-Building, Education, Training and Awareness-Raising: Local academic institutions provide education and training in population studies and demographics. These are underpinned by research projects undertaken by academic and research institutions. Education and training institutions receive technical and financial support from international development and donor agencies, including several United Nations agencies. Partnerships have been formed with local universities to initiate capacity building opportunities.

Information: Statistics South Africa collects, publishes and disseminates official demographic/population and development data and information, based on the results of national censuses, *October Household* and other regular surveys, including the *Demographic and Health Surveys*. Information is available in electronic and printed formats. Modern developments in information technology have resulted in the creation of electronic databases and information systems, including web sites, in all Government Departments and institutions. A Population Resource Centre and a population and development information system were established in the national Department of Social Development that houses and disseminates a wide range of data / information on population development and related topics in printed and electronic formats. The South African Development Community (SADC) established a Statistics Desk to assist with generating and disseminating demographic/population and development data and information in the SADC region.

Research and Technologies: Various government departments and research/academic institutions have been occupied with a large number of research projects and activities that relate to demographic dynamics and sustainability, e.g. the Department of Social Development released the State of South Africa's Population Report 2000 on *Population, Poverty and Vulnerability* in September 2000. It was compiled by a number of researchers and academics involved in the population and development fields. The Report covers a range of emerging population and development issues that impact on sustainable development in South Africa, including a chapter on population and environment, and one on the impact of HIV/AIDS and its demographic, economic and social implications.

Since its release, the Report has been widely used as a useful source of population and development, an advocacy tool, for purposes of policy making and planning as well as for training and capacity-building. The next report, which was released in December 2001, focused on *The Impact of HIV/AIDS on Sustainable Human Development*, with specific emphasis on social service delivery in South Africa.

In October 2000, the Department of Social Development, jointly with the Demographic Society of Southern Africa, hosted a national conference on the impact of HIV/AIDS on population trends in South Africa. The next conference of this kind was held in October 2001, with the theme *Migration and Development: Challenges for the Southern African Region*. In addition, the Departments of Social Development and Health, in collaboration with other Departments and research/academic institutions have embarked on scientific modelling and demographic projection exercises and surveillance studies to assess the impact of HIV/AIDS on sustainable development and service delivery.

Financing: The Government provides the necessary financial resources to facilitate the implementation of population and development policies and plans aimed at promoting sustainable development. Available Government resources are supplemented by contributions from private sector institutions and international donors.

Cooperation: The Southern African Development Community (SADC) has been involved in sub-regional cooperation in the field of population and development. In 1996, the South African Government initiated the institutionalisation of the population dimension in the SADC structure by convening the first Southern African

Forum on Population and Development. The Southern African Ministers Forum on Population and Development was held in Pretoria in October 1996 to initiate collaboration in the field of population and development among SADC member states. This initiative culminated in the Ministerial Session of the Southern African Minister's Conference on Population and Development that took place in Lusaka, Zambia, in May 1999. The SADC Ministerial Working Committee developed a Programme of Action for Social Development in the SADC Region in March 2000 to address social ills that impact negatively on sustainable development in the region. Cooperation in the African region has been established through the African Population Commission. Other relevant organisations are the African Population Advice Committee, the African Development Bank and the Development Bank of Southern Africa. The South African Government has been a member of the United Nations Commission on Population and Development since 1998. The United Nations Population Fund has established a country office in Pretoria, South Africa.

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CHAPTER 6: PROTECTING AND PROMOTING HUMAN HEALTH

Decision-Making: The National Department of Health and the nine ministries of the provinces are the leading departments in protecting and promoting health. But as health issues are impacted by socio-economic conditions, the Ministries of Housing, Environmental Affairs, Agriculture, Transport, and Provincial and Local Government contribute to policy making and monitoring of aspects relating to health protection. The Department of Labour is responsible for protecting the health and safety of workers in the work environment, as well as protecting all South Africans from risks relating to work activities. This mandate is enshrined in the Occupational Health and Safety Act No. 85 of 1993 and its accompanying regulations.

On a local level, the District Health System is in place, as are most of the services concerned with protecting and promoting health. Since 1994, a number of policies and laws have been developed and implemented.

The major groups involved with advising the Ministry in formulating policy are Universities, the Research Councils, non-Governmental organisations and Community-Based Organisations.

Programmes and Projects: A joint project between the Department of Health and three Universities focuses on training health practitioners for rural areas.

Since the Lubombo Spatial Development Initiative started a tri-national programme to control malaria in 2000, there has been a 76% reduction of malaria cases in Kwazulu/Natal. The malaria control programme is part of a major drive by the Lubombo Spatial Development Initiative to improve the livelihoods of residents in some of the poorest areas of Southern Africa

A Healthy Cities programme is being piloted in the provinces of Gauteng, KwaZulu Natal and the Western Cape, with the emphasis on informal traders.

Environmental Pollution Training Programmes have been conducted in all nine provinces and pollution prevention projects are being implemented. Health Care Waste guidelines are in place and relevant personnel are being trained. The National Chemical Safety Programme has been initiated and guidelines on poisoning reporting procedures will be compiled. The Department of Health and the Department of Water Affairs and Forestry have developed four of the series of five guidelines on water quality.

Status: During the past five years, emphasis has been on equity and access to health services. The District Health System Policy, introduced in 1994, has had a significant impact in ensuring quality service delivery. The Primary Health Care Package was phased in during June 2000, and health goals and indicators for the country have been developed.

Environmental health services are being devolved from Provincial to the local level so that communities can be involved in Primary Health Care implementation.

The Departments of Social Development, Health and Education have developed a national Integrated Framework for Children Infected and Affected by HIV/AIDS.

Environmental Health Practitioners in all provinces are involved in implementing control measures, especially in the coordination of water supply and sanitation. Their efficiency has been proven in the recent cholera outbreak in KwaZulu Natal and other areas.

The Department has taken a stand against tobacco through the Tobacco Products Control Act, which outlaws all tobacco product advertising and sponsorship. It bans smoking in all enclosed public places, and except for smoking rooms, all work places. Cigarettes cannot be sold to children under 16 years.

The National Environmental Management Act (1998) addresses issues relating to the right of a healthy environment in the Northern Cape province, and because of it, significant progress has been made to assist victims of asbestos pollution in gaining compensation from overseas companies that precipitated the disaster of Prieska.

Capacity-Building, Education, Training and Awareness-Raising: Capacity-building among previously disadvantaged groups has been a major focus for the Department. Levels of population representivity have improved even in highly specialised areas.

Health promotion, information, education and communication materials such as posters, pamphlets, radio adverts and TV programmes have been developed on various communicable and non-communicable diseases including tobacco control and cholera.

The Department of Health, in collaboration with the DoE, coordinates the health Promoting Schools Programme, which focuses on a healthy school environment.

Information: The Minister of Health established the National Information System Committee in 1994 that was tasked with developing a National Health Information System for South Africa (NHISSA). NHISSA has three broad goals: to ensure availability of information for the management of health services, including efficiency, cost, volume and coverage; to measure the health status of the South African population; and to monitor Reconstruction and Development Programme (RDP) priorities and measure their implementation.

The implementation of the new death and birth notification forms, in collaboration with the Department of Home Affairs, has resulted in an increase in registrations on the Population Register. This in turn helps in the planning of health programmes aimed at women and children.

Research and Technologies: A report on smoking prevalence among the youth was launched on 31 May 2001, World No Smoking Day. Data collected will inform Tobacco Control Programmes for Schools.

The Department of Health has commissioned another school-based study, called Youth Risk Behaviour Survey, to be conducted nationally, in all community settings. The study will enable health workers to define health problems and set priorities for programme implementation.

The Medical Research Council, which advises the Department of Health, has done research into the effects of lead in children and the effects of indoor air pollution on women and children.

The Water Research Commission has been involved in a number of studies relating to human health. The Chemical and Toxicological Water Quality Thrust is looking into the sources, persistence, effects and epidemiology of chemicals in water. The General Microbial Water Quality Programme is striving to understand the origin, survival, effect and epidemiology of micro-organisms associated water resources. And the Eutrophication Thrust is looking at the unnatural growth of blue green bacteria and micro algae due to excess nutrients in water, how these result in algal toxins in drinking water, clogged filters in purification works, and the jeopardising of public water bodies.

Financing: Financial support for research comes from a number of organisations, namely: World Health Organisation, Department of Health, Water Research Commission, Medical Research Council, International Society for Environmental Epidemiology, and the United Nations Children's Fund.

Cooperation: The Department of Health, as facilitator and coordinator of South Africa's participation in the Southern African Development Community, expedited the signing of the SADC Health Protocol.

South Africa also assumed the chairmanship of the Non-Aligned Movement (NAM) from 1998 to 2001. The Minister of Health therefore coordinates health activities throughout NAM member countries.

In 2000, a staggering 62 000 cases of malaria were recorded in South Africa, the highest number ever. This culminated the signing by the governments of Mozambique, Swaziland and South Africa of the Lumbombo Malaria Control Protocol and the initiation of a ZAR40 million malaria control programme that began in October 2000. The Business Trust, the South African Government, the Mozambiquan Ministry of Health and Mozal fund the programme.

The programme aims, within 5 years, to reduce the prevalence of *Plasmodium falciparum* in Maputo province, from 600 per 1000 to less than 20 per 1000. It plans to reduce the incidence of such infections in the South African and Swaziland parts of the region from 250 per 1000 to 5 per 1000 within five years. The programme expects to roll malaria back from St Lucia to the Kruger National Park, two of southern Africa's major tourism destinations.

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CHAPTER 7: PROMOTING SUSTAINABLE HUMAN SETTLEMENT DEVELOPMENT

Decision-Making: Decision-making related to the promotion of sustainable human settlement development cuts across various national government departments, as well as the various spheres of government. A number of national Departments including Housing, Environmental Affairs and Tourism, Provincial and Local Government, Minerals and Energy, Water Affairs and Forestry, Land Affairs, Transport, and Social Development, through their programmes and policies, participate in decision making concerning sustainable human settlement development.

These national Departments are generally responsible for creating policy and legislation for sustainable human settlement development, while the provincial sphere of government provides funding for programmes or projects, in accordance with the needs of their region, and regulates and monitors the implementation thereof. The Government has entrenched local government as a separate, yet interrelated sphere of government with its own executive and legislative authority and an important developmental role in the Constitution. One of the key tools in development for local government is Integrated Development Planning (IDP), a legally required process, which will become increasingly influential over the next five years. Some of the functions undertaken by local government in promoting sustainable human settlement development are: to initiate, plan, coordinate and facilitate appropriate housing development; to prepare local housing strategies and set delivery goals; to set aside, plan and manage land for housing; to create a financially and socially viable environment; to provide bulk engineering services; and to administer any national housing programme if accredited to do so.

Programmes and Projects: The Government adopted the Reconstruction and Development Programme (RDP), as the policy agenda for the country. Based on the principle of meeting people's basic needs on a sustainable basis, it provided the opportunity to introduce new policies based on principles of integration and sustainability, people-driven development, peace and security, nation building, meeting basic needs, building infrastructure, democratisation, assessment and accountability.

Based on the principles of the RDP, the Urban Development Framework was published by the National Department of Housing in 1997. This is the main policy guideline for the implementation of the Habitat Agenda and human settlement development in South Africa. In a parallel process, the Government also developed the Rural Development Framework. Within the framework of the Urban and Rural Development Policy, national Departments have implemented a number of key programmes and projects to promote sustainable human settlement development. The following are some of the key focus areas: shelter (providing security of tenure; promoting the right to adequate housing; providing equal access to land; promoting equal access to credit; and promoting access to basic services); social development and the eradication of poverty (providing equal opportunities for a healthy and safe life; promoting social integration and supporting disadvantaged groups; promoting gender equality in human settlement development); environmental management (promoting geographically balanced settlement patterns; promoting supply and demand for water in an effective manner; reducing urban pollution; preventing disasters and rebuilding settlements; promoting effective and environmentally sound transportation systems; supporting mechanisms to prepare and implement local environmental plans and Local Agenda 21 initiatives); economic development (strengthening small and micro enterprises; encouraging public-private sector partnerships); governance (promoting decentralisation and strengthening local authorities; encouraging and supporting participation and civic engagement; ensuring transparent, accountable and efficient governance of towns, cities and metropolitan areas); international cooperation (see the section on cooperation).

Status: Notwithstanding the legislation, policies, programmes and projects identified in the previous section, South Africa's human settlements are still characterised by spatial separation of residential areas according to class and population group, urban sprawl, low levels of service provision and the concentration of the poor. In attempting to respond to the major themes of the Habitat Agenda (adequate shelter for all and sustainable human settlement development in an urbanising world), an inherent conflict has emerged. Although the housing programme, has delivered almost 1,2 million houses, there is a recognition that the development of sustainable human settlements and quality living environments have still not materialised.

While the principles of social, economic and environmental sustainability are reflected in housing policy and legislation, the reality of the increased costs of achieving integrated and environmentally sound developments on well-located land have proven to be prohibitive.

Capacity Building, Education, Training and Awareness raising: The following are a number of projects and institutions that provide capacity-building, education, training and awareness raising, thereby promoting sustainable human settlement development: the Masakhane Campaign, Servcon Housing Solutions, Thubelisha (new opportunity) Homes and the National Home Builder's Registration Council, the first specialised Local Agenda 21 training; the Sustainable Homes Initiative and the Sustainable Energy, Environment and Development Programme. In addition the Department of Housing has established a conditional grant in an attempt to address the capacity problems and skills shortage in the housing sector. The grant is distributed among the nine provinces on the basis of identified needs to ensure that relevant skills are acquired by housing officials at all levels of government.

Information: Information and reporting is of central importance in terms of monitoring sustainable human settlement development and ensuring that funds are effectively and efficiently spent. The Housing Act requires that information is gathered and reporting occurs. There are six different information systems operating at a national level that track subsidy allocations, progress and geographical reference data.

The Housing and Urbanisation Information System includes a range of Human Settlement indicators in accordance with the UN Centre for Human Settlements indicator programme. It is envisaged that a second phase of indicators will be developed in an attempt to provide a more detailed picture of human settlement development. The success of this exercise will however depend on the availability of suitable data. In addition the Department of Housing has developed a Human Settlement Resource Directory that provides a list and details of possible funding sources in relation to human settlement development.

Research and Technologies: In promoting sustainable human settlement development a significant investment in research and appropriate technology is required. Earth brick technology is investigated as a possible alternate material to be used in the construction industry. In addition over the past years a number of research studies have been undertaken, which will contribute to sustainable human settlement development. These include the Asbestos study, Green Financing, Medium Density Housing, Best Practices, State of Human Settlements Report, the Eco rating study and the Housing Land study.

Financing: The funding for human settlement development is predominantly through financial contributions from the Government and is supplemented with funding from the private sector, communities and donor countries. In addition to the Department of Housing a number of government departments have been responsible for funding of human settlement development. These include the Department of Land Affairs (Programmes for Land Redistribution, Restitution and Tenure Reform); Department of Transport (Urban Corridor Programme); Department of Water Affairs and Forestry (Free Water for All programme and the Community Water and Sanitation Programme); Department of Health (Clinics Building and Upgrading Programme); and the Department of Education (National Schools Building Programme).

Through the Integrated Rural Development Programme and the Urban Renewal Programmes the funding from various departments is coordinated to promote sustainable human settlement development. The Department of Housing provides funding for human settlement development primarily through the Housing Subsidy Scheme. There are six subsidy programmes that together comprise the housing subsidy scheme. The housing subsidy is intended to help household's access housing with secure tenure, at a cost they can afford, and of a standard that satisfies the norms and standards determined by Government.

Cooperation: International cooperation takes place through a number of multilateral engagements that relate to the Habitat Agenda and bilateral engagements with a number of countries including Denmark, Germany, India, Sweden and the United States. South Africa joined forces with Germany, Singapore and Brazil through the Global Environmental Initiative to prepare a World Report on the Urban Future to form the basis of deliberation at the

Urban 21 Global Conference on the Urban Future (Berlin, July 2000). As part of the preparations for Urban 21, South Africa hosted an African Regional Conference on Sustainable Urban Development (African Solutions) in March 2000. The National Treasury has compiled the Development Cooperation Report that includes all international cooperation and partnerships in South Africa in the field of human settlements. This information will enable local authorities to identify sources of funding for human settlement development.

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CHAPTER 8: INTEGRATING ENVIRONMENT AND DEVELOPMENT IN DECISION-MAKING

Decision-Making: A new institutional structure has been approved by the Government to allow for the full integration of environmental and developmental issues, at all levels of decision-making. Coordination is achieved among the different levels of government through the system of cluster committees of heads of department and of cabinet members, e.g. economic, social, etc. South Africa has adopted a number of measures aimed at ensuring that environmental protection is an integral part of the development process.

The Environmental Impact Assessment regulations and the associated schedule of activities as well as the Guideline Document for the Implementation of the Environmental Impact Assessment regulations were adopted in 1997.

The Development Facilitation Act, 1995, is another development-oriented legislation that explicitly requires consideration of environmental factors. Principles to encourage sustainable land development practices and processes are incorporated into this Act. The Development Facilitation Act, 1995, has as its objective the introduction of extraordinary measures to facilitate and speed up the implementation of development programmes and projects in relation to land. It lays down general principles concerning land development throughout the country. All of the new legislative and policy-development processes in the field of environmental management have included comprehensive public participation processes. Participatory decision-making is covered in the national environmental management principles and is further addressed in the National Environmental Management Act's provisions relating to environmental impact assessments and regulatory powers. The National Environmental Management Act, 1998, (NEMA) provides for thorough and uniform control of environmental impact management of development projects.

This Act also makes provision for the establishment of a Committee for Environmental Coordination to handle issues related to environment amongst all relevant national Government Departments. It is the Department of Environmental Affairs and Tourism's (DEAT) responsibility to facilitate the integration and coordination of environmental management in development decision-making. In addition, in terms of schedule 6 of the Constitution of the Republic of South Africa, provincial governments were given the responsibility for decision-making with regard to development.

The provincial Departments of Local Government and Housing are implementing the Development Facilitation Act, 1995. The national Department of Mineral and Energy is responsible for decision-making with regard to the exploitation of mineral resources, and the national Department of Water Affairs and Forestry is responsible for decision-making with regard to water resources and forestry developments. The Growth and Development Strategy is a fundamental pillar of the transformation process of spatial and development planning.

This Strategy has been initiated by the national Departments of Land Affairs and Housing, and the Development Planning Section in the Deputy President's Office and will be implemented by the provincial departments of Local Government and Housing. Several local authorities are assisted in developing local government strategies and actions plans as part of the Local Agenda 21 initiatives in South Africa. Through the requirements of the Minerals Act, 1991, the Department of Minerals and Energy attempts to integrate environment and development at policy, planning and management levels. Through the process of Environmental Management Plans, Government aims to achieve integration of environmental concerns in decision-making processes by all other departments.

In 1989, the first version of Integrated Environmental Management (IEM) framework was published. IEM is a procedure that provides an integrated framework for environmental management and decision-making to promote sustainable development and the equitable use of resources. The fundamental principles of this framework are an open, participatory approach with interested and affected parties, the consideration of the whole project life-cycle, the pursuit of a balance between social and environmental costs and benefits of decisions, informed and accountable decision-making, a holistic consideration of the environment, the consideration of alternatives, mitigation of negative impacts and enhancement of positive outcomes and regard for the democratic rights and obligations of individuals and communities.

Action is also being taken by Government to integrate regulatory, self-regulatory (e.g. ISO 14000 series) and market-based environmental management approaches. The concept of "Best Practice", whereby actions are identified which could serve as useful models, from which others could learn, could be a useful tool for national

capacity building. More than this, "Best Practice" identifies initiatives or projects, which have resulted in tangible and measurable improvements in the quality of life and living conditions of people in a sustainable way. The setting up of a Best Practice Resource Center is currently being addressed.

Programmes and Projects: In order to support a major integrated approach to decision-making, a computerised series of environmental potential atlases (ENPAT) has been completed by the DEAT. ENPAT is a decision support system for environmental impact management and is a GIS based database. A national ENPAT Atlas was published in 1997, which is also available on CD.

The Integrated Development Planning (IDP) process provides an opportunity for environmental and development concerns to be integrated at local level. The Richtersveld municipality, for instance, is effectively incorporating mining, tourism and protected areas ranging from Transfrontier Conservation Areas to national and provincial parks, South African Heritage Resources Agency (SAHRA) sites and community conservancies into its development planning.

Status: The Department of Environmental Affairs and Tourism, and the Department of Trade and Industry work closely together to implement environmental considerations in developmental decision-making, and to ensure economically sound environmental decision-making. NEDLAC is South Africa's primary institution for social dialogue between organised business, government, labour and communities, on issues of social and economic policy.

Capacity-Building, Education, Training and Awareness-Raising: Sustainable Development and Environmental Education is incorporated into school curricula through Curriculum 2005. The DEAT has, for more than ten years, conducted awareness-raising in this area by publishing a magazine, targeted to inform and educate local authorities on environmental issues. Through this magazine, local authorities were kept informed *inter alia* on Local Agenda 21 and its implementation locally and internationally. The Integrated Planning Process, because of its strong participative element, provides the public with the opportunity to address real-life issues, and to become involved.

Information: See under **Decision-Making**.

Research and Technologies: See under **Programmes and Projects**.

Financing: NEDLAC allocates funding on an annual basis for research, *inter alia* to advise Government on integrating environment and development in decision-making. The Fund for Research into Investment, Development, Growth and Equity (FRIDGE) is co-administered by NEDLAC and the Industrial Development Corporation. Recent research projects include a Sustainable Production Study that informed an Environmental Implementation Plan for the Department of Trade and Industry.

Cooperation: South Africa is a member of the following Regional and Sub-Regional Organizations: African Ministerial Conference on Environment (AMCEN); Economic Commission of Africa (ECA); Non-Aligned Movement (NAM); Organisation of African Unity (OAU) and; Zone of Peace and Cooperation of the South Atlantic (ZPCSA) Southern African Development Community (SADC). Exchange of experience on sustainable development takes place through the United Nations Environmental Programme's (UNEP) Regional Office for Africa, AMCEN, and SADC.

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CHAPTER 9: PROTECTION OF THE ATMOSPHERE

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

South Africa sent delegates to INC-9, -10 and -11 and also to the Conference of the Parties (COP), COP-1 and COP-2. The Chamber of Mines of South Africa, as well as labour and NGOs, have participated in the United Nations Climate Change negotiations since June 1998 as part of the official South African delegation. A National Committee for Climate Change (NCCC) was established in 1994, to coordinate Government steps towards forming a climate change policy with the other stakeholders, including the nine provincial governments. South Africa acceded to both the Vienna Convention and the Montreal Protocol in 1990. The London Amendment was also signed in 1990. The Copenhagen Amendment, the Montreal Amendment and the Beijing Amendment are still not signed but the process leading to signing these Amendments is under way. Implementation of the Montreal Protocol is undertaken through working groups from industry and government, including working groups for Solvents, Foams, Aerosols, Automotive Air Conditioning, Refrigeration, Mining, and Methyl Bromide. An "environmental levy" of ZAR 5 per kilogram is imposed on Ozone Depleting Substances (ODSs). Imports and production of ODSs are regulated by import, or production permits.

Programmes and Projects: Government is proposing new SO₂ standards that will replace the present guidelines. Other criteria pollutant standards are likely to follow. A low smoke fuel project, managed by the DME has a specific objective pertaining to protection of the atmosphere.

The process has specific requirements on air quality, including dust pollution. The rehabilitation of asbestos mines and gold mine slime dams is aimed at addressing dust pollution. The DME assists DEAT in drawing up an inventory of greenhouse gases and promotes the concept of best practicable means and the use of clean technology. Gauteng Province initiated the Clean Air Programme, which will contribute towards air quality improvements. The programme will be run on a pilot-project basis in one area and will promote the use of cleaner production technology and incentives. Another area of involvement is in the Vaal Triangle Atmospheric Protection Action Committee, which addresses the air pollution problem in the most impacted area of Gauteng.

The South African Navy has initiated a programme to upgrade naval ships to make provision for the phasing out of CFCs (chlorofluorocarbons) in accordance with the Montreal Protocol. The Army and Air Force are also in the process of investigating the implications thereof in order to plan and implement the necessary amendments to equipment and procedures. The Government has embarked on an air quality management program in partnership with industry and communities in the Durban area, aimed at reducing the high level of air pollution in the area.

Status: The following are the ODSs that have been phased out in the country, i.e. no production or consumption of these substances is allowed, except for essential use purposes approved by the Montreal Protocol:

1 January 1994: Consumption of newly produced halons restricted to zero. Recovered and recycled halons may still be used for critical essential use purpose.

1 January 1996: Consumption of all CFCs restricted to zero with the exception of essential use for CFCs required for the production of metered-dose inhalers for asthma and chronic obstructive pulmonary disease sufferers. Consumption of carbon tetrachloride restricted to zero. Consumption of methyl chloroform restricted to zero.

DEAT, together with industry, has been involved in a project to assess the potential effects of acid rain deposition in the Mpumalanga Highveld since 1996. This also tracks the transboundary movement of air pollution emanating from the coal-fired power generating plants. Projects to analyse trends of SO₂ and smoke concentration in some

urban areas have been running since the mid-eighties. One of the strategies will be to obtain closer cooperation between transportation planning and land use planning.

Capacity-Building, Education, Training and Awareness-Raising: In February 1995, the DEAT issued a preliminary document, for information at INC-11, entitled: "South African Policy - Management of Global Climate Change". Also in 1995, the following two reports were published: "*South African Greenhouse Gas Inventory*," and "*Greenhouse Gas Adaptation Strategy for South Africa*". The Government held workshops and seminars to inform all stakeholders about the implications of the UNFCCC and also to stimulate an advance towards ratification of the Convention.

Under the bilateral agreement between South Africa and United States of America, a capacity building and awareness programme has been initiated to capacitate government, communities, schools and universities on climate change issues. Use of innovative projects links climate change to job creation, natural resource conservation and industrial waste minimisation. Programmes are being prepared under the National Communication Project and the United States Agency for International Development (USAID) funding on climate change. School education curricula in South Africa include awareness of the adverse effects of climate change by addressing a better understanding of the interrelationship between social and environmental issues in order to promote development and social justice.

Information: Inventories of requirements and indicators will be compiled to allow progress to be monitored on a regular basis, in accordance with Government policy. Continuous ambient air monitoring networks are in place in 10 areas across the country, monitoring the criteria pollutants. The data is stored at the network operators. A national database is being planned. The indicators used are the ambient guidelines for the criteria pollutants. Ambient air quality calibration laboratories and monitoring networks are accredited by the South African National Accreditation System (SANAS).

Research and Technologies: Developed countries are still being urged to co-operate in ensuring access to environmentally friendly technology in South Africa. This has also been indicated in the Foresight report published by government. As part of an ongoing Innovation Fund programme, government is supporting a three year project titled: "Laser-based Remote Measurement of Atmospheric Pollutants. Current technology is constrained in terms of measuring accurately and simultaneously in space and time. There is therefore a need for integrated sensing equipment that can provide this simultaneous measuring for both gaseous chemicals and particles. The following are new technologies developed or introduced to reduce greenhouse gases emissions: a National Air Monitoring Network; Dispersion Modeling Technology; and a National Air Quality Management Database.

Financing: About 0,02% of the national budget is allocated to protection of the atmosphere. Private industry is spending approximately ZAR 1,2 billion per annum on installing new air cleaning equipment and ZAR 250 million on operation and maintenance of air cleaning equipment. With the financial support of the Norwegian Government, the South African Weather Bureau will collect data and systematic observation for climate change. Other sources providing funding from outside the country include (USAID), USA Country Study Management Team, German Technical Cooperation, Norway and the Global Environmental Facility. Through the NCCC, needs for the protection of the atmosphere has been communicated to various stakeholders and access to funding is available.

Cooperation: The United Nations Framework Convention on Climate Change, UNFCCC, was ratified in 1997 and considerations are being made to accede to the Kyoto Protocol. DEAT produced a Discussion Document of Climate Change in 1998 and is in the process of producing two other documents, the National Country Studies and the Initial National Communications. Efforts are being made to identify meaningful projects that might be suitable for Clean Development Mechanism (CDM) consideration now that a political agreement was reached at the resumed COP-6.

South Africa participates extensively in SADC (South African Development Community) ELMS (Environment and Land Management Sector) and SANAS activities. SAFARI 2000 is an international regional science initiative developed for southern Africa to explore, study and address linkages between land-atmosphere processes and the relationship of biogenic, pyrogenic or anthropogenic emissions and the consequences of their deposition to the

functioning of the bio-geophysical and bio-geochemical systems of southern Africa; their transport and chemical transformations in the atmosphere; and their influence on the whole southern regional climate and meteorology. This initiative is built around a number of other, ongoing, activities funded by NASA (National Aeronautics and Space Administration), the international community and SADC in particular; with co-operation from the regional meteorological services. South African scientists are collaborating in SAFARI 2000 over a very broad spectrum of SAFARI activities and investigations. Some of the major role players from the scientific community include the CSIR, University of the Witwatersrand, South African Weather Bureau and, as a major funding organisation, the Department of Arts, Culture, Science and Technology. South Africa participates extensively in Africa Group negotiations. There is extensive participation in international negotiations.

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CHAPTER 10: INTEGRATED APPROACH TO THE PLANNING AND MANAGEMENT OF LAND RESOURCES

Decision-Making: The Land Use Management Bill (LUMB), which is the most comprehensive planning legislation drafted in the period following the first democratic elections in South Africa, is the legal enactment of the White Paper on Spatial Planning and Land Use Management. The LUMB builds on the normative and progressive principles that were central to the Development Facilitation Act (DFA) but goes further by legislating the importance of spatial planning, contextually and conceptually within the framework of integrated development planning as proposed by the Municipal Systems Act, 2000.

Many existing Land Development Objectives have been adapted to fit into the new Integrated Development Planning (IDP) process as Interim IDPs. The LUMB calls for the setting of spatial development frameworks by local and district municipalities. This is in line with the proposals in the Municipal Systems Act. Also, the LUMB proposes a National Spatial Plan to be developed for the country. Integrated development planning was first introduced in South African planning law by the Development Facilitation Act, 1995, the Local Government Transition Act, 1996, and more recently the Local Government Municipal Systems Act, 2000. Integrated development planning seeks to integrate the physical, social, economic and political aspects of planning.

National and provincial authorities have concurrent legislative competence with regard to the functional areas concerned with the planning and management of land resources, but minerals and water are still national functions. On national and provincial ministerial levels, a MinMEC committee has been established to promote cooperation between national and provincial authorities to integrate policies and legislation. The Minister of Environmental Affairs and Tourism and the nine provincial Members of the Executive Council responsible for the environment are represented on this committee.

The National Environmental Management Act, 1998, makes provision for the establishment of a Committee for Environmental Coordination (CEC) to coordinate actions taken by departments on national and provincial levels, which may have an impact on the planning, protection, management or use of land resources.

The following progress has been made to integrate planning and management of land resources:

- National Treasury participates in the development of economic instruments such as green taxes, subsidies, etc.;
- The Department of Transport is reviewing its legislation and formulating an Environmental Policy for Transport;
- The Department of Land Affairs is rationalising national physical planning and developing various policies and legislation for this purpose; and
- The Department of Minerals and Energy (DME) developed the Energy Policy, which considers the impacts of energy supply on the environment; and supports the concept of integrated environmental management (IEM). It is also in the process of integrating environmental management into the planning, exploitation and management of mineral resources.

The Development Facilitating Act, 1995, includes the principle that members of communities affected by land development should actively participate in the process of land development. In the Land Policy there are a number of land reform principles, including participation, accountability, democratic decision-making and gender equity. The Environmental Impact Assessment (EIA) regulations require thorough public participation of all interested and affected parties, especially during the scope of environmental impact assessments. Most provincial governments have drafted provincial planning legislation. The purpose is to rationalise the land development and planning legislation; to facilitate and coordinate development; to facilitate planning and development at all levels of government, and to ensure effective, participation and sustainable development. The National Environment Management Act, 1998, provides for cooperative environmental governance.

In terms of water resource planning, protection is afforded to wetlands under the recently promulgated National Water Act. The nine provincial governments in close cooperation with national Government enforce the EIA regulations.

The Minerals Act, 1991, provides the authorities with dedicated control measures, which, if judiciously applied, will ensure economic growth and environmental conservation. The Act provides that the rehabilitation of the land surface disturbed by mining shall be carried out by the holder of the prospecting permit or mining authorisation in accordance with an Environmental Management Plan and as an integral part of mining operations.

The Department of Water Affairs and Forestry has implemented the principles of IEM in its policy and environmental impact management processes. The Department of Agriculture is developing a new Sustainable Utilisation of Agricultural Resources Act. The South African National Defence Force has developed a Military Integrated Environmental Management Plan to ensure the integration of military utilisation and environmental management.

The recently published draft Policy on Development and Planning represents the Government's attempt at revising the land development and planning policies and gives South Africa a new vision of planning. Concerning the impact of land management on other natural resources, the Policy on the Conservation and Sustainable Use of South Africa's Biological Diversity was accepted in 1997.

Programmes and Projects: The Land Reform Programme was initiated in 1994 in an attempt to address some of the injustices of the past. The Land Reform Programme has three principle components: Land restitution, to restore land and / or land rights to those whose land was taken from them by racially discriminatory laws and practices; Land redistribution, to provide the poor with access to land for residential and productive use; and Land tenure reform, to provide people with secure land tenure.

In 1998 the Government, in partnership with Danish Cooperation for Environment and Development (DANCED), initiated the Integration of Environmental Planning into the Land Reform Process in an attempt to address sustainable land reform. The immediate objectives of this project are institutional arrangements, procedures and guidelines for incorporating environmental planning into land reform and land development. The Guidelines on the Integration of Environmental Planning into the Land Reform process have been developed. An Environmental Policy for the Department was also produced, and the guidelines aim to affect the objectives of this policy. These two inputs are collectively known as the Policy & Guidelines for the integration of Environmental Planning into Land Reform. These outputs are integral to the Department's Environmental Impact and Management Programme.

The second phase to this project, to make operational, will commence in early 2002. An extensive training programme will look at the practical realities of implementing the guidelines. The Integrated Sustainable Rural Development Strategy has brought together all three spheres of government to harness their joint resources to prioritise and implement projects effectively and sustainably.

An example is the Kgalagadi District Municipality. This strategy will focus on schools, water and electricity, and the provision of roads to the area. Funded by the GTZ, the Richtersveld local municipality is effectively integrating environmental, social and economic concerns into a spatial plan for the area.

Status: The Bill of Rights in the Constitution, section 25 (6), determines that a person, or community, whose tenure of land is legally insecure as a result of past racially discriminatory laws or practices, is either entitled to tenure that is legally secure or to comparable redress. The Government has developed a series of laws that address security of tenure and land rights. Tenure reform in South Africa is a particularly complex process and it must address the difficult problems created in the past. The focus thus far in the legislation has been on securing tenure rights for groups holding land collectively, labour tenants, farm workers and unregistered "occupiers". Specific urban tenure issues are also addressed. South Africa acknowledges that tenure security is a precondition for people to invest in land improvements and encourages sustainable land use practices.

Capacity-Building, Education, Training and Awareness-Raising: A capacity-building programme was initiated for the Department of Land Affairs, local authorities, non-governmental organisations and other service providers. It included a number of relevant training courses and materials for key stakeholders. The experiences from demonstration areas are used to inform training and policy development. The linkages to Land Development

Objectives will be especially important. The training courses will link participatory approaches to broader spatial development planning. Most provincial governments have initiated processes of capacity building and training due to the responsibilities assigned to them in terms of the Constitution. The KwaZulu Natal province drafted an Integrated Rural Development Policy and approaches the integration of land resources through a hierarchy of plans system.

Provincial government is assisting farming communities in the compilation of business plans, including financial plans for new farmers. Provincial government is also involved in educational programmes and participating in multi-disciplinary project teams on small and emerging farmer development projects.

Information: The DEAT has developed a product that proactively identifies areas of potential conflict between development proposals and critical and sensitive environments. The Environmental Management Framework (EMF) was developed in response to the lack of a spatial framework to define the sensitivity of the environment. The EMF is essentially a framework of spatially represented information connected to parameters. The level of sensitivity of the environment determines these parameters. The parameters in turn provide a framework within which development should proceed in order for it to be environmentally sustainable. The EMFs are developed on a comprehensive base of information as well as socio-economic priorities. The environmental data input into the EMF is composed of various layers of spatial information. The following inventories / databases are currently used to guide sustainable land resource allocation and management in South Africa: the Environmental Potential Atlas (ENPAT); the vegetation map of South Africa, Lesotho and Swaziland, and the National Land Cover Database Change analysis.

The DEAT is engaged in a project to develop criteria and indicators for sustainable development of terrestrial ecosystems. The objectives include maintaining biological diversity, productivity, regeneration capacity, vitality and the ecosystem's potential, now and in the future. Sectors that will be addressed include forestry, agriculture and conservation. The Environmental Potential Atlases (ENPAT) and the Environmental Management Framework (EMF) are digital environmental databases made up of thematic maps. In the EMFs, various field specialists evaluate all the features on the thematic maps for their sensitivity to development and assign environmental management parameters to the sensitive features.

The EMF is used in the scoping phase of an environmental impact assessment to identify the important environmental issues to be expected in a specific locality. The information and database is updated annually for each province. The Northern Cape Province developed a database to store information regarding agricultural economics, development, markets and marketing statistics. The province is in the process of collecting and storing information regarding all aspects of vegetable and crop production.

Research and Technologies: In the Northern Cape Province the Technology Development Programme aims to identify research needs in the province, mobilise research partners, solicit funding for needed research and to develop, adapt and transfer appropriate technology for farmers, their advisors and other users of natural resources. Some of the projects, in which the provinces are involved in, are vegetable, crop and food garden systems for emerging and small-scale farmers and community gardens.

The Richtersveld local government IDP will be made available on the Internet as a practical illustration of integrated conservation and development planning. It will be linked to the Distance Learning Information Sharing Tool, a web-based information platform for the South African / Namibian Transfrontier region, funded by the IW: Learn programme of the GEF.

Financing: Funding sources include GTZ, which funds training programmes in integrated development planning. TRANSFORM, a partnership between GTZ and the DEAT, funds the IDP in the Richtersveld.

Cooperation: Regional cooperation and exchange of information take place through involvement in the Southern African Developing Communities (SADC). A specific project regarding an environmental regulatory framework for mining activities in SADC is being undertaken.

CHAPTER 11: COMBATING DEFORESTATION

Decision-Making: Forestry is an area of national legislative competence. The principal decision-maker is the Department of Water Affairs and Forestry. Partnerships are developed to facilitate holistic decision-making. The development of the National Forestry Action Programme (NFAP) involved other government departments, the forestry industry, labour, communities and all stakeholders.

The NFAP will ultimately form a part of a National Environmental Plan, coordinated by the Department of Environmental Affairs and Tourism. The National Forests Act, 1998, focuses on the principle of sustainable forest management. The Minister of Water Affairs and Forestry is given power to set criteria, indicators and standards for assessing and enforcing sustainable forest management and creating incentives to manage forests in a sustainable way. Promotion of community forestry is seen as an important component of the strategy to counter the degradation of natural woodland by those who rely on fuel wood as an energy source. In addition, the White Paper on Sustainable Forest Development includes commitments to *inter alia* improve the role of women at all levels of forestry-related decision-making and to provide support for small growers and processors.

Principles guiding decision-making state that forests must be developed and managed so as to sustain the potential yield of their economic, social and environmental benefits, and to conserve natural resources. Special measures are included to protect indigenous forests and trees. Regulations may be made to control the collection, removal, transport, and various other activities relating to parts of or products from protected trees.

The work of the Intergovernmental Panel on Forests (IPF) and the Intergovernmental Forum on Forests (IFF) has been discussed at national level in the National Forest Advisory Council. To date, the principal areas of national relevance have been in regard to National Forestry Programmes (equivalent to the NFAP in South Africa) as instruments for co-ordination and strategies for sustainable management and development of forest resources.

Programmes and Projects: The National Forestry Action Programme (NFAP) was developed in 1997, according to the principles of the country's forest policy. The NFAP was informed by the recommendations of the IPF. The NFAP is recognized by FAO and UNBED as the most appropriate planning process for sustainable forest development and implementation of Agenda 21. Forests of all kinds are encompassed by the NFAP. The principal initiatives for recognising and respecting customary and traditional rights are captured in the land reform programme. The National Forests Act makes special provision to clarify land tenure and forest rights, including access rights, and creates the instrument of Community Forest Agreements.

Concerning the certification of forests, it is to be noted that the private forestry sector has made substantial progress in sustainable forest management. For natural forests on private land, a number of programmes have been developed to inform landowners of the value of these resources and the need for their protection, and to enlist the support of landowners in protection. These are the establishment of conservancies, where a complex of private landowners commit themselves to the joint management of adjacent lands. This includes biosphere reserves, where a statutorily proclaimed protected area forms a component part of a multiple use zone; the South African Natural Heritage Site, where sites are designated as meeting certain criteria and where landowners commit themselves to the conservation management of the sites; and finally, sites of conservation significance, where features of regional value for nature conservation are designated.

Status: South Africa adopted a policy on Sustainable Forestry Development in 1996. This policy holistically addresses the sustainable development of the country's 1,5 million hectares of plantation forests, the 420,000 hectares of indigenous closed-forest, and the approximately 32-40 million hectares of woodlands. Through the Environment Management Plan (EMP) and mining authorisation processes, sensitive forest areas are either excluded or a specific environmental impact assessment has to be done prior to approval of an EMP. Rehabilitation of mining areas takes cognisance of the specific vegetation and land capability requirements.

In South Africa, forestry has a complex relationship with poverty. About two million poor rural households depend in some degree on forest goods such as fuel wood and supplementary medicine and food supplies for their well-

being. On the other hand, industrial forestry, non-wood forest products from plantation forests and increasing ecotourism to natural woodlands offer employment as the escape from poverty.

In 1997 plantations covered an area of 1 518 138 ha. Yields vary from an average of 15 m³ per ha per annum for softwood to 20 m³ per ha per annum for eucalyptus and 9 m³ per ha per annum for wattle. The production from plantations in 1996 amounted to some 24,7 million m³. More than 10 million m³ of firewood is chopped annually. Through signing the Convention to Combat Desertification, South Africa has committed itself to combating deforestation as a priority.

KwaZulu-Natal Province is in the fortunate position that most natural forests occur in areas that have statutory protection, either as state forest areas, nature reserves or wilderness areas, or as statutory protected areas under nature conservation legislation. Wood supply for rural areas is scarce in many places. In view of indoor air pollution caused by fuel wood and its scarcity, alternatives to the use of wood fuel are investigated and promoted. Where local communities have access to forest resources, e.g. for medicinal purposes or for fuel wood, arrangements and agreements between the nature conservation agency and local communities have been structured to ensure that the use is sustainable, and that there is no net loss of components, either quantitatively or qualitatively. Through the Innovation Fund, government is supporting communities to identify and develop small and micro ventures based on ecologically sustainable harvesting of a range of species and products traditionally harvested. It will serve the dual purpose of supporting the communities in a sustainable way and supporting restoration of degraded environments. The principal forest product recycled in South Africa is waste paper. About 35% of paper used in South Africa is recycled, and this provides about 24% for paper manufacturing.

Capacity-Building, Education, Training and Awareness-Raising: The National Forest Action Plan directs special attention to capacity building. A working group has been established to address research, technology and innovation issues. Recent institutional reform measures are accompanied by capacity building of several kinds, often with overseas development assistance. Examples of capacity-building are the Woodlots Devolution programme, Forest Enterprise Development Organisation, Small & Medium Enterprises with communities.

Information: South Africa participates in the FAO Dry Zone Africa process, and has participated in the development of ISO 14001 as applicable to forestry. The Government is compiling the first National State of the Forests report, as required by the National Forests Act. This report will give a comprehensive overview of sustainable forest management in South Africa and map out the road ahead for further improvements. This, together with parallel initiatives, will also lay the basis for the national Forest Resource Information System, a system which will give stakeholders access to a network of information on sustainable forest management in South Africa. Information on the forest sector, including policy papers, is available on www.dwaf.pwv.gov.za and on www.forestry.co.za. The site will be developed to include information relevant to sustainable forest management, via the national Forest Resource Information System.

Research and Technologies: At this stage, South Africa is not ready to propose which criteria and indicators could be useful to assess progress towards sustainable forest management at the international level. The process is at an early stage of identifying national criteria and indicators.

Cooperation: South Africa actively participated in all the IPF sessions, and continues to be active in the IFF. South Africa has been active in many of the inter-sessional activities linked with IPF and IFF and in June 1996 was co-hosting with Denmark and the UNDP a workshop on Financial Mechanisms and Sources of Finance for Sustainable Forestry, in Pretoria. South Africa is active in developing the Southern Africa Development Community's (SADC) position on the items in the IFF agenda, especially with respect to international instruments. An important area for new action will be active collaboration with SADC countries in developing a common view on the IPF proposals for action, and on the agenda of the IFF.

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CHAPTER 12: MANAGING FRAGILE ECOSYSTEMS: COMBATING DESERTIFICATION AND DROUGHT

Decision-Making: The Department of Environmental Affairs and Tourism (DEAT) acts as the focal point for the Convention to Combat Desertification (UNCCD), ratified by South Africa in 1997. Other national departments involved are the departments of Agriculture, Land Affairs, Water Affairs and Forestry, Foreign Affairs, President's Office and National Treasury. A Steering Committee comprised of all these stakeholders as well as non-government organisations (NGOs) is the decision-making body and is convened at least four times a year. The Steering Committee is co-chaired by the DEAT and the national Department of Agriculture. The NGOs co-operating with Government and responsible for bridging the gap between national and community level work closely with local governments and the communities. The Convention to Combat Desertification emphasises that communities living in dry lands must be part of the decision-making process. All spheres of government, as well as NGOs and Community Based Organisations (CBOs) are working on desertification issues in South Africa.

South Africa recently developed an activity plan to ensure the draft of a National Action Programme (NAP). This will include the appointment of a technical advisor to do preparatory work for the development of a NAP. A consultant will be appointed to write the NAP that will be concluded in June 2002. Through the process of developing a NAP, capacity will be built on a national, provincial and local level.

Programmes and Projects: The DEAT is responsible, with the advice of representatives from the NGO sector, for the coordination of the implementation of the CCD in South Africa. The development and implementation of the National Action Programme (NAP) includes the following working units:

- A national audit on the status of desertification in South Africa;
- Organising, leading and facilitating the consultative process and awareness-raising activities on a provincial and national level;
- Raising awareness of desertification throughout the process of drawing up the NAP; and
- Editorial work on the NAP.

Status: The United Nations Convention to Combat Desertification in Countries Experiencing Drought and/or Desertification Particularly in Africa was signed in 1995. The process leading to ratification of the Convention to Combat Desertification was concluded in 1997 and included wide consultation among different role players. More than 90% of South Africa's land surface falls within a desertification risk area.

South Africa's endeavour to implement this Convention started off with the commissioning of a national audit on the status of desertification in South Africa. The National Botanical Institute (NBI) did this audit.

Results from this study indicated that when considering all the districts, the Northern Province, Eastern Cape Province and KwaZulu-Natal possess districts with the highest level of land degradation. The North West Province and to a limited extent, Mpumalanga, also have one or two priority districts prone to desertification.

The Department of Water Affairs and Forestry is promoting, via its NAP, the development of community forestry to reduce the pressure on natural woodlands, which are the sole source of energy for a significant part of the population, and which are rapidly being denuded. The Department of Minerals and Energy through requirements of the Minerals Act (1991), takes into consideration climatic conditions, land capability and aspects of desertification. Although the NAP to implement the UNCCD has not yet been completed, various projects are being undertaken by different institutions to combat desertification. These projects are mainly undertaken in the Northern Province, the Northern Cape Province and the North West Province, where communities are suffering in poverty as a result of land degradation.

Capacity-Building, Education, Training and Awareness-Raising: Various initiatives are directed at communities in the dry land areas to support a community driven approach to sustainable development. In the North West Province, the University of Potchefstroom is conducting many projects in the Lehurutshe and Molopo areas with regard to land degradation, restoration of degraded land and community development. The process to develop a NAP brought about many initiatives to educate people on land degradation issues. This included

educational material such as the production of a video, puzzles, posters, T-shirts, fact sheets, simplified versions of scientific studies and general awareness raising through media such as the television, radio and newspapers.

Information: Information and data are available in most of the institutions dealing with land degradation. This includes national Departments, parastatals, academic institutions, traditional knowledge vested in communities and many more.

Research and Technologies: Many multidisciplinary development programmes are undertaken by research and academic institutions involving the community, technology development and transfer agents. Technology transfer mechanisms include aspects such as workshops, manuals, training, awareness campaigns, conferences and symposia, but also electronic and computerised data bases expert systems and Global Information Systems (GIS). The University of Potchefstroom has developed a computerised, easily accessible database and expert system on Restoration Ecology.

Financing: Finances are available from budgets of institutions dealing with Agenda 21, but donor funding is also readily available from various donor organisations. Reclamation and rehabilitation programmes financed by the Department of Agriculture and donations from overseas institutions are increasing annually. Reconstruction and Development Programme funds are also being incorporated in combating desertification for e.g. the Department of Water Affairs and Forestry's invasive plant control programmes in catchments areas throughout South Africa, in collaboration with the Department of Agriculture, NGOs and CBOs. Funding on provincial government level is provided by LandCare, Development Bank, Land Bank, Reconstruction and Development Programme, Local Economic Development Funds.

Cooperation: South Africa is part of the Southern African Developing Community (SADC), which is currently formulating a sub-regional action programme to combat desertification. The Desert Margins Programme is also an initiative of SADC. A combined study will be concluded with the assistance of the Global Environment Facility. It focuses on community development programmes and addresses information, technical exchange and the harmonisation of pilot demonstration activities regarding biodiversity loss, land degradation and reduction in carbon sinks.

In forestry initiatives, relationships exist within SADC with respect to training courses, exchange of information and advice, and acquisition of seed stocks. South Africa is the coordinator of desertification issues within the Valdivia Group (member countries of the Group of Temperate Southern Hemisphere Countries on Environment). The Valdivia Group fosters exchange and cooperation on environmental and scientific matters between the participating countries (Argentina, Australia, Chile, New Zealand, South Africa and Uruguay). In forestry initiatives, relationships exist within SADC with respect to training courses, exchange of information and advice, and acquisition of seed stocks. Many initiatives in SADC context were attended by South Africa for instance a workshop on the elaboration of national reports, a workshop on capacity building for resource mobilisation for implementation of the UNCCD in Southern Africa, a SADC Roster of Experts has been developed, and a Multidisciplinary Consultative Committee was established. South Africa participates in the Regional Action Programme to Combat Desertification by providing information on demand, as well as having attended the African Regional Conference in Preparation for the Fifth Session of the Conference of the Parties. International cooperation focuses mainly on donor funding for initiatives in South Africa such as two pilot projects being funded by UNSO. Technical support is provided by the Secretariat for the UNCCD to all countries in need.

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CHAPTER 13: MANAGING FRAGILE ECOSYSTEMS: SUSTAINABLE MOUNTAIN DEVELOPMENT

Decision-Making: South Africa does not have a comprehensive national mountain management policy. National and provincial Governments are responsible for legislation affecting mountain areas. The provincial governments are responsible for Mountain Catchment Areas in terms of the Mountain Catchment Areas Act, 1970, Wilderness Areas in terms of the Forest Act (1998), as well as nature reserves and planning in terms of their ordinances. Since 1971, eleven wilderness areas have been designated in terms of the Forest Act. All but one protects high altitude mountain ecosystems. Many of the 294 Provincial Nature Reserves contain mountains, hilly country, coastal butresses or cliffs.

Development of forestry is controlled by the Forest Act, 1998. A National Forestry Action Programme was developed in 1997. Indigenous high forest covers only about 300 000 hectares or 0,25% of the country's surface. Some 43% of indigenous high forests are managed by the Department of Water Affairs and Forestry according to certain multi-use objectives. In terms of the National Veld and Forest Fire Act, 1998, Fire Protection Associations need to be established. The Department of Agriculture is responsible for the implementation of the Agricultural Resources Act (1983) in mountain catchments.

National Parks are managed by the South African National Parks (SANParks) in terms of the National Parks Act, 1976. SANParks manages four national parks where mountains are the key attraction: Cape Peninsula, Golden Gate, Tsitsikamma and Richtersveld. Other National Parks with mountainous terrain are the Kruger, Karoo, Addo Elephant, Marakele and Mountain Zebra.

The Department of Environmental Affairs and Tourism (DEAT) is responsible for the implementation of the Environment Conservation Act, 1989, and Environmental Impact Assessment Regulations, which require public participation. NGOs, local communities, recreational user groups and other stakeholders are provided an opportunity to participate in decision-making regarding any development proposals, policies, plans or programmes in mountain areas. DEAT is also responsible for international, national and provincial conservation initiatives, which often include partnerships between Government and with local communities, business, forestry and mining companies and NGOs as follows:

- **World Heritage Sites:** On 29 November 2000, the uKhahlamba-Drakensberg Park was inscribed as a "mixed" natural and cultural World Heritage Site in terms of the Convention on the Protection of the World's Cultural and Natural Heritage. An application for World Heritage Status, for eight representative constellation sites, is currently being prepared for the Cape Floral Kingdom and the Cape Fold mountains.
- **Transfrontier Conservation Areas:** A Memorandum of Understanding was signed between South Africa and Lesotho in June 2001 for the establishment of the Maloti-Drakensberg Transfrontier Conservation Area. On 17 August 2001 a Memorandum of Understanding was signed between South Africa and Namibia to put in place an environmental collaboration programme through the establishment of the Ai-Ais/Richtersveld Transfrontier Conservation Park.
- **Mega Reserves:** The Cape Action Plan for the Environment (CAPE) project recommended that three mega-conservation areas (400 000 - 600 000 ha) be established in the Cederberg, Little Karoo and Baviaanskloof areas.
- **Biosphere Reserves:** Three biosphere reserves have been registered with UNESCO and there are 9 initiatives underway. Declared Biosphere Reserves in mountainous terrain are Kogelberg (established in 1998) and Waterberg (established in 2000). Biosphere Reserves in mountainous areas currently in the planning phase are: Soutpansberg/Limpopo; Kruger to Canyons; Drakensberg Special Case Area; Thukela; Cederberg; Boland and Royal Zulu.
- **Protected Natural Environments:** There are three Protected Natural Environments in mountainous areas: the Cape Peninsula Protected Natural Environment, the Magaliesberg Protected Natural Environment, and the Lourens River Protected Natural Environment.
- **Private Game farms:** Presently there are more than 9 000 game farms, from unregistered farms to those officially recognised by nature conservation departments as "exempted game farms" which allow the capture, selling and hunting of game. Many game farms are located in mountainous areas.

- Private reserves: There are approximately 160 private reserves in South Africa, and many are in mountainous terrain.

A National Committee for the International Year of Mountains 2002 is being established. The National Committee will play an important role in developing improved policies and promoting more coherent action in mountain areas by providing a common forum where decision makers and policy makers are able to consider a wide variety of sectoral perspectives and approaches. Up until now this has been difficult to achieve in large part due to lack of an appropriate institutional setting.

Programmes and Projects: The Working for Water Programme was launched in 1995 to gain control of the growing problem of invasive alien plants. Special teams have been trained to undertake high-altitude alien vegetation clearing in mountainous terrain. Some smaller projects funded by NGOs or business or driven by volunteers are being implemented to promote erosion-control measures, to collect information on fauna and flora, to train vulnerable groups in environmental awareness, to train youth leaders, to promote conservation and to increase awareness of fire hazards. There is a need to expand and coordinate initiatives and to develop and maintain a database on community projects in mountains and mountain catchments.

Status: Based on the criterion that a mountain constitutes an area elevated by at least 450 metres from the local relief, South Africa comprises approximately 10% mountainous terrain and isolated mountains. Distinctive hilly terrain and distinctive coastal and river relief make up approximately a further 13% of the land surface. Eighty-five percent of mountain catchments – about 9,7 million hectares – are privately owned. Mountains in South Africa either form part of the Great Escarpment or are free standing.

Threats to South African mountains are numerous and can be categorised as unsustainable land use practices or potentially threatening situations. Unsustainable land use practices include:

- Burning and over-burning of indigenous mountain vegetation. Deliberate and frequent man-made fires have devastating and severe effects on mountain vegetation, particularly at altitude and on dry slopes where regeneration is slow. Mature vegetation in South African mountains is currently rare.
- Cultivation, even on moderately steep mountain slopes, leads to erosion, particularly during fallow periods and heavy rainfall.
- Plantations and invasive alien vegetation located in mountain catchments cause a massive loss of run-off and perennality.
- Poor farming practices by owners of mountain land, and demographic pressures in mountain communities coupled with unsustainable cultural practices that do not match current realities, result in over-stocking. This leads to loss of natural vegetation cover with serious consequences, and increases pollution from animals and humans within the catchment areas. In turn, this results in ill health, greater filtration costs and negative effects on tourism and recreation.
- Badly located and inappropriate infrastructure has an accumulative adverse effect on mountain ecology and landscapes, leading to loss of natural vegetation cover and to pollution as well as the loss of wilderness qualities.

Capacity-Building, Education, Training and Awareness Raising: More needs to be done to generate and strengthen knowledge about the ecology and sustainable development of mountain ecosystem and to obtain baseline information on the diverse mountain communities in South Africa, to direct capacity-building and skills training initiatives.

Information: Research and dissemination of information related to sustainable development is undertaken by national institutions and universities.

Research and Technologies: In some regions Catchment Management Steering Committees have already been established, in terms of National Water Act. This Act makes provision for the progressive development of integrated catchment management strategies for designated catchments. More research needs to be done to promote integrated watershed development and to address alternative livelihood opportunities of local communities. Various

GIS databases are in use on national and provincial level to direct management and monitoring plans and programmes. An inventory database dealing with mountain management needs to be established.

Financing: Financial resources to cover the objectives of sustainable mountain development are obtained from national, provincial or local government budgets. In certain instances financial assistance is provided by donor organisations such as the Global Environmental Facility (GEF) or Peace Parks Foundation. On occasion, conservation-worthy mountainous land is purchased by NGOs such as World Wild Fund for Nature (WWF-SA) for approved projects, by The Mountain Club of South Africa for mountaineering, and by other NGOs. Provincial and national government usually charge a fee for access to mountains.

Cooperation: South Africa is a member of the Southern African Development Community (SADC). SADC is developing a SADC Forests Protocol for Sustainable Forest Management in the sub-region that will include mountain catchments. Current information relating to mountain management is disseminated via the African Mountain Protected Areas Update. This IUCN network of African Mountain Protected Areas managers and individuals involved in mountain management has about 80 South African members.

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CHAPTER 14: PROMOTING SUSTAINABLE AGRICULTURE AND RURAL DEVELOPMENT

Decision-Making: The national Department of Agriculture and the nine Ministries of the Provinces are responsible for decision-making related to sustainable agriculture and rural development. The Department of Provincial and Local Government coordinates rural development. Government has established an institutional framework that outlines the respective roles and responsibilities of all three spheres of government.

The major groups involved in decision making on sustainable agriculture and rural development are the organized agriculture group, universities, the Agricultural Research Council, Non Government Organisations (NGOs), Community Based Organisations and Eskom. The Agricultural Credit Act forms the basis for action by the Agricultural Credit Board. The Board assists communal farmers, subsistence and beginner farmers, small farms, part time and commercial farmers. The provinces in terms of provincial land-use planning legislation and ordinances will handle the restriction of the transfer of productive arable land to other uses.

The Conservation of Agricultural Resources Act (1983) and the National Water Act (1998) deal with adverse effects of agriculture on water quality. The Marketing of Agricultural Products Act, 1996, is based on the view that state intervention in agricultural markets should be the exception rather than the rule. A Draft Policy on Sustainable Resource Use has been developed. The Sustainable Utilisation of Agricultural Resources Bill (2001) will amend the present Conservation of Agricultural Resources Act (1983).

A Policy for Agriculture was developed during 1995, addressing production, marketing, sustainable use of natural resources, agricultural financing, institutional infrastructure, information and agricultural technology, research, extension and training. An in-depth policy review is in progress. Agricultural goals and strategies to support the Government's growth and development plan were developed. Provincial governments are also in the process of formulating Integrated Sustainable Rural Development Policies aimed at implementing issues in sustainable agricultural and rural development.

In order to achieve sustainable, equitable and efficient agricultural development, the Government is reforming its agricultural policy. In 1998, the Ministry for Agriculture and Land Affairs developed an Agricultural Policy in South Africa, which addresses many of the issues pertaining to a sustainable agriculture and rural development national policy. The South African Government has not carried out a specific national policy related to food security. Concerning the Rome Declaration on World Food Security, 1996, the Government is guided by implementing policies that lead to an improvement of food production and economic development.

The National Department of Agriculture is in the process of implementing risk management strategies to reduce vulnerability of farmers to natural disaster. Concerning the integration of environmental concerns into agriculture development projects, guidelines have been developed for the planning of agricultural resettlement projects under the Land Reform Programme. The National Water Policy and the National Water Act, 1998, make provision for water to be protected, used, developed, conserved, managed and controlled in a sustainable and equitable manner to the benefit of all people. This provision has implications for the development of irrigation works and the application of water in agricultural production.

A water conservation and water demand strategy has been developed. A water pricing strategy has been implemented, and will be extended to include the small-scale farmers. Concerning the promotion of an environmentally sound energy transition in rural communities, the Department of Minerals and Energy published the Energy Policy in 1998. Both job creation and rural development and infrastructure investment are national priorities of the Government. An Integrated Sustainable Rural Development Strategy has been developed.

Programmes and Projects: The main activities to implement the Agricultural Policy include: a National LandCare Programme; a Farmer Support Programme; a Land Reform Programme; and the Expansion of Market Access for our exports. The nine provinces launched many activities aimed at sustainable agriculture. The National Landcare Programme for South Africa has an element that addresses the conservation and rehabilitation of degraded land. The following specific rural energy projects have been initiated: Energisation; Rural Electrification Programme (30 000 units will be installed annually for the next ten years) and the Solar Cooker Programme. Several projects

managed by the Northern Cape Province empower previously disadvantaged farmers, e.g. establishment of irrigation infrastructure and the installation of goat milk equipment and processing goat milk into cheese.

Status: The agricultural sector contribution to the Gross Domestic Product (GDP) was 4,2%, 4,7% and 4,5% in 1995, 1996 and 1997 respectively. About 13% of South Africa's surface area can be used for crop production. High potential arable land comprises only 22% of the total arable land. Slightly more than 1,2 million ha are under irrigation. The most important factor limiting agricultural production is the availability of water. Almost 50% of South Africa's water is used for agriculture. Since 1992, an additional 400 000 ha (estimated) of agriculture area has been brought under irrigation. This represents 2,5% of total land cultivated today.

An estimated 25 000 ha of degraded land has been rehabilitated, which is 13% of total degraded land. The area of eroded land that has been protected, stabilised or rehabilitated is approximately 560 000 ha.

The potential of agriculture as a major producer of biomass energy, is illustrated by Bagasse, used by the sugar industry for co-generation; forestry waste is used as thermal energy sources in industry; and natural woodland is used as firewood and provides about 80% of rural energy. A major issue is the detrimental influence of undesirable or problem plants, most consisting of alien origin, on our natural resources. Revised regulations are promulgated for public comment and include an updated list of plants classified either as weeds or invaders.

Capacity-Building, Education, Training and Awareness-Raising: The National Department of Agriculture, together with the provincial government have implemented a number of initiatives aimed at broadening access to agriculture for those who previously lacked such access. One of these is a special programme to promote awareness of the importance of the indigenous and locally developed farm animal breeds. Eradication of poverty and hunger and establishing household food security remains a priority. Together with the United Nations Food and Agriculture Organization (FAO), the Government is engaged in a venture to support the implementation of a food security programme.

During 1999 progress was made in developing village financial services that make it possible for farmers in rural areas to have access to banking services. A South African Landcare Programme has been implemented with the focus on people participation by means of a bottom-up approach to promote conservation awareness, capacity building and rural development. Incorporated in this are capacity-building programmes to build on community-based resource management through the training and skills development of leaders and extension staff.

Since 2001, the Australian Agency supports the Landcare Programme for International Development. This is an AUD\$3 million assistance programme to support the implementation of the Landcare Programme in disadvantaged rural communities through institutional strengthening at national level and in selected provinces. An extensive communication and awareness raising initiative is planned for the Integrated Sustainable Rural Development Strategy.

Information: From 1972 to the present, all of South Africa was covered by a Land Type survey, at 1:250 000 scale, such that each Land Type displays a marked degree of uniformity with regard to terrain, soil and climate parameters. Through the integration of the Land Type information and crop modelling, within a geographical information system, high potential land for rain-fed annual crop production in South Africa was demarcated during 1996. The full potential of the Land Type database will only become a reality after completion of the ecotype phase that will lead to the establishment of an electronic database indicating areas that are homogeneous with respect to land suitability or land sensitivity. The Food Insecurity and Vulnerability Information and Mapping System will produce better information on food security. Basic natural resource information is available nationally. Certain information can be assessed via the Internet AGIS system: www.agis.agric.za.

Information gaps relate to information on sustainable management issues. The SA-ISIS project supported by government explores these issues within a project that introduces models and decision support systems drawing on information held in datasets on soil, climate, water, biodiversity and coastal zone related information. Government has established a national early warning system for monitoring food supply making use of the NOAA satellite images. Information is made available on a weekly basis. South Africa is in the process of developing indicators for monitoring and evaluating sustainable agriculture practices and rural development. Government supports the

Innovation Fund project that seeks to develop high-resolution seasonal forecasting through computer based modelling of the climate system. The project will provide a framework for appropriate forward planning of resource management in agriculture, water and fisheries to mitigate the impacts of seasonal variability.

Research and Technologies: The Agricultural Research Council is actively involved in the Integrated Pest Management to control invader plants by the introduction of biological control agents and methods. Research Institutes, the Agricultural Research Council as well as Government researchers have been actively involved in plant nutrition research. Research and demonstration of water harvesting techniques is increasing. Research to increase water use efficiency in agriculture is carried out by the Agricultural Research Council and also funded by the Water Research Commission. The development of integrated farm management technologies and practices is a responsibility of the Agricultural Research Council. Specialist research institutes focused on animal improvement, grain crops, and plant protection.

Technology transfer to the commercial farming sector is mainly through private sector extension services provided by the commodity industries and large co-operatives. Provincial government is responsible for technology transfer to farmers, especially the small-scale and subsistence farmers on communal land. Farmers are increasingly applying improved crop and soil management practices. Research is also undertaken to give farmers practical advice and information. The National Landcare Programme has projects in the communal areas involving many small farmers where improved crop and soil management practices are being demonstrated. The Technology Development Programme in the Northern Cape Province has projects related to animal production and technology development such as livestock improvement, and development of an additional Bonsmara breeding line.

Financing: Financial resources are available from budgets of the various institutions involved in implementing responsibilities in terms of sustainable agricultural development. The budget of the National Department of Agriculture funds the Sustainable Resources Use and Management programme. Provincial Departments of Agriculture also have budgets to support activities of Agenda 21. The Agricultural Research Council receives a parliamentary grant to support activities. The Landcare Programme is funded out of the Poverty Relief and Infrastructure Funding of National Treasury. An amount of ZAR 95 million has been provided to Provinces for Landcare projects for the past four financial years with a further ZAR 65 million for the next two financial years. National and provincial government has committed a total amount of ZAR 1,8 billion for the current financial year to support, develop and invest in the 13 nodes at district municipality level. For the current financial year all nodal municipalities have prepared interim integrated development plans. These plans have begun to inform the resource allocation and projects from national and provincial governments to the nodes. A process is under way to engage private sector organisations and the donor community to provide additional support for this programme.

Cooperation: The National Department of Agriculture is represented in Brussels, Rome and Geneva. The Department of Agriculture is responsible for matters concerning agricultural relations with other countries, such as bilateral agreements with Zimbabwe, Malawi and Mozambique. The Department of Agriculture, the Department of Trade and Industry and the Department of Foreign Affairs cooperate with respect to trade negotiations between South Africa and the EU, the Indian Ocean Rim Initiative and the Cairns Group. South Africa obtained qualified membership of the Lomé Convention, which will allow South African companies to tender for contracts funded by the European Development Fund and to make use of the rules of accumulation. The Agriculture Research Council is represented in Paris and Washington.

There is involvement in a SADC project on the management of farm animal genetic resources through the control of the import and export of such genetic resources among the SADC countries. There is also involvement in the programmes of the Plant Genetic Resource Centre of SADC as well as the Crop division of the Sector Food, Agriculture and Natural Resources. Regional cooperation with the rest of Africa takes place through the Southern African Regional Commission for the Conservation and Utilisation of the Soil and SADC. International cooperation with multilateral organisations such as the FAO, the World Bank, the International Fund for Agricultural Development, and the SA/US Bilateral Committee has also taken place. Such cooperation includes making use of

the 'Domestic Animal Diversity Information System' for consultation on international breeds and participating in the 'International undertaking on Plant Genetic Resources for Food and Agriculture'.

South Africa is also a member of the International Union for the Protection of New Varieties of Plants, the International Plant Protection Convention and the World Trade Organisation Sanitary and Phytosanitary Measures, and is participating in drafting and adopting international standards and guidelines for Genetic Modified Organisms, bio-safety and invasive species. South Africa is participating in a global programme of the International Soil Conservation Organisation known as WOCAT. The programme is implemented in South Africa as a means of technology transfer, capacity building and promotion of resource conservation.

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CHAPTER 15: CONSERVATION OF BIOLOGICAL DIVERSITY

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

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

The conservation and sustainable use of biological diversity is a high priority of the Government. A National Policy on the Conservation and Sustainable Use of Biological Diversity is in place. It is intended to submit to Cabinet for approval a National Biodiversity Bill in 2002. The National Parks Act is to be incorporated into the Biodiversity Bill. The Marine Living Resources Act was passed in 1998. A National Forestry Plan has been developed in collaboration with relevant sectors and a National Forest Act was promulgated in 1998. The Conservation of Agricultural Resources Act (1983) was amended in 2001 to identify and control alien and invasive plants. The National Water Act (1998) addresses water requirements for aquatic ecosystems. The Genetically Modified Organisms Act was passed in 1997.

Programmes and Projects: A bio-regional approach towards South Africa's protected areas was developed and announced by Government in 2001. This approach aims to consolidate our protected areas and expand them where necessary to ensure their ecological viability, and at the same time rationalise their management.

South Africa is taking an active part in UNESCO's Man and the Biosphere Programme, having established and listed four of Biosphere Reserves with the World Network of Biosphere Reserves, namely Kogelberg Biosphere Reserve, Cape West Coast Biosphere Reserve, and Waterberg Biosphere Reserve, with a further five under consideration. This provides the opportunity to link disjunctive areas, and / or expand the area of influence of conservation considerably.

Conservation bodies work together with Government and NGOs in a number of programmes such as the SA Wetlands Conservation Programme which was set up to help South Africa meet its obligations in terms of the Convention on Wetlands (Ramsar, Iran, 1971) and relevant aspects of the Convention on Biological Diversity. Particularly important recent activities include the initiation of a national wetland inventory, and a number of wetland restoration projects as part of South Africa's poverty alleviation programme.

Numerous collaborative projects such as the Protea Atlas, Southern African Bird Atlas, Frog Atlas, and Southern African Plant Invaders Atlas have been highly successful, as have industry-conservation projects such as the Bird Power-line Project (to reduce the impact of power-lines on large birds) have also been successful.

A national strategy for the biotechnology was published in 2001 by the Department of Arts Culture Science and Technology.

The South African Coastal Policy was published in 2000 by the Department of Environmental Affairs and Tourism.

Status: South Africa is signatory to a number of biodiversity related conventions:

- Convention on Wetlands (Ramsar, Iran, 1971) signed in 1971, ratified in 1975;
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), signed and ratified in 1975;

- Convention on Biological Diversity, signed by South Africa in 1993, ratified in 1995; and
- Convention in Migratory Species acceded to in 1991.

One of the goals set by the government in its policy on the conservation and sustainable use of South Africa's biological diversity (published in 1997) is to maximise benefits of the country's natural heritage for all South Africans, now and in the future, by establishing a comprehensive and representative system of protected areas covering South Africa's biological diversity.

As part of its mandate DEAT has initiated a range of activities aimed at meeting this goal. The major activities include the development of a new legal framework for protected areas as a part of the National Biodiversity Bill. Sustainable financing mechanisms are being developed, including a uniform classification system for all protected areas, the improvement in the management and financing of the Marine Protected Areas, the expansion of National Parks such as the Addo Elephant National Park through acquisition of new land, as well as incorporation of state forests into the current national park system. New protected areas are being developed, for example, the Pondoland Park on the Wild Coast, and the Agulhas National Park at the southern tip of Africa.

An important development has been the establishment of Trans Frontier Conservation Areas such as the Great Limpopo Transfrontier Park (one of a proposed seven), the designation of new Ramsar sites (South Africa has 16 at present) and the development of World Heritage Sites (South Africa has four at present) and the current network of Biosphere Reserves to expand conservation efforts outside protected areas.

Alien invasive biota is particularly problematic. The Agricultural Research Council is testing biological control agents prior to their release, the Working for Water project is contributing towards clearing of woody alien invasive plants in catchment areas. However the problem is growing, and few of the zoological, especially aquatic invasive invertebrate and fish problems have been addressed.

The biggest single challenge that the conservation of biodiversity faces is a rapidly growing population, and high levels of poverty with concomitant demands on the natural resources. Poverty alleviation will have to include ensuring sustainable use and equitable benefit sharing of our biological diversity. Conservation is a dual competency, at both national and provincial levels. Many of the provinces have inadequate capacity and do not have adequate budgets for the full range of conservation activities required.

Capacity-Building, Education, Training and Awareness-Raising: South Africa boasts some 20 universities, a number of technikons and training colleges, many of which provide training relevant to the conservation of biological diversity, at undergraduate level and in post graduate courses.

Both the Water Research Council and the National Research Foundation allocate funds toward research and capacity-building for the conservation of biological diversity.

A number of in-service training courses are available in South Africa, run by conservation agencies and the public service.

A regional capacity-building programme in plant taxonomy has been developed, and a similar programme for wetland conservation is under development.

The SA Wetlands Conservation Programme has developed a communication, and public awareness action plan. This is supplemented by the River Health Programme. Similar programmes have been developed under the CITES project and the SA Natural Heritage Programme.

The museums, the SA National Parks, the National Botanical institute, the National Zoo and the provincial conservation agencies all have outreach and awareness raising programmes related to the conservation of Biological diversity. These are supplemented by project such as the Cape Action Plan for the Environment (CAPE) and the Subtropical Thicket Ecosystem Planning project (STEP), both GEF funded projects.

Information: Databases are maintained at the National Botanical Institute (www.nbi.ac.za), the SA National Parks (www.parks-sa.co.za), the natural history museums, a number of universities, the Agricultural Research Institute, the National Zoo as well as the key national Departments (www.gov.za) responsible for the conservation of biological diversity. Many of the provincial conservation agencies have their own databases as well.

South Africa has a Clearing House Mechanism (www.environment.gov.za/chm-final/), set up in terms of the CBD. Related web pages include the SA Wetlands Conservation Programme (www.ccwr.ac.za/wetlands/), the River

Health Programme (www.csir.co.za/rhp/), the CITES Implementation Project (www.wildtrade.org). The SA ISIS project (www.sa-isis.co.za) is aimed at providing centralised access to a range of biodiversity-related databases. For more information on the implementation of the CITES Convention, please refer to "**Chapter 2-International Cooperation and Trade**".

Research and Technologies: There is increased worldwide demand for access to biological resources and with the ratification of the CBD, Biological Resource Centres (BRCs) are becoming increasingly important. BRCs form the infrastructure that underpins natural sciences and biotechnology. South Africa has a huge biological resource with many identified collections being housed at various institutions within our science system. However, this needs to be coordinated on a national basis to ensure that these collections are adequately maintained, and to allow access to these resources. Government is looking at the option of establishing a "virtual" national biological resource centre. A working group will look at possible models for South Africa. Government is scoping the advantages for South Africa to join the Global Biodiversity Information Facility (GBIF). The benefits and working modalities with respect to participating in the GBIF network will include an assessment for regional cooperation.

Financing: Funding for the conservation of biological diversity is primarily done by the key Departments and the provincial conservation agencies through the MTEF. Funding of relevant activities such as those using the poverty relief funds supplement this.

Support funding from a range of donor agencies has also been obtained. This includes funding from the GEF, DANCED, DFID, NORAD, and USFWS. The World Wide Fund for Nature funds numerous projects in South Africa as does the private sector.

Cooperation: Besides the support funding received from donor agencies, South Africa has developed cooperative agreements with a number of countries such as Ethiopia, Germany, Norway, and the United States of America. Further agreements are being developed with countries such as Egypt and Japan. South Africa is active in Southern African sub-region planning through the Southern African Development Community including the Forestry Technical Coordinating Committee, the Wildlife Sector, the Wildlife Protocol, the Biodiversity Programme and the Fisheries Programme. South Africa is active in the African region through the African Ministers Council on the Environment, as well as the conventions and their subsidiary bodies. South Africa regularly meets with the Valdivia Group of countries at convention related meetings. South Africa is a member of international government and non-government organisations such as Wetlands International and the IUCN (World Conservation Union).

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CHAPTERS 16 AND 34: ENVIRONMENTALLY SOUND MANAGEMENT OF BIOTECHNOLOGY AND TRANSFER OF ENVIRONMENTALLY SOUND TECHNOLOGY, COOPERATION AND CAPACITY-BUILDING

Decision-Making: Technologies: Although South Africa does not have a specific national policy or strategy with regard to Environmentally Sound Technologies (ESTs), some Government Departments and research institutions have developed policies and strategies on integrated environmental management and the use of environmentally sound technology. The policy on Science and Technology, 1996, provides the framework for the development of a national system of innovation that would promote ESTs.

South Africa's Intellectual Property Rights legislation will comply with the World Trade Organisation's (WTO) Trade Related Intellectual Property Rights (TRIPS) agreement. However, the South African Government recognises that the transfer of environmentally sound technologies is an area where indigenous peoples have the potential to make tremendous contributions. South Africa recognizes that the indigenous knowledge of the natural bio-resource base should enjoy comprehensive protection.

The Department of Arts, Culture, Science and Technology (DACST) is currently preparing a draft Bill on Indigenous Knowledge Systems for presentation through the legislative route. A report from a workshop conducted by DACST in early 2001 on Biological Resource Centres recognised that there is no international definition that gives guidance on the patentability of life forms. Individual countries have adopted different positions and in a number of cases these positions are contradictory.

The policy on Environmental Management implies EST by stating "Waste management must minimise and avoid the creation of waste at source especially in the case of toxic and hazardous wastes". The policy on Integrated Pollution and Waste Management promotes the implementation of a hierarchy of waste management practices, namely reduction of waste at source (cleaner production/technology), reuse, recycling, and safe disposal as the last resort. The National Waste Management Strategies and Action Plans propose strategies and actions for each component of pollution and waste management that will advocate the use of ESTs, possibly within the strategy and action plans regarding cleaner production/pollution prevention.

The policy on Integrated Pollution and Waste Management refers to waste management in the context of cleaner production/pollution prevention. A strategy on cleaner production will be developed through the National Waste Management Strategies project, which has implications for the promotion of ESTs. In the Integrated Pollution and Waste Management Policy, promotion of cleaner technology has been identified as a priority. Through the requirements of the Minerals Act, 1991, and the mine-water related research done by the Water Research Council, environmentally sound waste management technologies at mines are specifically promoted. The environmental management programme requirements for the mining industry are based on Best Available Technology Not Entailing Excessive Costs. After evaluating Environmental Impact Assessments in terms of the Land Development Objectives (LDOs) as specified in the Development Facilitation Act, provincial and local governments have decided to require that an Environmental Management System be incorporated into development applications in order to promote the consideration of best technology, practice and alternatives into business plans.

Biotechnologies: The national Government is the main body responsible in this field. A draft bill on the safe use and handling of genetically modified organisms (GMOs) has been developed. The bill takes into account the UNEP Guidelines for Biosafety. It is intended to control genetically modified organisms by means of the Genetically Modified Organism Act, 1997, which is to be administered by the Department of Agriculture and a statutory Executive Council consisting of cross-sectoral representation. The application of the Act includes genetic modification of organisms, use of Genetically Modified Organisms (GMO) and gene therapy.

Excluded from the Act are human gene therapies, activities that are considered conventional. Government developed a Natural Biotechnology Strategy to inform government, industry and the research community about the steps that need to be taken for developing capability in respect of understanding and utilising biotechnology in such a way so as to have a positive socio-economic impact.

The Strategy introduces the following:

- A very tightly focused biotechnology development programme for human vaccines (HIV, TB and malaria);
- Animal vaccines e.g. Newcastle disease in poultry;
- Methods of cleaner production for industrial development;
- Crops resistant to pests and insects for environmental control;
- Drought-resistant and flood-resistant crops in response to climate change;
- Improvements in development of legislation for the labelling of foodstuffs obtained from organisms developed by certain techniques of genetic modification;
- Improvement of the administrative procedure for regulating the trials of genetically modified (GM) crops;
- Monitoring of various ethics committees to ensure the safe application of biotechnology through the Bioethics Committee and providing such committee access to all existing institutional standards and guidelines and powers to make amendments if necessary;
- An improved public education drives in which explanations of benefits and discussion of risks related to biotechnology are allowed to enable understanding on how biotechnology should be used to benefit society.

Programmes and Projects: *Technologies:* Programmes of actions for the ESTs have been developed by a number of Government Departments and research institutions such as the Council for Scientific and Industrial Research (CSIR) and the Medical Research Council. Cleaner production initiatives will focus on implementing pilot projects targeting the fish and fish processing industry; abattoirs and the dairy industry; the wood and furniture industry; the metal and furniture industry; and the textile industry.

The Gauteng provincial government, with Danish Cooperation for Environment and Development (DANCED) has launched a 2,5-year capacity building project that will include training in cleaner production technology. The Government in collaboration with DANCED are supporting a programme on cleaner textile production. CoalTech 2020 is a research programme involving the mining industry, CSIR MiningTech, Water Research Commission, independent researchers, Department of Trade and Industry and Department of Minerals and Energy. The research outcomes will focus on developing new technologies and mining methods that will serve to make coal mining more competitive.

Biotechnologies: The National Biotechnology Strategy currently under review proposes the establishment of Regional Innovation Centres that will manage five major programmes in the areas of plant biotechnology, animal health, vaccine production, fine chemicals and pharmacogenomics.

During the early part of 2002, Department of Arts, Culture, Science and Technology (DACST) will be conducting a Technology Road mapping exercise in the area of Biotechnology. The results of this exercise – due August 2002 – will be “mapped” programmes of action for Government, the higher education sector, private sector and research institutions. The Technology Roadmaps will serve to steer the focus of the Biotechnology component of the Innovation Fund and other support programmes. It will also influence the direction of the work in the Biotechnology Regional Innovation Centres.

Status: *Technologies:* The introduction of ESTs into South Africa’s economy is supported by the establishment of the national product development centre at the CSIR, DACST technology incubators and a DACST-supported technology demonstration centre run by Mintek in small scale mining. The ESTs are needed *inter alia* in mining, agriculture, small to medium manufacturing and processing industries, liquid fuels for the most deprived communities, water for all sectors of the economy, as well as for energy, transport, tourism, off-shore oil and gas pollution reduction, small business, and domestic, urban and rural energy.

Of note is a DACST Innovation Fund project that explores the development of low-maintenance self-sustaining biological (passive) systems for the treatment of contaminated industrial effluents and mine. Environmentally sound and appropriate technologies including know-how, services, equipment, organisational and managerial skills are provided by the Housing Support Centers.

Biotechnologies: The current suite of research and technology development projects in the area of biotechnology are at a mid-point in their three year life. It is envisaged that a report on the status of developments in this area will be prepared by mid-2002. See inputs on National Strategy and Technology Road mapping above.

Capacity-Building, Education, Training and Awareness-Raising: Technologies: Government encourages transfer of technology in schools. In collaboration with institutions in the United States, the Government and some associated institutions have established the Global Learning and Observations to Benefit the Environment (GLOBE) centres at various schools to raise awareness for environmental protection and monitoring. Social and cultural priorities are considered during transfer of technology. Government, particularly in the field of environment, perceives capacity building as a major priority.

Companies regularly survey the available technological development and bring relevant process technology into South Africa for adaptation to local conditions. The CSIR, the Development Bank of Southern Africa and the Environmental Scientific Association of South Africa are among the other role players in terms of cleaner production processes. Several universities are collaborating with local authorities and industrial small, medium and micro enterprises in efforts to promote cleaner production processes.

The private sector plays a leading role in disseminating knowledge and information about cleaner processes in industry. The Industrial Environmental Forum, a NGO, promotes awareness on the transfer of ESTs through participation and peer incentives. The chemical industry has adopted the International Responsible Care Initiative and is continuously seeking to achieve cleaner production. Interactions between the major groups and government include discussions on the introduction of incentives to promote cleaner production processes.

The Department of Defence is actively involved in the transfer of environmentally sound technologies, co-operation and capacity building.

Biotechnologies: An integral part of the DACST-driven National Biotechnology Strategy recognises that there is a critical need for an improved public education drive in which explanations of benefits and discussion of risks related to biotechnology are allowed to enable understanding on how biotechnology should be used to benefit society. Already NDA has a public awareness programme on GM foods. The Proposed National Strategy also seeks to address the issue of labelling of foodstuffs.

Information: Technologies: The Joint Air Reconnaissance Intelligence Centre (JARIC) of the South African Air Force specialises in image intelligence exploitation, including the analysis of satellite imagery acquired via the Satellite Application Centre. JARIC has the only integrated system for the acquisition, storage, exploitation and dissemination of satellite and air reconnaissance imagery in Africa. While the emphasis is on image exploitation for defence purposes, existing capacity can be used for general decision making.

The South African Navy provides hydrographic services required for defence purposes but also provides such services to other mariners. This includes charting South Africa's territorial water and maritime zone, charting international waters for which South Africa is responsible within the international hydrographic organisation and the provision of radio navigation warnings, notices to mariners and tidal and meteorological data.

The Housing and Urbanisation Information System (HUIS) and the Housing Subsidy System are developed to respond to the need for technology for housing and housing information for planning purposes. The basis for the HUIS includes the refinement and updating of a database created by the Development Bank and the CSIR.

Biotechnologies: As part of the proposed National Biotechnology Strategy it is recognised that there exists an urgent need to monitor ethics committees to ensure the safe application of biotechnology.

Research and Technologies: Technologies: See under **Information.**

Biotechnologies: Government departments, parastatal bodies and industry conduct Biotechnology research. Some of the research supported by the DACST Innovation Fund includes a range of biotechnology projects such as the "Biocontrols for Africa" project based on "friendly" fungi, bacteria, nematodes and insects which occur naturally in the soil, on plants or elsewhere in the environment and which can attack unwanted pests. In a related area another Innovation Fund project looks at the "Production of high quality arbuscular mycorrhiza fungal inoculants for target plants in the agricultural, horticultural and environmental rehabilitation industries.

Financing: Technologies: Through the National Water Policy a system of economic incentives will be put in place to foster the development of low-waste and non-waste technologies, and to reduce pollution and other impacts on water resources. Where appropriate, regulated sectors should take responsibility for the development, evaluation and implementation of ESTs that will meet the requirements for water resource protection.

No financial instruments are used at present to encourage the use of ESTs in the field of water management. However, there is provision for two types of economic instruments in the National Water Act. The first is the setting of water tariffs at levels, which reflect the real cost of water and its relative scarcity or abundance. The second is the introduction of a system of waste charges, to be imposed for discharges to water resources.

Biotechnologies: As part of current and ongoing programmes, the Department of Arts, Culture, Science and Technology (DACST) through one of the three dedicated focus areas within its Innovation Fund programme provides financial support for research and technology development in the area of Biotechnology (see *Technologies* above).

Cooperation: *Technologies:* See under **Capacity-Building, Education, Training and Awareness-Raising**

Biotechnologies: South Africa actively participated at subregional, regional and global levels in the development of the Protocol on Biosafety under the auspices of the Convention on Biological Diversity.

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CHAPTER 17: PROTECTION OF THE OCEANS, ALL KINDS OF SEAS, INCLUDING ENCLOSED AND SEMI-ENCLOSED SEAS, AND COASTAL AREAS AND THE PROTECTION, RATIONAL USE AND DEVELOPMENT OF THEIR LIVING RESOURCES

Decision-Making: The Department of Environmental Affairs and Tourism (DEAT) is responsible for integrated coastal zone management, marine pollution control and sustainable use and conservation of marine living resources. Provinces also play a major role in terms of executive functions. The South African Maritime Safety Authority, the departments of Water Affairs and Forestry, Minerals and Energy and Public Works are other key bodies dealing with marine environmental protection.

The Department of Defence participates in marine pollution disaster operations. KwaZulu Natal Wildlife carries out some resource management and compliance functions on behalf of DEAT. Local authorities are cooperating in the development of some marine protected areas and are consulted in the implementation of a subsistence fisheries management system.

Many of the new initiatives encourage broad participation and involve stakeholders and interested and affected parties. A Policy Committee was established as a partnership between Government and civil society. In terms of coastal management, the Committee for Environmental Coordination's subcommittee for Coastal Management coordinates, while Coastal Working Groups and Local Coastal Forums are consulted.

Various policy statements are included in the provincial planning ordinances, bills and acts. The White Paper on Integrated Pollution and Waste Management covers Government policy pertaining to pollution, including marine pollution. The main national policy dealing with sustainable use and conservation of marine living resources is the South African Fisheries Policy, superseded by the Marine Living Resources Act, 1998. Special protection is afforded to coral reefs off the northern KwaZulu-Natal coast. Various estuarine mangrove forests are also protected by Provincial regulation in KwaZulu-Natal and in the Eastern Cape Provinces. The national policy dealing with coastal management and sustainable coastal development, the White Paper on Sustainable Coastal Development, will soon be tabled as a draft bill.

Programmes and Projects: Programmes include a GEF-funded project to develop a ballast water management strategy; the CoastCare, which is a information exchange, public awareness and education initiative and which addresses issues pertaining to integrated coastal management; and an impact assessment and management programme by the Marine Diamond Mine Association. The following are some of the projects: Coastal Law Reform Programme, Blue Flag South Africa, Sensitive Coastal Areas, Mtentu Estuary Management, Zulu Coastal Cultural Development, Estuaries Management and Research, Wild Coast Spatial Development Initiative, Durban Coastal Tourism Plan, KwaZulu-Natal Coastal Craftwork, South-North Tourism Route, Reports on Managing our Coast, and Local Environmental Capacity Building, Working for the Coast, National Marine Protected Areas, Community Coastal Monitoring, National Interpretative Signage, CoastCare Fact Sheets, Coastal Leadership Programme.

Status: The major uses of the coastal areas are for tourism, recreation and leisure, commercial and recreational fishing, agriculture and mining. Many South Africans are dependent on the coast for their subsistence. At present, it is estimated that about 12 million people live within 60km of the coast, which constitutes about 30% of the population. There are indications that increasing population pressure and the over-exploitation of coastal and marine resources and environmental degradation of the coast are reducing the ability of coastal systems to sustain human activities. Coastal and marine resources play a major role in sustaining the economic and social development, and contribute to the employment and food security of local populations.

Tourism activities have grown into a global growth industry. Eight out of ten Spatial Development Initiatives (SDIs) are linked to the coast. The coast also provides some potential for mariculture, with good water quality and nutrient supply, but a limited number of sheltered bays for large-scale activities in the sea. The coast and seabed offer significant mineral resources, including diamonds, heavy minerals (titanium and zirconium), offshore deposits of oil and gas, salt, sand and pebbles, manganese nodules and phosphorite. The resultant mining and explorations have an impact on the pristine coastal dune forests.

Expansion of the fishing industry is limited by the natural productive capacity and sustainability of the living marine resources. The major land-based pollutants are wastewater from industries and sewerage as well as run off from agricultural lands and urban areas.

Of particular relevance to coastal pollution are regulations in the National Water Act, 1998, which determine the quality of wastewater that may be discharged into freshwater resources and the sea. All waste discharges must meet a set of water quality criteria, and where the waste is to be discharged into certain sensitive rivers, a set of more stringent water quality controls are applied. Water quality criteria for seawater are available. Since 1965, fourteen major deep-sea outfalls have been constructed, which discharge industrial and sewage wastewater in excess of 600,000 m³ per day. There are also a number of outfalls with shorter pipelines along the coast, some discharging within the surf zone. In total, marine outfalls account for approximately 86% of the total discharges. South Africa has a very high-energy coastline, and wastewater diffuses readily within the oceanic waters. Significant discharge of wastewater from industrial and domestic premises is regulated through a licensing procedure.

The primary sources of sea-based pollution are from the shipping industry. This includes accidental oil spills; deliberate discharge of oily wastes from ships at sea, deliberate discharge of ballast, plastics and other pollutants released from ships, and ship maintenance activities. South Africa is situated on one of the major global oil tanker routes which, together with its notoriously rough sea conditions, makes it highly vulnerable to oil spills. This is reflected in the relatively high number of shipping accidents, which have been recorded. Priority constraints include: weak implementation actions and enforcement of legislation due to capacity limitations; development of systems for monitoring and measurement of impacts; development with insufficient attention to environmental considerations; lack of resources; fragmented legislation; lack of environmental data in some sectors; lack of coordination; lack of structures to involve civil society; lack of adequate vessel monitoring and control systems; threat of declining safety standards; lack of ballast water management; insufficient monitoring of the (physical) environment; research constraints in terms of technology, best management practices and socio-economic dynamics; lack of maritime air surveillance and naval forces; and inadequate data and information on population-development interrelationships.

Capacity-Building, Education, Training and Awareness-Raising: The CoastCare programme is an information exchange, public awareness programme that also focuses on capacity building, education and training. Some of the projects developed by CoastCare include a Technical Manual for Coastal Management; an Internet web site; formal and informal training courses; a national needs assessment and prioritisation for all educational and training needs. This is done in cooperation with the South African Network for Coastal and Oceanic Research.

Information: The Gilchrist Library at DEAT provides information on sustainable management of fishery resources and living resources other than fish. FISHLIT is a literature database maintained by Rhodes University. Limited information on marine pollution is available; monitoring is done at the level of individual outfalls. Information on offshore resources and coastal resources can be obtained from the DME Minerals Bureau and from the Council for Geosciences. Comprehensive data on marine ecosystems is available at marine research institutes such as University of Cape Town, University of the Western Cape and the Oceanographic Research Institute. Numerous individual time-series databases are available at research institutes. A comprehensive report on sea-level rise and its potential physical impacts on the shoreline of KwaZulu-Natal were commissioned by the Town and Regional Planning Commission. The report provides an atlas of the KwaZulu-Natal coast and details the possible future shoreline positioning as far as a metre rise in sea level. An Estuarine Health Index was developed to assess the State of South African Estuaries. A comprehensive inventory and database, covering more than 200 estuaries have been completed. Another project is the Decision Support System for Local and Provincial authorities.

Research and Technologies: The South African Coastal Information Centre and the Decision Support for Sensitive Coastal Areas projects have been initiated by the implementation of the White Paper for Sustainable Coastal Development. South Africa has a number of dedicated dispersant spraying vessels, used in the response to oil spills at sea. The dispersants are manufactured locally. The manufacturers are involved in developing a new type three dispersant, in line with international developments. Private sector initiatives aimed at producing oil spill response equipment such as booms and skimmers.

Financing: Marine and Coastal Management operates mainly through the Marine Living Resources Fund that is partly industry funded. The Government relies on partnerships with the private sector and other institutions to fulfil its obligations and to complete relevant projects. The British Department for International Development (DFID) funded the coastal policy formulation programme. At provincial level, a small percentage of the budgets are spent on coastal management related projects. The DEAT is also involved in a number of GEF-funded projects. There is a bilateral agreement with Norway on a large number of projects relating to improved fisheries management.

Cooperation: South Africa contributes to the fisheries sector in the SADC region regarding resource issues and development programmes. The Benguela, Environment, Fisheries Interaction and Training Programme, launched in 1997, has made great strides in implementing marine environmental and resources research cooperation between Namibia, South Africa and Angola.

This is due to be further expanded by a second programme, the GEF-supported Benguela Large Marine Ecosystem study. A cooperation agreement with Mozambique, in the fields of environment, tourism and water affairs, has entered into force. Tourism is covered through joint marketing and promotion, training, cross-border tour operations and African language training for tour guides. South Africa participates in the African process for the Development and Protection of the Coastal and Marine Environment, particularly in Sub-Saharan Africa; and in SEACAM (the Secretariat for Eastern African Coastal Area Management). DEAT is also involved in a World Bank funded project to provide oil spill response training in the Indian Ocean Islands.

Bilateral agreements were reached: on Antarctic cooperation with New Zealand in 1995; with France regarding funding to replace the coastal patrol vessel fleet; cooperation on environmental matters with Israel; a USA-South Africa Bilateral Commission; a joint commission of cooperation with the Palestinian National Authority; and an agreement with Sweden.

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CHAPTER 18: PROTECTION OF THE QUALITY AND SUPPLY OF FRESHWATER RESOURCES: APPLICATION OF INTEGRATED APPROACHES TO THE DEVELOPMENT, MANAGEMENT AND USE OF WATER RESOURCES

Decision-Making: The Department of Water Affairs and Forestry (DWAF) is the responsible national Department for decisions regarding water quality and quantity, the management and development of water resources, and also for the provision of water supply and sanitation.

Coordination between different national Departments is achieved through the constituted Committee for Environmental Coordination and joint technical committees between Departments on crosscutting issues. Mutual cooperation takes place in terms of drafting overlapping legislation, setting best practices, carrying out research and development and ensuring cooperative governance with key partner Departments. The Department of Minerals and Energy is responsible for the use and development of mineral resources – DWAF authorises and manages the impact of mining activities upon water resources. The Department of Trade and Industry (DTI) is responsible for commercial and industrial enterprise. The Department of Agriculture is responsible for irrigation and agricultural activities.

Coordination with different tiers of government is achieved through the constituted MINMEC (the committee of national Ministers and provincial Members of the Executive Council) as well as technical committees and joint working groups.

DWAF and the Department of Provincial and Local Government are jointly responsible for the operational management of water supply and sanitation systems to communities. Decision-making in terms of water supply and sanitation systems is devolved to the local level with programmes for capacitating communities to take over, operate and maintain their water supply and sanitation systems.

The National Water Resource Strategy will outline a framework for implementing integrated development and management approaches to water resources. Decision-making regarding water resources use and allocation is currently at national level, with a strategy in place to devolve this responsibility to local level once the Catchment Management Agencies have been established.

The National Water Act, 1998, requires that water use authorisations, or licences, is issued for water use activities that impact on a water resource. The Act provides for coordination and joint decision-making across national Departments in terms of water use activities.

Demand management through tariff and water pricing and water conservation measures are supported by the Act, in which re-use and recycling of water is promoted.

The national water policy of South Africa as enabled through the National Water Act, 1998, requires that aquatic ecosystems requirements and those of other users, be considered in all decision-making processes. Water resources in South Africa are managed in an integrated fashion and specifically on catchment management level. The Act endorses the concept of tradable rights for water use.

Programmes and Projects: Programmes covering the nineteen water management areas include catchment management programmes. The River Health Programme is aimed at measuring the ecological status of river systems using indicator species and scoring the level of ecological impacts and modifications in the river. This programme was initiated at national level and is devolving to local level. Some local authorities have already taken over responsibility for bio-monitoring and are using the data on river health for improved municipal planning.

The Working for Water Programme is a national initiative aimed at systematically clearing catchments of invasive alien trees to increase the available surface runoff. A project to develop an approach for managing water quality impacts of dense settlements is nearing completion. A project to develop an approach to manage water quality effect from dense settlements was also initiated by DWAF and co-funded by DANCED. The methodology developed balances physical, economic and social factors to find sustainable development solutions.

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

The requirements for sustainable utilisation of water resources have been extended to the water resource monitoring and assessment functions of DWAF. In March 2001, the first National State of Rivers Report was published on three major catchments providing an assessment of current status of water resources sustainability. All water use authorisations issued since the National Water Act came fully into effect in October 1999 have been based on the requirements of the environment and of basic human needs, and have also included resource protection measures. A major new effort has been made to accelerate sanitation and safe water to communities in rural areas. Special provision for allocations in rural development schemes.

Capacity-Building, Education, Training and Awareness-Raising: The Water Supply and Sanitation Programme has a national strategy for implementing sustainable water supply systems. The approach within the BOTT programme is to involve local leaders, with special emphasis on women, throughout the development and implementation of a water supply project and at all levels from operation and maintenance to management and financial levels.

The River Health Programme adopts schools at provincial level and staff/students are taught how to collect bio-monitoring data and enter it into a national educational database through the Internet. The Community Water Supply Programme has an initiative to train communities in siting and operating their waste disposal sites specifically to protect their groundwater resources. The Dense Settlements project as well as various communication strategies in the DWAF significantly contributes to capacity building and awareness raising.

Information: DWAF collects information on the availability, variation and extent of water resources nationwide. This information is collected through a range of monitoring networks, for the quantity of surface water resources, including flow in rivers and dam levels and also for groundwater resources. Water quality is monitored at national level for a range of constituents that measure the extent of salinity, eutrophication, toxicity and microbiological contamination of water resources, both surface and groundwater.

The national flood management programme is based on a series of strategic monitoring sites on key rivers and dams, providing telemetric data to a central flood office. This data is also provided to neighbouring states in the event of regional flood events. The flood database is available through the web site. Water quality data at regional level are also acquired to determine impacts of pollution and compliance.

Research and Technologies: The Water Research Commission (WRC) is a parastatal organisation that is mandated to fund and coordinate water related research in support of DWAF water resources management functions. The WRC is funded from a percentage of the revenue generated from water sales – which in 2000 resulted in a budget of ZAR 62 million for use in research and technology development. The water sector is highly productive in developing and implementing new treatment technologies and approaches including bio treatment, low-technology systems for use in rural communities as well as advanced treatment and disposal of hazardous wastes.

In addition to DWAF and the WRC the IUCN Regional Office for Southern Africa is implementing research on water demand management. This project is financially supported by SIDA. The main aim of the project is to establish and assess the level at which water demand management is being practiced in the region against a background of diminishing resources and increasing demand.

Financing: Funds are provided by national Government to the DWAF for implementation of water resources policy. As the National Water Account (NWA) is based on sustainable utilisation of water resources, many of the requirements and principles reflect the principles of Agenda 21. The NWA also makes provision for cost recovery of water use costs, and a pricing strategy has been developed and is in the process of implementation. Incentives will also be introduced through a waste discharge charge system. A national system for registration of water use was implemented in 2000 and water use activity is being registered throughout the country. This system

incorporates an accounting component once 80% of all water use is registered, the billing system will be activated to start recovering the costs of water used by registered users.

An Effluent Charges Policy is currently under development by DWAF as part of the water use and management pricing strategy. DWAF and the Weather Bureau are funding the programme for monitoring impacts of climate change on rainfall / runoff in mountain catchments of the Drakensberg.

Government funds water supply and sanitation systems, with a programme for cost recovery that recognises a portion of free water for the poor. A substantial amount of donor funding is also received for the purpose of water supply and sanitation development.

Cooperation: DWAF is a member of the South African Development Communities (SADC) water sector sub-committees for surface water, groundwater, water quality and aquatic weeds. Inter-governmental cooperation with neighbouring states includes agreements, joint technical committees and working groups in shared basins with all neighbours. Shared river basins are jointly developed and managed with partner countries, notably the Limpopo River Basin study, the Inkomati River Basin project and the Katse Dam project. Some of the agreements date back to the 1960s. South Africa is a participant in international organisations such as the World Health Organisation, the International Water Association and the World Meteorological Organisation (WMO) that have numerous programmes and projects in the region. South Africa is a lead agent in implementing the WMO sponsored pilot SADC-Hycos Hydrological Monitoring Network. The regional web-site is maintained by DWAF. Approximately 75% of the planned monitoring stations have been installed and are operational, supplying real time data to the database.

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CHAPTER 19: ENVIRONMENTALLY SOUND MANAGEMENT OF TOXIC CHEMICALS, INCLUDING PREVENTION OF ILLEGAL INTERNATIONAL TRAFFIC IN TOXIC AND DANGEROUS PRODUCTS

Decision-Making: The Department of Environmental Affairs and Tourism (DEAT) is the competent authority for the Intergovernmental Forum for Chemical Safety, and the Department of Health is the competent authority for the Intergovernmental Programme on Chemicals Safety. DEAT coordinates the management of chemicals in issues related to environmental protection. The Department of Health coordinates issues related to occupational health and the Department of Labour coordinates issues related to occupational safety. DEAT is compiling a national profile on the environmentally sound management of chemicals. The legal review process in the National Environmental Management Act (1998) will result in the formulation of the Environmental Protection Bill that will address the management of chemicals.

The Department of Health has a mandate to ensure that the Hazardous Substances Act (1973), is enforced. This Act seeks to ensure that hazardous chemical substances are imported, manufactured, stored, transported, handled and disposed of in a sound manner and do not harm life and the environment. Hazardous chemical substances are classified according to the International Programme of Chemical Safety classifications. Coordination is achieved through the Inter-Departmental Advisory Committee (INDAC) for safeguarding people against poisonous substances. This Committee is composed of the Departments of Agriculture, Environmental Affairs and Tourism, Trade and Industry, Water Affairs, Minerals and Energy, and Health. Historically, these were the departments making more use of hazardous chemical substances, either directly or through institutions or other bodies related to their line functions. The Hazardous Substances Act makes provision for the Minister of Health to delegate certain functions to local authorities and other competent persons. The need to develop persons to an adequate level of competency is determined by the Department of Health.

The Department of Transport manages the whole aspect of the transportation of hazardous substances, including labelling, appropriateness of conveyances, suitability of persons to convey the substances, routes and emergency preparedness measures. In the Departments of Agriculture and Health the focus is on identifying various hazardous substances, protective measures, how to deal with the farming community and other users, storage, handling and disposal. The classification of agricultural and stock remedies registered under the Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (1947), is the responsibility of the national Government. The formulations are classified according to the hazards they pose. The Ministries of Health and of Agriculture administrate the Hazardous Substances Act and the Agricultural Stock Remedies Act respectively and therefore have primary responsibility for the control of hazardous chemicals and pesticides including the international traffic in and out of the country. In terms of the current regulations, waste is not formally classified as hazardous or toxic unless designated by the Minister by notice in the Government Gazette.

Programmes and Projects: The DEAT embarked during 1994 on a project called the Environmentally Safe Management of Hazardous Materials. The objectives of this project matched with six programme areas of Chapter 19 of Agenda 21. Government, private sector as well as NGOs took part in the process and a number of codes have already been drafted by the South African Bureau for Standards in order to address different aspects of the Environmentally Safe Management of Hazardous Materials.

INDAC meets twice monthly to discuss the registration and labelling of agricultural and stock remedies. In terms of the Health Act (1977), drinking water treatment chemicals can also be regulated and a formal registration system is implemented to ensure illegal importation and use of these chemicals. The South African chemical industry, through its umbrella body the Chemical Allied and Industry Association, launched a Responsible Care programme, which concerns environment, health and safety. Cleaner production / technology pilot projects involving toxic substance substitution and life cycle analysis will encourage better management of toxic substances and reduce their occurrence in the waste stream. DEAT is currently initiating a Waste Information System that will form the basis of the Pollutants Release Transfer Registers.

Status: Internationally accepted classification and labelling has been incorporated in the legislative framework. This is communicated to all involved in the management of chemical substances. Various stakeholders introduced

risk reduction programmes. The policy of Integrated Waste Management and Pollution Control encourages government to identify environmentally friendly substitutes and to adopt integrated approach to pest control measures. South Africa ensures that the principles of Prior Informed Consent (PIC) are applied in dealing with neighbouring countries. South Africa participated in the negotiations that resulted in the adoption of the Rotterdam convention on Prior Informed Consent, and is in the process of acceding to this Convention.

Capacity-Building, Education, Training and Awareness-Raising: The Department of Health has developed a programme for awareness raising in communities dealing with chemical substances. This programme identified that pesticides are particularly used in rural areas, and targeted the rural population through schools. The Department of Health identified personnel and trained them to examine and improve the knowledge of the public in this area. Furthermore the Government called for review of the improvement of competencies in the various disciplines involved in the management of chemical substances.

This process is taking place and should culminate with the development of modules and unit standards that will equip personnel with the necessary skills to ensure the safe use of chemicals. The Departments of Health, Environmental Affairs and Tourism, Education and Agriculture have joint programmes of public awareness. These programmes are executed in collaboration with local authorities and non-governmental organisations. The Government recognised the need for preventing the misuse of potentially hazardous substances and introduced the Safety Towards Our People programme. This project, to some extent, was prompted by the World Health Organisation's request for heightened awareness among the community and professionals. It developed capacity building in communities regarding the use of hazardous substances. The target group is the farming community and the entry point has been through schools.

A second programme, concentrating on aerosols and other chemicals commonly used in the home, targets communities mainly in urban areas. The project uses a participatory methodology and improves the capacity of teachers, health promoters and environmental health practitioners to involve the community. Government, local communities, industries and farmers are involved in this project. The Department of Health conducts workshops to empower major groups about the sound management of chemicals.

Information: Government collects information and identifies those chemical substances where data and information is not sufficient for their sound management. Government also identifies and lobbies expertise in other countries to assist where possible. The IPCS works very closely with the International Organisation for Management of Chemicals and OECD in identifying priority chemicals that lack data and information. The data and information received is available through the Internet, web sites and printed publications. Precautionary principles are applied where data and information is not sufficient to make decisions.

The DEAT developed a Pollutants Release Transfer Register. This database will inform the Government of the amounts of pollutants released into the environment from all major sources. DEAT is also initiating the Awareness and Preparedness for Emergencies at Local Level system. The database developed from this system will form part of the information used to prevent anthropogenic disasters.

The Department of Health is collecting data on poisoning cases resulting from any agricultural or stock remedy. There is considerable under-reporting of poison cases in South Africa. Given this situation, the reporting tool and the mechanism has been revised to harmonise data collection and to develop a national database to provide relevant and accurate information. The establishment of data and information gathering about chemical intoxication serve as a base for storage of vital information about chemical substances for the improvement of intervention programmes and to advise the IPCS and other users of problems experienced.

The industry sector has been delegated on a voluntary basis to initiate Responsible Care programmes. Information through the Internet is available and accessible for decision-making processes. The Chamber of Mines initiated the development by a multi-stakeholder task team, of the *South African Guideline on Cyanide Management for Gold Mining*. The guideline was published in 2001 and distributed to all gold mines, refineries, cyanide manufacturers and distributors.

Research and Technologies: The DEAT participates in IFCS and UNITAR programmes to gain capacity and knowledge of new technology trends. Cleaner production/technology pilot projects involving toxic substance

substitution and life cycle analysis will encourage better management of toxic substances and reduce their occurrence in the waste stream.

Financing: Government budget allocations are largely used to implement this chapter.

Cooperation: South Africa is a member of the Southern African Development Community (SADC). A joint FAO, UNEP, UNITAR workshop on the implementation of Prior Informed Consent (PIC) and the sound management of chemicals for countries of eastern and southern Africa was hosted by South Africa. The envisaged SADC protocol on Environment, which is under development, will address the cooperation in the management of this chapter. Cooperation also exists in the implementation of multilateral environment agreements. The African cooperation is coordinated at the African Ministerial Conference on Environment. The success of implementing the Basel Convention depends on international cooperation.

Government works closely with the International Organisation for Management of Chemicals and OECD. Government is involved in various activities of the IPCS, including the INTOX rapid response to poisoning programme, the Prevention of Toxic Exposures and the Programme Advisory Committee. South Africa has officially launched a Toxicology Society to represent the interests of toxicologists in the country and to be represented on the International Union of Toxicology. Import and export regulations are in place, and South Africa will be signing the Rotterdam Convention in the course of 2001.

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CHAPTERS 20 TO 22: ENVIRONMENTALLY SOUND MANAGEMENT OF HAZARDOUS, SOLID AND RADIOACTIVE WASTES

Decision-Making: *Hazardous wastes:* National and provincial environmental departments and the Department of Water Affairs and Forestry (DWAF) are responsible for hazardous waste. However, there exists a partnership between the Government Departments of Water Affairs and Forestry, Health and Environmental Affairs and Tourism for the issuing of permits. These are managed by DWAF for waste disposal sites. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was signed and ratified in 1994. DEAT is the focal point and competent authority to this Convention. Currently the Convention is not enacted but Section 231 of the Constitution is used to enforce this Convention. Waste has in the past been subject to a separation process and the collection, handling and disposal of hazardous wastes and their facilities are distinguishable from those of domestic waste.

The *Minimum requirements for the handling and disposal of hazardous waste* was published by the Department of Water Affairs and Forestry, and gives definitions, classes, treatment and disposal options of hazardous waste. The South African Bureau of Standards Code 0228 is used to classify hazardous waste. The technical guidelines developed under the Basel Convention are used to treat or manage priority waste. A monitoring committee for waste management has been developed. The committee includes the provincial government and interested and affected parties. The continued permission to use a hazardous substance is determined by the outcome of inspections or risk management measures.

Solid wastes: A variety of national Government departments, provincial departments and local authorities are involved in dealing with solid waste. The management of solid waste is the responsibility of local authorities. DEAT has developed the Integrated Pollution and Waste Management Policy (IP&WM) that outlines the roles of governance, and it recommended the drafting of the National Waste Management Strategy (NWMS). DEAT, with DWAF, initiated the NWMS in 1997 that addresses waste collection, recycling, waste minimisation, and a waste information system. The NWMS was developed in 1999. Priority pollutants will be identified and targets set for reduction. The draft Policy on Integrated Pollution and Waste Management promotes the implementation of a hierarchy of waste management practices, namely reduction of waste at source, reuse, recycling, and safe disposal as the last resort.

The Policy on Environmental Management states, "Waste management must minimise and avoid the creation of waste at source especially in the case of toxic and hazardous wastes". Important legislation on waste management include the Environmental Conservation Act (1989), the National Water Act (1998), the Health Act (1977), and the Hazardous Substances Act (1973)

Environmental health and safety in the workplace are enforced in terms of the Occupational Health and Safety Act (1993). Guidelines published by DWAF in the form of the *Minimum Requirements for Landfill, for Hazardous Waste Management*, and for the *Monitoring of Waste Management Facilities* are the first in a series of guidelines to achieve control over the whole generation cycle from cradle to grave, including generation, transportation, treatment and final disposal.

The DWAF deals with matters regarding the classification and transboundary movement of waste. Municipalities and private waste handling companies are responsible for sewage-related issues and domestic refuse removal and disposal. The local authorities manage the waste stream according to the guidelines published by the DWAF and the relevant permits granted to them.

The National Environmental Management Act (1998) makes provision for cooperative environmental governance with regard to waste management. The National Water Act (1998) deals with pollution prevention and in particular the situation where pollution of a water resource might occur as a result of activities on land. The Dumping at Sea Act (1980) falls under the administration of the Minister of Environmental Affairs and Tourism.

The placement of mining waste lies jointly with the Department of Minerals and Energy (DME) through the Environmental Management Programme process and the DWAF through the licence process after consultation with other Departments. The Minerals Act (1991) requires that the holder of a prospecting permit or mining authorisation shall rehabilitate the land concerned in any prospecting or mining operations in accordance with an environmental management programme. The Minerals Act covers the regulation of mine tailings.

Radioactive wastes: The authority over management of radioactive waste and storage of irradiated nuclear fuel vests in the Minister of Minerals and Energy. The Minister, in consultation with the Minister of Environmental Affairs and Tourism and the Minister of Water Affairs and Forestry, may make regulations prescribing the manner of management, storage and discarding of radioactive waste and irradiated nuclear fuel. The Minister must perform this function with due regard to the provisions of the National Nuclear Regulator Act, 1999.

The DME has drafted a Radioactive Waste Management Policy for South Africa that can be accessed at www.dme.gov.za. This policy is based on international principles for radioactive waste management. Coordination is presently achieved by the Radwaste Work Group. A national strategy will provide for a coordinating mechanism. Decision-making on radioactive waste is done at a national level and is not delegated to lower authorities.

Programmes and Projects: *Hazardous wastes:* Projects related to hazardous waste include the implementation of the Basel Convention whereby transboundary movement permits are issued. A maximum of four permits per month are allowed. A separate chapter on hazardous waste is currently being drafted under the environmental law reform process. DEAT participates in the technical working group of the Basel Convention to develop technical guidelines on environmentally sound management of hazardous waste. DEAT is currently developing hazardous waste management guidelines as directed by the IP&WM.

Solid wastes: A project was launched by DWAF and DEAT with DANCED support in 1997 to establish a National Waste Management Strategy Project. The situation with regard to cleaner production and waste minimization was reviewed and targets for waste minimisation identified. The Minerals Act requires the mining industry in South Africa to provide a detailed description of the solid waste management facilities, which include industrial, domestic and mine residue disposal sites through the Environmental Management Programme process. This process requires the promotion of environmentally sound waste disposal and treatment. The handling of different types of waste is also prescribed in the standard environmental management programmes used for specific mining and prospecting activities. The water quality impacts from mining waste is authorised and managed by DWAF. DWAF is also in the process of developing Best Practice Guidelines for amongst other management of waste facilities in the mining industry related to water resource management.

Radioactive wastes: DME has established the National Nuclear Regulator that oversees all nuclear installations including the monitoring of the disposal of radioactive waste. DME is currently coordinating the development of the strategy on the management of radioactive waste. The Department of Health also has a programme in liaison with DME on the management of radioactive waste from healthcare facilities.

Status: *Hazardous wastes:* The DEAT is in the process of developing policies and drafting regulations in consultation with interested and affected parties. Hazardous waste is classified according to the SABS Code 0228, which uses the International Maritime Dangerous Goods Code as its base. The list of hazardous characteristics in the Basel Convention is also taken into account. Mining waste is included, within the definition of hazardous wastes as developed by DWAF. In terms of the regulations in the Environmental Conservation Act, 1989, waste is not formally classified as hazardous or toxic unless so designated by the Minister by notice in the Government Gazette. The *Minimum Requirements for the Handling and Disposal of Hazardous Waste* was published by the DWAF, which provided guidelines on what is regarded as hazardous as well as how it should be dealt with.

In the *Cold Chain and Operations* manual, provision is made for the correct disposal methods of both sharps and pharmaceutical waste. The South African Bureau of Standards Code of Practice 0248:1993 "Handling and disposal of waste materials within health care facilities" has been used as the basis for the policy on disposal, and a request was made that this same code be incorporated into the regulations of the Health Act.

Solid wastes: South Africa's total waste stream for 1998 was estimated at 538 million tonnes of which industrial and mining waste amounts to about 470 million tonnes per annum (87%). Non-hazardous industrial waste amounts to approximately 16 million tonnes. Ninety-five percent of urban waste is disposed of on landfill sites of which there are about 1 200 in South Africa. Local authorities manage these sites. Of the estimated 1 200 landfill sites, 417 (56%) are under permit, a legal requirement since 1991. Waste recycling is encouraged nationally. Voluntary waste and pollution reduction targets have been adopted by a number of individual companies.

Mechanisms to promote this type of initiative will be developed as part of the National Waste Management Strategy and Cleaner Production Technology Project. Existing ventures are self-regulatory and industry-driven and recycling of reusable urban waste developed spontaneously because it is a source of income to many poor families. The Minerals Act requires the mining industry in South Africa to provide a detailed description of the solid waste management facilities, which include industrial, domestic and mine residue disposal sites through the environmental management programme process. Any impacts on the environmental components have to be mitigated by appropriate environmental management measures and rehabilitation, based on the concept of Best Practicable Environmental Options (BPEO), and monitored, as spelled out in the environmental management programme for every specific mine. This process ensures the promotion of environmentally sound waste disposal and treatment. The handling of different types of waste is also spelled out in the standard environmental management programmes for various mining and prospecting activities.

Radioactive wastes: The DME has drafted a Radioactive Waste Management Policy that can be accessed at www.dme.gov.za. This policy is based on international principles for radioactive waste management. DME has also established a Radwaste Working Group consisting of relevant government departments, regulators, as well as generators of radioactive waste. This Working Group has clarified information on radioactive waste in a document entitled the *Status of radioactive waste management in South Africa*. In order to transform the governance of the nuclear industry in South Africa, the DME gave priority to the development of new nuclear legislation resulting in the Nuclear Energy Act, 1999 and the National Nuclear Regulator Act (1999). Other relevant legislation includes the Hazardous Substances Act, the Mine Health and Safety Act, the Minerals Act, the National Environmental Management Act, the National Water Act and the Dumping at Sea Act.

The discarding of radioactive waste and storage of irradiated nuclear fuel requires the written permission of the Minister of Minerals and Energy and will be subject to any conditions that the Minister, in concurrence with the Minister of Environmental Affairs and Tourism and the Minister of Water Affairs and Forestry, deems fit to impose. The conditions so imposed will be additional to any conditions contained in a nuclear authorisation as defined in the National Nuclear Regulator Act, 1999. The responsibility for the institutional nuclear obligations is vested in the Minister of Minerals and Energy.

An authority is required to dispose of, store or reprocess any radioactive waste or irradiated fuel. The responsibility of the National Nuclear Regulator is to provide for the protection of persons, property and the environment against nuclear damage through the establishment of safety standards and regulatory practices; and to exercise regulatory control related to safety over the siting, design, construction, operation, of nuclear installations and other actions to which this Act applies.

The Regulator must conclude co-operative agreements with every relevant organ of state. The National Nuclear Regulator acts as the national competent authority in connection with the International Atomic Energy Agency's Regulations for the Safe Transport of Radioactive Material. Radioactive waste arising from activities authorised under the Hazardous Substances Act, 1973, falls under the regulation of the Department of Health. This Department also acts as the national competent authority in connection with the International Atomic Energy Agency's Regulations for the Safe Transport of Radioactive Material. In practice the Department of Health does not regulate naturally occurring radioactive material. The Mine Health and Safety Act (1996) makes provision for the protection of the health and safety of employees and other persons at mines.

The Minerals Act, 1991, requires that the holder of a prospecting permit or mining authorisation shall rehabilitate the land concerned in any prospecting or mining operations in accordance with an environmental management programme. The holder of a prospecting permit or mining authorisation remains liable for the requirements of the Act and the EMP until an exonerating certificate has been issued.

The National Environmental Management Act (1998) makes provision for co-operative environmental governance. The National Water Act (1998) deals with pollution prevention and, in particular, the situation where pollution of a water resource might occur as a result of activities on land. The Dumping at Sea Act, 1980, prohibits the dumping at sea of high-level radioactive waste or other high-level radioactive matter prescribed by regulation.

Capacity-Building, Education, Training and Awareness-Raising: *Hazardous wastes:* The Regional Basel Training Centre will be used as a capacity building centre for the management of hazardous waste.

Solid wastes: The DME has litter abatement projects and paper recycling projects, which increase awareness and create jobs. A number of industrial sectors have made significant progress in implementing recycling systems resulting in waste minimisation, reduction of new material consumption and job opportunities. The glass, metal, plastic, paper and packaging industries have all contributed to the growth of recycling and reuse as alternative to disposal.

Radioactive wastes: The National Nuclear Regulator is currently involved in monitoring capacity building activities that are provided by nuclear operation centres like NECSA.

Information: *Hazardous wastes:* Since 1990, DWAF has maintained a central database consisting of a registry for operating and closed sites, site characteristics; and a database to enable emergency measures to be applied in case of accidental spillage of toxic materials. A baseline report on the amount of waste has been developed. Vast amounts of information are also generated through both the EMP process and the DWAF licensing process.

Solid wastes: Information collated through the National Waste Management Strategy is expected to provide quantitative data about the scope and importance of the recycling industry. In 1996, the Chamber of Mines published its revised *Guidelines for Environmental Protection: The engineering design, operation and closure of metalliferous, diamond and coal residue deposits*. In 1998, the SA Bureau of Standards published a code of practice on mine residue, and in 2000, the DME published *Guideline for the Compilation of a Mandatory Code of Practice on Mine Residue Deposits*. Together, these served to considerably strengthen the management and regulation of mine residue deposits.

Research and Technologies: *Hazardous wastes:* The Regional Basel Training Centre has been established to ensure the transfer of environmentally sound technology and other technological issues.

Solid wastes: The Pollution Research Group of the University of Natal has conducted projects on ways of recycling water and using co-products of one process as input for others. The group also provides guidelines on water and waste management, especially for the textile industry. The Environmental Management Policy recognises that there are no effective incentives to encourage all waste producers to adopt cleaner production processes and minimise waste generation. In the draft Integrated Pollution and Waste Management Policy, promotion of cleaner technology has been identified as a priority.

Through the National Water Policy (1997), a system of economic incentives will be put in place to foster the development of low-waste and non-waste technologies, and to reduce pollution and other impacts on water resources. Environmentally sound waste management technologies at mines are specifically promoted through the environmental management programme requirements of the Minerals Act (1991) and the mine-water related research done through Water Research Commission. The environmental management programme requirements for the mining industry are based on BPEO. The SABS developed a specific code of practice for mining residues. DWAF is in the process of developing a best practice guideline on mining residue in a water resource context.

Organisations such as state corporations and government departments are formulating policies on waste stream reduction and the management of effluent discharges. The handling of different types of waste is set out in the standard environmental management programmes for various mining and prospecting activities.

Financing: *Hazardous wastes:* The Regional Basel Training Centre is sponsored by DANIDA until 2004.

Solid wastes: The mining industry will make financial provision for the rehabilitation of mine waste in terms of the Minerals Act.

Radioactive wastes: Each producer of nuclear waste is responsible for financing its operations. Each pays a license fee to the Council for Nuclear Safety. However, since the Council became an independent body in 1989, some pre-1989 producers of radioactive waste do not fall under the present legislation. While the State finances the regulatory authorities, the principle of “the user must pay” is adhered to with regard to the costs involved with radioactive waste disposal.

Cooperation: *Hazardous wastes:* SADC is developing strategies for the management of hazardous waste. The first Africa conference on the management of hazardous waste was held in Morocco. The issue of cooperation received high priority. A workshop on the establishment of a Regional Centre for Training and Technology for English Speaking African Countries was hosted by South Africa in accordance with the Basel Convention. A Regional

Basel Training Centre has been established to ensure the transfer of environmentally sound technology and other technological issues

Radioactive wastes: South Africa is a member of the International Atomic Energy Agency and follows its international guidelines on radioactive waste. South Africa cooperates fully with the Agency and assists the training of personnel in neighbouring countries.

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CHAPTERS 24 TO 32: STRENGTHENING THE ROLE OF MAJOR GROUPS

Women: Decision-Making: The Convention on the Elimination of All Forms of Discrimination Against Women was signed January 1993 and ratified in December 1995. The Commission on Gender Equality (CGE) has been set up to oversee implementation of the provision in the Constitution on gender equality. As part of their mandate, the CGE investigates and challenges laws, practices and customs that discriminate against people on gender grounds. The CGE also monitors Government's adherence to international agreements such as the Convention on the Elimination of All Forms of Discrimination Against Women. South Africa has established a transformation and gender unit in each national Department promoting the advancement of previously disadvantaged groups, including women. Strategies to implement policies, guidelines and plans for the achievement of equality in all aspects of society, were developed. This includes a strategy to eliminate obstacles to full participation of women in sustainable development. Mechanisms are already in place to assess the implementation and impact of development and environment policies and programmes on women. The main legislation that guarantees the right of women to make decisions as full citizens of the country is the Constitution of South Africa. On provincial level the Office of the Status of Women is situated in the Premiers' Offices.

Programmes and Projects: Government undertakes projects on "Women towards sustainable development". Several programmes are in place such as campaigns held on Women's Day, Human Rights Day and the Masakhane Week. In the North Cape Province the reproductive health plan programme, the bakery project, and the Kimberly Crisis Centre are in place. The role of women in science and technology and the promotion of women following careers in science and technology are part of the public understanding of science programs run by Government.

Status: In 1996, the percentage of women in national Government was 20%, and the percentage of women represented at the local government level was 32%. Since 1994, the representation of women in the elected bodies has increased dramatically. In 2000, woman occupied 30% of seats in the National Parliament and 28,6% in provincial legislatures. In local government, the number of elected women is lower at 18%. Women are in charge of key ministries, including Foreign Affairs, Public Service and Administration, Public Works, Minerals and Energy, Health, Agriculture and Land Affairs, Intelligence, Housing, and Communications. A woman premier heads one of the provincial administrations.

Financing: The Women's Budget was initiated in 1995 by an alliance of parliamentarians and NGOs. The National Treasury now operates a parallel exercise to examine the entire Government budget in order to determine its differential impact on women and men, girls and boys. It also emphasises differential impacts on groups of women and men with regard to race, geography and income.

Cooperation: The Kimberly Crisis Centre was funded by the Swedish International Development Agency (SIDA).

Children and youth: Decision-Making: Children's and youth development issues cut across all sectors of Government. The Cabinet appointed a Core Committee of the Ministers of Health, Social Development, Education, Justice, National Treasury, Water Affairs and Forestry and the Minister in the Presidency to ensure the successful safeguarding of children's rights and interests in all sectors of Government.

The National Youth Commission was established as a statutory body to assist the Government in developing and coordinating of a comprehensive youth development policy. On provincial government level the Office of the Premier takes responsibility for issues relating to children and youth as well as gender and disability. Some provinces established statutory bodies (Provincial Youth Commissions) to assist in these tasks and other chose to address the challenges through the establishment of the necessary structures in the public service.

The National Youth Commission is by law mandated to effect coordination between national and provincial structures and in terms of inter-sectoral coordination between the national Government departments an Interdepartmental Committee on Youth Affairs was established. The Umsobomvu Youth Fund was established after agreements at the Job Summit in 1998 to promote the creation of jobs and skills development for young South Africans. Although policy on these issues is a national competency, service delivery happens at Departmental, provincial and local level. The establishment of the National Youth Commission reporting to the President and the Office on the Rights of the Child in the Presidency highlights the seriousness of these issues for South Africa.

The four most important youth forums promoting dialogue between youth and Government on issues related to Agenda 21 are: the National Youth Commission; the Children and Broadcasting Forum; youth leagues/formations of the various political parties; and religious youth organisations. **Programmes and Projects:** In 1996 the Cabinet established the National Programme of Action (NPA) for Children consisting of all the relevant Government

Departments that work with children or deliver services to children, NGOs, the Human Rights Commission, the Youth Commission and the United Nations Children's Fund, UNICEF. This structure was tasked with the coordination and monitoring of policies and services targeting children. The NPA is located in the Office on the Rights of the Child in the Presidency. The NPA is also responsible for monitoring the implementation of all conventions and charters pertaining to children.

The participation of children in matters affecting them is a high priority of the NPA. The NPA has been running a public awareness campaign on issues of children's rights. The broadcasters and the print media have also run campaigns aimed at educating the public about the various issues of children's rights. Projects aimed at uplifting and developing the youth includes the Democracy Education Programme, Masaziwe Campaign, the Young Positive Living Ambassadors Programme, a Youth Information Helpline and a Youth Economic Participation Strategy through the work of the Umsobomvu Fund.

In the Free State province a Youth Parliament was established by the Free State Legislature. Three parliaments have now been held. The focus of the most recent parliament was how to deal with the anti-social activities that have damaged the South African educational system, including drugs and gangsterisms in schools. More information is available on www.parliament.gov.za/pubs/participation/chap13.html. Financing: Most resources for the implementation of Government programmes come from Government. The private sector, UNICEF and other international donors and governments also contribute towards the funding of some of the programmes and projects targeted at children and young people. Cooperation: South Africa has ratified the African Charter on the Rights and Welfare of the African Child. South Africa is therefore obliged to participate and report to the Organisation of African Unity on the implementation of the Charter. South Africa ratified the Convention on the Rights of Children on 16 June 1995. On provincial government level, international cooperation has been achieved with the governments of Belgium and Denmark.

Indigenous people: South Africa has difficulty in interpreting the Agenda 21 definition of indigenous people and would therefore prefer not to report on this section.

Non-governmental organizations: Decision-Making: Non-governmental organisations (NGOs) play a significant role in South Africa as advocacy bodies and service deliverers. Government has engaged with NGOs and Community Based Organisations (CBOs) using a variety of mechanisms for participation and partnerships. NGOs are among the major role players who took part in various processes to formulate national policy. Mechanisms already exist and are used to allow NGOs to participate in decision-making at the national level, where their inputs are considered by the Government to be important to the sustainable development process. Various national Government departments have entered into partnerships with NGOs. The Department of Social Development has established a partnership work group with the view of developing a framework document for guiding the partnership. Status: A lack of financial and human resources are considered to be constraints in implementation. Many NGOs, especially the smaller ones, experience difficulties in executing their mandates and functions effectively due to a lack of adequate financial and human resources. Some NGOs, especially smaller ones, also lack management capacity. Programmes and Projects: The following projects were initiated by the implementation of the White Paper for Sustainable Coastal Development in South Africa: Working for the Coast; Community Coastal Monitoring; National Interpretative Signage; Distance Learning; Coast Care Fact Sheets; and Coastal Leadership Programme. The Department of Labour also launched various programmes, such as AIDS awareness campaigns, which are managed by the trade union movement, and gender emancipation and worker education projects. Financing: A donor coordination review of donor aid to South Africa 1994-99, conducted by the National Treasury noted that NGOs have been significantly affected by the diversion of donor funds to Government. The report noted that this lack of funding is pushing NGOs into taking on much more of a service delivery role.

Some examples of donor support include *inter alia* funding received by the DEAT from the British Department for International Development for work done in partnership with NGOs. Cooperation: The African Process for the Development and Protection of the Coastal and Marine Environment, particularly in Sub-Saharan Africa; and Secretariat for Eastern African Coastal Area Management (SEACAM) are examples of co-operation.

Local authorities: Decision-Making: The Constitution of South Africa determined that: "Everyone has the right to an environment that is not harmful to their health and well-being". Section 152 (1) states that the objectives of local government include "...sustainable provision of services to communities...and promoting a safe and healthy environment". The Environmental Management Policy (1998) calls for the effective integration of environmental considerations into all policies, plans and programmes, including the Integrated Development Plans for local government. The White Paper on Local Government stated that "Planning for environmental sustainability is not a separate planning process, but it is an integral part of the process of developing municipal Integrated Development Plans".

Section 2 of the National Environmental Management Act (NEMA), 1998, indicates that environmental management principles apply to the actions of all organs of state that may significantly affect the environment. Municipal Councils must be able to show how the principles were applied in a decision or action that may significantly affect the environment.

In terms of Section 16 (4)(b) municipalities are legally required to comply with the sustainable development principles as set out in Section 2 of NEMA. The Urban Development Framework specifically encourages local authorities to embark on Local Agenda 21 Initiatives. The Department of Provincial and Local Government is responsible for setting the policy and legislative framework for local government. The White Paper on Local Government gives municipalities a developmental mandate.

Municipalities are responsible for working together with local communities to find sustainable ways to meet their needs and improve the quality of their lives. The key tool identified in the policy and legislated in the Municipal Systems Act (2000) is Integrated Development Planning.

It is the process whereby all municipalities in South Africa have to prepare Integrated Development Plans (IDPs), which are strategic plans that outline the key development priorities in a municipality, its vision and development objectives; development strategies, the identification of projects and its operational plan. IDPs contain environmental, socio-economic, spatial, natural resource, and institutional analysis. They also contain integrated environmental programmes. IDPs are formulated by municipalities and adopted by a municipal council as the single planning framework that guides development in the area of a municipality.

IDPs supersede all other plans and all national/provincial sector planning requirements are aligned with the IDP. Therefore as an autonomous sphere of government, municipalities have full decision-making power over development in their areas. In terms of intergovernmental co-ordination and cooperation Provincial and National sector departments have to engage with the municipal planning process as key stakeholders and IDPs must take into account national and provincial policies, strategies and guidelines.

South Africa has formally embarked on a National Local Agenda 21 Campaign assisting local authorities to make the global agenda towards sustainable development part of the every day activities. This process, in conjunction with decentralisation policies originating at the national level, is transforming and re-orientating local government towards sustainable development.

In 1998, the South African Three Cities Network (Johannesburg, Cape Town and Durban) requested government to take the lead to establish a wider represented network for Local Agenda 21 related issues. This led to the establishment of an Interim National Local Agenda 21 Coordinating Committee. This committee was tasked with establishing a national coordinating mechanism for Local Agenda 21. The South African Local Government Association (SALGA) agreed to host the secretariat for the proposed National Local Agenda 21 Coordinating Mechanism. A memorandum of understanding between DEAT and SALGA to promote Local Agenda 21 was signed in March 2001.

The function of the national coordinating mechanism is to promote interaction and engagement between key stakeholders and raise awareness and provide support on the implementation of Local Agenda 21. Status: About 80 percent of municipalities completed first round IDPs. Municipalities are at present completing interim IDPs that are a consolidation of previous IDPs. These interim IDPs will address key development priorities and are an indication of how environmental and land development issues need to be handled. It is important to note that while municipalities may not have adopted a Local Agenda 21, they have to adopt IDPs that contain an integrated environmental programme, integrated local economic development programme, and integrated spatial development framework.

There are about ten formal Local Agenda 21 Initiatives in South Africa. Among these are Cape Town, Johannesburg, Pretoria, Durban, East London, Port Elizabeth, Kimberley and the Provincial Local Agenda 21 strategy in KwaZulu/Natal.

An African regional conference on Local Agenda 21 and HABITAT were hosted in South Africa. Constraints on implementation include: Lack of human resources, and more technical assistance, guidance and financial resources required to effectively incorporate environmental planning in IDPs. Programmes and projects: Training and guideline documents were provided to municipal managers regarding disaster management. In 2000, a provincial Fire Protection Association and Local Economic Development Project were implemented. Government initiated a programme on the development of Cities State of the Environment Reports. Capacity-Building, Education, Training and Awareness-Raising: In 1995, the DEAT, with the assistance of the International Council for Local Environmental Initiatives and USAID organized an African Regional Seminar, with the theme: Towards Urban Reconstruction and Development. The Seminar focused mainly on two topics, namely the experience of non-African countries with the implementation of Local Agenda 21 initiatives, and African initiatives in this regard. The three South African cities that are taking part in the Model Communities Programme, Cape Town, Durban and Johannesburg also shared their views and approaches to Local Agenda 21.

The Department of Environmental Affairs and Tourism together with the Environmental Evaluation Unit, University of Cape Town, and with the financial assistance of USAID, have embarked on an awareness raising and capacity building programme on Local Agenda 21. The three identified programmes are:

- Local Agenda 21: sustainable development training courses for officials in local authorities;
- Local Agenda 21 awareness raising campaign; and
- Local Agenda 21 conference.

The first specialised Local Agenda 21 training course for local government officials and other role players was held in March 2000, prior to the African Solutions Conference. The course focused on institutional arrangements for Agenda 21. The Department of Provincial and Local Government is engaged in national capacity building process for councillors and local government planning officials on IDPs. Information: During 1994 Government officials visited selected local authorities to inform them on Local Agenda 21, as well as to determine their needs with regard to local environmental management. The Department of Environmental Affairs and Tourism has also, for more than ten years, published a magazine, targeted to inform and educate local authorities on environmental issues.

Reference Integrated Development Planning guide packs were produced for day to day guidance. Sector specific packs are also in development including environment. Government published a national newsletter, videos, and Local Agenda 21 booklets. The Department of Environmental Affairs and Tourism also developed guidelines to assist local authorities in setting up Local Agenda 21 projects. It is clear that there is an urgent need to establish and monitor real life dynamic models in order to define and measure what was and what was not sustainable in communities, especially those benefiting from Reconstruction and Development actions. Financing: Planning is a core municipal function for which municipalities have a budget. However many municipalities face capacity and resource problems and for this reason the Department of Provincial and Local Government has put in place support programmes for municipal planning. The USAID assisted South Africa financially to the amount of ZAR 4,6 million to implement three programmes related to Local Agenda 21, identified in collaboration with the relevant stakeholders. GTZ, the Netherlands Government and the South African Government are funding the programmes. Cooperation: The International Council for Environmental Initiatives (ICLEI) established an African Regional Secretariat in Johannesburg, and an African Training Centre. Interaction with Southern African Development Community (SADC) countries on the issue of sustainable development has been limited. However, representatives from a number of SADC countries were participants in the African Solutions Conference that was held in March 2000.

This conference provided an opportunity for members of SADC countries to share information on best practices in sustainable development. International policy and programmes such as the Habitat Agenda and Local Agenda 21, combined with a growing regional awareness of sustainable urban development influenced the initiative by government to host the conference. The conference enabled African countries to share African experiences and to stimulate interaction on best practices in sustainable urban development, to raise awareness of the Habitat Agenda

and Local Agenda 21 and to develop an African regional input to the Global Urban 21 Conference held in Berlin in July 2000.

NORAD (Norwegian donor agency) funded the participation of four South African cities, Johannesburg, Durban, Pretoria and Cape Town, in the international project to develop a Cities State of the Environment Report on the Internet. The USAID funding made provision for a Local Agenda 21 awareness raising campaigns on all three levels of government.

Workers and trade unions: Decision-Making: The national Department of Labour is responsible for decision-making. The national Department of Labour has set up and coordinates funding to organisations that provide training to workers and unions. Provincial offices are, however, ultimately responsible for skills development and Labour Centres deal mainly with inspections, enforcement and other services such as the Unemployed Insurance Fund. Status: Representatives from unions fully participate in the implementation and evaluation of Agenda 21. Programmes and Projects: Programmes initiated include *inter alia* AIDS awareness; gender issues, occupational health and safety and capacity building for trade unions and their members. Financing: The Department of Labour has set up a civil society fund, with ZAR 6,5 million and ZAR 7,53 million allocated respectively in the 2000/2001 and 2001/2002 financial years to fund worker training and trade unions. Cooperation: See under **Decision-Making**.

Business and industry: Decision-Making: In South Africa, many structures and events are dedicated to participation of major groups in policy formulation and implementation. NEDLAC is South Africa's primary permanent institution for dialogue between organised business, government, labour and communities on issues of social and economic policy.

NEDLAC organises its activities within a framework structure comprising four chambers, namely Public Finance and Monetary Policy Chamber, Labour Market Chamber, Trade and Industry Chamber and Development Chamber. Participation in policy and implementation debates includes representatives from labour, business and government. The Development Chamber, in addition, includes community representation. More information on NEDLAC is available at www.nedlac.org.za

In accordance with the White Paper on Integrated Pollution and Waste Management for South Africa, programme managers of the National Waste Management Strategy take care to ensure continued public participation in the implementation of the strategy. An inclusive Waste Summit was held in Pietersburg, Northern Province, in September 2001.

The Department of Minerals and Energy and the mining industry are constantly involved in consultation in order to identify and implement appropriate legislation, guidelines and standards.

The Department of Trade and Industry (DTI), in cooperation with relevant stakeholders, is in the process of formulating inputs for a sustainable industrial development strategy. The research and participation phase of this process has been completed and a report, *Sustainable Production Study* was released in July 2000. DTI has based the recommendations for improved environmental performance, contained in its first edition of the Environmental Implementation Plan (EIP) of 2001, on the findings of the *Sustainable Production Study*. It deals with co-operative governance, multilateral environmental agreements and the utilisation of economic opportunities posed by environmental norms and standards.

The National Environmental Management Act, 1998, recognises the importance of enhancing partnerships with industry in order to encourage a more environmentally friendly approach to production. Status: A study has been conducted to profile the environmental industry in South Africa and to identify feasible options for Government to encourage the development of the industry. A Technology Transfer Licensing Agreement provides for Evaluation of Technology Transfer Agreements, structuring the process of reviewing royalty rates and bringing the rates in line with international standards in order for South African companies to have more access to technology developed worldwide.

Lack of appropriate legislation in the past and injudicious siting of industrial areas next to residential areas in South Africa have resulted in a legacy of poor environmental quality of some residential areas. The need for a more targeted strategic approach to Government policy in this regard has been recognised by stakeholders.

Industry is a significant user of freshwater in South Africa. In 1980, industrial use of water, including mining and power generation, was estimated at 1 779 million cubic metres per annum, about 11% of the total demand for freshwater resources in the country. By the year 2000, industrial demand was expected to reach approximately 3 400 million cubic metres per annum, or about 15% of the total demand.

South Africa's water resources are very unevenly distributed across the country. In arid or water-scarce areas water supply is a constraint to industrial development. This constraint has served as an incentive to industry to develop water-recycling processes. Pollution of freshwater by industry is a problem in South Africa. The failure of historical source control mechanisms to achieve the desired level of water resource protection has been recognised in the National Water Policy as well as in the National Water Act, 1998. The policy and proposed legislation provide a framework within which a range of regulatory mechanisms will be applied to improve both source control and resource protection and management. Programmes and projects: DTI's Technology Incubators Project, aimed at making state of the art technology more accessible to industry, has targeted a Furniture Technology Centre (Furntech), a National Plant Fibre Technology Centre (NPFTC) and a DTI/DACST Incubator Initiative. The Minister of Trade and Industry initiated the Furntech project by signing an agreement with the Swedish government to provide training for this industry.

The NPFTC project is a public private partnership initiative within the framework of the Spatial Development Initiatives programme. The government incubator initiative was conceptualised and formulated, based on a need for commercialisation of technology by small, medium and macro enterprises (SMMEs).

The environmental criteria for selection of technology options will include best available technology not entailing excessive costs. DTI's Technology Transfer Centre project is based on the findings of an extensive study, which indicated the needs of industry, specifically SMMEs, to transfer technology. Capacity-Building, Education, Training and Awareness-Raising: Some provincial governments have been proactive in the recycling of paper and have launched initiatives and raise awareness. Research and Technologies: There are a number of independent initiatives in the area such as competitions sponsored by the Green Trust. Major business groupings finance and support research in this area. Financing: See under **Research and Technologies**.

Scientific and technological community: Decision-making structure: The scientific and technological communities are incorporated into decision-making for sustainable development through the parliamentary budget for the Science Councils, as well as through the various Cluster Committees and the Forum of South African Directors-General.

The National Advisory Council in Innovation (NACI) was established to advise the Government on matters relating to science and technology and the national system of innovation, including sustainable development. Development of policy in recent years owes much to the close working relationship between the scientific community and the national Government.

The National Science and Technology Forum (NSTF) include many stakeholders in science and technology, and facilitate dialogue among the scientific community, the Government and civil society. The advisory function of NACI and the advocacy role of the NSTF are enhanced by the recently established Science and Technology Cooperation Committee (SATCCOM), which is constituted of representatives from all the main Government Departments having an interest in science and technology. SATCCOM advises the Government on international science and technology cooperation priorities, including sustainable development, biotechnology and information and communication technologies.

Specific initiatives were taken to restructure the system to strengthen the South African science and technology system and align it with national priorities. Examples of this are the current discussions of bills on the Academy of Science of South Africa and the Africa Institute of South Africa as well as the newly established National Laser Centre. Other institutions promoting scientific research and technological development include the Water Research Commission, the Water Institute of Southern Africa, science councils, universities, technikons and museums.

State corporations often undertake or support research in areas such as clean technologies and renewable energy. Water-related research takes place in a number of different institutions, including national Government Departments, universities and other tertiary education facilities, parastatals such as science councils, water boards, industries, and some professional consulting firms. Programmes and Projects: The communication of scientific and technological issues to the public and getting their views on topical matters is important for the Government. The Department of Arts, Culture, Science and Technology is running programmes on public science; radio and

television programmes on science and technology as well as in building capacity in science journalism. A 2,5-year capacity building project has been launched with DANCED by the Gauteng provincial government, which will include training in cleaner production technology. Research and Technologies: There is some effort to improve exchange of knowledge and concerns between the science and technology community and the general public. In particular, research done by the Water Research Commission, Agricultural Research Council and universities pertaining to mining and energy related issues are shared with the public. Financing: The National Research Foundation is the prime source of funding for scientific research in South Africa, including research on water resource use and technology. The Water Research Commission is the prime funding body for research into water resource use and technology development, which is undertaken in research institutions and professional consultancies. The Water Research Commission itself is funded by revenue generated from the sale of water to all user groups in the country. Cooperation: Scientific research and development takes place at sub-regional level. A project of international significance with scientists from South Africa and other SADC countries is called SAFARI 2000. This project measured *inter alia* the levels of man-made and natural emissions into the atmosphere, including the pollution caused by wild fires. Through international agreements and participation in the activities of international organisations such as the Organisation for Economic Cooperation and Development (OECD) and the Fifth Framework Programme of the European Commission, South African scientists and technologists are afforded the opportunity to cooperate with international counterparts in a variety of fields such as on improving the quality of life and the management of living resources; and preserving the ecosystem.

Farmers: Decision-Making: The Department of Agriculture makes the majority of decisions at national level. Any such decisions would be taken in close collaboration with the provinces, which are responsible for working directly with the farmers and their organisations. Other Departments playing minor roles are the Department of Water Affairs and Forestry, on issues such as water use; the Department of Trade and Industries in pricing mechanisms, trade policies and fiscal incentives; the Department of Land Affairs in matters such as women's access to tenure and land redistribution; and the Department of Environmental Affairs and Tourism, in managing fragile ecosystems.

At present there is no formal means of coordination among national Departments on the issues as described in Agenda 21. Coordination with the provinces takes place at political level through AgricMINMEC (a committee of national Ministers & provincial members of the Executive Council), with Heads of Departments and at functional level through the Working Group on Farmer Support. Legislation and regulations determine delegation of authority for decision-making to the lowest level of public authority or local government. Farmers and their organisations are involved in the formulation of policy.

South Africa promotes sustainable farming practices and technologies and is developing a policy framework that provides incentives and motivation among farmers for sustainable and efficient farming practices. Farmers are also encouraged to participate in the design and implementation of sustainable development policies. The Department of Environmental Affairs and Tourism promotes the sustainable use of urban open space, in terms of sustainable urban agricultural methods. The South African Agricultural Union has been part of all processes on policy and procedures concerning land-use and pollution. Programmes and Projects: The Community Food Projects enhance the production, processing and accessing of food to benefit mainly the deprived, food-insecure communities on a sustainable and affordable level in order to contribute towards food security. Farmer Settlement provides the necessary support to enable farmers to be settled and establish economically viable, environmentally friendly and sustainable production units. Many small projects for developing emerging farmers have been initiated on provincial government level. Cooperation: There is cooperation with the Food and Agricultural Organisation of the United Nations on programmes related to activities described. Trade policies are also influenced by the negotiations and cooperation agreements have reached international level.

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CHAPTER 33: FINANCIAL RESOURCES AND MECHANISMS

Decision-Making: The National Treasury is responsible for decision-making in the field of financial resources. In term of regulations in the country, foreign direct investment is subject to the same environmental legislation as local investment. Certain environmental issues are addressed by the application of fiscal instruments. South Africa is in the process of implementing a long-term plan entitled the Growth, Employment and Redistribution Strategy (GEAR), which provides a basis for macroeconomic development. It must be noted that a policy is being formulated on user charges, which favours moving towards a system where the user increasingly bears the costs of a service.

Apart from the above policy framework, a National Advisory Committee has recently been formed to direct a project that seeks to investigate the linkages between environmental and macroeconomic policy in South Africa. This is being done with a view to advising on the frameworks required to achieve sustainable development, including social, economic and environmental aspects. The Departments of Agriculture and Water Affairs and Forestry have initiated numerous policy reforms to identify and eliminate environmentally unsustainable land and water subsidies.

In particular, these reforms aim to redress past imbalances, which provided for subsidised capital and irrigation water to large commercial farms, often at the expense of emerging farmers and the environment. A multitude of subsidies exist which are distorting the relative costs of factors of production, making labour relatively more expensive than the other factors, and shifting production towards more capital-intensive and energy-intensive methods. Part of the GEAR strategy involves the reduction of such distorting subsidies in order to shift production to more labour-intensive production methods.

Churches, Independent Development Trust (IDT) and other NGOs have played a major role in financing and supporting social development, particularly in the poverty-stricken communities. The National Treasury achieves coordination among the different levels of Government via the issuance of Treasury Guidelines on the preparation of budget submissions. The extent to which the authority for decision-making is delegated to the lowest level of public authority or local governments is determined by the relevant provisions in the Constitution and by the Intergovernmental Fiscal Relations Act, 1997.

Programs and Projects: Concerning financial mechanisms used to combat poverty, the redistribution aspects of the South African budget have been considerably enhanced, and the tax system has been reformed in favor of low-income earners. On the expenditure side, a significant reprioritisation of the budget has taken place, with over 60% of expenditure now going to social services and to meeting the needs of the poor.

There are 1 025 projects underway, expected to serve 4,9 million people. These projects include immunisation campaigns and AIDS awareness programs. The measurement of macroeconomic performance in South Africa through the System of National Accounts (SNA) has not yet developed to the level of fully taking the quality of natural resources into account. Statistics South Africa and the Department of Environmental Affairs and Tourism have embarked on the development of a Natural Resource Account (NRA), a framework for information and analyses to support sustainable macroeconomic policy.

The NRA development is based on the System of Environmental and Economic Accounting (SEEA) developed by the United Nations. It is analogous to the SNA and designed to provide a satellite account as an adjunct to – but not a modification of – the current national income accounts. The approach is complex, involving desegregating the standard account to highlight environmental relationship, linking physical and monetary accounting, imputing environmental cost and extending the definition of production in the SNA.

Good progress has been made since 1997 in this regard. In conjunction with the University of Pretoria, natural resource accounts for forestry, natural woodlands, fynbos, plantations as well as minerals have been completed and published. Several other accounts are in the process of being constructed or anticipated, for example for water and fisheries and energy. These accounts have, among others, illustrated that there are irrefutable linkages between the environment and the economy and that these linkages can be reliably defined.

Status: South Africa's macroeconomic policy does not specifically refer to environmental issues or sustainable development. It addresses the priorities of any other developing country, which is to eradicate poverty and meet the

basic needs of the inhabitants. A relatively high tax on fuel, which is partly in recognition of the external costs associated with fossil fuel consumption, is maintained.

Given the current income distribution problem in South Africa, a progressive tax system is a high priority at present. Keeping this in mind, there is a broad-based value added tax and the poor- paraffin mainly consumes a range of excises on alcoholic beverages and tobacco, while zero taxed items for example. In terms of freshwater management, irrigation schemes have often received water at subsidised costs. The present price is based on historical costing and the full environmental and social costs are not included.

Capacity-Building, Education, Training and Awareness-Raising: Concerning financial mechanisms to combat poverty, it is to be noted that educational enrolment has increased by over 1,5 million since 1994, while the average number of learners per teacher has decreased from 40 to 34 over this period. Improved grade 12 examination results in 1998 signal a turnaround in school performance. Key initiatives are in progress to improve management in schools and strengthen learning and teaching skills. In support of access to higher education, Government funds National Student Financial Aid Scheme and targets assistance at development and redress in universities and technikons. Developing skills is a responsibility Government shares with its social partners. Agreement has been reached on the way forward. Preliminary organisational work is underway for the creation of education and training authorities and introduction of learnerships as part of a joint strategy for extending improved learning opportunities to all.

Poverty alleviation projects provide the opportunity for local project teams to acquire project management, bookkeeping and business skills.

Information: South Africa's national budget, which includes a comprehensive survey of the expenditure and service priorities of all government departments, is available from the department's web page at www.finance.gov.za. Information on the National Accounts can also be obtained from the Reserve Bank of South Africa's web page at www.resbank.co.za

Research and Technologies: The Department of Environmental Affairs and Tourism recently completed a research project on the use of economic instruments to address environmental problems. An assessment of economic instruments and their suitability for environmental management in South Africa was investigated. It is likely that new legislation will be addressed within the next year.

Cooperation: The African Development Fund (ADF) is the concessional lending window of the African Development bank. The International Development Association (IDA) is the concessional lending window of the World Bank Group. They lend money to low-income countries with a per capita income below \$885 in order for them to increase living standards. The resources are provided by donor countries and are replenished every 3 years. These organisations focus on: Investing in people and their basic needs; Promoting broad-based growth. Recipients will receive assistance in macroeconomic and sectoral reform; Supporting good governance, which is critical for sustainable human and economic development and Protecting the environment, as the effects of poverty and environmental damage are often mutually reinforcing.

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CHAPTER 35: SCIENCE FOR SUSTAINABLE DEVELOPMENT

Decision-Making: Science is incorporated into decision-making for sustainable development through the coordination framework of the Department of Arts, Culture, Science and Technology (DACST) for Parliamentary grant funding for the Science Councils, as well as through the various Cluster Committees and the Forum of South African Directors-General. The National Advisory Council in Innovation (NACI) was established to advise Government on matters relating to science and technology and the national system of innovation, including sustainable development.

Development of policy is driven by DACST and is done in close working relationship between the scientific community and the national Government. A Committee of Heads of Organisations for Research and Technology was established to enhance the functioning of the National System of Innovation as advocated in the policy strategy. Other mechanisms and institutions include the Water Research Commission, the Water Institute of Southern Africa, science councils, universities and multi-sectoral committees. The Gauteng provincial government makes provision for the establishment and maintenance of a scientific component tasked with generating scientifically founded information to assist in decision-making. The provincial government also provides for scientific surveys of the Provinces' natural resources and standardisation of reserve biomonitoring programmes.

The advisory function of NACI and the advocacy role of the National Science and Technology Forum (NSTF) are enhanced by the recently established Science and Technology Cooperation Committee (SATCCOM) which is constituted of representatives from all the main Government Departments having an interest in science and technology. SATCCOM will also advise the Government on international science and technology cooperation priorities, including sustainable development, biotechnology and information and communication technologies.

Programmes and Projects: Through the core Parliamentary grant funding DACST channels support for a range of scientific research and technology development institutions such as the Medical Research Council, the Agricultural Research Council, Mintek, Council for Geosciences, Council for Scientific and Industrial Research, South African Bureau of Standards, National Research Foundation, Human Science Research Council, Africa Institute, Foundation for Education, Science and Technology and the National Laser Centre. Outputs from these institutions are monitored in terms of impact on the economy, quality of life and the environment.

The Innovation Fund is a programme designed to support large-scale science, engineering and technology innovation programmes to enhance collaboration across disciplines to address the key issues of competitiveness, quality of life, environmental sustainability and harnessing information technology. Support is directed to particular priorities of the promotion of information on biotechnology and value-addition; exploitation of our natural flora and fauna; and advanced materials and manufacturing.

The GODISA Programme centers around the development of effective and efficient technology transfer centers, which will deliver a range of highly appropriate technology based services, primarily to meet the needs for sustainable development of SMMEs community. The GODISA Programme centers will include a Pilot Innovation Support Centre, a Pilot Technology Demonstration Centre and a number of Technology Incubators.

The proposed science curriculum lays emphasis on science for citizens and science to solve problems in life. Science For All is an inclusive and accessible programme embracing principles of gender and racial equity. This is designed to cater to the ten-year compulsory education.

Status: There is growing urgency attached to recognition of a shortage of scientific expertise across many disciplines. Research is required in the fields of pollution management, in particular air, soil water remediation, cleaner technology and best practices, mining rehabilitation, radioactive waste recovery, disposal and handling, sustainability indices, and energy recovery. To a limited degree the National Biotechnology Strategy will begin to address some of the problems related to lack of a critical mass of expertise. Also the Innovation Fund projects, particularly those in the area of flora and fauna are drawing researchers together from the bio-earth and environment science to approach research and development from the platform of sustainable solutions.

Capacity-Building, Education, Training and Awareness-Raising: The communication of scientific and technological issues to the public and getting their views on topical matters is important. Government is running

programmes on public science, *inter alia* through the annual weeks of science, radio and television programmes on science and technology as well as in building capacity in science journalism. These are important vehicles in promoting an understanding of the interactions between science, innovation, economic growth, poverty alleviation and sustainable development. Government is tabling legislation to reposition the Forum for Education, Science and Technology as the Institute for Promotion of Science. The key role that has been developed for the Forum is science communication across all strata of society, including at political level.

There is increasing effort to improve exchange of knowledge between the science and technology community and the general public. In particular, research done by the Water Research Commission, Agricultural Research Council and universities pertaining to mining and energy related issues are shared with the public.

Information: The National Science and Technology Forum includes many stakeholders in science and technology, and facilitates dialogue among the scientific community, the government and civil society, with respect to all issues related to science and technology. DACST has recently taken legislation forward to establish the Academy of Sciences of South Africa as the legally recognized umbrella academy. The Academy of Science of South Africa will be responsible to manage support for scientific journals, including the South African Journal of Science. Other reports and products of research are available from the relevant institutions and can support decision-making.

Research and Technologies: Government has launched a number of initiatives to support the objectives of the Science and Technology policy. Government has conducted a National Research and Technology Foresight (NRTF) project, which identified specific technologies and technology trends that will best improve the quality of life of all South Africans. The technologies are expected to have an impact on social issues and wealth creation through product or process development. The NRTF studied a number of sectors such as Agriculture, Biodiversity, Energy and Environment. Water-related research takes place in a number of different institutions, including national government, universities and other tertiary education facilities, parastatals such as science councils, water boards, industries, and some professional consulting firms.

The science sector also conducts research on how to create more sustainable consumption and production pattern. In order to take into account the special needs of the poor in its research on sustainable development, the scientific sector undertakes and/or reacts to needs analyses carried out by other organizations or government institutions, or conducts needs surveys on a contract basis for decision-makers.

Examples of needs-related research include the provision of potable water and sanitation to disadvantaged and poor communities in urban and rural settings; the improvement of the quality of life as one of the five national priorities; options for income generation in economically depressed communities; the development of low cost on-site treatment technologies, designed to ensure safe water for human consumption; and a flagship programme for unemployed women with children under five years, which aims to increase educational and training opportunities for women.

Financing: The area of science is incorporated into decision-making for sustainable development through the parliamentary budget for the Science Councils. The National Research Foundation is the prime source of funding for academic research, including research on water resource use and technology. The Water Research Council is the prime funding body for research into water resource use and technology development, which is undertaken in research institutions and professional consultancies. The Water Research Council itself is funded by revenue generated from the sale of water to all users. Other sources of government funding relevant to sustainable development include two funds: the Lead Programmes Fund, and the Science and Technology Regional Cooperation Fund. Both funds support research and development in identified priority areas such as cross border pollution, waters management and the sustainable use of natural resources.

Cooperation: Strong regional networks exist, particularly in respect of agriculture, geological, energy and environmental fields. Through international agreements and participation in international activities of the Organisation for Economic Cooperation and Development (OECD) and the Fifth Framework Programme of the European Commission, South African scientists and technologists are afforded the opportunity to cooperate with international counterparts in a variety of fields such as on improving the quality of life and the management of

living resources; and preserving the ecosystem. The Lead Programme Fund was also established to stimulate international cooperation in science and technology.

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CHAPTER 36: PROMOTING EDUCATION, PUBLIC AWARENESS AND TRAINING

Decision-Making: The right to an environment that is not detrimental to health or well being is enshrined in the Bill of Rights in the South African Constitution (Bill of Rights, 1996:10). Government policies and legislation from various sectors emphasise the need to protect the South African environment, and to promote, through environmental education, the sustainable utilisation of resources for the benefit of present and future generations. Such legislation includes the *National Environmental Management Act* (NEMA, 1998), which commits the South African Government to sustainable development, while emphasising the need for environmental education and capacity building in all sectors of South African society.

Several policy documents emanating from the Education sector emphasise the need for environmental education, for example, the *White Paper on Education and Training*, (DoE, 1995) states that environmental education should be integrated into all levels and phases of the education and training system. In 1995 the Ministries of Education and Training promulgated the South African Qualifications Act, forming the South African Qualifications Authority (SAQA), which had to establish an outcomes-based National Qualifications Framework (NQF). The Critical Outcomes, defined by SAQA, guide all education and training programmes in South Africa, while also accentuating environmental responsibility, problem solving and an understanding of the interdependence of natural and social systems. Similarly, the *Norms and Standards for Educators*, which provide policy guidelines for teacher education, include a number of environmentally oriented competencies for teachers.

The Ministry of Education established in 2000, through the Council of Education Ministers (CEM), a National Environmental Education Programme (NEEP), which aims to support the implementation of environmental education at all levels and phases of the Education and Training system, in the National and Provincial Departments of Education. This Programme has been instrumental in facilitating cooperation amongst different school-based environmental education initiatives in the country, while also facilitating a stronger focus on environmental learning in the curriculum.

The DEAT, in collaboration with partners such as the Environmental Education Association of Southern Africa (EEASA) – an umbrella body representing several environmental organisations – developed a *National Strategy on Environmental Education* in 2001 which provides a framework through in which environmental education activities in different sectors can be coordinated. Beyond the school context, the DEAT and other partners are also addressing the provision of environmental education opportunities throughout the National Qualifications Framework.

Programmes and Projects: Subsequent to a research-based pilot project in six provinces in 2000, the NEEP has launched a ZAR 32 million project for General Education and Training (NEEP-GET) in 2001, which aims to implement environmental education policy through professional development, curriculum policy review, materials development and school-based implementation projects. NEEP-GET is implemented in selected school clusters in all nine provinces. It builds on emerging partnerships with various government departments, i.e. the departments of Environmental Affairs and Tourism, Water Affairs and Forestry, and Health, as well as on the eight-year-state-civil society alliance to incorporate environmental education into the Education and Training System.

A considerable number of NGOs, CBOs, National Statutory Bodies and Government Departments are involved in national projects, to support environmental education activities in relation to schools, teacher development, youth groups and clubs, farmers, traditional healers, development field workers and a host of other community groups.

The Department of Health launched the Health Promoting Schools Programme, which encourages the development of healthy school environments. National Statutory bodies such as the National Botanical Institute and South African National Parks (SAN Parks) support environmental education and community greening activities in schools and communities. Greening projects are supported by NGO's such as Food and Trees for Africa, the Food Gardens Foundation, while the Department of Agriculture has established a Junior LandCare Programme.

Other major school-based and community-based environmental education projects include those coordinated through the Department of Water Affairs and Forestry, notably the 20/20 Vision project, National Water Week, and programmes that educate communities.

A number of provincial education departments, and provincial environmental departments have supported schools to develop School Environmental Policies and Management Plans, supported by NGOs, in particular the Wildlife and Environment Society of South Africa (WESSA). More than 4 000 schools have established School Environmental Policies, an initiative that is supported by the National Environmental Education Programme.

At provincial level the *Education Revolution 2000* project aims at improving the performance of under-performing schools. The Gauteng Department of Education is participating with six other African Cities in a *Water Education for African Cities Programme*, organised through UNCHS, to facilitate the development of a sustainable water-use ethic in African cities, by introducing water education in schools and communities.

Status: To date SAQA has supported the establishment of 6 Standards Generating Bodies (SGB) to ensure that career pathways and qualifications in environmentally oriented fields are established. These include SGBs for Environmental Relations; Environmental Management and Environmental Science; Environmental Education, Training and Development Practitioners, Conservation, Environmental Health and Heritage Management. The Environmental Standards Generating Initiative of the DEAT and civil society supports the formation of these SGBs. Priorities for further implementation include supporting the standards generation work of these SGBs as progress to date is uneven.

The Department of Education is implementing Curriculum 2005 policy, which incorporates environmental education, in all provinces. Curriculum 2005 has recently been reviewed, and a streamlined and strengthened curriculum, integrating environmental education in all learning areas, is currently being prepared for implementation in 2004. The NEEP-GET project has been launched, and environmental education coordinators have been appointed in all nine provincial education departments.

A teacher education curriculum project has been launched by the NEEP, with support from UNESCO and the SADC Regional Environmental Education Programme. Priorities for further implementation of the teacher education curriculum project, include the need for a strategic and focused plan to develop the capacity of provincial education department officials and teachers in environmental education. There is also the need for suitable materials resources.

Information: The South African National State of the Environment Report serves as a basis for assessing the status of natural resources and for identifying emerging trends and issues. Research data on current status of the environment in South Africa is available from the Department of Environmental Affairs and Tourism, and through institutions such as Statistics South Africa. The DEAT recently launched a 'State of Environment Report' for schools, and the Wildlife and Environment Society, with support from WWF-SA, have recently updated a series of Enviro-Fact Sheets for use in education, training and public awareness campaigns.

Research and Technologies: The National Research Foundation (NRF) is the government institution responsible for the funding of scientific research and training at tertiary institutions. The NRF have recently reviewed their funding priorities, and provision has been made for environmental education research in the Programme: Conservation & Sustainable Resources. UNESCO is currently funding a small-scale research programme to adapt a CD-ROM for environmental education teacher education.

Academic research and tertiary teaching capacity in the natural and social sciences are maintained at sixteen universities and fifteen technical colleges, notably at Rhodes University (with Africa's only Chair of Environmental Education), Stellenbosch University; University of South Africa (largest distance education campus in Africa); Natal University; the University of Venda; and the University of the North West.

Financing: Various donor agencies are involved in environmental education, public awareness and training, policy development and policy implementation processes. They include the IDRC, DANCED and SIDA. UNESCO has also funded environmental education initiatives, for example they part-funded the running costs of the NEEP. Through the NETCAB/IUCN funding has been sourced for the Environmental Standards Generating Initiative. Locally, various corporate donors provide funding for environmental education. Some of these funds are administered by WWF-SA.

Cooperation: The SADC Environment and Land Management Sector (SADC ELMS) commits South Africa, a signatory to the SADC Treaty, to implement the objectives of environmental education. A SADC Regional Environmental Education Programme (SADC REEP) has been established by SADC ELMS (with funding from SIDA); and is located in South Africa, at the Wildlife and Environment Society headquarters. Through this programme, the DEAT has contributed to a regional environmental education policy development initiative, funded by IUCN/NETCAB. The SADC REEP provides training, networking and materials development services to all SADC countries, including South Africa.

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CHAPTER 37: NATIONAL MECHANISMS AND INTERNATIONAL COOPERATION FOR CAPACITY-BUILDING IN DEVELOPING COUNTRIES

This issue is also covered under the heading of Cooperation in the various chapters of this profile.

Decision-Making: All relevant departments are involved in the decision-making process. Coordination is achieved among the different levels of government through the system of cluster committees of heads of department and of cabinet members. Three tiers of government participate, namely local government, provincial government and national Government. The National Treasury Chief Directorate International Development Cooperation (IDC) has the use of donor funds as its particular focus. It therefore has a broad mandate to develop an interest in the relationship between Official Development Assistance (ODA) and the sectoral needs of South Africa. In terms of the national environmental policy, one of the seven strategic goals towards the achievement of sustainable development is that of international cooperation. The goal is to develop mechanisms to deal effectively and in the national interest with international issues affecting environment. Reference is made in the National Environmental Management Act (1998) to promoting international cooperation, giving attention to transboundary environmental impacts.

Status: Technology transfer and empowerment of major groups are priorities in South African foreign policy and its bilateral and multilateral relations.

Information: Information is readily available and supported through appropriate legislation.

Financing: Financial resources and mechanisms to implement the agreements in Agenda 21 are available within departmental budget guidelines and constraints.

Cooperation: See information provided in the various **Chapters under the heading Cooperation.**

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CHAPTER 38: INTERNATIONAL INSTITUTIONAL ARRANGEMENTS

This issue deals mainly with activities undertaken by the UN system.

Status: With regard to national implementation, chapter 38 of Agenda 21 stated the following:

- 38.36 *“States have an important role to play in the follow-up of the Conference and the implementation of Agenda 21. National-level efforts should be undertaken by all countries in an integrated manner so that both environmental and development concerns can be dealt with in a coherent manner.”*
- 38.37 *“Policy decisions and activities at the national level, tailored to support and implement Agenda 21, should be supported by the United Nations systems upon request.”*
- 38.38 *“Furthermore, States could consider the preparation of national reports. In this context, the organs of the United Nations system should, upon request, assist countries, in particular developing countries. Countries could also consider the preparation of national action plans for the implementation of Agenda 21.”*
- 38.39 *“Existing assistance consortia, consultative groups and round tables should make greater efforts to integrate environmental considerations and related development objectives into their development assistance strategies and should consider reorienting and appropriate adjusting their memberships and operations to facilitate this process and better support national efforts to integrate environment and development.”*
- 38.40 *“States may wish to consider setting up a national co-ordination structure responsible for the follow-up of Agenda 21. Within this structure, which would benefit from the expertise of non-governmental organisations, submissions and other relevant information could be made to the United Nations.”*

South Africa has prepared and submitted national reports on progress with the implementation of Agenda 21 since 1996.

South Africa is in the process of developing a national strategy for sustainable development that will include a national action plan for implementation of Agenda 21.

South Africa has not yet established a national coordination structure responsible for the follow-up of Agenda 21.

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CHAPTER 39: INTERNATIONAL LEGAL INSTRUMENTS AND MECHANISMS

Decision-Making: Provision is made in the Constitution of South Africa that international agreements, customary international law and international law are binding on the Republic of South Africa, unless it is inconsistent with the Constitution or an Act of Parliament. The National Environmental Management Act,(1998) allows for any person, in the public interest or for the protection of the environment, to institute and conduct a private prosecution in respect of a breach of any environmental legislation.

The 1996 Constitution devolves legislative and administrative power over several spheres of environmental management to the nine provinces. Legislative competence in some of these spheres is concurrent with national Government. There have been new national statutes dealing with water, living marine resources, environmental management and forests. There is a Bill dealing with national heritage, and policy papers addressing environmental management, integrated pollution control and waste management, coastal zone policy, and the conservation of biodiversity.

The eradication of poverty is a vital area of concern since environmental conservation in developing countries will be exceptionally difficult if peoples' basic needs are not addressed. Poverty is a primary focus of the Government of South Africa, and is being addressed by, *inter alia*, the Reconstruction and Development Programme and the Government's macro-economic policy, the Growth, Employment and Redistribution strategy.

The reduction of unsustainable patterns of production and consumption is not an express focus of any legislation, but an overall commitment to sustainable development as guiding environmental management principles does cover this objective

Status: The South African Government ratified several International Conventions since UNCED in 1992. They are the Basel Convention, ratified May 1994; the Convention on Biological Diversity, ratified November 1995; the Convention to combat Desertification and Drought, signed in January 1995 and ratified September 1997; the Framework Convention on Climate Change, ratified August 1997; and the World Heritage Conventions was ratified July 1997.

South Africa ratified two amendments to the Montreal Protocol in the period under review, and it also changed in status from a developed country member to a developing country member, while retaining all of its previous obligations made while a developed country member.

Information: The 1996 Constitution provides that everyone has the right of access to any information held by the state, and any information that is held by another person and which is required for the exercise or protection of any rights. The Department of Environmental Affairs and Tourism keeps record of international legal instruments and mechanisms pertaining to the environment. Furthermore it is a requirement under the National Environmental Management Act for the Minister of Environmental Affairs and Tourism to report annually on international environmental legal instruments.

Research and Technologies: Research has been carried out on the potential impact on South Africa of ratifying the Kyoto Protocol.

Financing: Financial resources and mechanisms to implement the agreements in Agenda 21 are available within departmental budget guidelines and constraints. It should be noted that in 1998, Government estimated that it had cost R300 million to implement the Montreal Protocol, of which about R100 million was borne by the gold mining industry. The vast majority of this expenditure would have been incurred after 1992.

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CHAPTER 40: INFORMATION FOR DECISION-MAKING

Decision-Making: All major groups deal with the different aspects of information for decision making. The Promotion of Access to Information Act (2000) gives effect to the institutional right of access to any information held by the state and another person that is required for the exercise or protection of any rights. The National Environmental Management Act states that every person and organs of state are entitled to have access to information on the state of the environment and actual and future threats to the environment.

All national Departments are responsible for decision-making in terms of the collection, analysis, management and dissemination of information and data related to sustainable development. Coordination is achieved between the different levels of government through various structures, including the Committee for Environmental Coordination.

A draft Spatial Information Bill is under development. The purpose of the Bill is to achieve coordination with respect to the gathering, managing and dissemination of spatial data and information, in order to enable spatial-information driven planning and decision-making. In 1999, Cabinet supported the creation of a Committee for Spatial Information (CSI) to represent the interests of all spheres of government in the development of the National Spatial Information Framework.

Programmes and Projects: South Africa has initiated various information-related programmes and projects. These include the establishment of information centres, development of indicators, environmental reporting initiatives, and the development of environmental information systems. Progress has been made with the establishment of the South African Coastal Information Centre.

A programme of Natural Resource Accounts was institutionalised in 1998. Two Natural Resource accounts have been completed – one for Minerals and one for Natural Forests and Woodlands. These two accounts will be incorporated as satellite accounts to the System of National Accounts in 2002.

South Africa also assisted the CSD in testing the CSD list of indicators of sustainable development and in this regard had a twinning arrangement with Finland. Work has already started on a comprehensive programme to develop a core set of environmental indicators for the country. Other sectoral indicator initiatives include the development of principles and indicators for sustainable forests, and the development of key performance indicators for local authorities. Reporting on the state of the environment takes place on national, provincial and metro levels.

Initiatives are underway to extend the provincial and cities network for state of the environment reporting. Sectoral reports on the status of rivers, estuaries, forests and the population have been completed. There is ongoing work on the Spatial Data Discovery Facility, which is effectively a searchable spatial data catalogue. Spatial data holders or potential users are able to enter and/or retrieve information concerning spatial data sets via the Internet.

South Africa has made considerable progress towards the establishment of an Integrated Spatial Information System (SA-ISIS). The SA-ISIS project is a multi-partner, integrated initiative lead by the Agricultural Research Council's Institute for Soil, Climate and Water, the Council for Scientific and Industrial Research, and the University of Pretoria. These three groups unite in excess of 30 partner institutes, private enterprises and individuals, all of which contribute to the successful development and implementation of the SA-ISIS initiative. SA-ISIS is the integrating platform that unites a suite of IT-based tools and technologies from pre-existing investments and new initiatives, such as the Agriculture Geographic Information System (AGIS); the Biodiversity Monitoring and Assessment Programme (South Africa); BioMAP (SA) and the Marine and Coastal Development Support System (MIDESS) to assist government in informed decision-making and to bring information about our rich natural resource base to society.

The Distance Learning Information Shared Tool (DLIST), funded by the GEF, aims at making available and sharing information across the Transfrontier Park areas of South Africa and Namibia. It is closely linked to local government on the South African side and to regional government on the Namibian side.

Status: In 1999, the first National State of the Environment Report on the Internet was completed, as well as City State of the Environment Reports for Cape Town, Pretoria, Johannesburg and Durban. State of rivers and state of forests initiatives are well established. The Department of Environmental Affairs and Tourism initiated a

comprehensive consultative process to develop a core set of environmental indicators for South Africa, which will be available for use by the end of 2001.

This initiative forms the next step in the evolution of an integrated State of the Environment Reporting system. The Department of Water and Forestry (DWAF) has initiated a process to develop a set of Criteria, Indicators and Standards of Sustainable Forest Management (SFM) according to the Principles in the National Forests Act.

South Africa completed the first single, standardised national land-cover data set in 1999. The data set was mapped from a series of 1:250 000 scale precision-corrected satellite images. Work has started on a 1:50 000-scale national land cover data set. Work is ongoing on the development of national standards for geographic information through the South African Bureau of Standards' technical subcommittee, SC71E.

National standards are being compiled in alignment with international standards developed through the International Standards Organisation (ISO). The Government Communications and Information Services (GCIS) and their regional offices, as well as the Telecommunications Service in South Africa together with private Internet companies, provide Internet access. There are an estimated one million local Internet users, of which 30% are women. Several initiatives are underway to extend telecommunication services to rural communities and to provide Internet access to previously disadvantaged groups and schools.

Capacity-Building, Education, Training and Awareness-Raising: The Government Communication and Information System provides a central point in government where government bodies, the private sector, NGOs and the public at large can obtain government related information on request. Several universities present Masters and Ph.D degree programmes in the fields of environmental management, sustainable development, conservation planning, natural resource accounting and land-use planning. All of these are in support of the national agenda for capacity-building in sustainable development.

A Local Agenda 21 capacity-building programme targets local government officials and community leaders and provides training on sustainability issues. This project is a partnership between Government and the University of Cape Town and is funded by USAID. Through this programme, training is provided for 600 government officials across South Africa over a two-year period. The CSIR receives Parliamentary grant funding with a mandate to develop technologies and skills that will serve the country's future needs.

Investment in relevant skills and technologies in the recent past include Integrated Environmental Management; Strategic Environmental Management; Cumulative Effects Assessment and indicators for sustainable development. In 2000, the National Research Foundation (NRF) established a research fund that focused on indigenous knowledge systems. The fund seeks to develop theoretical and methodological paradigms to understand the specific characteristics of indigenous knowledge systems; shed light on the role of indigenous knowledge in nation building; and develop research capacity in the field of indigenous knowledge.

Research and Technologies: The Government has several initiatives to transfer technology in the development of national information systems, such as the National Groundwater Information System, the National Hydrological Information System and the Water Services Information System. In 1998, CSIR Environmentek, in collaboration with the Agricultural Research Council and supported by the Government of South Africa, compiled the national land cover database, a strategic data set to support a wide range of applications for sustainable development. GIS is a well-established technology for natural resource management in government, the scientific community and the private sector. Data warehousing is now improving public access to information in support of analytical and planning requirements. SA-ISIS will incorporate web-based GIS systems for serving and displaying data.

Financing: The range of sources for funding includes the national budget, Official Donor Aid (ODA) and others. Research and training institutions, industry and NGOs also contribute in terms of research and training, environmental monitoring and reporting, and information dissemination.

Cooperation: The Southern African Data Centre for Oceanography (SADCO) stores retrieves and manipulates multidisciplinary marine information from the areas around southern Africa. It is operated by the CSIR, on behalf of a number of marine organizations in South Africa and Namibia. DEAT is undertaking a project between Namibia, Botswana and South Africa to develop Water and Mineral accounts for the Region. Natural Resource

Accounting for Southern Africa (NRA) has programmes to broaden the understanding of environmental economics and NRA. The organization is building formal ties with other institutions in the region, such as regional steering committees, the Southern African Development Community (SADC), and the United Nations Statistical Division. The Resource Accounting Network for Eastern and Southern Africa (RANESA) provides technical training and capacity building. The RANESA forms part of the international network, including the Beijer Institute, United Nations Statistical Division, the World Bank, Eurostat and the Swedish International Development Agency (SIDA). South Africa is cooperating with other SADC countries to develop indicators for state of the environment reporting at the regional level. South Africa also participates in the United Nations Programme on CEROI (Cities Environment Reports on the Internet). In 1998, South Africa and Finland formed a twinning arrangement to test the CSD list of 134 indicators of sustainable development.

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CHAPTER: INDUSTRY

Decision-Making: The Department of Trade and Industry (DTI) has submitted an environmental implementation plan, incorporating a plan of action for encouraging environmentally sustainable production and consumption patterns in enterprises utilising benefits from DTI's programmes. Individual companies have set time-bound targets for corporate reduction of waste and improved resource efficiency. The Government's Policy on Environmental Management recognises the importance of enhancing partnerships with industry in order to ensure that a more environmentally friendly approach to production is adopted.

Currently, industrial development is subject to the conditions of regulations made under sections 21, 22 and 26 of the Environment Conservation Act, 1989, which includes a rigorous process of environmental impact assessment.

Status: In South Africa, the principal threats to human health as a result of industrial activity are the potential of some sectors to emit air, soil and water pollutants and/or generate waste containing hazardous substances. Lack of appropriate legislation and injudicious siting of industrial areas next to residential areas in South Africa have resulted in a legacy of poor environmental quality of some residential areas. This situation has to be addressed. The need for a more targeted strategic approach to government policy in this regard has been recognised by stakeholders and is reflected in the Policy on Environmental Management.

Principal threats to human health and/or the sustainable use of natural resources include over-abstraction from surface and groundwater resources, *inter alia* linked to the provision of water for urban and industrial purposes. This is being addressed in the National Water Act, 1998, through the right given to the Reserve, which is defined as the water quantity and quality required to protect basic human needs and the integrity of aquatic ecosystems.

There is salinisation of surface water due to the discharge of saline effluent from manufacturing and processing industries, the discharge of underground water pumped from mines to prevent flooding of works and the discharge of treated sewerage effluents. Riparian and in stream habitats are compromised destruction, due to uncontrolled urban and peri-urban development, which includes industrial development.

Other problems include the discharge of toxic substances at point sources and diffuse sources; health and environmental impacts on groundwater resources due to diffuse pollution; air pollution of sulphur dioxide from burning of coal as a domestic and industrial fuel, causing chronic respiratory disorders; and localised pollution through spillage and accidental leakages which may cause health problems in the immediate vicinity.

Industry is a significant user of freshwater in South Africa. In 1980, industrial use of water (including mining and power generation) was estimated at 1 779 million cubic meters per annum, about 11% of the total demand for freshwater resources in the country. By the year 2000, industrial demand is expected to reach approximately 3 400 million cubic meters per annum, or about 15% of the total demand (based on consumption and production needs of a growing population).

South Africa's water resources are very unevenly distributed across the country. In arid or water-scarce areas water supply is a constraint to industrial development. This constraint has served as an incentive to industry to develop water-recycling processes. Pollution of freshwater by industry is a problem in South Africa. The failure of historical source control mechanisms to achieve the desired level of water resource protection has been recognized in the National Water Policy as well as in the National Water Act, 1998. The policy and legislation provide a framework within which a range of regulatory mechanisms will be applied to improve both source control and resource protection and management.

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CHAPTER: SUSTAINABLE TOURISM

Decision-Making: The Department of Environmental Affairs and Tourism (DEAT) are responsible for sustainable tourism at the national level. Due to the fact that at local level, guidelines for responsible tourism development are in the process of being formulated and that procedures and regulations are not yet available, no local bodies can currently be held responsible for the enforcement or promotion of such guidelines. However, in the Reconstruction and Development Programme, the Tourism White Paper and its implementation strategy, *Tourism in Gear*, appropriate authorities have to promote implementation of principles, which may be referred to as 'responsible practice' into the project cycle.

These authorities include National, Provincial, Local and Metropolitan and Regional Councils. While every effort is made to involve all role players and stakeholders in appropriate decision-making, it is currently being done in the process that was initiated to formulate guidelines for responsible tourism development for South Africa. An interactive process, which includes opportunities for constructive consultation (including appropriate formal forums which ensure attendance to the views and needs of all interested parties) is fundamental to the exercise. No specific legislation and national strategy exist to ensure responsible tourism development, nor are specific areas set aside for the purpose.

However, many government and private sector owned properties such as protected areas and wildlife ranches are managed, promoting responsible nature-based tourism activities to a greater or lesser extent. Integrated Environmental Management (IEM) and Environmental Impact Assessment (EIA) are applied to monitor continuously the progress of tourism development in order to make necessary corrections or revisions to ensure sustainability. Environmental management systems are applied in hotels and other tourist establishments on an ad hoc basis, depending on the sensitivity of the product owner.

In view of the fundamental importance of guidelines for the promotion of responsible tourism, the DEAT has a priority in development of a framework and guidelines for responsible tourism development. Furthermore, the national tourism organization of South Africa, Tourism South Africa has prepared basic voluntary guidelines for Ecotourism, i.e. *Ecotourism: Principles and Practices*. Generally, the guidelines have been well accepted. The Tourism white paper covers economic, technical, environmental, social, institutional and financial aspects related to responsible tourism. Responsible nature-based tourism is an integral part of the National Tourism Policy.

Programmes and Projects: The Responsible Tourism Development Programme aims to develop a replicable socio-economic development model that will focus on community empowerment, based on sustainable development.

The Spatial Development Initiatives (SDIs) of the South African Government aim to:

- Generate sustainable economic growth and development in developing areas with inherent economic potential;
- Create sustainable employment over the long term for previously disadvantaged communities of the area; and
- Maximise private sector investment in and lending to the area.

South Africa is involved in the implementation of the Man and the Biosphere Programme, under UNESCO. Biosphere Reserves are areas of terrestrial and coastal/marine ecosystems or a combination thereof. They are established to promote and demonstrate a balanced relationship between humans and the biosphere. A responsible nature-based tourism development plan, including marine and terrestrial ecosystems, is currently being drafted for South Africa. The anticipated completion date is early 2002.

The North-South Tourism route is an initiative that gives communities and businesses belonging mostly to previously disadvantaged South Africans, the opportunity to get their fair share of the tourism industry.

Status: Travel and tourism, encompassing transport, accommodation, catering, recreation and services for travellers, is expected to generate ZAR 69,8 billion to economic activity in South Africa in 1998, growing to ZAR 270,2 billion by 2010. While the travel and tourism sector will in 1998 probably contribute 26% to the South African GDP, 3,5% is anticipated by 2010. Travel and Tourism's contribution to total South African exports,

services and merchandise should be 13,2% in 1998 and increase to 17,5% in 2010. Taxes from Tourism and Travel are expected to be ZAR 15 billion in 1998 in South Africa, i.e. 8,4% of total taxation and are expected to grow to ZAR 55,1 billion by 2010. The current 248 141 jobs in the tourism and travel industry represent 2,4% of the total employment and are expected to rise by an annual 3,1% in 12 years' time.

The recent Travel and Tourism Economy employment is estimated at 737 617 jobs, i.e. 7% of total employment and is anticipated to rise to 1,254 million, i.e. 9,3% of total employment by 2010. The anticipated average increase in tourism arrivals from overseas over the medium to long term is approximately 7% per annum and approximately 5% per annum from the African continent where after approximately 6% is expected for the two combined. However, the current impact of tourism on social, institutional and cultural issues requires urgent attention with a view to considering the need for the establishment and implementation of guidelines to promote responsible tourism development.

Capacity-Building, Education, Training and Awareness-Raising: Tourism South Africa promotes tourist attractions through a variety of ways. These ways include promotional material, which is distributed or used by its international offices to inform the demand side through road shows, exhibitions and other events about South Africa as an exciting tourist destination. Every year a new theme in terms of the country's extraordinary product is selected for marketing. Responsible nature based tourism, including culture, is promoted under the auspices of the slogan 'Explore South Africa' with the suggestion to 'Go Wild'.

In addition to the South African Wildlife College, various universities offer training and education, which promote responsible tourism. The World Tourism Organisation's programmes are used to educate policy makers in the concept and policy design of responsible tourism. The itineraries of various tour operators focus on awareness-raising programmes on responsible tourism. Tourism product owners are increasingly aiming at attracting environmentally conscious tourists.

Information: Mapping and inventorying of natural resources and ecosystem characteristics in tourist areas has taken place. An environmental potential atlas (ENPAT) is being developed to support planners; developers and (potential) product owners to optimise their project development proposals. Various GIS data sets on natural resources and ecosystem characteristics have been completed, such as the National Land Cover data set, the South African Terrain Inventory, the South African Bird Atlas and Ramsar Sites. Availability of information on responsible tourism is presently dependent on negotiation. Information is available on the web site. Attention has already been given at regional level to develop guidelines and indicators, e.g. the Transkei Wild Coast.

Research and Technologies: South Africa is considering the investigation of technology-related issues that need to be or are being addressed, such as those associated with transportation, provision of freshwater, sewage and waste disposal, bulk infrastructure, appropriate technical and maintenance processes and procedures, engines and motors, equipment, maintenance implements, vehicles and commercialised wildlife management.

Financing: The Government receives funding from the national budget. GTZ and NORAD are both funding community-based tourism initiatives in Namaqualand and elsewhere.

Cooperation: A number of 'model responsible tourism destinations' are reportedly being developed through different initiatives. These destinations have not yet been appraised for the purpose by government and, accordingly, cannot officially be declared as such. Cooperation with local government or private sector in promoting responsible tourism has been initiated, and is inevitable in the future. South Africa participates in the Conference of the Parties to the Convention of Biological Diversity in terms of the Berlin Declaration on Biological Diversity and Sustainable Tourism, as well as in the formulation of guidelines for Tourism Environmental Assessment by the Secretariat for Eastern African Coastal Area Management.

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