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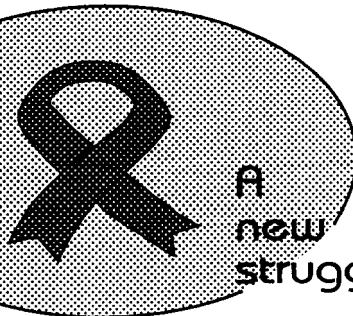
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We all have the power to prevent AIDS

AIDS
affects
us all



A
new
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DEPARTMENT OF HEALTH

Prevention is the cure

G O V E R N M E N T N O T I C E

DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM

No. 227

17 March 2000

DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM

WHITE PAPER

on

**INTEGRATED POLLUTION AND
WASTE MANAGEMENT
FOR SOUTH AFRICA**

A Policy on

**Pollution Prevention, Waste Minimisation, Impact Management and
Remediation**

FOREWORD

The White Paper on Integrated Pollution and Waste Management outlines government's new thinking in relation to pollution and waste management.

In line with international trends and our national objectives of efficient and effective management of our nation's resources, **priority** is given in **this** new **approach** to prevention. **Unlike** previous policies that **focussed** predominantly on so called "end -of-pipe" **treatment**, this White Paper underscores the importance of preventing pollution and waste and avoiding environment degradation.

Effective mechanisms to **deal** with unavoidable waste will remain necessary, but much greater attention must be directed to the introduction of preventative strategies aimed at waste minimisation and pollution prevention. Ever **increasing** urban and **industrial** development throughout the world is leading to levels of pollution which seriously threaten the natural resources upon which humankind depends for its survival. **The** Reconstruction and Development **Programme** also highlights the sub-optimal use of natural resources, and unacceptably high levels of air and water pollution as one of the major problem areas regarding the environment. Although South Africa has extensive environment, pollution and waste management legislation, responsibility for its implementation is scattered over a number of departments and institutions.

The fragmented and uncoordinated way pollution and waste is currently being **dealt** with, as well as the insufficient resources to implement and monitor existing legislation, contributes largely to the unacceptably high levels of pollution and waste in South Africa. **This** White Paper will implement co-operative **governance as** envisaged **in the** Constitution. **The** current fragmentation, duplication and lack of co-ordination will be eliminated. **The** White Paper on **Integrated** Pollution and Waste Management will result in a review of **all** existing legislation and the preparation of a single piece of legislation dealing with **all** waste and pollution matters.

Pollution and waste management is not the exclusive preserve of government. **The** private sector and civil society have crucial roles to play. **The** fostering of partnerships between government and the private sector is a prerequisite for sustainable and effective pollution and **waste management** to take place. Similarly, the spirit of partnerships and co-operative governance between organs of state is equally **important** due to the crosscutting nature of pollution and waste management.

Monitoring and collection of information on pollution and waste generation are crucial for the implementation of pollution and waste reduction measures. Moreover, the sharing of such information and creating awareness about the issues will enable all **stakeholders**, including communities, to gain a better understanding of the relation between pollution, waste management and the quality of life.

The White **Paper** proposes a number of tools to implement **the** objectives of the policy it **sets** out. The most significant **of** these is a legislative **programme** that will culminate in new pollution and waste legislation.

This proposed legislation, amongst other things, will address current legislative gaps, and clarify and allocate responsibilities within government for pollution and waste management. The importance of drafting such legislation in a **manner** that continues to build on the participation of **all stakeholders** who were involved in the development of this White Paper is emphasised.

The Ministry and the Department of Environmental Affairs and Tourism would like to thank the Department of Water Affairs and Forestry for being an equal partner in the development of the White Paper. Sincere gratitude is extended to all those who contributed to this policy process.

Mohammed **Valli Moosa**

Minister for Environmental Affairs and Tourism

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1. INTRODUCTION

This chapter defines the concept of integrated pollution and waste management that government will use in its national policy on pollution prevention, waste minimisation, impact control and remediation. It also describes the scope and purpose of this integrated pollution and waste management policy, together with the consultative process used in developing this policy.

The government's national policy on integrated pollution and waste management (IP&WM) sets out the vision, principles, strategic goals and objectives that government will use for integrated pollution and waste management in South Africa.

This White Paper on Integrated Pollution and Waste Management for South Africa serves the following two purposes:

- . to inform the public of the government's objectives, and how the government intends to achieve them, and
- to inform government agencies and State organs of these objectives, and their roles in achieving them.

1.1 Definition of Integrated Pollution and Waste Management

Pollution is defined as: *the introduction into the environment of any substance property (including radiation, heat, noise and light) that has or results in direct harmful effects to humanity or the environment or that makes the environment less fit for its intended use.*

Environment is defined as: *the biosphere in which people and other organisms live.* It consists of:

- renewable and non-renewable natural resources such as air, water (fresh and marine), land and all forms of life
- natural ecosystems and habitats, and
- ecosystems, habitats and spatial surroundings modified or constructed by people, including urbanised areas, agricultural and rural landscapes, places of cultural significance and the qualities that contribute to their value.

Integrated pollution and waste management is a holistic and integrated system and process of management, aimed at pollution prevention and minimisation at source, managing the impact of pollution and waste on the receiving environment and remediating damaged environments.

This White Paper on Integrated Pollution and Waste Management for South Africa represents a paradigm shift from dealing with waste only after it is generated (i.e. "end of pipe") towards:

- pollution prevention
- waste minimisation
- cross-media integration

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

1.2 Scope and Purpose of the White Paper

- This White Paper comprises **the** following sections: an introduction
- the global and national context of the integrated pollution and waste management policy
- key issues relating to pollution and waste management identified through **stakeholders** during the public participation process
- the shift to prevention that sets out the reasons for changing the emphasis from control to prevention
- approaches to integrated pollution and waste management
- . policy criteria affecting governance
- the government's strategic **goals** and supporting **objectives** for addressing the major issues regarding pollution and waste, and for measuring the success of policy implementation
- the government's approach to governance, detailing the powers and responsibilities of the different spheres and agencies of government and the regulatory approach to integrated pollution and waste management, and
- the way forward.

Appendix 1 lists international convention, agreement, **treaties** and protocols relating to integrated pollution and waste management.

Appendix 2 contains the principles from the **White** Paper on Environmental Management policy for South Africa.

Appendix 3 contains a glossary of key terms and abbreviations used in this policy.

Appendix 4 contains acknowledgements of all those who contributed to the development of the government's integrated pollution and **waste management (IP&WM)** policy.

1.3 Vision for the Policy

The vision of the government is:

to develop, implement and maintain an integrated pollution and waste management system which contributes to sustainable development and a measurable improvement in the quality of life, by harnessing the energy and commitment of all South Africans for the effective prevention, minimisation and control of pollution and waste.

1.4 Purpose of the Policy

The **IP&WM** policy is a subsidiary policy of the overarching environmental management policy, as set out in the White Paper on Environmental Management Policy for South Africa, and further supported by the National Environmental Management Act (No. 107 of 1998).

This **IP&WM** policy accordingly subscribes to the vision, principles, goals and regulatory approach set out in the environmental management policy and Act and details the government's specific policy for **pollution** and waste management.

This **IP&WM** policy applies to all government institutions, society at large, and to all activities that impact on pollution and waste management. One of the fundamental approaches of this policy is to prevent pollution, minimise waste, and to control and **remediate** impacts. The management of waste will be implemented in a holistic and integrated manner, and will extend over the entire waste cycle, from "cradle to grave", including the generation, storage, collection, transportation, treatment, and final disposal of waste.

The government aims to:

- encourage the prevention and minimisation of waste generation, and thus pollution at source
- encourage the management and minimisation of the impact of unavoidable waste from its generation to its final disposal
- ensure the integrity and sustained "fitness for use" of all environmental media, i.e. air, water and land
- ensure that any pollution of the environment is **remediated** by holding the responsible parties accountable
- ensure environmental justice by integrating environmental considerations with the social, **political** and development needs and rights of **all** sectors, communities and individuals, and
- prosecute non-compliance with authorisations and legislation.

1.5 Policy Principles

Policy principles are the fundamental premises government will use to apply, develop and test policy and subsequent actions, including decision-making, legislation, regulation and enforcement. The overarching principles of this White Paper on Integrated Pollution and Waste Management for South Africa are those of the Constitution and Bill of Rights, as well as those in the National Environmental Management Act (as per those in Appendix 2).

In addition, the following three principles specific to pollution and hazardous waste management have been adopted:

- **Transboundary** movement

Potential **transboundary** effects on human **health** and the environment will be taken into account.

- **Duty-of-care** principle

Any institution which generates waste is always accountable for the management and disposal of this waste **and** will be penalised appropriately for any and every transgression committed.

- **Universal applicability of regulatory instruments**

All industrial, agricultural, **domestic/household** and governmental operations in South Africa will be subject to the same integrated pollution and waste management regulatory system.

1.6 Why is an Integrated Pollution and Waste Management Policy necessary?

South Africa is emerging from a period of unsustainable and inequitable development, one outcome of which was environmental degradation, which has significant economic and social impacts. Part of effecting a transformation to development that is economically, socially and environmentally sustainable is to redefine the way in which pollution and waste will be managed in South Africa.

Much-needed economic growth can be supported by more appropriate and efficient use of natural resources, within a framework of integrated pollution and waste management. This will help to protect the people of South Africa and the environment without a continuous degradation of natural resources.

Although government has promulgated extensive legislation and regulations over the last few years to address threats to environmental and human health, a number of limitations have become clear:

- Limits of impact management
- Limited civil society involvement
- Inadequate integration of environmental media
- Inadequate integration across government departments
- Lack of capacity to implement
- Inadequate consideration of global environmental issues.

The problems that arise due to a lack of integrated pollution and waste management are addressed in more detail in Section 3. This White Paper on Integrated Pollution and Waste Management is aimed at addressing these shortfalls.

1.7 The Integrated Pollution and Waste Management Policy Development Process

After earlier investigations and initiatives by the Department of Environmental Affairs and Tourism and the Department of Water Affairs and Forestry, the consultative process followed in drafting this White Paper involved:

- the constitution of a **multi-sectoral** Project Committee, under the chairmanship of the then-Deputy Minister of Environmental Affairs and Tourism, Peter **Mokaba**, which guided the consultative process
- the compilation of a discussion document towards a White Paper on Integrated Pollution and Waste Management
- discussion of and comment on this discussion document through a broad process of public participation in the provinces, as **well** as through direct comments from **labour**, non-governmental organisations, community-based organisations, business and industry, mining and individual members of civil society
- consideration of these comments in compiling the draft policy statements and objectives
- compilation of this White Paper on Integrated Pollution and Waste Management for South Africa

1.8 National Waste Management Strategy and Action Plans

A National Waste Management Strategy (NWMS), which will form the basis for translating the goals and objectives of the policy into practice, has been developed, together with short-term (five-year) priority Action Plans for the following key elements of the strategy:

- Integrated Waste Management Planning
- Waste Information Systems
- General Waste Collection
- Waste Minimisation and Recycling
- Waste Treatment and Disposal.
- Capacity Building, Education, Awareness and Communication

The anticipated short term deliverables from the Action Plans have been incorporated under the goals and objectives of this policy. In addition, an Implementing Instruments Project Plan has been developed to support the implementation of the short-term priority Action Plans.

It **is** important to note that a similar national strategy and action plans for managing pollution have not yet been formulated. These will be developed during **2000-2001**.

2. SETTING THE CONTEXT

2.1. The International Context

2.1.1. Global concern about pollution

International concern about growing pollution worldwide has escalated over the past 20 years, particularly in the last decade. This is evident in the many international protocols and conventions that have arisen, and countless reports and conferences from significant bodies including the report of the World Commission on Environment and Development and the 1992 Rio Conference, where 178 countries agreed on *Agenda 21* as a blueprint for sustainable development. This **IP&WM** policy is part of the South African government's efforts to meet the goals of *Agenda 21*.

Certain international agreements, such as the Framework Convention on Climate Change, dealing with greenhouse gases, and the **Basel** Convention, which addresses **transboundary** movements of hazardous waste, impose specific requirements on South Africa. These are being addressed as part of the **IP&WM** policy process.

2.1.2. South Africa as part of the world economy

South Africa's reintegration into the global economy and the international and southern African political arena necessitates an improved pollution and waste management system. The country's economic and industrial policy has also turned towards export promotion as a pillar of South Africa's economic development. South Africa therefore has growing obligations to meet international commitments and to be a globally responsible country.

The government will accordingly promote an integrated approach to pollution and waste management as a key factor in achieving sustainable development, by ensuring that:

- South Africa meets all its international environmental obligations as rapidly as possible
- exporters are assisted in meeting internationally expected standards of environmental management
- international pollution control efforts are not used as unfair trade barriers against South Africa's exports, and
- South Africa's pollution and waste management interests are adequately represented in international forums.

2.1.3 International obligations and agreements

Some of the international treaties to which South Africa is a party relate specifically to the pollution of water, air and land environments; others are of a cross-cutting nature and impact on all three environmental media. The obligations imposed under these international treaties and their implications for integrated pollution and waste

management are given in Appendix 1.

To date, **26** international agreements (17 conventions, 4 protocols, 3 treaties and 2 agreements) pertain to integrated pollution and waste management, 19 of which have been acceded to or ratified by South Africa.

The following South African legislation fully or partially covers 12 of these international agreements:

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

2.2 The National Context

2.2.1 The Constitution

The Constitution (Act No. 108 of 1996) is relevant to pollution and waste management for two reasons. Firstly, the Bill of Rights (Chapter Two of the Constitution) contains a number of rights relevant to integrated pollution and waste management, to the extent that an Act or particular statutory provision that does not uphold these rights, is unconstitutional. Secondly, the Constitution provides the legal basis for allocating powers to different spheres of government, and is thus relevant to the institutional regulation of integrated pollution and waste management.

Sovereign

The Constitution states that South Africa is a sovereign, democratic State. In terms of environmental management, it is important to recognise that sovereignty includes the ability to limit sovereign powers by entering into international agreements where the need arises.

The Bill of Rights

The most pertinent fundamental right in the context of integrated pollution and waste management is the Environmental Right (Section 24), which provides that:

“Everyone has the right

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

- (b) *to have the environment protected, for the benefit of present and future generation through reasonable legislative and other measures that -*
- (i) *prevent pollution and ecological degradation;*
 - (ii) *promote conservation; and*
 - (iii) *secure ecologically sustainable development and the use of natural resources while promoting justifiable economic and social development. ”*

This section of the Bill of Rights specifically imposes a duty on the State to promulgate legislation and take other steps to ensure that the right is upheld and that, among other things, pollution and ecological degradation are prevented.

Health Care, Food, Water and Social Security (Section 27)

This provision in the Constitution upholds the right to water, among other things. It envisages an equitable allocation of resources of an acceptable quality.

Access to Information (Section 32)

The Bill of Rights enshrines the right of access to information held by the State, or any other person, which is required for the exercise of any right. The section imposes a duty on the State to enact legislation to give effect to the right. This integrated pollution and waste management policy includes provisions concerning access to information insofar as it relates to future integrated pollution and waste management legislation.

Just Administrative Action (Section 33)

The Constitution protects the right to fair, lawful, reasonable and procedurally fair administrative action and provides that where administrative action has adversely affected rights, written reasons must be given. However, in terms of Section 23 of Schedule 6 of the Constitution, Section 33 has not yet come into operation.

2.2.2 White Paper on Environmental Management Policy for South Africa

The White Paper on Environmental Management Policy for South Africa is an overarching framework policy, governed by the democratic values and principles enshrined in the Constitution. Through the White Paper on Environmental Management Policy the government undertakes to give effect to the many rights in the Constitution that relate to the environment. Furthermore, it defines sustainable development as a combination of social, economic and environmental factors. The White Paper accepts sustainable development as the appropriate approach to resource management and utilisation, thus entrenching environmental sustainability in policy and practice.

The vision of the White Paper on Environmental Management Policy for South Africa is one of a society in harmony with its environment. The policy seeks to unite the people of South Africa in working towards a society where all people have sufficient food, clean air and water, decent homes and green spaces in their neighborhoods, enabling them to live in spiritual, cultural and physical harmony with their natural surroundings.

The White Paper on Environmental Management Policy for South Africa sets a number of objectives for integrated pollution and waste management, which will be addressed in this White Paper on Integrated Pollution and Waste Management for South Africa.

These objectives are:

- “To promote cleaner production and establish mechanisms to ensure continuous improvements in best practice in all areas of environmental management.
- To prevent, reduce and manage pollution of any part of the environment due to all forms of human activity, and in particular from radioactive, toxic and other hazardous substances.
- To set targets to minimise waste generation and pollution at source and promote a hierarchy of waste management practices, namely reduction of waste at source, reuse and recycling with safe disposal as the last resort.
- To regulate and monitor waste production, enforce waste control measures, and coordinate administration of integrated pollution and waste management through a single government department.
- To setup information systems on chemical hazards and toxic releases and ensure the introduction of a system to track the transport of hazardous materials.
- To ensure the protection and proactive management of human health problems related to the environment in all forms of economic activity.”

This integrated pollution and waste management policy is driven by a vision of environmentally sustainable economic development. This vision promotes a clean, healthy environment, and a strong, stable economy. By preventing, minimizing, controlling and **remediating** pollution and waste, the environment is protected from degradation. By increasing the use of **cleaner** production technologies, avoiding accidental and operational releases and reducing the non-productive costs of treatment, disposal and clean-up, a more efficient and competitive economy and a healthier environment will be established.

The South African government is committed to a **programme** of sustainable development that will deliver basic environmental, social and economic **services** to all, without threatening the viability of natural, built and social systems upon which these services depend.

2.2.3 Reconstruction and Development **Programme**

The Reconstruction and Development **Programme** articulates the need to follow a path towards sustainable development. It affirms the need to manage economic development and human growth in such a way that the earth's life support systems are not damaged or destroyed. In addressing environmental issues, the Reconstruction and Development **Programme** recognises the need for government to work towards:

- equitable access to natural resources
- provision of safe and healthy living and working environments, and

- a participatory decision-making process around environmental issues which empowers communities to manage their natural environment.

2.2.4 **Growth**, Employment and Redistribution Macroeconomic Strategy

The long-term view of the Growth, Employment and Redistribution Macroeconomic Strategy is:

- a competitive, fast-growing economy which creates sufficient jobs for all **work-seekers**
- a redistribution of income and opportunities in **favour** of the poor
- a society in which **sound** health, education and other services are available to all, and
- an environment in which homes are secure and places of work are productive.

The Growth, Employment and Redistribution Macroeconomic Strategy relates to the management of waste pollution in two main ways. Firstly, it emphasises that the South African economy cannot grow merely through exploitation of crude natural resources. Secondly, it states that the provision of basic household services is a relatively low-cost and effective form of public **intervention in favour** of the poor and consistent with the reduction of income inequalities.

The universal provision of basic household waste removal **services**, as outlined in this **IP&WM** policy, is therefore in accordance with the Growth, Employment and Redistribution Macroeconomic **Strategy and provides an area of synergy between** macroeconomic policy, waste management, health protection, and the redistribution of resources.

2.2.5 Legislation

The Department of Environmental Affairs and Tourism is currently engaged in a law reform process, to be completed by the end of 2000, which will address all outstanding environmental legislation and amend existing legislation where necessary, in line with new policies. The overarching framework for this process is the National Environmental Management Act (No. 107 of 1998). The law reform process will guide the amendment and expansion of the Act to ensure continuity in the application of environmental legislation in South Africa.

Among other things, **NEMA**:

- puts in place government structures for cooperative governance among environmental authorities
- legally obligates the principles in the White Paper on Environmental Management Policy for South Africa, and
- makes provision for control and **remediation** of environmental impacts and degradation.

3. KEY ISSUES

The participative process followed during the development of this IP&WM policy highlighted a number of issues relevant to the three receiving media, i.e. water, air and land, and identified waste as a major source of pollution. This IP&WM policy was developed to address these issues.

3.1 Water Pollution

The key water pollution issues are set out below.

3.1.1 Salinisation of fresh waters

The many impacts of excess salinisation on water resources include reduced crop yields, increased formation of scale and added corrosion in domestic and industrial water conveyance systems, as well as increased requirements for pretreatment of water for selected industrial uses (such as boiler feed water).

3.1.2 Enrichment of fresh water bodies by nutrients

The accumulation of excess nutrients (e.g. phosphates and nitrates) in water bodies changes the composition and functioning of the natural biota, makes the environment less attractive for recreation and sport, causes the presence of toxic metabolites and taste and odour-causing compounds, and complicates water treatment.

3.1.3 Microbiological quality of water

Human settlements are the major source of deteriorating microbiological water quality. Disease-causing micro-organisms and parasites enter the water environment through (for example) partially treated sewage effluents, seepage and wash-off from inadequate sanitation, and leachate from waste disposal systems.

3.1.4 Sediment and silt migration

Many South African rivers carry a naturally high load of suspended solids, reflected in high turbidity. There are also many man-made sources of sediment and silt, which limit the light penetration of water, change natural productivity and affect the natural balance of predators and prey in biotic communities.

3.1.5 Harmful inorganic and organic compounds

South Africa is highly industrialised and hence at times carries the burden of industrial pollution, including trace metals and synthetic organic pollutants. Concern is not only for the potable use of water (since these compounds are not easily removed by conventional

water treatment technology), but also for the aquatic **biota** and the organisms indirectly dependent on aquatic life, such as waterfowl.

3.1.6 Diffuse water pollution

Sources of serious diffuse water pollution include pit latrines, industrial seepage, **agro-**chemicals in soil fertilizers and insecticides, run-off from farm lands, contamination from animal wastes, informal settlements, thermal pollution by power plants and leaking sewerage pipes.

3.1.7 Marine pollution

The marine environment is impacted by off-shore exploitation of marine resources, off-shore air-lifting operations, the extensive relocation of sand dunes in the near-shore area, oil spills from passing vessels, , the seepage of sewage into coastal **watersand** sewage and industrial effluent discharge pipelines off the coast.

3.2 Air Pollution

Sources of air pollution include: pollution from mines, agriculture, domestic waste, industries, indoor emissions vehicle emissions, crop spraying, smokers, low-grade coal, domestic cooking, the burning of garden refuse, sugar cane and **veld.**, and dust from roads. Common air pollutants and asbestos can have adverse health impacts if not managed.

3.2.1 Industrial and domestic fuel combustion

The highest levels of air pollution at ground level are found in black townships, due **tothe** use of coal stoves for cooking and heating. Larger municipalities have made significant progress in reducing air pollution in the city **centres** and the more affluent residential areas, but the increasing number of sources of pollution and rapid urbanisation are hindering progress.

3.2.2 Dust problems

Sources of dust include construction, agricultural and industrial activities and asbestos mining. Dust from **untarred** roads in a large number of rural villages and black urban residential areas is a significant air pollution problem.

3.2.3 Vehicle emissions

Vehicle emissions from transport trucks and domestic vehicles contribute significantly to air pollution. Increasing dependence on private vehicle ownership and use exacerbates the problem.

3.2.4 Air quality management

The following significant deficiencies are perceived in current air quality management:

- Air pollution is not considered adequately in planning the placement of industries and residential areas
- Monitoring equipment is poorly maintained, and often non-operational
- Control of emissions is based on source control, without reference to the receiving environment
- . Lack of prosecution of offenders
 - Lack of incentive for not polluting or for minimizing pollution
 - **Non-devolution** of essential parts of the Atmospheric Pollution Prevention Act (No. 45 of 1965) (in **particular Parts II and IV**) to municipalities
 - Lack of transparency in all aspects of air quality management
 - The need for air quality management to take account of the growing international concern about climate change
- An emphasis on reactive control, rather than proactive measures to manage air quality.

3.2.5 Noise pollution

Noise pollution (from traffic, construction, mining, commercial recreation and industrial activities) is viewed as an escalating problem and there is little practical means of recovering the situation in terms of current regulatory structures.

3.3 Land Pollution

Waste disposal sites, especially those containing hazardous, medical, and veterinarian waste, may result in land pollution problems. A few of the many other problem areas include the poor location and/or inadequate management of waste disposal sites, **leachate**, illegal waste disposal sites, a lack of suitable hazardous waste disposal sites and poor town planning.

Other major sources of land pollution include:

- environmentally detrimental agricultural practices
- the wood processing **industry**
- waste treatment and disposal
 - repair shops and scrap yards
 - service stations
- . the metal industry, and
 - mining-related activities.

3.4 Pollution and Waste

Key issues relating to pollution and waste are detailed below.

3.4.1 Lack of priority afforded to waste management

In the past, waste management was not afforded the priority it **warrants** as **an** essential function required to prevent pollution and protect the environment and public health. Consequently, insufficient funds and human resources were allocated to this function. In many instances this neglect has resulted in a lack of long-term planning, information, appropriate legislation and capacity to manage the waste stream.

3.4.2 Fragmented legislation and ineffective enforcement

Waste management legislation is currently fragmented, unfocused and ineffective, with a resultant lack of control in all aspects of waste management. In addition, a lack of government capacity means that the enforcement of existing legislation is frequently unfocused, especially with regard to waste disposal. Another area of concern is the importation and exportation of hazardous and radioactive waste.

3.4.3 Unacceptable safety, health and environmental **practices** for pollution and waste management

Environmentally and socially unacceptable practices currently **characterise** many aspects of waste management, particularly in rural areas where services are often non-existent. In many of those urban communities that have always had poor quality services, these services have collapsed as a result of non-payment and poor financial planning.

Examples of environmentally and socially unacceptable practices include:

- substandard, ineffective or non-existent waste collection and street-cleaning systems
- illegal dumping and littering
- waste disposal sites which are poorly sited, designed and operated, and thus impact negatively on both the environment and quality of life. Furthermore, there is often little or no control over their use, and general waste disposal sites are frequently used for the illegal disposal of hazardous waste, and
- the presence of pickers at landfill sites, who disrupt operations and are exposed to hazardous wastes and dead animals, all of which could affect their health.

3.4.4 The absence of integrated waste management options

The focus to date in South Africa has been on waste disposal and impact control.

Concerns expressed about the inadequacies of this focus include:

- the lack of waste avoidance, minimisation and cleaner production technology initiatives, as well as the current lack of **regulatory** initiatives to manage waste minimisation, which, if in place, could potentially reduce the hazardous waste problem. Furthermore, there are no incentives for reducing waste and industries are not required to submit plans for waste disposal when they apply for permission to

establish new enterprises

- inadequate resource recovery and a general lack of commitment to recycling. There is no legislation, policy or waste management culture that promotes resource recovery or makes it financially viable, and
- the lack of a variety of appropriate waste treatment methods.

Integrated waste management addresses these criticisms by focusing on four internationally recognised steps, i.e. waste avoidance (prevention and minimisation), resource recovery (recycling and reuse), waste treatment, and waste disposal.

3.4.5 Insufficient involvement and empowerment of people

A major concern is the health and safety of workers, especially the vulnerability of **contract/temporary** workers who are exposed to general pollution, hazardous substances and waste in the workplace. Education and communication channels between sectors, especially government and civil society, are inefficient and inadequate. Ignorance of the connection between poor pollution and waste management and disease has resulted in community apathy about combating the effects of **pollution** and waste. A **lack** of a right to know, secrecy and misinformation have also been major contributory factors.

It is difficult to identify, consult with and involve interested and affected parties and **stakeholders** in pollution and waste management-related decision making. Issues to be addressed include **stakeholder** representation and the allocation of responsibility for finding solutions to pollution problems, since there are no appropriate guidelines for public participation by authorities and communities.

There is also a general lack of capacity building and empowerment with regard to integrated waste management, i.e. from generation, through collection and transportation to final disposal. There is thus a need for capacity building at all levels and in all sectors.

4. APPROACHES TO INTEGRATED POLLUTION AND WASTE MANAGEMENT

4.1 Shift to Prevention

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

The **IP&WM** policy also stresses the need to make pollution prevention a part of everyday activities and decisions, by all sectors and individuals. This policy shows how

the focus of environmental protection can be shifted from reacting to pollution towards the prevention of pollution at source.

4.1.1 Achieving prevention and minimisation

In order to achieve sustainable development, the historical focus on pollution impact management and **remediation** should shift to a management approach, combining pollution and waste prevention and minimisation at source, impact management and, as a last resort, **remediation**. Effective pollution prevention focuses not only on the installation of pollution abatement equipment in industry, but also on the shared responsibility of all sectors of society to protect South Africa's natural resources.

Pollution prevention:

- relates to innovation in product design and production
- encourages cost savings through efficiencies and conservation
- insists on sound management of persistent, **bio-accumulative** and toxic substances and on eliminating their use where necessary.

While the implementation of pollution prevention **will** differ among sectors, the general techniques will include: policy and regulation, technical assistance and compliance monitoring, prioritizing substances of concern, efficient use and conservation of natural resources, reuse and recycling, operating efficiencies, economic incentives and disincentives, integration of environmental concerns into land-use planning and urban development, training, household waste minimisation and recycling, product design, process changes, cleaner production, creating efficient information systems, life-cycle analysis, partnerships, raising awareness, building capacity, and developing strategies and tools to enable people to follow sustainable lifestyles.

Changes in **behaviour** are paramount to the pollution prevention approach. Government guidance and regulation are needed in this regard, to improve pollution prevention measures by means of a legislative framework for responsive pollution prevention programmed.

4.1.2 **Benefits** of the shift to pollution prevention

The shift to pollution prevention will:

- minimise and/or avoid the creation of pollutants and waste
- minimise and/or avoid the transfer of pollutants from one medium to another
- accelerate the reduction and/or the elimination of pollutants
- minimise health risks and impact
- promote the development of pollution prevention technologies
- use energy, materials and resources more efficiently
- minimise the need for costly enforcement
- limit future liability with greater certainty
- limit costly clean-up practices

- promote a more competitive economy
- reduce human impact on the environment
- enhance the quality of life, and
- ensure intergenerational equity.

4.1.3 Implications of **the** shift

The course of action that this White Paper proposes, i.e. to establish an integrated national pollution and waste management system, will have a significant influence on how South Africa's pollution and waste management goals and objectives are pursued in the future. The integrated pollution and waste management system will:

- assist the government in attaining its sustainable development goals
- ensure that the quality, quantity and accessibility of information are improved
- facilitate strong partnerships between the government, private sector, **labour**, non-governmental organisations and communities
- facilitate compliance with environmental laws and reduce the amount of bureaucratic delays, and
- build capacity and awareness.

4.2 Approaches and **issues relating to Policy Implementation**

The elements below are key to identifying pollution and waste issues and addressing them in a practical manner:

- Adoption of a media-based approach, focusing on the primary receiving media, i.e. water, air and land
- Recognition of waste as a primary source of pollution
- An integrated and phased approach dealing firstly with source control (including **prevention**), secondly with impact **management** and lastly with **remediation** (see Figure 1)
- Training, education and capacity building of all sectors
- Public participation
- Ensuring a holistic approach by integrated pollution prevention and waste minimisation.

The following sections describe specific aspects of pollution prevention and waste minimisation that will be considered for each of the environmental media. The issues have been identified through the **stakeholder** participation process. Note that in each case, "issues relating to integration" refers to integration both:

- between environmental media, to address their interactions and overlapping management issues, and
- between **DEAT** and this **IP&WM** policy and other regulatory authorities, policies, strategies, etc. governing the different environmental media.

4.2.1 Water pollution

The policy on water pollution management covers inland waters, both surface and **groundwater**, as well as **estuarine** and marine waters. Issues which will be considered in relation to policy implementation include:

- River **catchments** as basic management units
- Land uses affecting **catchment** water quality
- Water quality **requirements** as specified by the **catchment** water users
- Management of storm water from industrial and urban areas
- Point sources of pollution, e.g. sewage treatment works and industrial waste water treatment works
- . Diffuse sources of pollution, e.g.:
 - polluted base flow originating from industrial areas (including marine **outfalls**)
 - **leachate** from waste disposal sites
 - polluted base flow originating from informal settlement, and
 - leakage from sewage reticulation systems and sewage works.

With regard to integration, the following issues will be considered:

- The regulation of water pollution by the Department of Water Affairs and Forestry
- Preventative and management measures by the Department of Minerals and Energy
- The agricultural and domestic use of herbicides, pesticides and poisons, and their contribution to the contamination of storm water run-off
- Soil erosion resulting in siltation of reservoirs and high silt loads in rivers
- Atmospheric deposition on land and the indirect impact on surface and **groundwater**
- Wind-blown dust and solids from tailing deposits and their impact on water quality.

4.2.2 Air pollution

The policy **aspects** relating to air quality management consider pollution on a local, regional, national and global scale. Atmospheric pollution, **malodour** generation and control, as well as indoor air pollution will be covered.

Issues which will be considered in relation to policy implementation are:

- Smoke (particulate) arising from coal and fuel burning (including particulate from power generation)
- . Vehicle emissions
- Emissions from industrial activities
- Dust arising from mining and industrial activities
- Various sources of greenhouse gases
- . Waste disposal sites
- Incinerator emissions
- Acid rain
- Noise.

With regard to integration, the following issues will be considered:

- The regulation of air pollution by the Department of Environmental Affairs and Tourism, the provinces and municipalities
- The pollution of water used for scrubbing air
- Air pollution arising from the disposal of solid waste.

4.2.3 Land pollution

The policy on land pollution considers urban, industrial, mining, rural and agricultural land. The loss of arable land through compaction or alien invasion is not discussed in this document. Soil erosion *per se* is also not covered, except under the water medium, where it is regarded as a pollutant (see Section 4.2.1).

Issues and land pollution sources, which will be considered in relation to policy implementation, are:

- **Injudicious/overuse** of fertilizers and agricultural chemicals
- Unsustainable farming practices
- Irrigation with sewage sludge
- **Overirrigation**
- The impact of agricultural chemicals such as pesticides, herbicides and fertilizers on surface water and **groundwater** quality.
- Agricultural wastes

With regard to integration, the following issues will be considered:

- The regulation of land pollution by the Department of Agriculture, the Department of Water Affairs and Forestry, the Department of Minerals and Energy and other pollution control authorities
- The impact of land pollution on water quality
- The impact of organic agricultural wastes on surface and **groundwater** quality
- The impact of soil erosion and agricultural management practices on water quality,
- Land pollution from liquid effluent disposal via irrigation
- The impacts of industrial activities or infrastructure on surface and ground water quality, in terms of related effects on land or soil
- The impact of sewage treatment works
- The impact of residential development
- Land application of sewage sludge
- The impacts of waste and hazardous waste disposal sites.

4.2.4 Waste

Those aspects of the policy relating to waste management will address domestic, commercial, agricultural, mining, industrial, metallurgical, power-generation, nuclear, medical and hazardous waste, as well as litter. Waste is considered to be a source of pollution and the policy will address the management of the entire waste handling process, from generation to final disposal. Issues which will be considered in relation to policy implementation are:

- . Waste avoidance, minimisation and prevention
- . Recycling and reuse
- . Treatment and handling
- . Storage and **final** disposal.

With regard to integration, the following issue will be considered:

- . Regulation of waste by the Department of Environmental Affairs and Tourism.

4.2.5 Integration

The government will adopt a functional approach to integrated pollution and waste management (see Figure 1).

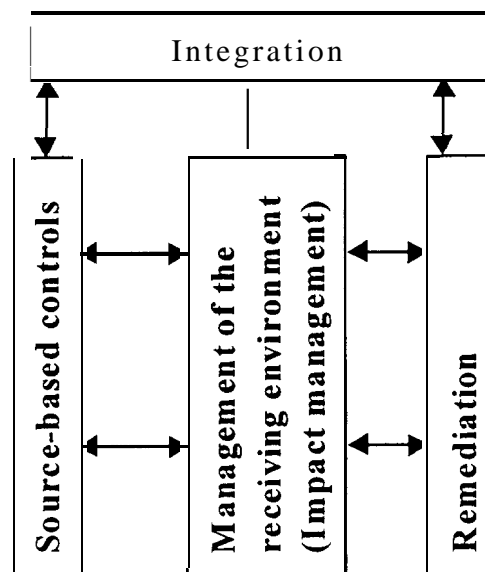


Figure 1: A functional approach to integrating pollution and waste management

Source-based controls are used to control the generation and discharge of waste. Controlling waste discharges at source supports the management of the receiving environment. In some instances, source-based controls can be extended to prevent waste production altogether.

Management of the receiving environment (impact management) entails anticipating threats to environmental media, setting ambient quality standards and ensuring that source-based controls are put in place to control such threats.

Remediation entails retroactive intervention to reverse environmental damage and achieve a specific ambient quality.

4.2.6 Education and training

The government will promote the education and empowerment of South Africa's **people** with regard to integrated pollution and waste management by increasing their awareness of and concern for pollution and waste, and assisting in the development of the knowledge, skills, values and commitment necessary for successful integrated management.

4.2.7 Public participation

Public participation is considered a cornerstone for the development of this policy. The government's approach in this policy is to establish mechanisms and processes to ensure effective public participation and capacity building in integrated pollution and waste management.

4.3 Policy Criteria

Policy criteria are norms for evaluating the implementation of the policy principles. The following criteria will be used:

- **Accessibility:** Management systems and information must be accessible to all sectors of civil society. In addition, there will be access to authorities for complaints, especially at local **level**.
- **Clarity:** Legislation regarding the management of pollution and waste, including regulatory instruments (such as standards, technology, incentives and effective policing and monitoring), will be drafted in an unambiguous manner and be understandable and accessible to all sectors of society
- **Consistency:** **All** elements of this policy will be interconnected and interrelated to ensure that there is no contradiction between different elements, and the policy will be implemented on an ongoing basis and consistently through all sectors of society.
- **Effectiveness:** All elements of this policy should work together to ensure that the results of the management process enhance the quality of the environment.
- **Enforceability:** This policy will be backed by effective legislation with mechanisms to enforce it.
- . **Role of Women:** Recognition of the role women can **play** in transforming society and building capacity with **regard** to integrated pollution and waste management will be recognised
- . **Timeliness:** Decision-making procedures should take place within reasonable time frames, and should not be used to restrict public participation.

- Transparency: All reasons for decisions will be recorded and made available for public scrutiny.
- Provision of **resources** for capacity **building**: Resources must be provided to build capacity in both government and civil society.
- Recognition of the different status of developed and developing **countries**: Where South Africa is involved in international negotiations on integrated pollution and waste management, it will promote a position that recognises the different status of developed and developing countries. In this regard, it will promote the concept of common, but differentiated responsibility.

5. STRATEGIC GOALS AND OBJECTIVES OF THE POLICY

This chapter sets out, in the form of broad strategic goals and supporting objectives, the priorities for achieving the vision for integrated pollution and waste management over the next five to ten years. These goals chart the direction the government will follow in meeting its commitment to integrated pollution and waste management.

The chapter also introduces the National Waste Management Strategy (NWMS) and short-term priority Action Plans, which together will form the basis for translating the goals and objectives into practice. However, it is important to note that a similar national strategy for managing pollution has yet to be formulated during 2000 - 2001.

5.1 Achieving Policy Goals and Objectives

The overarching goal of the policy is to ensure that pollution and waste are managed in an integrated way.

The intention is to move from a previous situation of fragmented and uncoordinated pollution control and waste management to integrated pollution and waste management and waste minimisation.

In order to ensure that this IP&WM policy is translated into practice, the national Departments of Environmental Affairs and Tourism and of Water Affairs and Forestry have developed a National Waste Management Strategy. This strategy deals with the problems of waste and associated pollution, and details strategies, action plans and set time frames and targets. Many aspects of the IP&WM policy can be implemented without delay through existing administration routes.

5.2 Strategic Goals of the Policy

Within the framework of the overarching goal, the government has identified seven strategic goals for achieving integrated pollution and waste management. These goals are interdependent and implementation must address all of them to be effective, since environmental issues cut across various sectors and functions.

The strategic goals and their supporting objectives indicate the broad deliverables of the strategy, which address the major issues the government faces in its drive to achieve and ensure integrated pollution and waste management.

The seven strategic goals of the policy areas follows:

- Goal 1: Effective Institutional Framework and Legislation
- Goal 2: Pollution Prevention, Waste Minimisation, Impact Management and **Remediation**
- Goal 3: Holistic and Integrated Planning
- Goal 4: Participation and Partnerships in Integrated Pollution and Waste Management Governance
- Goal 5: Empowerment and Education in Integrated Pollution and waste Management
- Goal 6: Information Management
- Goal 7: International Cooperation

A National Waste Management Strategy (NWMS) and Short-term Priority Action Plans have been developed, together with an Implementing Instruments Project Plan. These specify the deliverables of the NWMS. The anticipated short-term deliverables from the Action Plans for waste management are included in the relevant sections below to illustrate government's intentions and direction with respect to each of the goals. Short term refers to 2000-2004. *It is important to bear in mind that a similar strategy and action plans for broader pollution issues, i.e. not only those that relate to waste management, will be developed during 2000 – 2001.*

5.2.1 Goal 1: Effective institutional framework and legislation

To create, develop, implement, maintain and continuously improve an effective, adequately resourced and harmonised institutional framework and integrated legislative system and to build institutional capacity.

Legislative Framework

The Department of Environmental Affairs and Tourism is **currently** undertaking a law reform process to **identify** all the requirements for new and amended legislation pertaining to all aspects of the environment, including pollution and waste management. It is anticipated that this **programme will** be completed by the end of 2000. The overarching legislation and policy framework for this process are the National Environmental Management Act (No. 107 of 1998) and the White Paper on Environmental Management Policy for South Africa.

Institutional Framework

Objectives

- to establish mechanisms to give effect to the institutional arrangements for all spheres of government, as set out in Chapter 6
- to conduct an audit and review of existing **skills**, capacities, functions and the deployment of resources in the national Departments of Environmental Affairs and Tourism and of Water Affairs and Forestry, and realign them towards implementing the **IP&WM** policy.

Short term deliverables

- to establish a single, streamlined and efficient administrative system for the authorisation process and assessment reporting requirements, replacing the **current** fragmented and inefficient systems (see Section 6.3.3)
- To establish mechanisms to set national minimum ambient or environmental quality criteria and standards which consider both concentration and load of pollution
- To develop uniform procedures for setting and enforcing environmental quality standards and criteria throughout the country
- To develop mechanisms to ensure the safe transportation of raw materials, products and wastes to prevent accidents and spills which could adversely affect the environment and public health.
- To develop mechanisms to set up appropriate regulations, quotas and standards to regulate waste generation in order to promote waste minimisation
- To develop regulations (or other appropriate legal instruments) to enforce coordinated, integrated waste management planning. The Department will also address the issue of delegating the responsibility for enforcing the regulations and standards to the appropriate sphere of government. The legal instruments will address:
 - the identification and reduction/elimination of priority pollutants and waste streams, and promotion of a more widespread adoption of waste minimisation and recycling
 - examination of the feasibility of introducing product-based regulations as a means of promoting waste minimisation and recycling
 - waste minimisation and recycling requirements as conditions to licensing, permitting and environmental impact assessments

- incorporation of waste minimisation considerations in government procurement contracts
- identification and removal of barriers for encouraging cleaner production in existing legislation
- regulations and standards for all waste treatment facilities
- revised air emission standards for waste incineration facilities
- regulations for **controlling** communal and small **landfill** sites
- To investigate **the** introduction of mechanisms to promote and administer voluntary agreements as a regulatory instrument (see Section 6.3.6)
- To ensure that provincial environmental departments draft regulations, in consultation with local government, that may set stricter provincial standards for waste collection services
- To develop standards for pollution and waste management systems, monitoring and audit procedures and reporting of all activities, including government activities, that impact on pollution and waste management
- To develop a classification system for **all** waste treatment facilities, which, *inter alia*, will form the basis for environmental performance standards for these facilities
- To identify and implement appropriate economic instruments and other financial incentives for correct pricing of environmental assets and reducing **pollution**-generating activities, based on the results of a study to be undertaken by the Department of Environmental Affairs and Tourism, together with the Departments of Finance and of Trade and Industry. Specific outputs include:
 - the possible introduction of levies on specific products or materials with high environmental impact, and
 - the implementation of deposit-return schemes for certain refillable or recyclable containers.
- To develop and implement regulations and guidelines for the safe management of medical waste in partnership with the Department of Health.

5.2.2 Goal 2: **Pollution** Prevention, Waste Minimisation, Impact Management and **Remediation**

To promote holistic and integrated pollution and waste management through pollution prevention minimisation at source, impact management and remediation.

Objectives

- Water pollution management
 - To manage, prevent, reduce, control and **remediate** surface water, **groundwater** and marine pollution from all identified sources.
 - To ensure that the quality of water needed to maintain ecological functions is protected, so that the human use of water does not individually or cumulatively compromise the long-term sustainability of aquatic and associated ecosystems,

•Air quality management

- To manage, prevent, reduce and control **all** identified forms of air pollution, from various sources, and to maintain human health and ecological functions, as they relate to air pollution, at acceptable levels.

•Land/soil pollution management

- To manage, prevent, reduce and control soil pollution arising through agricultural activities
- To manage, prevent, reduce and control soil pollution linked to water quality management
- To adopt an integrated approach to soil quality management
- To develop an appropriate policy which deals with pesticides in an integrated manner, taking into account the economic and development imperatives underpinning pest control and the impact of pesticides on human health and the environment
- To manage, prevent, reduce and control soil pollution problems arising from a range of other sources, for example waste treatment and disposal, and relevant activities of the wood processing industry, repair shops and scrap yards, service stations, and the metal and mining industries.
- Pollution and waste avoidance, prevention and minimisation to be achieved **by:**
 - adhering to mechanisms to ensure appropriate design parameters, optimizing operating procedures and good housekeeping for all waste-generating processes
 - identifying mechanisms, such as risk assessment, for forecasting potential situations in which accidents and spills can cause unscheduled waste emissions, whether it be at a facility or during transport
- Resource recovery, recycling and reuse mechanisms:
 - Reduction in the waste stream by ensuring an economic environment which **favours** recycled materials
 - Extraction and utilisation of landfill gas.
- **Waste** collection, treatment and processing mechanisms:
 - Ensuring that wastes are appropriately treated and processed prior to their disposal in accordance with relevant laws, regulations, standards and guidelines
 - Rendering harmless any pollutants which may be released during waste treatment processes
 - Ensuring that all South Africans have adequate and sufficient waste and refuse collection services.
- Final waste disposal mechanisms:
 - Timely identification, investigation and development of environmentally and socially acceptable waste disposal facilities, in a manner which promotes the

regionalisation or sharing of waste disposal sites to reduce their number and costs

- Developing, operating and/or closing **all** other waste disposal facilities, including tailing dams, metallurgical slag dumps, whether proposed, existing or closed, in terms of the appropriate guidelines and pollution control legislation
- Phasing out salvaging on landfills completely.

• **Pollution remediation** mechanisms:

- It will be required that where the environment has been impaired by accidental, insidious or intentional pollution or unacceptable waste management practices, it must be **remediated** by the accountable party and returned as close as possible to its original state.

• **Hazardous waste importation:**

- Giving effect to the requirements of the **Lome** and **Basel** Conventions, including Decision 3.1 (amendment to the **Basel** Convention)
- Investigating the benefits of becoming a signatory to the **Bamako** Convention

Short-term deliverables

• ***Waste minimisation and recycling:*** to adopt measures (in close cooperation with the private sector) aimed at facilitating and coordinating widespread implementation of existing successful waste minimisation and recycling initiatives. Specific outputs include:

- developing mechanisms for promoting cleaner production technologies and innovative treatment and disposal options at source
- developing mechanisms to set targets for minimizing waste and pollution at source
- developing mechanisms to prioritise pollutants requiring prevention control by using a risk-based approach to assess the impact on the environment.
- facilitating information exchange between **provincial/local** governments and industries, for example to encourage the more widespread establishment of waste minimisation clubs
- identifying all successful existing recycling initiatives and implementing measures to ensure their ongoing success and viability Subsidizing recycling campaigns in order to make them economically viable
- Separation and recovery of resources as early as possible in waste-generating processes in both the commercial and domestic sectors
- Resource recovery at waste transfer stations, waste treatment facilities and waste disposal sites
- Subsidizing recycling campaigns in order to make them economically viable
- Engaging with the mining and power generation industries regarding the investigation, promotion and implementation of minimisation and recycling of their wastes

- developing and implementing a **programme** for disseminating **information** by the Department on the techniques, opportunities and benefits associated with cleaner production, waste minimisation and recycling. Specific outputs include:
 - establishment of **Waste Minimisation and Recycling Centres**
 - dissemination of information on waste minimisation by developing a directory of case studies and sector-specific guides
 - implementation of demonstration projects
 - promotion of information and awareness campaigns about waste minimisation and recycling by the Department, in collaboration with local government
- amending educational curricula to reflect cleaner production, waste minimisation and recycling approaches to waste management.

• **Waste collection:**

- To compile a report documenting the investigation of affordable and sustainable waste collection service models, with appropriate conclusions and recommendations
- To establish guidelines for appropriate waste collection services for all sectors of society, which cater for appropriate recycling and set national standards
- To ensure that waste collection services for the identified 300 000 previously unserved households (**pilot programme**) are implemented by local government, in close consultation with communities. (These collection services will be implemented in addition to any expansion of waste collection services to unserved areas that is currently being planned and executed by some municipalities with adequate capacity and resources)
- To ensure that sufficient suitably capacitated staff (employed or contracted) are available at the local level to implement waste collection services
- Encouraging waste reduction and resource recovery by municipalities
- To develop a system for the safe collection and transportation of hazardous waste, including the development of guidelines for provincial environmental **departments**, registration and certification of contractors, implementation of the waste manifest system and possibly a network of collection points

• **Waste treatment:**

- To compile a register of all waste treatment facilities, using information from the Waste Information System (see Goal 6)
- To develop a classification system for all waste treatment facilities, which will include:
 - medical waste facilities, including incineration and alternative treatment technologies
 - hazardous waste facilities, **including** thermal destruction and alternative treatment technologies
 - **crematoria** facilities (human and animal)
 - recovery works, for liquid, solid or energy recovery

- animal waste - blood, skins, hides, by-products, fat, bone meal and **fishmeal**
- ◇ oil recovery
- electroplates and metal finishers
- gold and acid recovery from mine dumps
- To **develop** and begin implementing regulations and **standards** for **all** waste treatment facilities. Environmental performance standards will be based on the classification system for waste treatment facilities. **DEAT** will also **address** the issue of delegating the responsibility for enforcement of the regulations and standards to the appropriate level of government
- To develop revised air emission standards for waste incineration facilities **that** will consider international standards and South African conditions, and be graded according to the size of the facilities and the type of waste incinerated
- To monitor and audit all waste incineration facilities according to the revised air emission standards. This will at first be done by **DEAT**, but may become the responsibility of the provincial environmental departments
- To develop and implement a public awareness and education campaign, focusing on the hazards of medical waste and the legal responsibilities of medical waste generators
- To complete a plan for a system of medical waste treatment **plants**. Thereafter additional medical waste treatment facilities will be established and operated in accordance with this plan
- To facilitate an investigation into the feasibility of regional/quasi-provincial waste treatment facilities, including the initiation of a national survey of the amounts and categories of hazardous waste requiring treatment.

• **Waste disposal:**

- To compile a register of all waste disposal facilities, using information from the Waste Information System
- To ensure that the plans for implementing the **DWAF Minimum Requirements** at all Section 20 waste disposal facilities are drawn up by the facility owners and submitted to **DWAF** for their approval and records
- **DWAF** will ensure that all medium and large landfill sites are permitted, following submission of required permit application **reports** by landfill owners
- **DWAF** will carry out appropriate monitoring and auditing of all registered Section 20 waste disposal facilities, to enforce the applicable Minimum Requirements, regulations and permit conditions
- Compliance with the relevant laws, regulations, standards and guidelines
- To formalise and control existing salvaging on landfills, **as** an interim measure, through agreements between landfill owners and salvagers. Permits will be amended, where necessary, to take into account agreements on salvaging. Salvaging **will** not be allowed to commence on landfills where it is not currently taking place
- To develop a classification system for mining and coal combustion wastes which differentiates between waste from different types of mines, as well as waste from before and after material recovery **plants**

- , To collaborate with DME in developing a permitting system, including guidelines and minimum requirements, that will be integrated into the Environmental Management Programme Report (EMPR) process, for mining and coal combustion wastes
- To initiate the establishment of adequate hazardous waste disposal facilities for all parts of the country, to be carried out by the provincial environmental departments, in collaboration with municipalities
- DWAF, together with DEAT, will issue updated, extended and amended Minimum Requirements documents, taking into account comments based on operational experience.

5.2.3 Goal 3: Holistic and integrated planning

*To develop mechanisms to ensure that integrated pollution and' waste management considerations are **effectively** integrated into the development of government policies, strategies and programmed, all spatial and economic development planning processes, and all economic activities.*

Objectives

- To incorporate integrated, environmental management principles and methodologies in spatial development planning, as it affects integrated pollution and waste management
- To make timely and appropriate provision for adequate waste disposal facilities
- To develop management instruments and mechanisms for integrating pollution and waste management concerns in development planning and land allocation
- To develop agreed, appropriate indicators to measure performance for inclusion in EIP's and EMP's as provided for in NEMA.

Short-term deliverables

- To develop guidelines for preparing integrated waste management plans for general, hazardous and industrial (including mining, coal combustion and radioactive) waste
- To ensure that each provincial environmental department submits a first-generation integrated waste management plan, formulated in accordance with the Guidelines, to national government (i.e. the Committee for Environmental Coordination). These waste management plans will form an integral part of the environmental management plans and environmental implementation plans of national and provincial government
- To ensure that each local authority submits a first-generation integrated general waste management plan, formulated in accordance with the Guidelines, to the relevant provincial environmental department
- To reach consensus between national government (DEAT, DME and other relevant

departments) and industry **sectoral** representatives on time schedules for submitting integrated management plans for industrial waste (including mining and power generation waste), currently disposed of at private **and/or** dedicated facilities

- To ensure that integrated industrial waste management plans are submitted by the owners/developers to the provincial environment departments for review.

5.2.4 **Goal 4: Participation and partnerships in integrated pollution and waste management governance**

To establish mechanisms and processes to ensure effective public participation in integrated pollution and waste management governance.

Objectives

- To ensure that communication strategies in all spheres of government address public participation needs
- To allocate government resources (financial and human) to build institutional capacity in national, provincial and local government spheres for effective management of public participation in integrated pollution and waste management governance.
- To encourage strategic alliances between government and interested and affected parties to ensure integrated pollution and waste management and achieve sustainable development.

Short-term deliverables

- To develop mechanisms to ensure public participation and community involvement in processes relevant to integrated pollution and waste management
- To make the involvement of the public mandatory in waste management decisions, where people will or can be affected
- To investigate extending the use of environmental monitoring **committees**, which involve representation and participation of the public, to monitor all waste disposal sites and other sensitive waste management projects. This strategy **will** also encourage continued ad *hoc* monitoring by involving interested and affected parties and deliberate involvement of communities in enforcement and compliance in line with provisions of **NEMA**.

5.2.5 **Goal 5: Empowerment and education in integrated pollution and waste management**

To promote the education and empowerment of South Africa's people to increase their awareness of and concern for pollution and waste issues, and assist in developing the knowledge, skills, values and commitment necessary to achieve integrated pollution and waste management

Objectives

- To integrate pollution and waste management education in all education programmed, at all levels, in all curricula and disciplines of formal and **non-formal** education in the national qualification framework
- To ensure that integrated pollution and waste management education programmed and projects foster a clear understanding of the interrelationships between pollution and waste, and of the economic, social, cultural, environmental and political issues in local, regional, national and global spheres
- To develop a culture of discouraging pollution and waste generation among all South Africans.
- To assist small, micro and medium-enterprises in developing appropriate integrated pollution and waste management procedures
- To encourage and support the involvement of women, youth, workers, the unemployed, the disabled, traditional healers, the elderly and other special interest groups in the design, planning and implementation of integrated pollution and waste management education and capacity-building programmed and projects.
- To initiate awareness campaigns for integrated waste management planning, together with the provincial environmental departments. The campaigns will be implemented by local government for general waste, and the provincial environmental departments for hazardous and industrial waste

Short-term deliverable

- To implement a capacity building **programme** resulting in:
 - the identification, development and sustained provision of appropriate capacity building programmed within the stipulated time frames for the Waste Information System (**WIS**), Integrated Waste Management Planning (**IWMP**), Waste Minimisation and Recycling (**WM**), Waste Collection (**WC**) and Waste Treatment and Disposal (**WT**) Action Plans. All capacity building programmed will include the development of conceptual and social skills
 - capacitated organisations and personnel developed on a sustainable basis in national, provincial and local government in accordance with the stipulated **NWMS** time frames
- To identify, develop and provide (in a sustained way), in conjunction with **stakeholders**, education, awareness and communication programmed for civil society. These should be appropriate for implementing the Waste Information System, Integrated Waste Management Planning, Waste Collection, Waste Minimisation and Recycling, and Waste Treatment and Disposal Action Plans, and within the stipulated time frames.
- To enhance integrated pollution and waste management literacy, using all forms of communication media
- To promote “outreach programmed” aimed at educating people in rural areas and decision makers

- Consolidate and reinforce existing awareness programmed
- Continue to use theme days (e.g. environment week) as rallying points for awareness programmed

5.2.6 Goal 6: Information management

To develop and maintain databases and information management systems to provide accessible information to interested and affected parties that will support effective integrated pollution and waste management

Objectives

- ▲ To establish effective and efficient information systems, including the development of appropriate pollution indicators to ensure informed decision making, measure progress in policy implementation and enable public participation in the governance of integrated pollution and waste management
- To strengthen and build the capacity of government to collect, **analyse** and use relevant information and knowledge for integrated pollution and waste management from all sources
- To develop a register of pollution and waste releases and transfers from point and diffuse sources
- To develop a register for all waste handlers

Short-term deliverables

- . To develop and implement a Waste Information System (**WIS**), based on:
 - an assessment of the training needs
 - development and testing of a prototype, before compiling an assessment report, and
 - capacity building
- To draw up **WIS** Guidelines as a key mechanism for conveying information about the **WIS** for capacitating the data suppliers. The Guidelines will detail reporting requirements and what happens with the information
- To begin developing mechanisms to set up information systems on chemical hazards and pollution releases and the introduction of a system to track the transportation and disposal of waste materials
- To obtain accurate verified information required to support all short-term objectives within the **NWMS** To begin developing mechanisms to set up information systems on chemical hazards **and** pollution releases and the introduction of a system to track the transportation and disposal of waste materials
- To disseminate information through formal and informal channels, including communication media, in an accessible format. This includes publication as part of the National State of the Environment Report and a National Waste Report. Depending on the availability of funding, a Preliminary National **WIS** Report could be published as an interim measure.

5.2.7 **Goal 7:** International cooperation

To develop mechanisms to deal effectively and in the national interest with international issues affecting pollution and waste.

Objectives

- To cooperate internationally on common pollution and waste management concerns, giving priority to the southern African region

Short-term deliverables

- To adopt a uniform approach to the handling of international agreements and obligations
- To consider conventions or other instruments which are being negotiated by an international body, as well as conventions which have been adopted internationally, by giving due attention to:
 - the recognition of the interests of **stakeholders** in formulating an official national position to be submitted to the relevant international negotiating forum
 - the formation of a **multi-sectoral** committee which will be responsible for formulating a national point of view (where necessary)
 - the constitution of national delegations which comprise government officials, as well as all sectors of society, and
 - a recommendation to Parliament on the accession to **an** international obligation, taking the following issues into account:
 - available resources to ensure implementation
 - views of **stakeholders**, and
 - benefits and disadvantages to **the** nation
- To ensure that ratification of a convention is followed by aligning the necessary domestic legislation to comply with the international obligation, and promulgate **the** legislation prior to entry into force of the convention where applicable, including:
 - designation of the responsible national authority or focal point
 - publication of the full text of the convention, **and**
 - publication of the legislation to give effect to the convention
- To ensure that South Africa acts in accordance with the National Environmental Management Act (No. 107 of 1998) in dealing with international treaties and agreements, and that pollution and waste management considerations are included in all relevant international negotiations
- To ensure adequate opportunity for consultation with all relevant interested and affected parties before negotiating, entering into and implementing international agreements
- To meet all requirements arising from international agreements and obligations dealing with pollution and waste management.

6. GOVERNANCE

This chapter deals with:

- the role of government
- the roles of all other **stakeholder** sectors
- the mechanisms anticipated for enforcing integrated pollution and waste management.

6.1 Constitutional Setting

The Constitution requires that the legislative and executive authority of different spheres of government operate within a framework of cooperative governance. National and provincial governments have some concurrent and some exclusive powers for managing the environment. The Constitution also sets out how national and provincial government should regulate certain environmental functions of local government.

Functional areas of *concurrent national and provincial* legislative competence regarding integrated pollution and waste management are:

- disaster management
- education at all levels, excluding tertiary education
- environment
- industrial promotion
- nature conservation, excluding national parks, national botanical gardens and marine resources
- pollution control
- regional planning and development
- soil conservation
- urban and rural development

as well as the regulation of the following *local government* matters:

- air pollution
- municipal planning
- **harbours**, excluding the regulation of international and national shipping
- storm water management systems in built-up areas
- water and sanitation services limited to potable water supply systems and domestic waste water and sewage disposal systems.

The functional areas of *exclusive provincial* legislative competence regarding integrated pollution and waste management are provincial planning and the regulation of the following *local government* matters:

- cleansing
- control of public nuisances
- noise pollution
- refuse removal, refuse dumps and solid waste disposal.

6.2 White Paper on Environmental Management Policy for South Africa

The White Paper on Environmental Management Policy for South Africa delineates government's policy on environmental management. The **IP&WM** policy is a subsidiary and supporting policy to this environmental management policy, which identifies the Department of Environmental Affairs and Tourism as the lead agent for the environment. As such, the Department will take overall responsibility for integrated pollution and waste management in South Africa.

It is the policy of the Department of Environmental Affairs and Tourism to encourage all **stakeholders**, i.e. other government departments, business and industry, **labour**, environmental and public interest groups, and other members of civil society, to participate in the discussion, design and implementation of new policies and programmed.

6.3 Roles of Government

6.3.1 National government

While the Department of Environmental Affairs and Tourism is the lead agent for the environment, the Department of Water Affairs and Forestry is the lead agent for water, responsible for managing water quantity and quality. The Department of Environmental Affairs And Tourism will provide leadership and guidance to enable other national departments, provincial environmental departments and municipalities to meet their executive obligations in respect of the environment, including integrated pollution and waste management. In performing these functions the lead agent will act in accordance with the requirements of cooperative government.

The Department of Environmental Affairs and Tourism will take overall responsibility for integrated pollution and waste management in South Africa, and will execute its responsibilities by concentration and extension. Furthermore, it will establish guidelines, mechanisms and structures which will ensure that activities undertaken by other media and sector managers are coordinated, uniform and effective.

To ensure coordination between the Department of Environmental Affairs and Tourism and other departments and organs of State that exercise pollution and waste management functions, it may be appropriate to establish formal working arrangements. These will ensure that functions are exercised efficiently, without duplication and in a cooperative and mutually supportive manner.

An underlying principle in allocating governance functions is the **devolution** of responsibility to the most appropriate sphere of government. Where the allocated sphere of government does not have the resources or capability, the next sphere of government

will execute the function. Furthermore, the Department of Environmental Affairs and Tourism and provincial environmental departments will assist where resources and capability are lacking, as well as in building capacity.

Functions of the lead agent

The Department of Environmental Affairs and Tourism will ensure that the following integrated pollution and waste management-related functions are undertaken:

- Policy, strategy and legislation
- Coordination
- Enforcement
- Dissemination of information
- Participation and appeals (against government decisions, authorisations, etc.)
- Monitoring, auditing and review
- Capacity building.

Powers of the lead agent

In accordance with its role as lead agent, the Department of Environmental Affairs and Tourism will:

- enforce compliance with the **IP&WM** policy and legislation, norms and standards
- bind all spheres of government and organs of State to comply with and give effect to national integrated pollution and waste management legislation, norms, standards and guidelines in performing their integrated pollution and waste management functions
- review the environmental impact of all government policies, strategies, plans, programmed and actions and ensure that they conform with the national **IP&WM** policy, legislation, norms and standards
- enact legislation giving the national Department of Environmental Affairs and Tourism the power of intervention to protect the environment in cases of conflict between national and provincial law, as provided for in Section 146 of the Constitution
- intervene in instances where provincial or local governments fail to **fulfil** an executive obligation in respect of integrated pollution and waste management, as provided in Section 100 of the Constitution.

Government media and sector managers

Current legislation identifies a range of national government departments that have some waste-related responsibilities. The list below provides a brief indication of some of those government departments, aside from the Department of Environmental Affairs and Tourism, that are principally affected, and some of their responsibilities.

- **Department of Water Affairs and Forestry** is responsible for water quantity and quality aspects of pollution and waste management (National Water Act No. 36 of 1998), and also **fulfils** its obligations in terms of Section 20 of the Environment Conservation Act (Act 73 of 1989) regarding the permitting of landfill sites, including the development of regulations, guidelines and standards as long as applicable.

- **Department of Minerals and Energy** sets regulations, norms, standards and guidelines in consultation with **DEAT** for mining, radioactive and coal combustion waste, and regulates the mining and nuclear industries within the context of environmental legislation
- Department of Health sets regulations and guidelines for all medical wastes and treatment facilities, in consultation with **DEAT**, and regulates the medical industry within the context of environmental and health legislation.
- Department of Agriculture develops the necessary regulations and guidelines for all agricultural wastes, in consultation with **DEAT**.

Functions of the media and sector managers

The media and sector managers in government will ensure that the following integrated pollution and waste management-related functions are undertaken regarding their medium or sector:

- Policy, strategy and legislation
- Coordination
- Enforcement
- Dissemination of information
- Participation and appeals (against government decisions, authorisations, etc.)
- Monitoring and review
- Capacity building.

Powers of the media and sector managers

In order to **fulfil** their responsibilities as media/sector managers, the relevant government departments **will**:

- enforce compliance with **medium/sectoral** policy, legislation, norms and standards
- determine the impact on their particular medium or sector and set impact criteria
- manage its medium/sector by source control, impact management and **remediation**
- build institutional capacity, and
- ensure public participation.

6.3.2 Provincial and local government

Provincial and local government will operate within the national framework of the **IP&WM** policy. Both municipalities and provincial governments will play an important role in implementing national strategies addressing waste and pollution management. Where appropriate, they will develop their own legislation and implementation strategies to meet their specific needs within the framework of this policy. As indicated earlier, functions relating to the management of pollution and waste should be carried out in the sphere of government that will be most effective.

Provincial government

The provincial environmental departments will be responsible for monitoring and enforcing pollution and waste management issues within their province. Specific functions to be carried out by Provincial Government include:

- Develop a provincial environmental implementation plan
- Reviewing the first-generation integrated waste plans received from the municipalities and where necessary, assisting with the drafting of these
- Monitor compliance with provincial implementation plans
- Intervene if the implementation plans are not being complied with
- Develop provincial guidelines and standards
- Develop and enforce provincial regulations
- Act on environmental hazards as required
- Participate in the Committee for Environmental Co-ordination.
- Ensure that all industries have access to appropriate waste disposal facilities
- assisting national government in drafting regulations and guidelines
- quality assurance of the Waste Information System
- developing and enforcing provincial regulations for general waste collection, and supporting local government in the implementation of waste collection services
- implementing and enforcing waste minimisation and recycling initiatives, and in particular, promoting the development of voluntary partnerships with industry
- registration and certification of hazardous waste transporters, the waste manifest system and the establishment and control of hazardous waste collection facilities
- supporting the Department of Environmental Affairs and Tourism in planning for a system of medical waste treatment facilities, and investigating the feasibility of centralised (regional) waste treatment plants.

Local Government

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

- compiling and implementing general waste management plans, with assistance from provincial government
- implementing public awareness campaigns
- collecting data for the Waste Information System
- providing general waste collection services and managing waste disposal facilities within their areas of jurisdiction
- implementing and enforcing appropriate waste minimisation and recycling initiatives, such as promoting the development of voluntary partnerships with industry, including the introduction of waste minimisation clubs
- where possible, regional planning, establishment and management of landfill sites, especially for regionally based general waste landfills.

6.3.3 Authorisations

The current fragmentation, duplication and lack of coordination in the authorisation process and assessment reporting requirements will be replaced by a single streamlined and efficient administrative system. A simple process for environmental authorisations will be developed to ensure that activities with a possible detrimental effect on the environment are effectively regulated.

A single entry point for authorisation applications will be investigated in consultation with relevant organs of State as provided by the National Environmental Management Act (Act 107 of 1998) and implemented as appropriate. Authorisation conditions will include, but not be limited to, standards, details of voluntary agreements as provided for in the National Environmental Management Act, market-based instruments, reporting requirements, any other clauses, as well as the frequency and method of regular review and update. Lead Departments will however retain functional integrity and accountability in executing their specific legal mandates.

6.3.4 Impact management through ambient standards

Ambient standards define targets for integrated pollution and waste management and establish the permissible amount or concentration of a particular substance in or property of discharges to water, air and land, based on what a particular receiving environment can tolerate without significant deterioration.

Standards for water quality and **wastewater** discharges will be set by the Department of Water Affairs and Forestry and other ambient environmental quality standards by the Department of Environmental Affairs and Tourism. The standards will be set in consultation with other media and sector managers. The setting of source control and **remediation** standards will remain the responsibility of the media and sector managers, but will be coordinated at national and provincial levels.

Quantifiable performance standards will be achieved by introducing the following measures:

- Performance-based standards to achieve agreed environmental quality
- The universal, consultative application of the standards-setting process, taking into account the needs of, and information possessed by, the discharger, government departments, the scientific community and civil society.
- Guidelines for the development of the approach to, and the setting of pollution and waste standards, drawn up as part of the national strategies on pollution and waste in collaboration with all relevant parties.
- The provision of access for civil society to the standards-setting process and the standards themselves, in accordance with the commitment to more readily available pollution and waste management information
- . Where new standards are set for existing dischargers and waste managers, the

establishment of a negotiated, phased approach, using measurable short, medium and long-term targets towards achieving the new standards.

The relevant laws, regulations, standards and guidelines will be used as mechanisms to obtain information on media impacts, which in turn will be used to evaluate predicted impacts against the ambient standards. Coordination of standards setting and agreement on a consolidated set of requirements against which applications for authorisation will be evaluated, will be developed as part of the national strategies on pollution and waste.

6.3.5 Monitoring

Monitoring will be media and sector-based. Two areas will be addressed, i.e. ambient environmental quality monitoring and compliance monitoring.

Ambient environmental quality monitoring

The achievement and maintenance of appropriate ambient environmental standards will be supported by the collection of adequate information on ambient levels of pollution, the nature and effects of pollutants, and their pathways through the environment.

To this end various departments and spheres of government will be tasked with ensuring that adequate monitoring occurs, i.e. they will:

- conduct regular monitoring of all pollutants for which there are minimum standards, implemented in a phased approach, dealing with priority **pollutants** and areas first, in all areas of the country where these pollutants may have a negative health or environmental impact
- collect ambient environmental quality information
- establish consistent and standardised databases between different government departments and spheres of government, so that data can be easily collated and consolidated
- standardise operating procedures for environmental quality monitoring, as well as standardizing procedures for the format of captured data, and
- regularly publish statistics on ambient environmental quality.

Monitoring specific media or sectors will be the responsibility of the media and sector managers, and coordinated by the lead agent.

Compliance monitoring

The permit holder is responsible for compliance monitoring, with government officials at national, provincial and local level undertaking regular inspections and/or audits to ensure that permit holders fulfilling their obligations.

Systems will be developed for:

- effective ambient pollution and waste monitoring
- effective monitoring of environmental impacts

- ensuring that the results of the various monitoring programmed are collated to identify cumulative trends which can be used in decision making
- ensuring that both the sources of pollution and the receiving environment are monitored and that the latter is used to assess the effectiveness of source control measures
- ensuring that only those analyses obtained through accredited laboratories are accepted for inclusion in the register, and
- developing ambient quality standards, emission or discharge limits in a consultative manner that is based on sound scientific and management principles, as well as local knowledge.

Responsibilities of the lead agent and media and sector managers

The Department of Environmental Affairs and Tourism, as lead agent, is responsible for the overarching auditing function to ensure adequate ambient and compliance monitoring.

Ambient quality monitoring is the government's responsibility. The division of responsibilities between the departmental media and sector managers is as follows:

- Water - Department of Water Affairs and Forestry
- Air - Department of Environmental Affairs and Tourism
- Land - Department of Environmental Affairs and Tourism.

Multi-skilled inspectors will be employed at national or the next most-appropriate level to check permit-holder compliance with regulatory requirements. Government officials at local level (e.g. Department of Health and Local Government) could be trained as multi-skilled inspectors to perform this function. Monitoring will take the form of external audits conducted by the inspectors or checking of monitoring records and audit reports.

6.3.6 Regulatory instruments

A wide range of management instruments can be used for integrated pollution and waste management. This policy does not intend to prescribe which tools will be used in which instances, but rather outlines the range of instruments currently available and their associated advantages and disadvantages. Those management instruments that best promote the principles, goals and objectives of this policy will be used.

The criteria to be considered for selecting a particular instrument or package of instruments are as follows:

- effectiveness in ensuring environmental sustainability
- ability to secure participation by interested and affected parties in integrated pollution and waste management governance
- giving effect to the constitutional rights and principles of both the White Paper on

Environmental Management Policy for South Africa and this White Paper on Integrated Pollution and Waste Management for South Africa

- equity considerations
- economic efficiency and impact
- administrative feasibility and
- acceptability by civil society.

The regulatory range of instruments will draw on direct controls and permits, market-based instruments, land-use planning and controls, and voluntary agreements. These instruments will be used in an integrated manner to maximise effective integrated pollution and waste management. A thorough survey of available instruments for integrated pollution and waste management will be conducted as part of the national strategies on pollution and waste.

Command-and-control instruments

Command-and-control instruments involve direct regulation and rely primarily on the application of regulatory instruments, such as standards, permits and land-use controls.

Standard define environmental targets and establish the permissible amount or concentration of particular substances in discharges into air, water and on land. Standards may also include technological specifications for the performance or design of equipment and facilities and the standardisation of samples and analysis methods.

Permits are tied to standards and are also subject to the fulfillment of specific conditions. They facilitate the enforcement of integrated pollution and waste management by including all pollution and waste management obligations in one authorisation. Permits can be withdrawn in cases of non-compliance, or changed as environmental or economic circumstances shift. Similarly, should the permit holder not meet permit conditions, the permit holder can be fined or prosecuted.

Land-use controls: In terms of the Development Facilitation Act, provincial government and municipalities are required to formulate land development plans that must include encouraging environmentally sustainable land development practices. The lead agent will evaluate and address these and other land-use controls and guidelines relevant to integrated pollution and waste management. These controls and guidelines will be developed in collaboration with national, provincial and local government. Some of the main issues to be addressed include: domestic waste collection and disposal, vehicle emissions and the use of fossil fuel appliances.

Market-based instruments

The objective of economic instruments is to change behaviour by promoting specific innovations that lead to improved environmental performance. In considering economic instruments, it is important to understand the difference between a "charge" and a "tax".

The main purpose of a tax is to generate revenue, while a charge is meant to recover costs (including environmental costs).

Mechanisms to achieve cost recovery will be investigated as part of the National Waste Management Strategy. A prerequisite for the recovery of environmental costs is the ability to price environmental assets correctly, which is a primary objective of environmental resource economics. Different economic instruments are designed to correct different situations. It is therefore important to know the cause of an environmental problem and to ensure that property rights, and environmental awareness and education are taken into account before a choice of market-based instruments is made. Examples of the types of instruments that may be considered in this category include:

- resource charges
- pollution charges
- input charges, and
- deposit refund systems.

Another form of economic instrument is based on the incentive approach, through which investment in, for example, cleaner production technologies, is promoted. This type of instrument will be investigated in collaboration with the Department of Trade and Industry and may include:

- investment credits
- accelerated depreciation
- product/service subsidies and
- basic needs subsidies (already in place in the form of a lifeline tariff for water services).

Voluntary agreements

Voluntary agreements adopted by industry have been used in many countries as an important complementary approach to pollution reduction, but seldom as a replacement for direct government control. These voluntary agreements can be used to achieve performance in excess of compliance with minimum standards and can include setting pollution reduction targets and penalties for non-compliance. Voluntary programmes that promote pollution reduction, access to information, and the involvement of local communities in integrated pollution and waste management will be encouraged.

The introduction of mechanisms to promote and administer voluntary agreements will be investigated as part of the national strategies on pollution and waste. Issues to be considered include:

- promotion of environmental management systems as a complementary mechanism to improve environmental performance
- achievement of specific reduction targets with an agreed time frame
- promotion of the involvement of communities, labour, and environmental non-

- governmental organisations in pollution reduction initiatives, and
- mechanisms to handle non-compliance.

6.3.7 **Capacity** building

Government and civil society will be capacitated through training in integrated pollution and waste management. Emphasis will be placed on the training and skills development of members of disadvantaged groups.

The government will assist people to act in an informed manner by:

- promoting sound scientific research and monitoring and recognizing local knowledge and information
- ensuring a wide dissemination of the results of research and other pollution and waste management data
- encouraging access to information and legislation
- encouraging individuals and the communication media to act on the basis of sound information, and
- giving attention to the environment at all levels of the formalised education system to ensure that **all** members of society obtain an understanding of the sources, the prevention and the minimisation of pollution and waste.

Human resource development programme

The human resource development **programme** of the Department of Environmental Affairs and Tourism will be adjusted to focus on the new policy priorities.

The Department will establish links with tertiary education and other training institutions to ensure that training of pollution and waste managers, inspectors, educators and information officers, both for the Department and generally, is appropriate to **the** new direction contained in this White Paper on Integrated Pollution and Waste Management for South Africa.

Sectoral capacity building

Integrated pollution and waste management will only be successful if personnel at all levels in the Department of Environmental Affairs and Tourism **and** the provincial environmental departments, as well as all other relevant organisations, organs of State and sectors are developed. Capacity will also have to be built in **marginalised** and disadvantaged groups, and in small, micro and medium-enterprises. Technical expertise will also have to be promoted.

The lead agent and all other **roleplayers** will be involved in partnership activities for capacity building at national, provincial and local levels.

Pollution, waste management and gender

The development of women in relation to integrated pollution and waste management is important for a number of reasons. Since women are the traditional custodians of natural resources in the rural areas, they are also the people who suffer most from degradation of the natural resource base, and their wisdom in this regard should be acknowledged and utilised by government.

This **IP&WM** policy promotes representation by women at all levels and in all spheres of integrated pollution and waste management, including in political, technical and managerial positions.

6.3.8 Information systems

A central component of the integrated pollution and waste management information system is that it will allow public access to information, based on the constitutional right to be informed.

Government will establish:

- an adequate national ambient environmental quality monitoring network with a consistent approach to monitoring
- a register of pollution and waste releases and transfers (including the estimation of non-point sources of pollution), and a register of waste handlers and waste disposal sites
- a system of storing and disseminating collected information regularly and on request, in this way giving effect to the right of access to information
- consistent and standardised databases between different government departments and spheres of government so that data can be easily collated and consolidated
- standardised procedures for the format of data capturing
- a process for the regular publishing of statistics on ambient environmental quality, and
- a role for civil society in pollution and waste monitoring.

Pollution emission information

In order to provide sufficient data for waste minimisation and source-based pollution control, a register of pollutant releases or transfers from a variety of sources will be established. One of the components of the National Waste Management Strategy will be the establishment of a Pollutant Release And Transfer Register. The register will include information about point and non-point (diffuse) releases or transfers to air, water and soil. All waste handlers (collection/transport/disposal contractors) will be required to register. Mechanisms to facilitate public access to the register will be introduced.

The relevant national, provincial and local authorities will also be required to publish

regular statistics based on the register. The Department of Environmental Affairs and Tourism will compile and keep this register. The register, especially in its early stages, will not be expected to provide information on the impact of pollution. The data will, however, provide crucial information to government regulators and to civil society, and can be used to **analyse** pollution sources according to impact and to prioritise pollution reduction activities.

In designing the register the following issues will be taken into account:

- the precise goals and objectives of the register
- the pollutants of concern to be included
 - the scope of the register
- the responsible government authority
 - reporting methods
- financing
 - methods of ensuring access to the information collected
 - criteria for including pollutants on the list, and
 - methods of collecting data.

Registration of waste disposal sites

The Environment Conservation Act (No. 73 of 1989) provides for the registration of all waste disposal sites and waste deposits. However, this Act has not been fully implemented. Although a recent survey by the Department of Water Affairs and Forestry identified the majority of waste disposal sites in the country, a register of waste disposal sites is essential for implementing controls. It is a requirement of the **IP&WM** policy that all waste disposal site operators and owners register their waste disposal sites with the relevant authority.

Constitutional rights to information

The constitutional right of access to information is central to integrated pollution and waste management. The principles of the Open Democracy Bill will be used as the basis for granting access to information in terms of the **IP&WM** policy.

The Constitution recognises that the provision of information may be a financial and administrative burden on the State and that reasonable measures can be provided to relieve this burden. Mechanisms for establishing the administration of an information system without creating an excessive administrative or financial burden on the State or private sector will be investigated.

Making information accessible

In line with the management philosophy of this **IP&WM** policy, the government will make available the following types of information:

- Pollution levels in the ambient environment

- The amounts and types of pollution generated and released into the various media from point sources
- Estimates of the total release of non-point source pollutants of concern.

Data will be transformed into **useable** information by making it readily understandable to those without technical backgrounds and without sophisticated information technology. Mechanisms to give effect to this approach will be investigated as part of the national strategies on pollution and waste.

In addition to pollution release and concentration data, technological and other information is needed to support pollution reduction efforts. The Department of Environmental Affairs and Tourism will collect information on cleaner technology, best available technologies for pollution control and other information that can assist in integrated pollution and waste management. The establishment of a pollution, waste and cleaner technology information “clearing house” or a network of such information sources, will be investigated. Models of similar bodies will be considered, as well as the financing of the structure.

6.3.9 Research and development

Policy development and decision making on pollution and waste management have to be supported by both applied and basic research. This research should be aimed at developing appropriate technologies and methodologies to ensure sustainable resource use, manage impacts and achieve cleaner production. The government will encourage civil society organisations to establish and participate in research programmed aimed at informing their members on important pollution and waste management issues.

The government will give particular attention to research addressing environmental justice concerns, environmental sustainability and administrative efficiency in terms of integrated pollution management.

Areas requiring research include:

- the state of pollution and waste management in South Africa
- cleaner production
- best practice
- monitoring pollution and waste management
- determining pollution indicators
- risk assessment
- economic instruments
- ambient standards
- social aspects relating to pollution and waste management issues, and
- non-point sources of pollution.

6.4 Roles of Civil Society

All members of society contribute to waste generation and should therefore be part of the solution to the problem of pollution and waste. Mechanisms to increase individuals' and groups' awareness of, and role in waste management will be explored as part of the national strategies on pollution and waste. All sectors of civil society, in particular the following, have a role to play in integrated pollution and waste management:

- Organised labour
 - . Community-based organisations
 - . Non-governmental organisations
- Business, industry and mining.

6.4.1 National Environmental Advisory Forum

In terms of the National Environmental Management Act, the Minister of Environmental Affairs and Tourism will establish a National Environmental Advisory Forum with subcommittees to advise him on environmental issues. A subcommittee for pollution and waste management will be established as a subordinate body to the proposed National Environmental Advisory Forums (see Figure 2). Similar structures will be established to advise the Members of the Executive Council (MECs) at provincial level.

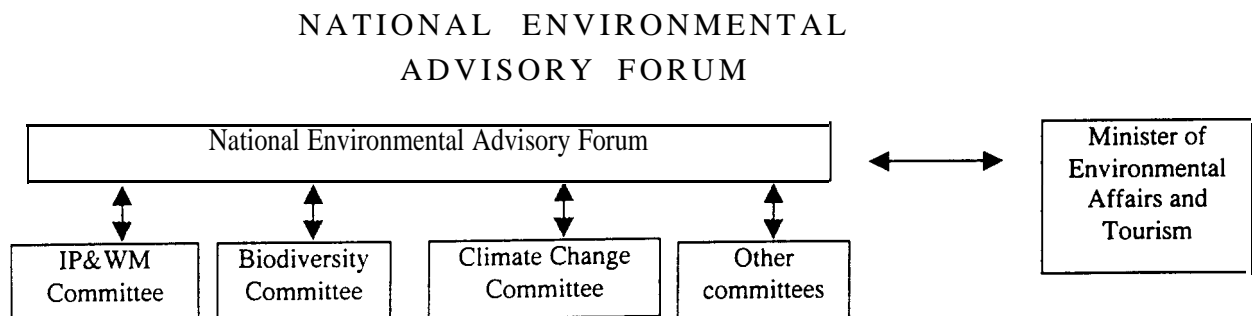


Figure 2: National Environmental Advisory Forum

6.4.2 Business and industry

The Department of Environmental Affairs and Tourism will recognise various levels of environmental performance and commitment, and incentives will be developed in consultation with other relevant departments for companies that are willing and capable of exceeding minimum standards.

Government will recognise the role that business and industry will play in enhancing integrated pollution and waste management performance by:

- facilitating full access to available information to enable them to participate from a base of knowledge and expertise

- recognizing their status as **stakeholders** in integrated pollution and waste management issues
- recognizing the particular needs of small, micro and **medium-enterprises**
- ensuring participation, and
- providing encouragement for voluntary initiatives and commitments to continually improve performance in integrated pollution and waste management.

To promote sustainable economic development, the lead agent will establish mechanisms to facilitate the involvement of business and industry and ensure that, as far as possible, the role of business in running internationally competitive enterprises, exercising management responsibilities and judgments, and discharging their duties as corporate citizens in a clear legal framework is protected.

6.4.3 **Labour**

Workers tend to be in the front line of pollution problems and exposure to hazardous environments. Therefore, government will recognise the role of the **labour** sector by:

- facilitating full access to information to enable them to participate from a base of knowledge and expertise
- recognizing their status as **stakeholders** in integrated pollution and waste management issues
- facilitating their involvement in national and international processes regarding integrated pollution and waste management
- participating in plant level integrated pollution and waste management, monitoring and auditing
- ensuring access to mechanisms to lay complaints (the so-called “whistle-blower” protection right), which will be protected by law, and
- providing access to available knowledge about the nature and extent of pollution of their place of work.

The lead agent will also provide guidelines, developed in collaboration with **labour** representatives, for participation in integrated pollution and waste management issues with industry, business and other **stakeholders**. In addition, measures will be implemented to facilitate participation in integrated pollution and waste management decision making and enforcement, especially where it affects employment.

6.4.4 **Community-based** organisations

Community-based organisations must have access to integrated pollution and waste management decision making and local information, since many communities live adjacent to polluting industries. Mechanisms and capacity building to ensure their participation will be developed by the lead agent.

Government will recognise the role of communities by:

- facilitating full access to information to enable them to participate from a base of knowledge and expertise
- recognizing their status as **stakeholders** in integrated pollution and waste management issues, and
- ensuring participation.

6.4.5 Non-governmental organisations

Non-governmental organisations have been instrumental in driving the growth of environmental awareness and in advancing the **IP&WM** policy. Therefore, the government will acknowledge their role by:

- recognizing their status as **stakeholders** in integrated pollution and waste management issues
- ensuring participation
- ensuring full access to information to enable them to participate from a base of knowledge and expertise
- facilitating their involvement in national and international processes in integrated pollution and waste management
- capacity-building, and
- creating channels to address grievances.

In order to ensure that non-governmental organisations take **part**, the **lead agent will** develop mechanisms and capacity building to address their grievances, and involve them in decision making and enforcement.

6.4.6 The public

Recognizing the value and potential of a well-informed and committed citizenry for effecting positive change, the Department of Environmental Affairs and Tourism encourages meaningful public involvement in integrated pollution and waste management issues. Public participation in the regulatory process will therefore be expanded using consensus-based approaches and negotiated rule-making. New **ways will** also be established to make information more directly accessible and relevant to the public, to build capacity and raise awareness of integrated pollution and waste management issues.

6.4.7 Appeals and complaints

Complaints regarding integrated pollution and waste management decisions and/or implementation will initially be routed through the lowest appropriate sphere of government. If this does not achieve the result required by the complainant, the next level of government may be approached. Provision has been made in the National Environmental Management Act for appeals to the Minister in cases where complaints are not resolved satisfactorily,

7. THE WAY FORWARD

Once this White Paper on Integrated Pollution and Waste Management for South Africa has been approved by the government, a policy implementation phase will be initiated which will address urgent administrative issues, the National Waste Management Strategy and legislative measures.

7.1 Administrative Actions

The following administrative actions will be attended to as a matter of urgency:

- Initiate a skills audit to investigate and subsequently develop capacity within the Department of Environmental Affairs and Tourism to undertake the new functions associated with the lead agency for integrated pollution and waste management
- Appoint the National Environmental Advisory Forum
- Establish formal working agreements through structured consultations and negotiations to ensure that the waste management function is exercised efficiently and effectively, without duplication and in the spirit of cooperative governance
- Investigate the administrative, legal and contractual arrangements necessary to give effect to allocating and sharing the waste management function and to building capacity of the appropriate authorities
- Initiate the process of integrating pollution and waste management-related functions within all spheres of government, including functions related to:
 - coordination of authorisations
 - marine pollution
 - water pollution
 - air pollution
 - domestic and hazardous waste management, including radioactive waste
 - a uniform approach to international conventions
 - a uniform approach to standard-setting, and
 - a uniform approach to compliance-monitoring
- Promote and give effect to the objectives of Agenda 21 with regard to integrated pollution and waste management issues
- Launch the programme of pilot projects for the practical implementation of integrated pollution and waste management to improve the quality of life of all South Africans
- Investigate a remediation fund for marine pollution
- Review the IP&WM policy on an ongoing basis.

7.2 National Waste Management Strategy

The National Waste Management Strategy focuses on and prioritises goals and objectives, requiring action by government and other parties within the next five to ten

years. These priorities form the basis for the Action Plans to address the strategic goals set out in this **IP&WM** policy. The Action Plans include clear timeframes and budgetary allocations for **realising** the accompanying objectives. Short-term deliverables from the Action Plans have been included under the goals (Section 5) in this policy.

7.3 Legislative Amendments and Implementation of Legislation

The Department of Environmental Affairs and Tourism is currently undertaking a law reform process to identify all the requirements for new and amended legislation pertaining to all aspects of the environment. It is anticipated that this **programme** will be completed by the end of 2000. The government will consider the ratification of outstanding international conventions on integrated pollution and waste management with a view to giving specific legislative effect to them.

APPENDIX 1

INTERNATIONAL CONVENTIONS, AGREEMENTS, TREATIES AND PROTOCOLS WHICH PERTAIN TO POLLUTION AND WASTE MANAGEMENT

The international conventions, agreements, treaties and protocols which pertain to pollution and waste management are listed below in chronological order:

- **CONVENTION ON THE INTERNATIONAL MARITIME ORGANISATION**, 6 March 1948 (Geneva): South Africa was admitted to become a party to this convention after its transition to democracy in 1994. The International Maritime Organisation is a specialist United Nations agency dealing with maritime matters, including the development of all the marine pollution control conventions. No relevant specific domestic legislation has been promulgated.
- **THE ANTARCTIC TREATY**, 1 December 1959 (**Washington**): The Antarctic Treaty stipulates that Antarctica may be used only for research and peaceful purposes. It is complemented by resource protection treaties. The relevant domestic legislation is the Antarctic Treaty Act (**No.60** of 1996).
- **TREATY BANNING NUCLEAR WEAPON TESTS IN THE ATMOSPHERE, IN OUTER SPACE AND UNDER WATER**, 5 August 1963 (**MOSCOW**): South Africa acceded to this convention in 1963. There is no specific legislation giving it domestic effect, but in terms of the Nuclear Energy Act (No. 113 of 1994), South Africa indirectly complies with its obligations under this convention.
- **CONVENTION ON THE CONSERVATION OF THE LIVING RESOURCES OF THE SOUTHEAST ATLANTIC**, 23 October 1969 (Rome): This convention regulates the conservation and exploitation of the resources of the Antarctic waters. It imposes a duty to protect the environment. Relevant domestic legislation is the Antarctic Treaty Act (**No.60** of 1996).
- **INTERNATIONAL CONVENTION RELATING TO INTERVENTION ON THE HIGH SEAS IN CASES OF OIL POLLUTION CASUALTIES**, 29 November 1969 (Brussels): This convention authorises coastal states to intervene, subject to certain conditions, with regard to pollution damage which may be caused by foreign vessels in the high seas. It is incorporated into South African law in the International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties Act (**No.64** of 1987). No domestic regulations have been promulgated under this act.

- **INTERNATIONAL CONVENTION ON CIVIL LIABILITY FOR OIL POLLUTION DAMAGE, 29 November 1969 (Brussels):** This convention provides for a compensation fund for clean-up costs and environmental damage, subject to certain conditions and ceilings. It is incorporated into South African law in the Prevention and Combating of Pollution of the Sea by Oil Act (No.6 of 1981) and General Regulations made under it (GN R1276 of 29 June 1982).
- **CONVENTION ON THE ESTABLISHMENT OF AN INTERNATIONAL FUND FOR COMPENSATION FOR OIL POLLUTION DAMAGE, 1971:** The convention supplements the International Convention on Civil Liability for Oil Pollution Damage (1969) in that it is applied when **certain limits** and financial ceilings exclude the Brussels Convention. South Africa has not become a party to this convention, as it necessitates disclosure of its oil imports.
- **TREATY ON THE PROHIBITION OF THE EMPLACEMENT OF NUCLEAR WEAPONS AND OTHER WEAPONS OF MASS DESTRUCTION ON THE SEA-BED AND THE OCEAN FLOOR AND IN THE SUBSOIL THEREOF, 11 February 1971 (London, Moscow, Washington):** This treaty prohibits environmental pollution from nuclear activities. The relevant legislation is the Nuclear Energy Act (No.113 of 1994).
- **CONVENTION ON THE PREVENTION OF MARINE POLLUTION BY DUMPING WASTES AND OTHER MATTER, 29 December 1972 (London, Mexico City, Moscow):** This convention regulates the dumping at sea of matter scheduled in the convention. It schedules prohibited substances and substances requiring permits and sets out guidelines in this regard. It is incorporated into South African law by the Dumping at Sea Control Act (No.73 of 1980).
- **INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS, 1973 and PROTOCOL OF 1978 RELATING TO THE INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS 1973, 17 February 1978 (London):** This convention and the 1978 protocol are concerned with setting standards developed by the International Maritime Organisation for tankers and other large vessels. It is **incorporated** into South African law in the Marine Pollution (Prevention of Pollution from Ships Act (No.2 of 1986)), and the regulations concerning the Prevention of Pollution by Garbage from Ships Regulations (GN R1490, published in Government Gazette No. 14000, dated 29 May 1992).
- **CONVENTION FOR THE PREVENTION OF MARINE POLLUTION FROM LAND-BASED SOURCES, 1974:** This convention is relevant to the pollution of coastal waters from land-based sources. South Africa has not acceded to it, but is monitoring developments in this regard and may accede to it in due course.
- **CONVENTION ON WETLANDS OF INTERNATIONAL IMPORTANCE ESPECIALLY AS WATERFOWL HABITAT, 2 February 1971 (Ramsar) and**

PROTOCOL TO AMEND CONVENTION ON WETLANDS OF INTERNATIONAL IMPORTANCE ESPECIALLY AS WATERFOWL HABITAT, 3 December 1982 (Paris): South Africa is a party to this convention and its associated protocol, whose focus is the protection of wetlands. An obligation is to conserve and protect wetlands and, as such, this convention is indirectly relevant to integrated pollution and waste management. South Africa has listed about a dozen wetlands, including the St Lucia lake area. Relevant domestic legislation includes the respective Nature Conservation Ordinances of the various provinces, as well as the Conservation of Agricultural Resources Act, (No.43 of 1983).

- **MULTILATERAL AGREEMENT ON THE CONTROL OF POLLUTION OF WATER RESOURCES IN THE SOUTH AFRICAN REGION, 21 November 1985:** This agreement imposes general obligations on the parties to cooperate with each other regarding access to and pollution of water resources which are common to two or more parties. There is no specific domestic legislation on this treaty,
- **VIENNA CONVENTION FOR THE PROTECTION OF THE OZONE LAYER, 22 March 1985 (Vienna) and MONTREAL PROTOCOL ON SUBSTANCES THAT DEplete THE OZONE LAYER, 16 September 1987 (Montreal):** The purpose of this convention and its protocol is to protect human beings and the environment from the harmful effect of activities which modify the ozone layer. It requires the parties to cooperate, according to their means, in research and legislative measures and to formulate agreed standards, procedures and measures in the form of protocols and annexes. The 1987 Montreal Protocol sets out a timetable for the reduction of controlled substances which deplete the ozone layer. It establishes a formula for determining calculated levels of consumption and production of controlled substances, based on the ozone-depleting potential of each substance. Although the convention has been ratified, no specific domestic legislation or regulation has been passed in this regard.
- **CONVENTION ON THE CONTROL OF TRANSBOUNDARY MOVEMENTS OF HAZARDOUS WASTES AND THEIR DISPOSAL, 22 March 1989 (Basel):** This convention regulates the transboundary movement of hazardous waste. This convention has been acceded to. No domestic legislation has been passed in this regard.
- **FOURTH AFRICAN, CARIBBEAN AND PACIFIC-EUROPEAN ECONOMIC COMMUNITY CONVENTION, 15 December 1989 (LOME 4):** This convention, which South Africa has signed but not ratified, is a cooperative agreement of the European Community and its member states on the one hand, and the African, Caribbean and Pacific states on the other. Its purpose is to provide and expedite the economic, cultural and social development of the African, Caribbean and Pacific states and to consolidate and diversify their relations in a spirit of solidarity and mutual interest. Title 1 (articles 33 to 39) is dedicated to the environment. Article 39

is dedicated to the control of international movement of hazardous and radioactive waste. The article specifically prohibits **all direct** and indirect export of such waste by the European Community to the African, Caribbean and Pacific states and provides that the African, Caribbean and Pacific states shall prohibit the import of such waste into their territory. South Africa has not passed domestic legislation or regulations in this regard and will have to do so once it ratifies the convention. South Africa is also considering a bilateral arrangement with the European Community.

- **CONVENTION ON THE BAN OF IMPORT INTO AFRICA AND THE CONTROL OF TRANSBOUNDARY MOVEMENT AND MANAGEMENT OF HAZARDOUS WASTE WITHIN AFRICA, 29 January 1991 (Bamako):** During the negotiation of the **Basel** Convention, the African states represented by the Organisation for African Unity adopted the **Bamako** Convention, as they were of the view that **Basel** was not strict enough. The **Bamako** Convention totally prohibits the importation of hazardous waste into Africa. South Africa has neither signed, nor acceded to this convention. No domestic legislation is necessary.
- **PROTOCOL ON ENVIRONMENTAL PROTECTION TO THE ANTARCTIC TREATY, 4 October 1991:** This protocol was negotiated because of pressure to explore the mineral potential of Antarctica. It imposes duties to protect the environment, including integrated pollution and waste management. The relevant domestic legislation *is* the Antarctic Treaty Act (No.60 of 1996).
- **UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, 9 May 1992 (New York):** The objective of this convention is the “stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous **anthropogenic** interference with the climate system.” The convention requires, *inter alia*, that developed countries formulate and implement programmed which mitigate the adverse effects of climate change and facilitate adaptation to it. South Africa ratified this convention in August 1997.
- **CONVENTION ON BIOLOGICAL DIVERSITY, opened for signature at Rio de Janeiro on 5 June 1992:** South Africa is a party to this convention, whose obligations include the duty to protect **biodiversity**, and thus indirectly to promote environmentally sound integrated pollution and waste management practices. A Green Paper on the Conservation and Use of South Africa’s Biological Diversity (Department of Environmental Affairs and Tourism, October 1996) has been published and a White Paper is anticipated. No specific legislation to give effect to this convention has been passed, but many legislative enactments, for example the Nature Conservation ordinances are indirectly relevant.
- **CONVENTION ON THE PROHIBITION OF THE DEVELOPMENT, PRODUCTION AND STOCKPILING OF CHEMICAL WEAPONS, AND ON THEIR DESTRUCTION, opened for signature at Paris -13 January 1993:** This Convention is relevant to this White Paper on Integrated Pollution and Waste

Management for South Africa because when chemical weapons could cause pollution if they are not properly disposed of. Their management, particularly their destruction in the context of the “cradle to grave” principle, is thus important. South Africa ratified this convention in September 1995, and has incorporated it into domestic law (Government Gazette, No. 17967, dated 2 May 1997).

- **CONVENTION ON NUCLEAR SAFETY, 17 June 1994:** The objective of this convention is to achieve and maintain a high level of nuclear safety worldwide through the enhancement of national measures and international cooperation, including safety-related technical cooperation, where appropriate. South Africa ratified this convention in December 1996 and the Council for Nuclear Safety has initiated a process to develop a national policy and domestic legislation in this regard.

- **UNITED NATIONS LAW OF THE SEA CONVENTION, 1982 and AGREEMENT RELATING TO THE IMPLEMENTATION OF PART XI OF THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA of 10 December 1982, adopted on 28 July 1994:** Although South Africa has not ratified this convention, it is relevant, because many provisions reflect customary international law, which is part of South African law. Part XII headed “Protection and Preservation of the Environment” includes provisions on marine pollution.

APPENDIX 2

PRINCIPLES FROM THE WHITE PAPER ON ENVIRONMENTAL MANAGEMENT POLICY FOR SOUTH AFRICA

This appendix sets out the principles for environmental management. Principles are the fundamental premises government will use to apply, develop and test policy and subsequent actions, including decision-making, legislation, regulation and enforcement. In some cases the principles are followed by details on how the principle will be applied.

• **Accountability**

Government is accountable for policy formulation, monitoring and enforcement.

• **Allocation of functions**

Government will allocate functions within the framework of the Constitution to the institutions and spheres of government that can most effectively achieve the objective of a function within the context of environmental policy.

• **Alienation of Resources**

Renewable and non-renewable natural resources, cultural resources and land are **all** part of South Africa's environmental heritage. They are public assets belonging to all the nation's people. Government must ensure that the ownership and use of this heritage promotes sustainable development, benefiting the public good and maintaining environmental integrity. Any alienation of these resources and land must respect people's environmental rights and ensure the sustainable use of such resources and land.

In applying this principle, government must ensure that its investment policies and programmed do not result in the unchecked transfer of ownership of **all** the nation's natural and cultural resources and land to private investors, or result in access to these resources and land being denied to the people of this country.

• **Capacity-building and education**

All people must have the opportunity to develop the understanding, skills and capacity for effective participation in achieving sustainable development and sustainable resource use.

• **Conflict of interest**

Actual or potential conflicts of interest between responsibilities for resource exploitation, and any responsibilities or powers affecting environmental quality or impact management, must be resolved through agreed conflict resolution procedures. Solutions to such conflicts of interest must ensure effective implementation of environmental policy and provide for the role of the lead agent in monitoring and ensuring the maintenance of norms and standards.

• **Coordination**

Environmental concerns affect all aspects of life and must be integrated into the work of all government institutions. This requires intergovernmental harmonisation of policies, legislation, monitoring, regulation and other environmental functions in accordance with the requirements of environmental policy.

• **Cradle to grave**

Responsibility for the environmental, health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle. It starts with conceptualisation and planning and runs through **all** stages of implementation to reuse, recycling and ultimate disposal of products and waste or decommissioning of installations.

• **Custodianship**

The government acknowledges that it has a constitutional duty to protect the environment for the benefit of current and future generations of South Africans. Its responsibilities include the duty to act as custodian of the nation's resources, to protect the public interest in, and to ensure equitable access to such resources, and generally to ensure that all South Africans enjoy an environment of acceptable quality. In assuming these duties, the government accepts the duties and responsibilities implied by the doctrine of the Public Trust, particularly regarding State-owned land and natural resources, and will enact legislation to give effect to this principle. The doctrine of the Public Trust requires the State to:

- ◆ ensure that environmental resources are beneficially used in the public interest
- ◆ protect the people's common heritage
- ◆ ensure the public's reasonable access to the environment and natural resources
- + ensure adherence to the public trust by all spheres of government
- ◆ promote and fulfill the Department of Environmental Affairs' leading role in implementing government's custodianship of the environment.

• **Demand management**

The price of goods and services must include the environmental cost of sustaining the rate of supply over time. Where this is impossible, the price must include the cost of replacing the item or service, as it is depleted by another item or service at a similar rate of supply and value that fulfills the same function.

• **Due process**

Due process must be applied in all environmental management activities. This includes adherence to the provisions in the Constitution dealing with just administrative action and public participation in environmental governance.

• **Equity**

There should be equitable access to environmental resources, benefits and services to meet basic needs and ensure human well-being. Each generation has a duty to avoid

impairing the ability of future generations to ensure their well-being.

•Environmental justice

To comply with the requirements of environmental justice, government must integrate environmental considerations with social, political and economic justice and development in addressing the needs and rights of **all** communities, sectors **and** individuals.

Policy, legal and institutional frameworks must:

- redress past and present environmental injustice
- take account of the need to protect and create employment
- recognise that workers can refuse work that is harmful to human health or the environment
- ensure that everyone is able to make known environmental or health hazards without fear of the consequences and
- ensure equitable representation and participation of all with particular concern for **marginalised** groups.

•Full cost accounting

Decisions must be based on an assessment of the full social and environmental **costs** and benefits of policies, plans, programmed, projects and activities that impact on the environment.

• Global and international cooperation and responsibilities

Government must recognise its shared responsibility for global and regional environmental issues and act with due regard for the principles contained in relevant policies and applicable regional and international agreements.

•Good governance

Good governance depends on mutual trust and reciprocal relations between government and people. This must be based on the fulfillment of constitutional, legislative and executive obligations, and the acceptance of authority, responsibility, transparency and accountability.

The democratically elected government is the legitimate representative of the people. In governing it must meet its obligation to give effect to people's environmental rights in Section 24 of the Constitution, This includes:

- taking responsibility for developing and implementing environmental policy
- exercising the authority to take decisions and carry out actions vested in it by the Constitution
- acting in accordance with the basic values and principles governing public administration that are contained in the Constitution
- being accountable to the people
- responding to public needs and encouraging public participation in environmental governance by providing for the mutual exchange of views and concerns between government and people and

- monitoring and regulating actions that impact on the environment.

- **Inclusivity**

Environmental management processes must consider the interests, needs and values of all interested and affected parties in decision-making to secure sustainable development. This includes recognizing all forms of knowledge, including traditional and ordinary knowledge.

- **Integration**

All elements of the environment are linked and management must therefore take account of the connections between them.

The integration of environmental concerns into every area of human activity is central to the achievement of sustainable development. Priority areas for environmental governance include:

- the integration of environmental, social and economic considerations in development and land-use planning processes and structures. This requires assessment of environmental impact at policy, planning, **programme** and project levels
- an integrated approach to environmental management, addressing:
 - * all environmental media
 - * all social, cultural and natural resources
 - * pollution control and waste management
- an integrated approach to government's environmental functions, including:
 - * organisational and institutional arrangements
 - * legislation and
 - * all policies in all spheres of government.

- **Open information**

To give effect to their constitutional rights, everyone must have access to information to enable them to:

- . protect their health and well-being
- protect the environment
- participate effectively in environmental governance and
- comply with environmental policy, legislation and regulation.

- **Participation**

Government must encourage the inclusion of all interested and affected parties in environmental governance with the aim of achieving equitable and effective participation.

- **Precaution**

Government will apply a risk-averse and cautious approach that recognises the limits of current knowledge about the environmental consequences of decisions or actions.

This approach includes the identification of

- the nature, source and scope of potentially significant impact on the environment and on people's environmental rights and
- the potential risks arising from uncertainty.

Where there is uncertainty, action should be taken to limit the risk. This should include consideration of the 'no go' option.

• Prevention

Government must anticipate problems and prevent a negative impact on the environment and on people's environmental rights.

• Polluter pays

Those responsible for environmental damage must pay the repair costs both to the environment **and** human health, and the costs of preventive measures to reduce or prevent further pollution and environmental damage.

. Waste avoidance and minimisation

Waste management must minimise and avoid the creation of waste at source, especially in the case of toxic and hazardous wastes. Government must encourage waste recycling, separation at source and safe disposal of unavoidable waste,

APPENDIX 3

GLOSSARY OF TERMS AND ABBREVIATIONS

This glossary defines the terms used in this White Paper on Integrated Pollution and Waste Management for South Africa. Also refer to the Appendix 2 which lists and defines the principles set out in the White Paper on Environmental Management Policy for South Africa.

Accelerated depreciation - allows equipment to be written off more rapidly than is generally the case within the context of the corporate income tax system.

Ambient standards - quantitative pollutant levels which may not be exceeded, or may be exceeded only for a specific frequency or duration, in water, in the air or within soil in order to ensure it is fit for a designated use, and to reasonably preserve the environment and not significantly impair human health.

Anthropogenic - generated by human activity.

Basic needs subsidies - allow people access to environmental assets without compensating payment.

Best practical environmental option - BPEO is the outcome of a systematic consultative and decision-making procedure that emphasises the protection of the environment across land, air and water. It establishes, for a given set of objectives, the option that provides the most benefit or least damage to the environment as a whole, at acceptable cost in the short-term and as well as in the long-term.

Best practical means - the minimum needed to meet the requirements of present legislation.

Biodiversity - the number and variety of living organisms on earth. Biodiversity is made up of species richness, ecosystem complexity and genetic variation.

Biota - living organisms.

Carcinogenic - ability to cause cancer.

CEC – Committee for Environmental Coordination

Civil Society - this term includes all members/sectors of society outside government.

Cleaner production - The term “cleaner production” describes a comprehensive preventive approach to environmental protection. Many other terms are being used globally, such as waste minimisation, pollution prevention, cleaner technology, waste reduction, eco-efficiency, non-waste technologies and source reduction, without there being a universal consensus on what they mean. All of the terms mentioned above, however, describe a proactive approach that embraces a forward-looking “anticipate and prevent” philosophy. Ensuring cleaner production is now internationally recognised as a crucial means *to* reconcile the environmental and economic goals involved in the move towards sustainable development.

Cleaner production can provide long-term benefits, such as

- reducing liabilities
- promoting a positive public image
- improving industrial housekeeping practices
- improving the health and safety of employees
- increasing operating efficiency
- on-site reuse
- reducing waste production costs
- raising profitability, enhancing competitiveness and
- improving environmental performance.

Cleaner production, therefore, reflects both an interest in savings and avoidance of increasingly stronger environmental regulations. Cleaner production includes measures to conserve, eliminating toxic and dangerous raw materials and product constituents, and measures to reduce at source the quantity and toxicity of all emissions and wastes being emitted to air, land and water. Furthermore, this approach embraces the cradle-to-grave principle, the precautionary principle and the preventive principle. Because cleaner production attacks the problem at several levels at once, it is a holistic integrated preventive approach to environmental protection. The cleaner production approach is an integral part of integrated pollution and waste management policy.

Coastal zone - the area of land and sea along the coast, including estuaries, onshore areas and offshore areas; wherever they form an integral part of the coastal system.

Cost benefit analysis - estimates and comparison of short-term and long-term costs (losses) and benefits (gains); an economic analysis of an undertaking, involving the conversion of all positive and negative aspects into common units (e.g. money), so that the total benefits and the total costs can be compared.

Cultural resources - natural features and features adapted and created by humans in the past and present. These features are the result of continuing human cultural activity and reflect a range of community values.

DEAT - Department of Environmental Affairs and Tourism

Deposit refund system - system where a deposit is levied on products with a potential to pollute and refunded when product or residue is returned.

DME – Department of Minerals and Energy

Duty of care principle - Every person or organisation has a duty to act with due care to avoid damage to others, or to the environment.

DWAF – Department of Water Affairs and Forestry

Ecosystem - dynamic complex plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

Effluent - liquid waste generated by human activity.

EMPR – Environmental Management Programme Report

Environmental audit - a regular formal examination to ascertain whether an organisation or facility is operating in terms of its environmental performance requirements or some other measure of performance.

Environmental impact assessment (EIA) - a detailed study of the environmental consequences of a proposed course of action. An environmental evaluation (also called environmental assessment) is a study of the environmental effects of a decision, location or undertaking. Environmental evaluation is most often used within an integrated environmental management (IEM) planning process as a decision support tool to compare different options.

Environmental management programmed (EMP) - in terms of the Minerals Act (No.50 of 1991), every mine must submit an EMP to the Department of Minerals and Energy. An EMP contains elements of environmental assessment (see EIA) plus management plans. Once it has been approved, it has the force of law.

Environmental management system (EMS) - documented procedures drawn up as described in an SABS Code of Practice to implement the requirements of ISO 14000. Operating, emergency, data collection and documentation procedures are set out, along with procedures for training, the transfer of information and all procedures of a complete management and quality control system.

Environmental sustainability - the ability of an activity to continue indefinitely at current and projected levels, without depleting the social, cultural and natural resources required to meet present and future needs.

General waste - waste that does not pose an immediate threat to man or to the environment, i.e. household waste, builder's rubble, garden waste, dry industrial and commercial waste. It may, however, with decomposition, infiltration and percolation produce leachate with an unacceptable pollution potential.

Governance - is the sum of the many ways individuals and institutions, public and private, manage their common affairs. It is a continuing process through which conflicting or diverse interests may be accommodated and cooperative action may be taken. It includes formal institutions and regimes empowered to enforce compliance, as well as informal agreements that people and institutions either have agreed to or perceive to be in their interest. It involves setting policy to guide an activity to ensure that the money, people and institutions required to do the work, are in place. Governance also entails making sure that people are accountable for the work they do, monitoring what happens and making new plans to carry the work forward.

Greenhouse gases - gases in the earth's lower atmosphere that trap heat, causing an increase in the earth's temperature.

Habitat - a place, characterised by its physical properties and other life forms, where an organism or community occurs.

Hazardous waste - waste, including radioactive waste, which is legally defined as "hazardous" in the state in which it is generated. The definition is based on the chemical reactivity or toxic, explosive, corrosive or other characteristics which cause, or are likely to cause, danger to health or to the environment, whether by itself or when in contact with other waste.

Heavy metals - term used to describe a class of metals (many of which are toxic) which persist in the environment.

Holistic - term used to describe an approach which is all-encompassing.

Input charges - charges levied on inputs to production processes to limit pollution at a later stage in the product life cycle.

Integrated environmental management (IEM) - a philosophy that prescribes a code of practice for ensuring that environmental considerations are fully integrated into all stages of the development process in order to achieve a desirable balance between conservation and development.

IWMP - Integrated Waste Management Planning

Integration - approaches to integration with regard to pollution prevention may be divided into philosophical, functional and organisational approaches. These approaches need to be dealt with separately in order to provide resolution to these aspects. They are, however, inter-related and can thus not be developed in isolation.

Functional integration may take place around the source of pollution (such as mining or waste disposal), around the environmental media (air, water and land/soil), around an ecological system (such as a **catchment**) or around a substance (such as mercury).

Integration, therefore, provides the linkage between:

- how much source-based control is necessary
- how clean the air, water and soil need to be
- how much **remediation** is necessary.

Intergovernmental - this term refers to relations between spheres of government and to relations between government agencies in the same sphere of government.

Internalisation - the incorporation of externalities into market prices.

Investment credits - incentives to producers and developers to invest in equipment that reduces pollution and/or developments that are beneficial to the environment.

IP&WM Policy – Integrated Pollution and Waste Management Policy

Landfill and landfilled - these terms refer to a commonly used method of solid waste disposal which includes placing the waste in a specially designed site and covering it.

Leachate - the term used to refer to the liquid with a high pollution potential which flows through and out of a landfill.

MECs - Members of the Executive Council

MINMEC - the Committee of Ministers and Members of the Executive Councils: Environment and Nature Conservation.

Mutagenic - ability to cause mutations or changes in living cells.

Non-renewable resource - a resource that either cannot be renewed once it is used or lost, or cannot be renewed in historical time.

NWMS - National Waste Management Strategy

Ozone - see stratospheric ozone.

Particulate - solid particles of pollution emitted from various processes.

Point and non-point pollution - point pollution refers to that pollution for which the source can be clearly identified, and non-point or diffuse pollution refers to pollution for which the sources cannot be clearly or easily identified.

Pollution - any change in the environment caused by substances, radioactive or other waves, noise, odours, dust or heat emitted from any activity, including the storage or treatment of waste or substances, construction and the provisions or services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such effect in the future.

Pollution charges - charges levied on discharges of pollutants to the environment.

Pollution prevention - the avoidance of impact on the environment by avoidance and minimisation of waste generation.

Product/service subsidies - financial assistance to lower the price of environmentally friendly products or services.

Product stewardship - taking responsibility for a product throughout its entire life cycle, including the responsibility for managing the product as a waste after being discarded.

Radioactive - substances emitting radiation due to the disintegration of unstable atomic nuclei. Radiation can cause various forms of cancer and genetic mutations.

Renewable resource - a resource produced as part of the functioning of natural systems at rates comparable to its rate of consumption. Limits to renewable resources are determined by flow rate and such resources can provide a sustained yield.

Resource charges - charges levied on natural resources during their initial exploitation or extraction.

Risk assessment - a process of gathering data and making assumptions to estimate short- and long-term harmful effects on human health or the environment from exposure to hazards associated with the use of a particular product or technology; or establishing the probability of an event occurring, the factors that could bring about that event, likely exposure levels and the acceptability of the impact resulting from exposure.

SADC - Southern African Development Community.

Silviculture - cultivation of trees.

Stratospheric ozone - an unstable form of oxygen found in the stratosphere, the layer of the atmosphere roughly between 15 and 50 kilometres above the earth. This 'ozone layer' absorbs much of the **UV-B** radiation from the sun. Exposure to **UV-B** radiation can cause skin cancer and excessive exposure can cause mutations in plants and other life forms.

Teratogenic - ability to cause foetal damage.

Toxic - poisonous.

Toxic waste - a form of hazardous waste that causes death or serious injury, such as burns, respiratory diseases, cancer or genetic mutations.

Waste - an undesirable or superfluous by-product, emission, or residue of any process or activity which has been discarded, accumulated or been stored for the purpose of discarding or processing. It may be gaseous, liquid or solid or any combination thereof and may originate from a residential, commercial or industrial area. This definition includes industrial waste water, sewage, radioactive substances, mining, metallurgical and power generation waste.

WC - Waste Collection

WIS - Waste Information System

WT - Waste Treatment and Disposal

WM - Waste Minimisation and Recycling

APPENDIX 4

ACKNOWLEDGEMENTS

- 1 **MINMEC: Environment and Nature Conservation -1998**

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