



National Waste Management Strategy



environmental affairs

Department:
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List of Acronyms

COGTA	Department of Cooperative Governance and Traditional Affairs
DEA	Department of Environmental Affairs
the dti	Department of Trade and Industry
DMR	Department of Mineral Resources
DWA	Department of Water Affairs
EIA	Environmental Impact Assessment
EMI	Environmental Management Inspector
EMPR	Environmental Management Programme
EPR	Extended Producer Responsibility
IDP	Integrated Development Plan
IndWMP	Industry Waste Management Plan
ITAC	International Trade Agreement Commission
IWMP	Integrated Waste Management Plan
MEA	Multilateral Environmental Agreement
MEC	Member of Executive Council
NEAS	National Environmental Authorisation System
NEMA	National Environmental Management Act
NGO	Non-governmental organisation
NORA-SA	National Oil Recycling Association of South Africa
NWMS	National Waste Management Strategy
POP	Persistent Organic Pollutant
PPP	Public Private Partnership
SABS	South African Bureau of Standards
SADC	Southern African Development Community
SANAS	South African National Accreditation System
SANS	South African National Standards
SARS	South African Revenue Service
SAWIS	South African Waste Information System
SMME	Small, Medium and Micro Enterprise
WCMS	Waste Classification Management System
WEEE	Waste of Electric and Electronic Equipment
WIS	Waste Information System
WMO	Waste Management Officer

1 Background

1.1 Introduction

Every archaeologist knows that one of the best ways to study historical societies is to examine the layers of accumulated debris in middens, the equivalent of today's landfills. Accumulated waste deposits tell a fascinating story about what societies consume, their levels of affluence and production technology, and very importantly, how they manage their waste. Indeed, through the history of human civilisation, some societies at the peak of their development have collapsed due to inadequate management of their accumulating waste burden, and the resultant proliferation of disease, environmental degradation and ultimate impact on their ability to produce and reproduce effectively.

This is an apt reminder of the challenges we face today, with a rapidly growing, urbanising and consumerist population in a world in which the ability of the environment to absorb solid and liquid waste and emissions is finite. The waste that we end up disposing represents a liability that we pass on to future generations, and the manner in which we manage and dispose of our waste tells a crucial story about our level of response to these constraints, and will be a key determinant of the nature of our future society.

Through our commitment to sustainable development, South Africa aims to balance the broader economic and social challenges of a developing but still unequal society with protection of our environmental resources. For this reason we subscribe to the vision of a prosperous and equitable society living in harmony with our natural resources, which means eliminating the unnecessary use of raw materials, and ensuring sustainable product design, resource efficiency and waste prevention. It means re-using products where possible; and recovering value from products when they reach the end of their lives through recycling, composting or energy recovery. While the elimination of waste in its entirety may not be feasible, through the systematic application of the waste hierarchy it is possible to reach a point within the next few decades where recovery, reuse and recycling and alternative disposal technologies overtake landfills as preferred means of disposal.

The challenge of waste management affects every person and institution in society. The measures set out in this strategy cannot be undertaken without a collective approach to waste challenges, and the involvement of a broad range of stakeholders in their implementation. This National Waste Management Strategy (NWMS) seeks to establish a common platform for action between stakeholders in order to systematically improve waste management in South Africa.

The NWMS is a legislative requirement of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), here after referred to as the "Waste Act". The Act requires that it is reviewed at least every five years, and the focus of this strategy is therefore on the strategy's waste management measures and actions that need to be taken within the next five years.

The NWMS is composed of five main sections, each containing a number of chapters:

- **Section One** describes the methodology followed in developing the NWMS, and establishes the socio-economic and legislative context within which the NWMS must be located.
- **Section Two** sets out the overall goals and approach to implementing the waste hierarchy, and the strategies to be followed in addressing each stage of the waste hierarchy.
- **Section Three** describes each of the regulatory, economic and fiscal instruments that will be used to give effect to the strategy set out in Section Two.
- **Section Four** responds to the challenges we face in relation to specific categories of waste, and describes how the different instruments described in Section Three in relation to each waste category will be applied.
- **Section Five** deals with the various mechanisms for implementing the NWMS, and sets out the roles, responsibilities, coordination and review mechanisms.

An action plan, which sets out the different interventions by the three spheres of government in order to give effect to the NWMS, is contained in Appendix Two.

1.2 Approach and methodology

The development of the NWMS has been approached according to the provisions of Section 72 and Section 73 of the Waste Act, which require a consultative process, including public participation and consultation with relevant national and provincial departments.

The development of the strategy has followed a four phase consultative process presented in the table below, with stakeholder consultations incorporated into each phase of the development of the NWMS:

Table 1: Phases for developing the NWMS

PHASE	ACTIVITIES AND OUTPUTS
<p>INCEPTION PHASE</p> <p>March - June 2009</p>	<ul style="list-style-type: none"> • Review of previous policies & drafting of NWMS framework. • Establishment of Project Steering Committee. • Launch of NWMS website as part of online consultation process. <p>Key outputs: Stakeholder Consultation Report & NWMS Framework</p>
<p>SITUATION & BASELINE STUDIES</p> <p>June - September 2009</p>	<ul style="list-style-type: none"> • Research conducted on key identified topics. • Consultation on baseline research reports. • Synthesis paper summarising key issues arising out of the baseline research reports and consultation process, and the development of a strategic issue paper. <p>Key outputs: Research Papers, Research Conference Report & Strategic Issues paper</p>
<p>STRATEGY</p>	<ul style="list-style-type: none"> • Consultation on strategic issues paper.

PHASE	ACTIVITIES AND OUTPUTS
<p>FORMULATION</p> <p>September - December 2009</p>	<ul style="list-style-type: none"> • Review of stakeholder comments, engagement with PSC and key government agencies. • Preparation of first draft of the NWMS. <p>Key outputs: agreement on key strategic issues, first draft of NWMS</p>
<p>CONSULTATION & FINALISATION</p> <p>January 2010 - June 2010</p>	<ul style="list-style-type: none"> • Publication of draft NWMS. • Extensive consultations on the NWMS with the three spheres of government, industry and civil society. • Based on stakeholder inputs, finalisation of the NWMS. • Submission of NWMS to Cabinet for approval. <p>Key outputs: Cabinet approval of NWMS</p>

An innovative feature of the consultation process has been the establishment of a website (www.deat.gov.za/nwms/) to facilitate public participation and comments on the key policy documents produced as part of the process of drafting the NWMS.

The considerable body of environmental legislation and policy developed since 1994 has informed the preparation of the NWMS, including the 1999 NWMS and the 2000 White Paper on Integrated Pollution and Waste Management. The NWMS draws on the policy foundation and experience with implementing the 1999 NWMS, published by the Department of Environmental Affairs and Tourism (DEAT) and the Department of Water Affairs and Forestry (DWAFF) in 1999. This 1999 NWMS set out an integrated approach to waste management, cradle-to-grave management of waste products, and the waste hierarchy approach. As part of the process of compiling the NWMS, the success in implementing the 1999 NWMS was reviewed. Notable achievements include establishing a waste information system, waste minimization and recycling, and healthcare risk waste management. There has been uneven and delayed implementation of the 1999 NWMS, and some aspects of it have not been implemented at all, largely due to institutional and regulatory constraints. Voluntary reporting has limited the effectiveness of the Waste Information System.

However, as a statutory instrument in terms of the Waste Act, the new NWMS differs substantively from the 1999 NWMS, which lacked legal status and thus enforceability.

The NWMS deals with general, commercial and industrial waste streams, including hazardous waste, healthcare risk waste and waste streams from agriculture (obsolete pesticide stockpiles), power generation and mining (excluding residue deposits and stockpiles). The NWMS excludes consideration of nuclear waste, which is the subject of separate policy processes under the Department of Mineral Resources (DMR) and the disposal of animal carcasses which is regulated under the Animal Health Act, 2002. While pollution from waste products clearly is an important issue, the strategy does not deal with pollution per se, but only deals with the related fields of environmental impact management in relation to waste and remediation of contaminated lands. The NWMS also excludes consideration of air quality management, waste water and industrial effluent management, which are the subject of detailed policy and regulatory processes in their own right. The NWMS only deals with water quality issues to the

extent that they are relevant to the regulatory framework for waste management. Lastly, it excludes residue deposits and stockpiles as these are regulated by the Mineral Resources and Petroleum Development Act, 2002.

In the development of the NWMS, DEA has endeavoured to ensure that the strategy is aligned with the existing institutional arrangements, and intergovernmental relations and fiscal systems of government. The NWMS seeks to mainstream waste management priorities and measures within government planning and reporting systems, and ensure that it is accorded the appropriate level of priority. At the same time, DEA is cognisant of the real capacity constraints faced by many government agencies, particularly municipalities.

The NWMS strives to promote the flexible deployment of appropriate instruments to address specific waste management challenges, in which command and control regulatory approaches are complemented by economic incentives, voluntary initiatives and self regulation for well performing industries. At same time, more interventionist measures will be invoked where lack of co-operation exists and an integrated approach to persistent waste problems require it.

The Waste Act indicates that the strategy must be reviewed by the Minister at intervals of not more than five years. While the time period to be covered by the strategy is not specified, the bulk of the strategy's provisions will relate to the five year period prior to the next review of the strategy.

1.3 Constitutional and legal framework

The National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) fundamentally reforms the law regulating waste management, and for the first time provides a coherent and integrated legislative framework addressing all the steps in the waste hierarchy. In doing so it builds on the considerable body of environmental legislation which has developed since 1994. The Constitution of South Africa, 1996 (Act 108 of 1996) (the Constitution) provides the foundation for environmental regulation and policy in South Africa. The right to environmental protection and to live in an environment that is not harmful to health or well-being is set out in the Bill of Rights (section 24 of Chapter 2). This fundamental right underpins environmental policy (such as the White Papers on *Environmental Management* and *Integrated Pollution and Waste Management*) and law (principally the National Water Act; and National Environmental Management Act (NEMA)). NEMA states that:

“the State must respect, protect, promote and fulfill the social, economic and environmental rights of everyone and strive to meet the basic needs of previously disadvantaged communities; inequality in the distribution of wealth and resources, and the resultant poverty, are among the important causes as well as the results of environmentally harmful practices.”

The White Paper on Environmental Management established the concept of the waste hierarchy in South African environmental policy, and the concept was subsequently given legal expression in NEMA. The waste hierarchy is a systematic and hierarchical approach to integrated waste

management, addressing in turn waste avoidance, reduction, re-use, recycling, recovery, treatment safe and disposal of waste as a last resort.

NEMA introduced a number of additional guiding principles into South African environmental legislation, including the life-cycle approach to waste management, producer responsibility, the precautionary principle and the polluter pays principle. NEMA also places a duty of care on any person who causes significant pollution or degradation of the environment, requiring them to institute measures to prevent pollution from occurring, or to minimise and rectify the pollution or degradation where it cannot reasonably be avoided. The Waste Act echoes the duty of care provision by obliging holders of waste to take reasonable measures to implement the waste hierarchy whilst protecting the environment and public health.

Chapter 5 of NEMA promotes the application of appropriate environmental management tools in order to ensure the integrated environmental management of activities, and provides instruments for co-ordination and co-operation for integrated waste management.

The Waste Act forms an integral part of this overarching legal and policy framework, providing specifically for the management of the waste sector and regulation of waste management activities. The Waste Act is based on the Constitutional assignment of legislative and executive powers between the three spheres of government. The Constitution assigns concurrent legislative competence to national and provincial government in respect of the *environment and pollution control* (section 146 of the Constitution) and exclusive provincial legislative competence to the local government matters of *cleansing and refuse removal, refuse dumps and solid waste disposal*. The Constitution allows national legislation to provide for national norms and standards relating to these matters where national uniformity is required to deal effectively with an issue.

Accordingly, the development of norms and standards is the foundation of the regulatory system established in terms of the Waste Act. National government is obliged by the Waste Act to develop norms and standards on key regulatory matters, while it may develop additional norms and standards on certain ancillary matters. Provinces and municipalities are also permitted to develop standards provided they are not in conflict with national standards. Norms and standards developed in terms of the Waste Act also need to take cognisance of some important sectoral legislation, including the National Environmental Management: Air Quality Act (No. 39 of 2004) and the Health Act, 2004 (No. 61 of 2003).

The Waste Act establishes cooperative governance mechanisms for dealing with matters such as waste planning, appointment of waste management officers and performance reporting. National and provincial government departments are also constitutionally obliged to support municipalities in the execution of their functions.

Due to the significance of municipal waste services, the Waste Act needs to be read in conjunction with the body of legislation regulating local government, including the Municipal Finance Management Act, 2003, and the Municipal Systems Act, 2000, which create the overall framework for planning, budgeting, service delivery and reporting at local government level. There are some important overlapping provisions regarding waste services. For example, section 94(e)(ii) of the Municipal Systems Act allows the Minister to make regulations or issue

guidelines for incentives and penalties to encourage the recycling of waste. In terms of section 74(1)(h) of the Municipal Systems Act, a municipal council must adopt and implement a policy on the levying of fees for municipal services provided by the municipality itself or by way of service delivery agreements. The policy encourages the economical, efficient and effective use of resources, the recycling of waste and other appropriate environmental objectives. Municipalities may also develop their own by-laws to provide for a municipal waste removal system in the municipal area.

The Waste Act also needs to be read in conjunction with other sectoral legislation. For example, the Minerals and Petroleum Development Resources Act, 2002 section 39(3)(iii) states that Environmental Management Plans must comply with any prescribed waste standard or management standards or practices. The application of the Waste Act is also limited by reference to other sectoral legislation – it does not apply to: radioactive waste¹, residue deposits and residue stockpiles²; the disposal of explosives³; nor the disposal of animal carcasses⁴, which are all regulated by their own sectoral legislation.

Subsequent amendments to and regulations⁵ issued in terms of NEMA have provided a detailed regulatory framework for the performance of Environmental Impact Assessments; and the systems and procedures for considering EIAs are closely aligned with the provisions for licensing of waste management activities. Environmental Management Inspectors (EMIs) are also designated and appointed in terms of NEMA, and these provisions form the backbone of the compliance and enforcement system that is required to support implementation of the Waste Act. The designation of Waste Management Officers (WMOs) is stipulated for in the Waste Act where an officer can be designated at a national, provincial and municipal level and the officer is responsible for coordinating matters pertaining to waste management in the various tiers of government.

The Waste Act introduced a definition of waste, which has major implications for those activities that have traditionally not been treated or regarded as waste. Importantly for industry, the waste products and activities that fall outside the definition of waste are able to avoid the provisions of the Act. The definition of waste, as per the Waste Act, is as follows:

“waste” means any substance, whether or not that substance can be reduced, re-used, recycled and recovered –

(a) that is surplus, unwanted, rejected, discarded, abandoned or disposed of;

¹ Radioactive Waste regulated by the: Hazardous Substances Act, 1973 (Act No. 15 of 1973), the National Nuclear Regulator Act, 1999 (Act No. 47 of 1999), and the Nuclear Energy Act, 1999 (Act No. 46 of 1999)

² Residue deposits and stockpiles regulated by: the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002.)

³ Disposal of explosives regulated by: the Explosives Act, 2003 (Act No.15 of 2003)

⁴ Disposal of animal carcasses regulated by: the Animal Health Act, 2002 (Act No. 7 of 2002)

⁵ Regulations in Terms of Chapter 5 of the National Environmental Management Act, 1998 Regulation No. R. 385, No. R. 386, and No. R. 387.

(b) which the generator has no further use of for the purposes of production;

(c) that must be treated or disposed of; or

(d) that is identified as a waste by the Minister by notice in the Gazette, and includes waste generated by the mining, medical or other sector; but –

(i) a by-product is not considered waste; and

(ii) any portion of waste, once re-used, recycled and recovered, ceases to be waste;

Given the exclusion of by-products, their definition in terms of the Waste Act is also important:

“by-product” means a substance that is produced as part of a process that is primarily intended to produce another substance or product and that has the characteristics of an equivalent virgin product or material;

In order to clarify some of the definitional issues, a technical guideline has been developed and gazetted by DEA as a basis for interpreting and applying the definition by both government and industry.

1.4 International obligations

The Waste Act section 6(1)(b), section 43(1)(b) and section 43(1)(d) specifies that the NWMS should give effect to South Africa’s international obligations in terms of waste management.

The evolving system of international declarations, agreements and treaties has provided an important context for the evolution of South African environmental policy in general, and waste management policy in particular. The modern system of global environmental governance is to a large degree a consequence of the Rio Earth Summit 1992 and Agenda 21, which amongst others advocated four major waste-related programmes:

- Minimizing wastes.
- Maximizing environmentally sound waste reuse and recycling.
- Promoting environmentally sound waste disposal and treatment.
- Extending waste service coverage.

The Summit set in motion a series of multilateral environmental agreements (MEAs) dealing with land-based sources of marine pollution, water quality, regional trans-boundary movement of hazardous waste, the management of toxic chemicals, and the trans-boundary movement of radioactive waste, amongst others.

In relation to hazardous substances and waste, there are four principal conventions that apply:

- The Rotterdam Convention, acceded to by South Africa in 2002, sets out the procedure for Prior Informed Consent which promotes and enforces transparency in the importation of hazardous chemicals.
- The Basel Convention, acceded to by South Africa in 1994, addresses the need to control the transboundary movement of hazardous wastes and their disposal, setting out the categorization of hazardous waste and the policies between member countries.
- The Stockholm Convention on Persistent Organic Pollutants (POPs), which South Africa became a signatory to in 2001 and ratified in 2002, requires that member countries phase out POPs and prevent their import or export.
- The Montreal Protocol, to which South Africa became a signatory in 1990 and the amendments of which have been subsequently ratified, provides for the phase out of the production of certain substances in order to protect the ozone layer.

The Basel Ban Amendment of 1995 has not as yet been ratified by South Africa. The ban protects developing countries and South Africa is currently considering how to address this amendment.

There is a large body of relevant legislation which relates to each of these conventions, which is summarised in the following table:

Table 2: South African legislation impacting on four waste related international conventions

Relevant Legislation / Regulation:	Montreal Protocol	Basel Convention	Stockholm	Rotterdam
Environment Conservation Act No. 73 of 1989	✓	✓	✓	✓
Fertilizer, Farm Feeds, Agricultural Remedies and Stock Remedies Act No. 36 of 1947	✓		✓	✓
Hazardous Substances Act No. 15 of 1973	✓	✓	✓	✓
Health Act No. 61 of 2003		✓	✓	✓
International Trade Administration Act No. 71 of 2003	✓	✓	✓	✓
National Environmental Management Act No. 107 of 1998	✓	✓	✓	✓
National Environmental Management: Air Quality Act No.39 of 2004	✓			
Regulations for Hazardous Chemical Substances (GNR 1179 in GG 165996 of 258/1995)				✓
Waste Act No.58 of 2008		✓		

Relevant Legislation / Regulation:	Montreal Protocol	Basel Convention	Stockholm	Rotterdam
SARS Act No. 34 of 1997		✓	✓	✓

The Basel Convention is most directly relevant to the provisions of the Waste Act. Whilst there is no specific regulation in place to enforce it, the implementation of the convention is achieved primarily through the South African Revenue Service (SARS) and International Trade Administration Commission (ITAC) legislation and therefore additional legislation is not deemed necessary at present. Through measures to control the management and disposal of hazardous waste, the NWMS addresses the requirements of the Basel Convention in conjunction with other measures and outputs of the Waste Act, including hazardous waste related import and export policies, linked to tariff codes through SARS.

SARS manages the assignment of tariff identity codes to various imports and exports. This tool is used to implement the various conventions. Unique tariff codes have been identified for the chemicals listed in the Montreal Protocol, and recently SARS identified tariff codes for the chemicals listed under the Rotterdam and Stockholm conventions. It is now possible to assign specific environmental controls or import restrictions to these chemicals. A similar process is underway for identifying codes for wastes listed in the Basel Convention. Identifying unique tariff codes for specific chemicals of concerns also enables imports and exports to be effectively monitored to ensure that they meet permitting requirements. SARS reports information annually to DEA on such measures in terms of a memorandum of understanding which is in place.

A process of drafting an MOU between DEA and ITAC for control of imports and exports of MEA chemicals and wastes is underway. This will be facilitated by the allocation of tariff codes and use thereof, resulting in an integrated permitting process to manage the requirements of the three main MEAs.

The Southern African Development Community (SADC) trade protocol contains provisions to lift financial and non-financial trade barriers between SADC members, which may pose a potential risk to the effectiveness of trade barriers for the import of hazardous waste. Article 9 of the protocol stipulates that existing trade barriers such as those relating to conservation of exhaustible natural resources and the environment, or trade barriers necessary to ensure compliance with existing obligations under international agreements, are not nullified.

In relation to marine pollution, South Africa has acceded to a number of conventions which address dumping at sea and prescribe measures to prevent waste on land contaminating the seas and waterways. These wastes include oil, solid waste, nuclear waste and debris from landfill sites.

Perhaps the most pertinent of these conventions is the London Protocol of 1996 (amended in 2006), which prohibits the dumping of certain hazardous wastes and provides for a permitting system for a number of identified materials and wastes. The oversight of this protocol and about

fifty other maritime international conventions and agreements is undertaken by the International Maritime Organisation (IMO).

Despite all the international maritime obligations, the quantities of waste deposited at sea do not appear to be diminishing. Possible reasons for this include low incidences of offenders being caught and brought to justice, combined with the disincentive for using port waste reception facilities (PWF) due to the additional charges for such facilities.

The Montreal Protocol Treaty, revised in 1999, protects the ozone layer by phasing out the production of several substances which contribute to ozone depletion, with the aim of ozone layer recovery by 2050. This has some relevance for waste management in instances where such obsolete products enter the waste stream.

Several obligations exist around measures to mitigate climate change. One of the roles that waste management can play in achieving these obligations is the reduction and efficient management of greenhouse gases released from waste at landfill sites.

The South African government is required to put measures in place to give effect to the provisions of the MEAs to which the country has acceded. Section 5.5 will explore in more detail the mechanisms that are already operational or that will be established in relation to the waste related conventions.

1.5 Socio-economic and demographic context

Socio-economic and demographic factors such as urbanization, unemployment and population growth impact on future waste trends and service provision. South Africa has a growing population characterized by both urbanization and the rapid development of the African middle class as historical injustices are redressed. Increasing affluence not only leads to an increase in the quantities of waste generated, but also leads to more complex waste flows. This trend towards more complex waste flows is reinforced by the continued industrialisation of the South African economy.

In South Africa, growth in waste volumes is projected to rise to nearly 67⁶ million cubic metres by the year 2010 and rapid urban growth throughout the country is seriously outstripping the capacity of most cities to provide adequate waste services for their citizens.

Over the next 50 years, South Africa's population growth will be almost entirely concentrated in urban areas. If adequate waste management policies and practices are not implemented, cities will be overwhelmed by their own waste, seriously affecting the quality of life of all citizens. Household waste generation varies considerably by settlement type and income, with wealthier consumers in urban areas generating much higher volumes of waste. Urban residents typically

⁶ Geoff Purnell of Munitech, "National Waste Quantification and the Waste Information System", paper prepared for Department of Environmental Affairs as part of NWMS process, August 2009

also generate more non-organic waste, which is less conducive to on-site disposal. While 65% of South African households had access to domestic waste collection services in 2007, access to waste services remains highly skewed in favour of more affluent and urban communities⁷.

The persistent impact of social inequality informs the approach adopted by the NWMS, and which is echoed in the preamble of NEMA:

“the State must respect, protect, promote and fulfil the social, economic and environmental rights of everyone and strive to meet the basic needs of previously disadvantaged communities; inequality in the distribution of wealth and resources, and the resultant poverty, are among the important causes as well as the results of environmentally harmful practices”

The implementation of effective waste management strategies will serve to develop the economic potential of the waste management sector, which has an estimated total expenditure of approximately R10 billion per annum⁸. Both waste collection and the recycling industry make meaningful contributions to job creation and GDP, and there is the potential to expand these further.

Well-considered, effective solid waste management systems can make critical contributions to public health, environmental sustainability, economic development and poverty alleviation by:

1. Improving public health outcomes (through removal of hazardous substances from the environment and reduced vectors for transmission of disease)
2. Enhancing environmental quality (through protecting watercourses and preventing degradation of public open spaces)
3. Reducing waste quantity that can clog up public storm water and sanitation networks (thereby reducing flooding, service failures and the need for maintenance)
4. Supporting higher levels of economic activity (through stimulating growth in waste sector, at the same time as avoiding over-regulation of the sector)
5. Contributing directly to poverty alleviation (through offering opportunities for employment, SMME development, and empowerment)

The implementation of the NWMS will result in a number of clear socio-economic benefits, saving the country considerable resources in terms of public health and environmental degradation. The additional costs of implementing the Waste Act and the NWMS should be viewed against the considerable social, environmental and economic benefits that implementing the NWMS will have.

⁷ David Savage, “Cooperative Governance, Local Government and the Waste Planning System”, paper prepared for Department of Environmental Affairs as part of NWMS process, August 2009

⁸ Michael Goldblatt of Palmer Development Group, “Macroeconomic trends, targets and economic instruments”, paper prepared for Department of Environmental Affairs as part of NWMS process, August 2009

The NWMS has to address the issue of the sheer volume of wastes produced by our society, at the same time as ensuring that waste management measures targeting the increasingly complex waste flows are environmentally sustainable and protect the health and well-being of the people. Accordingly the NWMS seeks to integrate the objectives of environmental sustainability and achievement of the waste hierarchy with the broader transformation and development objectives of improved public health outcomes, economic development, poverty alleviation and improved access for all.

1.6 Waste flows and strategic challenges

In seeking to understand the main waste flows and the national waste balance, we are constrained by the existing data, which is in most cases unreliable, and in many cases, data originating from different sources is contradictory. Improving reporting standards at each level of the hierarchy of waste management is a priority challenge for the NWMS.

Scientific understanding of the environmental hazards associated with waste flows has made significant advances in recent years. As a result, methods of disposing waste streams that were considered appropriate 20 years ago are in some cases now recognised as problematic.

The overarching challenge of the NWMS is to address the growing pressure on outdated waste management infrastructure while at the same time improving the management standards that apply to particular waste flows. Specific categories of waste and the challenges associated with them are considered in more detail below.

1.6.1 General waste

General waste *'does not pose an immediate hazard or threat to health or to the environment'*⁹ and includes the following waste flows:

- domestic waste
- construction and demolition waste
- business waste
- inert waste

The composition of general waste varies considerably between households, business and industry, with lower income households in general generating waste with a lower level of

⁹ South Africa. 2008. *National Environmental Management Waste Act, No.59 of 2008*. Pretoria: Government Printer. [Laws.]

recyclable material. The proportion of recyclable and compostable materials in the general waste stream varies between 50% and 80%.

Although current data on waste flows is incomplete, DEA's figures for the 2006/7 financial year indicate that 24,115,402 tons of general waste was disposed of in landfills during that year. This figure will increase as waste services are extended, unless there is a significant increase in the recycling rate and greater diversion of waste from landfill through waste to energy recovery, treatment and reuse programs.

The larger, comparatively well-resourced metropolitan municipalities are experiencing fiscal pressures in maintaining existing levels of waste management services and landfill capacity, while many smaller municipalities face more severe capacity problems. In general, waste services and landfill management charges are underpriced, and a large proportion of municipal waste divisions are operating at a loss. By making alternative waste management options relatively expensive, under-pricing waste service removes important incentives for waste minimisation and encourages higher levels of disposal to landfill.

Generally, public awareness of waste related issues is low in South Africa and the permissive attitude towards littering increases waste collection costs. Furthermore, the lack of opportunity for consumers to correctly dispose of wastes with special disposal requirements, such as eWaste, batteries and Compact Fluorescent Lamps (CFLs) affects the composition of the domestic waste stream. The absence of consumer pressure has contributed to the slow response to this problem by industry and the retail sector in the form of Extended Producer Responsibility (EPR) and product stewardship measures, with some notable exceptions.

General wastes that present particular strategic challenges include:

- **Domestic waste:** Currently about 40% of the population receive inadequate or no domestic waste services. The Packaging Council of South Africa (PACSA) estimates that approximately 12 % of the domestic waste stream derives from packaging.¹⁰ This figure compares favourably with international estimates. The composition of the domestic waste stream directed to landfill varies considerably across different locations based on a variety of factors, including income and opportunities for recycling. Internationally, this waste stream is subject to extended producer responsibility programs, with industry being required to fund separation and collection of recyclable paper and packaging at source.
- **Tyres:** Many landfills do not currently accept tyres since they cannot be compacted and require significant airspace relative to their weight. As a consequence, they are often illegally burnt on open land to recover steel for recycling, presenting a health hazard and leaving environmentally damaging residues in soil. In 2009, regulations were promulgated requiring tyre producers and importers to develop integrated

¹⁰ MARTHINUSEN, Andrew. 2007. Sustainability and Packaging. [Online]. Available: <http://www.pacsa.co.za/doc/IPSA%20WC%20Presentation%20Sept%202007.ppt> [9 February 2010]

industry waste plans that must indicate how waste management measures for waste tyres will be managed and funded.

- **Construction and demolition waste:** Although construction and demolition waste does not consist primarily of hazardous waste, it needs to be diverted from general landfill sites due to airspace constraints. It is a mixed waste source that requires separation into component parts for the purposes of recycling, and typically includes low levels of hazardous wastes, particularly legacy building materials such as asbestos which can present a significant health risk when disposed of or inappropriately reused.
- **Mining waste:** The mining industry contributes more waste to the national total than any other sector, and some mining waste has significant environmental impacts. These impacts are addressed in terms of environmental management plans developed by the industry and approved by the Department of Mineral Resources. Environmental regulation of the mining industry has traditionally resorted under this department, but there is a process underway to shift this environmental function to DEA. These shifts have resulted in some confusion regarding the regulatory framework that pertains to the environmental impact of mining and the exact scope of the application of the Waste Act.
- **High Saline waste:** This waste is produced during the treatment of waste through osmosis and crystalline evaporation, as well as desalination of water. It results in a saline leachate when mixed with other wastes, and for this reason requires specialised disposal procedures. As waste treatment is implemented more widely as part of the hierarchy of waste management measures, and as desalination becomes more important to the supply of water, this waste stream will require special attention.

1.6.2 Hazardous and industrial waste

Scientific understanding of the potential threats to the environment posed by a wide range of substances used in industrial processes and in general domestic use is constantly evolving, creating a need for new standards for waste management. The current classification system for hazardous waste is set out in the DWA Minimum Requirements for the Handling, Classification and Disposal of Hazardous Wastes and is undergoing review in light of the new regulatory framework for waste management provided by the Waste Act.

In 2007, a survey by DEAT of hazardous waste management companies active in four provinces estimated that 710,500 tons of hazardous waste was disposed of at commercial hazardous waste sites in that year. This figure does not include slag and large quantities of hazardous waste such as gypsum and powerstation ash that are disposed of onsite by the producer, and which constitute the largest portion of hazardous waste. In general, on-site disposal needs to be better regulated and, in time, phased out. In comparison to previous data from 1997, this indicated a significant net increase in the volume of hazardous waste, despite the absence of data from the provinces in the 2007 survey.

Currently, the extent of reuse, recovery and recycling of hazardous wastes is negatively influenced by the costs of transporting waste to the limited number of facilities that are capable of treating, processing and recycling hazardous wastes.

At present both liquid and solid waste, including organic wastes, are disposed of in landfills. This significantly increases the risk of environmental pollution from leaching and makes the reuse or recycling of these wastes impossible. In many countries co-disposal of liquid and solid waste and disposal to landfill of organic waste are outlawed, and the phasing out of these practices is a priority for improving hazardous waste management.

Waste streams that include hazardous components and that present particular strategic challenges include:

- **Health care waste:** Health care waste consists of both health care risk waste (HCRW), which comprises the hazardous fraction of the waste stream and health care general waste, which is non-hazardous. HCRW is generated in varying quantities at healthcare facilities and because of its pathogenic characteristics needs to be treated prior to disposal. Systems to support the proper segregation of HCRW waste are not always in place in hospital wards and clinics. However, significant attention has been paid to the management of this waste stream and the Gauteng HCRW project has developed and piloted a segregation system for HCRW in the urban context. In 2003 DEA developed and piloted HCRW segregation and management measures in rural settings. Despite these efforts, shortfalls in the availability of compliant HCRW treatment options are still experienced.
- **eWaste:** Consisting of electrical and electronic waste (WEEE), eWaste is a relatively new waste category for which there is currently a lack of formal disposal mechanisms. Due to the many hazardous components and materials used in the manufacture of electronic goods, including mercury, brominated flame retardants, and cadmium, it is considered a hazardous waste stream. Used electrical goods are often imported into the country as donations – but in some cases, what is being imported is effectively WEEE. There is significant job creation potential in the recycling of eWaste, and several initiatives have and are being set up. The hazardous nature of this waste stream and the small margins of profit generated must be carefully considered when encouraging the recycling of WEEE.
- **Batteries:** Approximately 2,500 tons of batteries are disposed of in general landfill sites annually. Although some alkaline batteries can be disposed of as domestic waste, rechargeable batteries and silver oxide batteries can contain heavy metals such as mercury and cadmium which are classified as hazardous substances and may present an environmental threat when disposed of to landfill. Lead-acid batteries used in cars are considered a hazardous waste. There is an established recycling industry for certain types of batteries (e.g. lead-acid batteries used in cars).
- **Fluorescent Lamps:** Fluorescent lamps contain a small amount of mercury which is used in the illumination process. Mercury is a neurotoxin that can be harmful in even small amounts. The promotion of compact fluorescent lamps (CFLs) by government

and Eskom as an energy saving measure has significantly increased the numbers of CFLs that require disposal when expired. Although Fluorescent lamps can be successfully recycled and the mercury recovered, no such facilities are currently available in the country.

- **Power Station Waste:** Large amounts of fly ash are generated by coal-powered power stations and coal to liquid fuel plants. The disposal of this ash to land sterilises vast tracts of predominately agricultural land and causes significant air pollution from ash entering the atmosphere. Although this has the potential for reuse in brick making, as a cement extender, and as aggregate in roads, levels of reuse are significantly lower than the amounts of waste generated.
- **Pesticide Waste:** Due to their toxicity, potential to pollute and threat to human health, pesticide wastes are extremely hazardous and must be transported, treated and disposed of accordingly. These pesticides can contain persistent organic pollutants (POPs), which accumulate in the food chain and are the subject of international obligations in terms of the Stockholm Convention. South Africa was identified as a country to receive assistance with the collection and disposal of obsolete pesticide waste through the Africa Stock Piles program.
- **Oil:** A wide range of potentially hazardous compounds occur in used oil, including poly-aromatic hydrocarbons that have carcinogenic and mutagenic properties. Because of its slow rate of decomposition, spilled oil accumulates in the environment causing soil and water pollution. Industry, through the ROSE Foundation and National Oil Recycling Association of South Africa (NORA-SA) provide a good example of successful self-regulation. Since the foundation's inception in April 1994, more than 400-million litres of used oil have been collected, and currently about 40% of used oil is recovered for reuse and recycling.
- **Sewage Sludge:** The treatment of sewage sludge is regulated as a concurrent mandate between Department of Water Affairs (DWA) and DEA. The widespread disposal of industrial effluent via sewage treatment works results in contamination of sewage sludge with hazardous chemicals, thereby posing particular challenges for its disposal. Uncontaminated sewage sludge has a variety of commercial uses and can be recycled. Nevertheless, a high proportion of sewage sludge continues to be disposed into landfills. Failures in the monitoring and management of sewage sludge have significant health consequence. Sewage sludge that is contaminated by heavy metals from industrial effluent can severely contaminate agricultural land to which it is applied.

1.6.3 Waste treatment

Due to a variety of factors, waste treatment technologies have not been effectively or widely deployed in the country. A vocal lobby opposed to thermal processing exists in the country and the performance of some existing treatment facilities has been poor. Furthermore, the lack of full cost accounting of landfill management has made treatment seem comparatively expensive and resulted in disposal to landfill becoming the preferred waste management option.

This situation is not sustainable, and the NWMS promotes treatment of waste. Some of the required steps have already been taken. Air Quality standards that apply to thermal treatment processes have been developed. Specific policy in relation to thermal treatment has been developed to provide a degree of certainty to potential entrants into the sector. Through the waste classification system, provisions to divert waste from landfill will be introduced.

1.6.4 Waste disposal

The lack of adequate, compliant landfills and hazardous waste management facilities is a cross-cutting strategic priority that impacts on the safe disposal of all waste streams. Although more than 2000 waste handling facilities are estimated to exist¹¹, there are currently significant backlogs in permitting, and some municipalities have not even begun the process of permitting waste facilities. Furthermore, many permitted landfills fail to achieve compliance with the conditions of their permits. Currently only four of the nine provinces have hazardous waste facilities.

There is an undersupply of landfill airspace, and the currently available airspace is being rapidly depleted. This is compounded by the low levels of waste minimization and reuse, recovery and recycling. Separating, recycling, and reducing waste through treatment poses a cross-cutting challenge that will inform the management of all waste flows but is of particular significance for general and domestic waste.

¹¹ DEAT (2007), *Assessment of the Status of Waste Service Delivery and capacity at Local Government level*. Directorate: General Waste Management, August 2007, Draft 3.

2 Overall strategy – implementing the waste hierarchy

2.1 Objectives of National Waste Management Strategy

Section 6 (1) of the Waste Act requires the development of a National Waste Management Strategy that gives effect to the objects of the Act, which are:

to protect health, well-being and the environment by providing reasonable measures for—

minimising the consumption of natural resources;

avoiding and minimising the generation of waste;

reducing, re-using, recycling and recovering waste;

treating and safely disposing of waste as a last resort;

preventing pollution and ecological degradation;

securing ecologically sustainable development while promoting justifiable economic and social development;

promoting and ensuring the effective delivery of waste services;

remediating land where contamination presents, or may present, a significant risk of harm to health or the environment; and

achieving integrated waste management reporting and planning;

to ensure that people are aware of the impact of waste on their health, wellbeing and the environment;

to provide for compliance with the measures set out in paragraph (a) and

generally, to give effect to section 24 of the Constitution in order to secure an environment that is not harmful to health and well-being.

The primary focus of these objects is the achievement of the waste hierarchy, but there is also a set of broader social and economic objectives which the strategy aims to achieve, summarised

in Section 6 (1)(a)(vi) above. These objects of the Waste Act have been distilled into a set of high level goals and objectives for sustainable development and for each step of the waste hierarchy. The goals and objectives of the NWMS are summarized in the table below.

Table 3: Goals and objectives for NWMS

Goal	Objectives
Securing ecologically sustainable development while promoting justifiable economic and social development	<ul style="list-style-type: none"> • To ensure the protection of the environment through effective waste management measures • To protect the health and wellbeing of people by providing an affordable waste collection service • Grow the contribution of the waste sector to GDP • Increase number of jobs within waste services, recycling and recovery sectors • Promote SMMEs in waste sector
Avoiding and minimizing the generation of waste	<ul style="list-style-type: none"> • Ensure the design and manufacture of products that avoid or minimize waste generation • Discourage waste generation through cost reflective and volume based tariffs • Increase consumer awareness of waste minimization issues
Reducing, re-using, recycling and recovering waste	<ul style="list-style-type: none"> • Increase reuse and recycling rates of products • Reduce the percentage (%) of recyclable material to landfill • Ensure separation at source in all metropolitan and local municipalities • Encourage the establishments of Material Recovery Facilities (MRFs) • Encourage waste to energy options • Support the diversion of high calorific waste from landfill to recovery options
Promoting and ensuring the effective delivery of waste services	<ul style="list-style-type: none"> • Facilitate the provision of at least a basic level of waste service to all • Ensure an efficient and effective solid waste management • Implement free basic refuse removal policy for indigent households • Promote the regionalisation of waste management services

Goal	Objectives
Treating and safely disposing of waste as a last resort	<ul style="list-style-type: none"> • Stabilise quantity of waste disposed to landfill then reduce this volume • Improve landfill management to comply with legislation • Increase thermal treatment and conversion of waste to energy • Ensure the diversion of certain waste tyres from landfill
Remediating land where contamination presents a significant risk of harm to health or the environment	<ul style="list-style-type: none"> • Quantify the extent of contaminated land • Implement contaminated land measures in the Waste Act • Remediate priority areas of contaminated land • Clarify extent of state liability for contaminated land

In addition to the above high level goals and objectives, there are a number of process related goals and objectives relating to the mechanisms required to achieve the overall goals, which reflect intermediate level outputs. The goals and objectives for these are summarized in the table below.

Table 4: Process related goals and objectives

Goal	Objectives
Achieving integrated waste management planning	<ul style="list-style-type: none"> • Reliable information on waste flows and an accurate national waste balance • Establish and implement an effective system of performance based IWMPs at all levels of government • IndWMPs approved for key industrial sectors
Sound budgeting and financial management for waste services	<ul style="list-style-type: none"> • Sound financial planning for waste services • Full cost accounting for waste services • Cost reflective and volumetric tariffs implemented • Waste services sustainably financed

Goal	Objectives
Adequate staffing and capacity for waste management	<ul style="list-style-type: none"> • WMOs appointed at all levels of government • Additional technical capacity developed to deal with norms and standards, industry regulation and remediation • EMI capacity expanded to deal with Waste Act • Private sector capacity mobilized to support waste service delivery and community based collection models
Effective compliance with and enforcement of waste regulations	<ul style="list-style-type: none"> • Conduct systematic monitoring of compliance with regulations and permit conditions • Create a culture of compliance with Waste Act regulations • Establishment of a hotline to report non-compliance • Successful prosecutions of waste offenders.
Effective monitoring and reporting on performance with waste functions	<ul style="list-style-type: none"> • Implement systematic monitoring of key performance indicators by each sphere of government • Reporting on key performance indicators in line with Waste Act • Conduct regular evaluation of performance with waste functions and IndWMPs
Ensure that people are aware of the impact of waste on their health, well-being and the environment	<ul style="list-style-type: none"> • Develop national and local awareness campaigns on the social importance of waste management • Promote waste minimization and recycling through education system • Establish an equivalent to the “Blue Drop” award for waste management by municipalities

Progress against the achievement of these goals and objectives will be measured in terms of indicators and targets set for the NWMS in Section 5.10 below. DEA’s annual performance report will report on progress against a priority list of the indicators.

Section 6(5)(e) of the Waste Act states that the strategy must be reviewed by the Minister at intervals not exceeding five years, and as part of the five year review a comprehensive assessment of progress against the indicators will be undertaken.

The Waste Act further prescribes that the strategy must include the following elements:

- Strategies, objectives, plans, guidelines, systems and procedures relating to the protection of the environment and the generation (including the avoidance and minimisation of such generation), re-use, recycling, recovery, treatment, disposal, use, control and management of waste in order to achieve the objectives of the Act.
- Mechanisms, systems and procedures for giving effect to the Republic's obligations in terms of international agreements.
- National norms and standards for waste management, including planning, and service delivery.
- Practical measures for achieving co-operative governance in waste management matters.
- Guidance on raising awareness regarding the impacts of waste on health and the environment.
- Approaches for securing compliance with the requirements of the Act.
- Targets for waste reduction.

These elements have all been addressed in this NWMS. The Minister may also prescribe additional items to be included in the strategy that are considered necessary for achieving the objects of the Act.

2.2 Approach – waste hierarchy and regulatory model

The Waste Act, 2008 provides a range of waste management measures that can be deployed to achieve the objectives of the Waste Act and that are applicable to the plethora of waste management challenges in the country.

The conceptual approach to waste management is underpinned by the waste hierarchy, which was introduced into South African waste management policy in the White Paper on Integrated Pollution and Waste Management. It was a hallmark of the 1999 NWMS, as represented in Figure 1.



Figure 1: Waste Hierarchy, NWMS 1999

The essence of the approach is to group waste management measures across the entire value chain in a series of steps, which are applied in descending order of priority. The foundation of the hierarchy, and the first choice of measures in the management of waste, is waste avoidance and reduction. Where waste cannot be avoided, it should be recovered, reused, recycled and treated. Waste should only be disposed of as a last resort.



Waste should only be disposed of as a last resort.

The Waste Act, and consequently the NWMS, in addition addresses those situations in which the waste hierarchy is not implemented successfully, through providing additional measures for the remediation of contaminated land to protect human health and secure the wellbeing of the environment

Figure 2: Waste Hierarchy, NWMS 2010

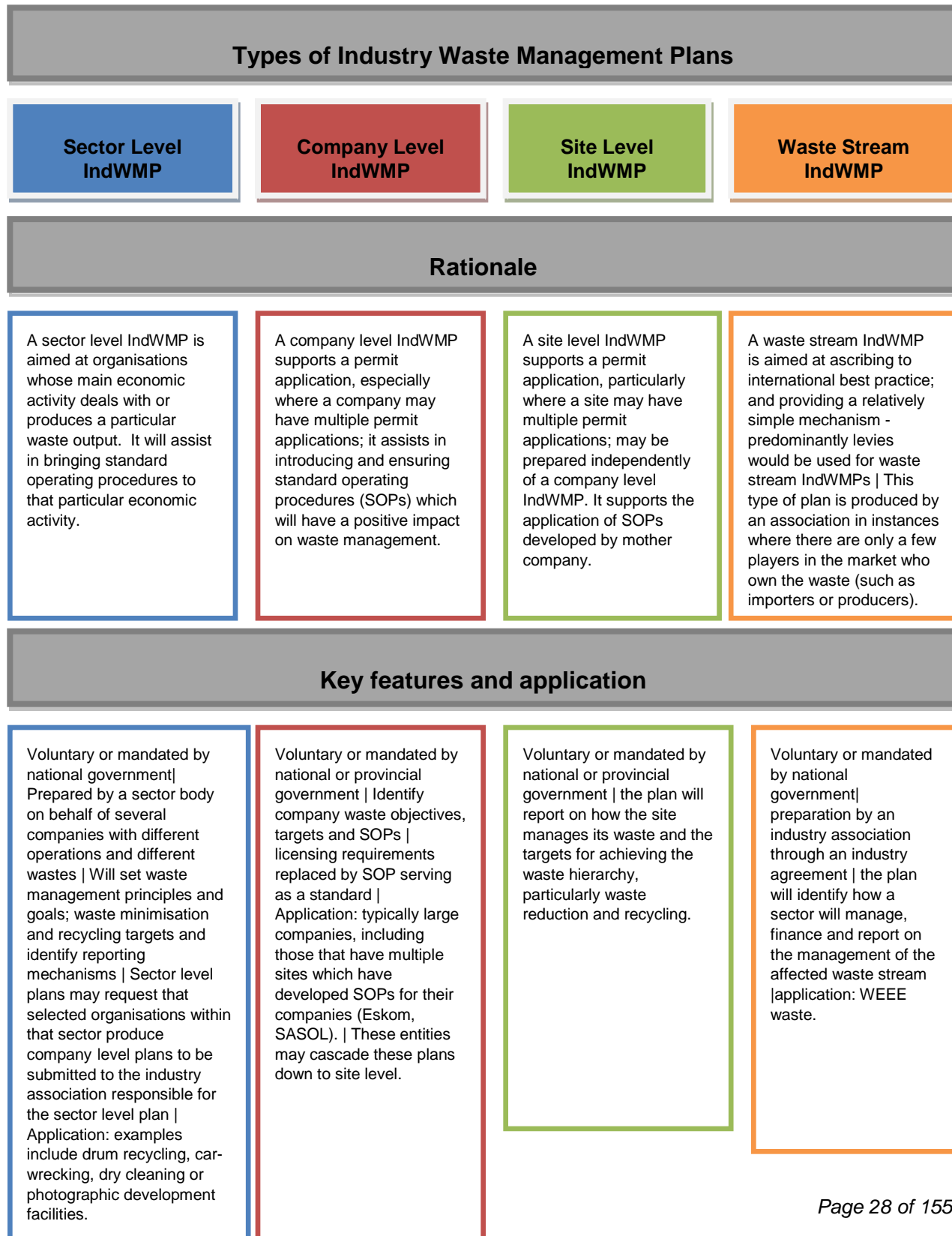
Implementation of the waste hierarchy requires changes in the way products are designed and manufactured in order to promote their re-use and recycling, giving effect to the concept of ‘cradle-to-cradle’ waste management. This is an important advance on the previous “cradle to grave” approach, which entailed producer responsibility for the entire lifecycle of a product until its final disposal. Cradle to cradle management ensures that once a product reaches the end of its life span, its component parts are recovered, reused or recycled, thereby becoming inputs for new products and materials and this cycle repeats itself until the least possible portion of the original product is eventually disposed of.

To achieve the goals and objectives of the NWMS, a tiered and consensual model has been adopted, which seeks the optimal combination of regulation and compliance measures with self regulatory components, voluntary initiatives, economic incentives, and fiscal mechanisms. This model aims to establish a level of baseline regulation for the waste sector, as a foundation for a co-regulatory system that relies on industry initiative and voluntary compliance. In instances where industry response proves insufficient for dealing with waste challenges or a market failure prevails, more interventionist regulatory tools will be utilised. In line with this model the various mechanisms and measures set out in the Waste Act are viewed as a “tool box” of instruments to be used systematically and strategically in addressing specific issues.

The foundation of the tiered and consensual model is the development of a system of national norms and standards, which creates a common national platform for waste management activities to be undertaken by both public and private sectors. The Waste Act also provides for the development of provincial norms and standards as well as local waste services delivery standards, provided they do not contradict the national standards. The consequences of

jurisdictional variation in norms and standards will have economic and administrative implications which need to be carefully evaluated.

Figure 3: Type of Industry IWMPs requiring Ministerial approval



In addition to norms and standards, the Waste Act creates a system for listing and licensing waste management activities, which is the other key element of the baseline regulatory system. Listed waste management activities above certain thresholds are subject to a process of impact assessments and licensing. Furthermore, in order to promote the reuse and recovery of waste, certain waste stream activities will be registered as an acceptable use depending on the outcome of an impact assessment, and will not require licensing. This provides a primary level of regulatory control over activities along the waste management value chain.

The Waste Act places a large emphasis on Industry Waste Management Plans (IndWMPs), which are the central element in the co-regulatory system. The diagram above presents an overview of the four different types of industry waste management plans that may be considered. The plans differ in respect to who develops them; the purpose for their development, which will affect their content; whether they need to be approved by the Minister or not; and the benefits for industry. These criteria are discussed in greater detail in Section 3.4.

The Waste Act also contains a suite of more interventionist regulatory measures that form the last tier of the regulatory model. These include provisions for the declaration of priority wastes and extended producer responsibility, which are regulatory tools which will be invoked in instances where specific regulatory gaps needs to be addressed, if necessitated by the accession to MEAs, or where there is persistent non-compliance or failure or inability by a sector or industry to address waste management issues. Priority wastes may also be declared where government seeks a solution to a persistent waste problem where multiple players and partners are involved, and where the process will assist government in developing the most suitable solution involving all relevant role-players. These measures will also be backed up by economic incentives and fiscal mechanisms.

In developing an overall strategy for the NWMS, this regulatory model is applied to each phase of the waste hierarchy.

2.3 Waste avoidance and reduction

Waste avoidance and reduction is the foundation of the waste hierarchy and is the preferred choice for waste management measures. The aim of waste avoidance and reduction is to achieve waste minimization and therefore reduce the amount of waste entering the waste stream. This is especially pertinent for some waste streams where the recycling, recovery, treatment or disposal of the waste is problematic.

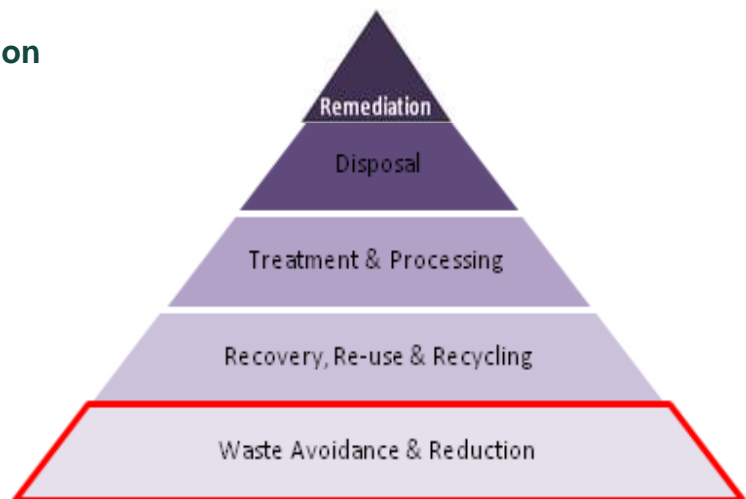


Figure 4: Waste Hierarchy, NWMS 2010

While waste minimisation is difficult to quantify, available figures indicate that waste generation per capita and per GDP (as a proxy for waste minimisation) are on the increase. There is limited uptake of waste avoidance and reduction measures, and limited statistical information on waste streams and reduction measures, including reduction measures during the production stage. For industries which do not have baseline statistics, setting targets for waste reduction measures may be challenging.

Waste minimisation occurs largely as a result of competitive pressures and economic incentives, and through producer responsibility initiatives implemented by industry on a voluntary basis. Government initiatives in this area have met with varying levels of success. Perhaps the most notable of the national government initiatives in respect to waste minimization has been the plastic bag levy initiative. This is the first instance of a tax instrument being used to effect change in behaviour at both consumer and industry level. This initiative aims to reduce the number of plastic bags being disposed of, limit their utilization and increase their re-usability and value.

Incorporating waste reduction principles into the design and packaging of products at the point of manufacture is more efficient than focussing on post-consumption responses. The focus for industry in terms of waste reduction needs to be on innovative design, and weight and size reduction, to reduce waste as well as lower transportation costs.

The Department of Trade and Industry (the dti) plays a primary role in relation to waste avoidance and reduction through focusing on cleaner production and technology. The draft Cleaner Production Strategy (2004) is an important policy framework of the dti, which has overseen the establishment of the National Cleaner Production Centre. This centre has undertaken a number of demonstration projects, which aim to investigate the viability of various initiatives and mechanisms.

Whilst cleaner production and product design are governed by the dti, the Waste Act contains a provision for DEA to request, in consultation with the Minister of Trade and Industry, that the producer provide for the reduction of products or components, or that the products or components contain a minimum percentage of recycle content. A coordinated approach between DEA and the dti will be followed in implementing these provisions. A balance will be found between encouraging design and packaging changes at the point of manufacture, whilst maintaining the momentum of current post-consumer initiatives.

Industry Waste Management Plans will include targets and measures for waste minimisation and recycling, and will set out performance monitoring systems for measuring progress against targets.

DEA will investigate the feasibility of setting norms and standards for waste minimisation. The Waste Act includes a discretionary provision for national norms and standards relating to waste minimisation. There are currently no norms and standards for waste reduction at either an industry or municipal level. An investigation will be conducted by DEA, in consultation with the dti and industry, regarding product design, packaging and content, and other related measures to minimize waste generation.

The current pricing of waste disposal will be reviewed in order to build in incentives for waste minimisation by consumers. Historically municipalities have undercharged for waste services, and in terms of costing options, only one option, or fixed cost, has been made available to households. Since waste disposal charges are set at a fixed rate, there is no financial incentive for disposers to recycle and reduce waste generated. As a first step, full cost accounting is required to properly understand the cost of waste services provision. On the basis of a proper understanding of the costs, cost reflective tariffs must be charged to consumers across all municipalities. Over the longer term, volumetric charging should be implemented by all municipalities, as the requisite levels of administrative and financial capacity are built. Further economic instruments to promote waste minimisation will be considered by government once the pricing of waste services and disposal has been addressed.

The importance of waste minimization and ways in which industry, households and consumers can contribute to this will be included within an overarching public awareness campaign for waste to be coordinated by DEA.

Through the implementation of the above mentioned actions, both DEA and industry can achieve waste minimization. Setting standards, altering product design, providing incentives and disincentives, and motivating the public will result in higher levels of waste minimization throughout the lifecycle of waste.

2.4 Recovery, re-use and recycling

Recovery, re-use and recycling comprise the second step in the waste hierarchy. Recovery, re-use and recycling are very different physical processes, but have the same aim of reclaiming material from the waste stream and reducing the volume of waste generated that moves up the waste hierarchy. Section 17 of the Waste Act sets out standards regulating recovery, reuse and recycling and describes a range of additional regulatory measures available to the Minister in this respect.

Recycling rates within South Africa are relatively well established¹², driven primarily by industry-led, voluntary initiatives with funds managed independently of government via non-profit associations, which oversee recovery/recycling processes and facilities.



Figure 5: Waste Hierarchy, NWMS 2010

¹² Geoff Purnell, Munitech, "National Waste Quantification and the Waste Information System", 2009, paper produced for Department of Environmental Affairs as part of NWMS.

Approximately one and a half billion tons of packaging and paper waste (40% of the consumption of packaging and paper products) is recycled per annum¹³. Whilst this is still slightly behind developed country statistics, this provides an established base upon which to build and set future targets for the recycling industry.

Current recycling rates in South Africa are set out in the table below:

Table 5: Recycling rates in South Africa, 2007

Example of recyclate	% recycled in 2007
Metal beverage cans	70%
Paper	54.5%
Glass	25%
Plastic	22%

**based on 2007 figures from PACSA*

Waste generation and recycling activities are broadly linked to income levels - the more affluent the household, the higher the proportion of recyclable material in the waste stream, making recycling initiatives more viable commercially. As a result, the right balance needs to be found between a mix of initiatives, based on income levels per area.

Norms and standards for recovery, reuse and recycling of waste will be developed in terms of the Waste Act. Amongst others, norms and standards will be set to facilitate separation at source of waste for municipal collection. In order to encourage reuse of industrial wastes, norms and standards which allow for “acceptable use” of waste will be developed. In order for a waste to be considered for ‘acceptable use’ specific requirements will need to be met, including detailed risk assessments.

Norms and standards for recovery, reuse and recycling will also be developed to support the implementation of IndWMPs and extended producer responsibility initiatives. For example, norms and standards will regulate the recycling of used oil by the garage and motor vehicle maintenance industry in support of an IndWMP for the sector.

¹³ PACSA 2007 figures.

Realistic and defensible targets and measures for recovery, reuse and recycling of waste will be included in IndWMPs. Targets for recovery, reuse and recycling of waste for all the main waste categories will be developed progressively over five years, in line with the development and implementation of IndWMPs as per section 30(2) of the Waste Act. The IndWMP for the paper and packaging industry will set clear targets for the recovery, reuse and recycling of metal beverage cans, paper, plastic and glass, for which there are accurate baseline statistics. In relation to other waste streams, the initial focus of IndWMPs for these sectors will be to establish accurate baseline data.

Voluntary industry led initiatives for recovery, reuse and recycling of waste will be promoted, and DEA will not intervene where they are working successfully. In some instances additional supporting regulatory or financial mechanisms are required. Formalising initiatives within for example, EPR schemes, will enable DEA to produce supportive regulations which can assist with uptake and compliance in relation to the measure.

The Waste Act allows the Minister, after consultation with the Minister of Trade and Industry, to require the recovery, reuse and recycling of products or components, and to determine a percentage of recycled material in products. These provisions will be used to reinforce EPR schemes, and to address instances in which voluntary initiatives by industry have proved unsuccessful. Guidelines for the application of these provisions will be developed in consultation with all stakeholders.

The original design of a product impacts greatly on the recoverability and recyclability of the materials contained within it. Product design which facilitates reduced hazardous components, reduced mixed materials, and ease of separation, is an important measure to support recycling. DEA and the dti will establish a bilateral committee to coordinate initiatives impacting on product design and minimum recycle content for products, as well as other regulatory measures such as priority wastes and EPR programmes. The dti will complement product design initiatives by setting standards for the product in question.

Sustainable job creation in relation to recovery, reuse and recycling of waste will be promoted. There are approximately 90,000 jobs¹⁴ in the recycling industry at present, although estimates of jobs within the informal recycling sector are unreliable. Employment opportunities are concentrated within the collection and sorting phases of recycling, as well as informal recycling activities such as 'waste-picking' on landfills. Government is keen to see the expansion of the recycling sector, and promotion of SMMEs, cooperatives and EPWP projects through the implementation of separation at source and establishment of Materials Recovery Facilities (MRFs). Measures to achieve this are to be included in IndWMPs.

At the same time health and safety standards within the sector need attention. While waste-picking on landfills contributes to the livelihoods of those involved, the health and safety hazards related to informal waste-picking on landfills are of grave concern to both government and industry. Accommodating the informal recycling sector within the recycling industry through

¹⁴ Figure based on a research paper entitled Macroeconomic trends, targets and economic instruments, 2009, Mike Goldblatt, Palmer Development Group.

establishing waste collectives and other measures is vital, and IndWMPs should set out the manner in which industry proposes to achieve such measures within their sector.

Separation at source is an important means to both improve the quantity of recyclates, and reduce waste sent to landfill. Separation at source will also result in a better quality of recyclates in terms of lower contamination levels. Over the next five years it is intended that measures to implement separation at source will be piloted by the paper and packing industry through the implementation of the IndWMP with a view to rolling out a successful system country wide. This process will have minimal impact on municipal waste collection capacity requirements, whilst meeting recycling objectives. Separation at source is likely to result in much higher volumes of recyclates, and in order to ensure demand meets supply, measures to stimulate the market for recyclates may be required. Industry will need to develop markets for recyclable material which government should support. The introduction of a levy on some virgin materials sold for use within South Africa could provide an incentive for the use of recyclates as an alternative.

Education and awareness of the benefits associated with recovery, re-use and recycling are important to ensure public participation in re-use and recycling initiatives, and in facilitating mutually beneficial initiatives between government and industry. Education and awareness can affect the level of the demand for recycled products. DEA will support the national education and awareness campaigns rollout by Indalo Yethu and Buyisa-e-bag, whilst industries are encouraged to provide education and awareness through their own initiatives, which can be formalised in terms of their IndWMP and EPR schemes.

Reporting and monitoring of waste recovery, reuse and recycling measures requires an accurate baseline figure, and a baseline study of waste quantities and flows through reduction, re-use, recycling and recovery techniques will be undertaken by DEA within the next year. This baseline data will then be used to set and measure against firm targets.

2.5 Storage, collection and transportation of waste

Waste services delivery, including the storage, collection and transportation of waste, is the main point of interface between the public and waste service providers. The extent and form of provision of waste services to households and businesses also impacts directly on all stages of the waste hierarchy. The Waste Act requires municipalities to ensure access to and sustainability of waste services, to provide waste services at affordable prices, and to keep separate financial statements for waste services provided, amongst others. Waste management services are a core function of all metropolitan municipalities and most local municipalities, while district municipalities in general do not view waste management as part of their functions.

The NWMS sets out a programme for universal provision of waste services according to standards developed in terms of the Waste Act. In order to achieve this, coordinated action by different spheres of government is required to address the fiscal and capacity problems faced in waste service provision.

Norms and standards for the planning and provision of waste management services will be promulgated. The Waste Act obliges DEA to set norms and standards for waste management

services, and draft norms and standards have been published for public comments. DEA recognises that the levels of waste service will differ between areas depending on the practicality and cost efficiency of delivering the service. The following minimum levels of service have been proposed:

- a) On-site appropriate and regularly supervised disposal (applicable mainly to remote rural areas with low density settlements and farms supervised by the waste management officer)
- b) Community transfer to central collection point (medium density settlements)
- c) Organised transfer to central collection points and/or kerbside collection (high density settlements)
- d) Mixture of 'b' and 'c' above for the medium to high density settlements.

The Waste Act also provides for provincial norms and standards to be set in relation to waste management services, although differing provincial standards will raise issues in terms of the administrative capacity to monitor and enforce them. Provinces and DEA will agree on a common set of national standards to be promulgated, thereby obviating the need for separate provincial standards.

Municipalities may further set waste services standards for the separation, compacting and storage of solid waste, the management and directing of solid waste, and in respect of the control of litter. The Waste Act requires that municipal waste service standards are aligned with provincial and national norms and standards. Many municipalities have already passed by-laws regulating solid waste management and setting local standards. DEA will prepare a draft model municipal by-law for regulating waste services, which can be used as a basis for less capacitated municipalities to develop their own by-laws.

Targets for waste services delivery will be set in municipal and provincial integrated waste management plans, with the objective of ensuring universal coverage of waste services according to the above standards within a realistic timeframe. The Cooperative Governance and Traditional Affairs Department (COGTA) recognises a degree of difference in the fiscal, spatial, functional and governance capabilities within local municipalities. These differences require a differentiated approach to be adopted to waste services provision by municipalities across the rural and urban landscape of South Africa. The four local municipal categories included in the COGTA classification are:

- Class 1: Most vulnerable (57 local municipalities)
- Class 2: Second most vulnerable (58 local municipalities)
- Class 3: Second highest performing (58 local municipalities)
- Class 4: highest performing (58 local municipalities)

DEA will prepare a detailed Sector Plan for Addressing Waste Services Backlogs in order to support the provision of a sustainable waste management services to all South Africans.

A policy for Free Basic Refuse Removal (FBRR) will be finalized to ensure that poor (indigent) households have access to at least basic refuse removal services from the concerned municipality. The FBRR policy service will address three key pillars listed in order of priority namely:

- Gaining access (dependent on capital expenditure for FBRR services).
- Maintaining access (dependent on operating expenditure for FBRR services).
- Targeting the poor (dependent on subsidy mechanisms that will remove the financial burden from the indigent).

It is important that as an initial step municipalities are aware of the true costs of waste services. Full cost accounting, which includes taking account of the full capital replacement, operating and environmental costs of delivering waste collection and disposal services, is essential in order to plan for waste service delivery, to correctly target subsidies to the indigent and to ensure financial sustainability. DEA in conjunction with National Treasury will prepare a guideline for municipalities setting out the steps that should be followed to account fully for the costs of waste services.

Municipalities are required to adopt a tariff policy for municipal services in terms of Section 74 of the Municipal Systems Act, and pass a by-law to give effect to that policy in terms of Section 75. Current tariff policies and under-pricing of waste services over the years has led to an average 15% operating deficit in municipalities¹⁵. Waste service tariffs need to be comprehensively reviewed by municipalities, and DEA will prepare and issue guidelines in this regard. The guideline will avoid artificially influencing pricing to support waste minimisation objectives only.

Alternative service delivery models need to be evaluated. The Municipal Systems Act, 2000, requires that in expanding services to non-serviced areas, municipalities must evaluate the most appropriate method for service delivery, including the use of external delivery mechanisms. Despite the potential for external mechanisms for waste services delivery to contribute to greater efficiency and job creation, only 13% of authorised municipalities have outsourced or commercialised service provision activities in 2007¹⁶. The use of community-based service delivery mechanisms has also been limited. The process for evaluating service delivery mechanisms is set out in Section 78 of the Municipal Systems Act, 2000, and the procedure for establishing Public Private Partnerships is regulated in terms of the Municipal Finance

¹⁵ Savage, D. (2009) Cooperative Governance, Local Government and the Waste Planning System Research Paper commissioned for the National Waste Management Strategy.

¹⁶ Savage, D. (2009) Cooperative Governance, Local Government and the Waste Planning System Research Paper commissioned for the National Waste Management Strategy.

Management Act, 2003. National Treasury has issued detailed guidelines for the utilization of PPPs by municipalities.

Labour intensive and community based mechanisms for waste service delivery will be promoted by all spheres of government. Community based waste service models will be piloted in both private and government waste services provision in municipalities to maximize job creation and SMME development. Existing government programmes such as the Expanded Public Works Programme (EPWP) will be utilised to increase job creation in waste services industry. Through the EPWP all spheres of government (in terms of their normal mandates and budgets) and the non state sector (supported by government incentives) can optimise the creation of work opportunities through the delivery of public and community services. DEA will examine how best employment creation pilot projects such as these can be brought to scale, and will consult with National Treasury regarding the most appropriate fiscal mechanisms to achieve this.

Provisions for the storage of waste and hazardous waste, including temporary storage, are contained in the Waste Act. Storage facilities receiving in excess of 30 tons of waste per day or with a through put capacity of 20 cubic metres of waste per day require a waste management license, and will be subject to a basic assessment in terms of the EIA Regulations as part of the licensing process. This is elaborated further in Section 3.8 of the NWMS.

Provisions for the registration of transporters of waste with the relevant province or municipality will be developed by DEA, with appropriate thresholds set for transporters, so that the regulatory burden on government and industry is kept to a minimum. This is elaborated further in Section 3.8 of the NWMS.

2.6 Treatment and disposal

This section describes the strategic priorities for treatment and disposal – Section 3.9 describes the practical details of implementation in terms of the instruments provided by the Act, and the associated organisational arrangements.

Section 2(a)(iv) of the Waste Act clearly indicates that the treatment and disposal of waste is a “last resort” within the hierarchy of waste management measures. In terms of the definitions in the Waste Act:

- Treatment is any process that is designed to minimise the environmental impact of waste by changing the physical properties of waste or separating out and destroying toxic components of waste.
- Disposal refers specifically to the depositing or burial of waste onto, or into, land.

Treatment, processing and disposal of waste must take place in accordance with the principles of environmental justice and equitable access to environmental services as articulated in the National Environmental Management Act 107 of 1998 (NEMA). This is particularly important in the light of the fact that landfill and waste treatment facilities tend to be located in close proximity to poor communities and informal settlements.

Ensuring that waste is treated, processed and disposed of in an appropriate manner will be accomplished, in the first place, through the application of norms and standards that will:

- Determine appropriate operational standards for landfills, including monitoring and reporting requirements.
- Specify the types of waste that can be disposed of in particular categories of landfills.
- Determine operational standards for particular treatment and processing technologies.

Norms and standards for the treatment and disposal of waste will be developed by DEA in terms of Section 7(1)(c) of the Waste Act, and will be promulgated during 2010.

In terms of waste treatment and processing, DEA supports the development of alternatives to landfill including incineration, gasification, and pyrolysis in so far as they generate energy. Thermal treatment of waste must conform to air emissions standards to mitigate the impact on health and the environment. While there are cost implications of conformant incineration as a waste processing technology, these need to be considered in relation to the rising costs of disposal to landfill as full cost accounting is implemented. It is anticipated that appropriate incineration, gasification and pyrolysis facilities will increase over time and ultimately replace landfills as the primary disposal mechanism for waste.

The strategic approach to incineration, gasification and pyrolysis as energy recovery mechanisms is discussed in Section 2.4 of this strategy and the regulatory instruments are described in 3.7.

Landfill capacity, licensing compliance and shortfalls in treatment and disposal facilities have been identified as strategic challenges in Section 1.6 of this strategy. It is the primary responsibility of municipalities to make sure that the landfills are properly managed according to national standards, and that they are permitted and are compliant with the conditions of their permits. At the same time municipalities need to plan proactively for future airspace requirements, and to make the necessary investments in capital infrastructure for this purpose. In addressing this challenge, DEA and the provinces will implement a programme for the licensing of landfills and compliance monitoring of licensing that:

- Provides a schedule for the licensing in terms of the Waste Act of treatment, processing and disposal facilities currently permitted in terms of Section 24 of NEMA.
- Includes targets for the licensing of currently unlicensed treatment, processing and disposal facilities.
- Establishes a task force in each province to systematically visit each municipality, establish the current status of the management of the existing landfills and planning for new landfills, and provide a recommendation report for each municipality, indicating the steps that must be taken to regularise the management and permitting of the existing landfills, and steps required to initiate planning for new landfill sites. This countrywide evaluation will be completed by 2011.

- Following the conclusion of the work of the above task force, a programme of work for the newly appointed EMIs from provincial and national government will focus on enforcing compliance with norms and standards for waste treatment and disposal that includes proactive monitoring of compliance by each municipality.
- Includes incentives for compliance by municipalities in terms of a redesigned “Cleanest Town” campaign as described in Section 5.6.

The Waste Act permits the Minister to set norms and standards for the regionalisation of waste management services, which include treatment, processing and disposal. The primary focus of such regionalisation would be the establishment of regional landfills that service a number of local municipalities. These would be best managed by district municipalities, or by local municipalities within a district acting on behalf of a number of contiguous municipalities. The environmental benefits of regional landfills need to be off-set against the additional costs arising from transport of waste from local transfer stations and the potential for reduced local accountability for service delivery due to the greater scale at which decisions are taken. DEA will undertake a detailed cost-benefit analysis of regionalisation, and on the basis of this will prepare guidelines for use by district and local councils in evaluating whether and how to regionalise waste services, and in which instances the function of waste collection services should be shifted from local to district level. The guidelines will:

- Examine the environmental benefits and cost efficiencies derived from regionalisation.
- Provide an indicative cost model for planning purposes that can be used for calculating the costs of transporting waste to transfer stations, and from transfer stations to landfill, as well as the costs of disposal at local vs. regional sites.
- Stipulate appropriate spatial planning guidelines for distance from populations per density for transfer stations, landfill sites and waste treatment and recycling centres.
- Provide the basis for calculating optimal catchment borders for waste transfer stations in terms of the costs of collecting and transporting waste.

The use of the Municipal Infrastructure Grant to promote regionalisation will be considered by COGTA and DEA following the completion of the above cost-benefit analysis. In order to understand the scale of capital investment required, municipalities will be required to quantify current landfill capacity and estimate future need based on a district by district analysis in their integrated waste management plans. This information will provide the statistical basis for strategic planning in relation to the utilisation of MIG funding to invest in regional treatment and disposal infrastructure, and the results of the survey will also inform municipal and provincial IWMPs.

In terms of the treatment and disposal of hazardous waste and Health Care Risk Waste there is an urgent need for additional treatment capacity to be developed by the private sector, especially bearing in mind the long term goal of phasing out onsite disposal of this waste. Currently, the lack of capacity has led to an untenable reliance on obsolete and unreliable facilities and is hampering efforts to divert waste from landfill and support the recovery of energy

from waste. Most provinces have no hazardous waste facilities, and where a proven need for these facilities exists, measures to address this must be included in provincial IWMPs.

The requirements for thermal Health Care Risk Waste treatment facilities have been gazetted through the air quality standards setting process. All the current permits for HCRW treatment plants will be reviewed to ensure that they meet the requirements. Where Health Care Risk Waste treatment facilities are not compliant with the standards for incinerators set in the National Air Quality standards, the Department will require plans be drawn up for decommissioning the facilities within a year, with a view to decommissioning them within three years. Once the standards for non-thermal HCRW treatment facilities have been developed, all permits for non-thermal HCRW treatment facilities will be reviewed to ensure alignment and compliance. Similarly non-thermal HCRW treatment facilities that do not comply with the standards will be required to draw up plans within one year of the publication of the HCRW regulations plans for decommissioning them within three years.

Municipal landfills are largely underfunded, and as a consequence the necessary management features such as cell development, leachate management, weigh bridges, compaction, capping etc. are not performed. The proper financing of landfills and shortfalls in treatment and disposal capacity will be addressed as part of the fiscal regime for waste management that progressively incorporates full-cost accounting into waste tariffs. Over the next five years the costs of managing municipal landfills need to be fully accounted for, and the costs passed directly onto businesses and consumers in terms of waste service tariffs. DEA will incorporate this into the guidelines to be developed regarding municipal tariffs.

The legislative and regulatory instruments, policy processes, and institutional arrangements that will be used to achieve the strategic priorities for treatment, processing and disposal are outlined in Section 3.9 of this strategy.

2.7 Remediation

Remediation of the effects of waste and pollution is the final step in implementing the waste hierarchy. There is a lack of data on the number and extent of contaminated sites spread across the country, due in part to the scale of mining activity in the country, as well as the historical under-regulation of this area. The scope of the contamination problem is widely acknowledged to be significant.

Prior to the promulgation of Waste Act, remediation of contaminated land was primarily regulated in terms of Section 28 National Environmental Management Act, 1998 (NEMA) and the National Water Act, 1998. Section 28 of NEMA provides measures for the *Duty of Care and Remediation of Environmental Damage* that include, the requirements expected from the person responsible for the damage:

- a) *Investigate, assess and evaluate the impact on the environment.*

- b) *Inform and educate employees about the environmental risks of their work and the manner in which their tasks must be performed in order to avoid causing significant pollution or degradation of the environment.*
- c) *Cease, modify or control any act, activity or process causing the pollution or degradation.*
- d) *Contain or prevent the movement of pollutants or the cause of degradation.*
- e) *Eliminate any source of the pollution or degradation.*
- f) *Remedy the effects of the pollution or degradation.*

Chapter 3, Part 4 (section 19) of the National Water Act provides for similar measures to be required of any person in control of land where an activity or process is likely to cause pollution of a water resource. The affected Catchment Management Agency is required to enforce these measures.

The provisions in the Waste Act build on the existing legislation by providing a more coherent administrative framework and set of procedures, which are intended to be retrospectively active. The sequence of steps to be taken in relation to contaminated lands, in accordance with the provisions in the Waste Act, is as follows:

1. Where the Minister, or an MEC, believes contamination of an area of land to have occurred they can designate an investigation area by notice in the Government Gazette. The Minister must do so in consultation with relevant organs of state.
2. The owner of contaminated land and the person responsible for contaminating it have a duty to inform the Minister or MEC of the contamination.
3. As a consequence of the notification, the area under investigation will be recorded in a national registry of contaminated lands.
4. The Minister may direct either the owner of the land, or the person responsible for the contamination of the land to undertake an independent site assessment. Such an assessment must determine:
 - a. The nature and extent of contamination, if any;
 - b. The implications for land use;
 - c. The risk of migration of the contamination from the area; and
 - d. The nature and extent of remediation required.
5. After considering the site assessment report, the Minister may (in consultation with relevant organs of state) issue a remediation order that includes:

- a. Identification of the person responsible for the remediation;
 - b. The remediation measures that must be undertaken;
 - c. Measures to monitor and manage risk arising from the contamination;
 - d. The period within which the measures must be undertaken; and
 - e. Possible restrictions on land use.
6. The registry of contaminated land needs to be updated to reflect:
- a. The status of investigation areas;
 - b. Restrictions imposed on investigation areas and contaminated lands; and
 - c. The status of remediation activities.

Depending on whether or not the Minister imposes restrictions, land may be transferred after being declared an investigation site, but the disclosure of its status and the notification of the Registrar of Deeds is required.

To give practical effect to the provisions for contaminated lands in the Waste Act, several prerequisites need to be met, including:

- The register of contaminated lands must be established and linked to the deeds register, before investigation of suspected contaminated lands can take place.
- Definitions, technical requirements and standards for both the identification and remediation of contaminated lands will be developed – remediation standards will be finalized by March 2010 and gazetted shortly thereafter.
- Appropriate norms and standards with the respect to the identification of independent persons suitable to perform site assessments will be developed by July 2010 in terms of the regulations described in section 69 (1)(u) and (v) of the Waste Act.
- Potential issues of jurisdictional conflict will be resolved at an inter-departmental level (both NEMA and the National Water Act contain provisions to address contaminated land) through a coordinating mechanism described in Section 5.8 of this strategy.
- Guidelines for determining in which instances the provisions for contaminated lands will be exercised by the provinces rather than the Minister will be developed.
- Sufficient resources must be allocated by DEA to recruit and develop the specialist skills and capacities in government required to manage complex decisions and monitor all the steps in the remediation process. This issue of capacity is addressed in Section 5.7.

Financial institutions that accept land as security against loans are expected to exercise due diligence in terms of their potential liability for any contamination of that land.

DEA will develop regulations for the implementation of the contaminated lands provisions in the Waste Act that will include exemptions from liability for:

- Government bodies involuntarily acquiring ownership.
- Owners of sites contaminated only by migration from another site.

Where liability cannot be apportioned, the costs of remediation will fall to the state. It will therefore be necessary for an annual fiscal allocation to be made for land remediation to cover the costs of state initiated site assessments and remediation. To this end, the National Treasury will be consulted in relation to establishing a land remediation fund.

Where liability is identified, failure by a polluter to comply with a remediation order is defined as an offence in terms of Chapter 7 of the Waste Act (Section 67(1)(a), with a penalty of a maximum fine of up to R10,000,000 million and/or imprisonment for up to 10 years. This penalty is in addition to any penalties that may be imposed for failure to comply with a compliance order issued in terms of NEMA, which provides for a fine of up to R5,000,000 or imprisonment for up to 10 years. NEMA also includes a whistleblower provision that allows for up to one fourth of any fine for offenses to be paid to a person whose evidence led to the conviction, with the proviso that such a person cannot be a state employee or engaged in the implementation of environmental legislation.

3 Instruments for implementing the strategy

The following section describes the main regulatory, economic and fiscal instruments that will be used to give effect to the overall strategy outlined in Section 2 above. While many of these instruments have already been mentioned in Section 2, this section aims to provide further detail regarding their implementation, and consolidate actions relating to each instrument that arise from different components of the waste hierarchy.

3.1 Norms and standards

National norms and standards provide the foundation of the regulatory system. The Waste Act allows for an integrated system of norms and standards across the three spheres of government. Certain norms and standards at a national level are mandatory, while others are discretionary. In addition, provinces may set norms and standards that are not in conflict with national norms and standards. Municipalities may also set local waste service standards. The system of norms and standards will be developed in a sequenced manner, with the immediate focus being on the development of mandatory standards, which include:

- The classification of waste.
- Planning and delivery of waste management services.
- The storage, treatment and disposal of waste (including the planning and operation of waste treatment and waste disposal facilities).

In relation to the classification of waste, the Waste Classification and Management System will be in effect as of September 2010. The system will identify norms and standards for the appropriate storage, handling and disposal for different waste management activities and acceptable use types, and will dynamically evolve to incorporate norms and standards as they develop. This system is described in more detail in Section 3.2.

The provision of waste management services has been addressed by two sets of standards. The first set of standards provides for the delivery of free basic waste services and the level of service that will be provided. The second set of standards revolve around the collection of waste, and includes recommendations for separation of waste at source, measures to promote recycling, and prescriptions in terms of the frequency of collection.

In terms of the discretionary national norms and standards, the development of technical standards for the remediation of contaminated land and soil quality has been identified as a priority and the standards will be published for comment by April 2010.

Other discretionary norms and standards will be identified and developed using the following criteria:

- The contribution to achievement of the waste hierarchy.
- The extent of the environmental impact.
- The impact on availability of landfill space.
- The relationship to other priority sectors (such as waste-to-energy and its contribution to the climate change mitigation strategy).
- The existence of proactive industries which have established and adhere to additional operating standards.
- The existence of standard operating procedures which may be converted into standards for particular sectors or companies with multiple sites.
- Elements of the waste transportation sector that have not been properly regulated.

To prevent a proliferation of norms and standards, discretionary provisions for provincial and local government norms and standards should only be invoked where national implementation is unable to effectively address provincial or local waste management issues due to regional variation. Instances where possible regional variation might be required should be identified and discussed in the appropriate inter-governmental forums.

3.1.1 Norms and standards in relation to listed waste management activities

Section 19(3)(a) of the Act specifies that listed waste management activities must either be licensed or subject to requirements or standards for conducting that activity. This mechanism of specifying standards that must be adhered to for particular activities is an alternative to licensing that allows for a level of regulation without incurring the administrative burden associated with licensing.

The exempted activities will be subject to the standards that are set out in the notice listing the activities. In certain instances, acceptable use will be governed by existing Standard Operating Procedures (SOPs) serving as a standard and in other instances standards may need to be developed. These standards will be developed through the dti's technical infrastructure for setting standards and accrediting compliance with those standards, as described below.

Where an applicable standard has been set utilising the dti technical infrastructure, listed waste management activities which are exempted from licensing requirements will be required to submit a certificate of compliance with these standards, issued by SANAS. In addition, they will be required to register with and regularly report to the SAWIS.

3.1.2 Mechanisms for the development of norms and standards

The established standard setting procedures of the South African Technical Infrastructure (SATI) will be used to develop complex technical standards which require extensive engagement with industry and stakeholders. While the SABS standards are voluntary standards, the Waste Act empowers the Minister to make such standards mandatory. Standards are developed via a consensual process making use of multi-stakeholder committees, involving those responsible for achieving them in the development of their content. In instances where consensus on the standards is not achieved within a realistic timeframe, DEA will exercise its prerogative to promulgate the standards based on its own technical assessment.

In order to achieve the best results from the use of the SATI infrastructure, DEA will prepare a technical report in order to initiate the setting of a standard. The technical report will outline the objectives to be achieved through the standard, and the manner in which it will be enforced. The report will also survey international best practice, and where possible make recommendations regarding the appropriate standards which should be considered.

Standards to be set in relation to product design in support of the Extended Producer Responsibility measures will be agreed upon between DEA and the dti prior to the dti initiating the process with SABS.

Standards can take approximately one to two years to develop and set. They are informed by international best practice, and developed within the standards development protocol as overseen by the National Regulator for Compulsory Standards.

Once a standard has been developed through SATI, it will be promulgated in terms of regulations issued under the Waste Act. Where required, additional regulatory provisions will be developed to support the promulgated standards.

Certification of compliance with the developed standards will be undertaken by agents accredited by the SANAS. SABS will use globally standardised measurements which are provided by the metrology unit on request. Whilst SANAS will not offer training to private agencies, it will provide accreditation training for their assessors.

A memorandum of understanding will be signed between the Department and the SABS, setting out the basis on which the Department can drive the development of certain technical standards through the SATI mechanisms. In certain instances where the standards to be developed are of a non-technical nature, around which there is already clear consensus, or where the SATI process is deemed inappropriate for the development of a particular standard, the Department will elect to follow its own internal procedures for standard setting.

3.2 Categorisation and classification

A comprehensive national system for classifying and categorising waste is required to ensure that common definitions of particular wastes are used in different information systems, and that there is a common understanding of the associated requirements and procedures for different wastes. Importantly, the categorisation system for waste will lay the basis for reporting on waste to the South African Waste Information System (SAWIS) and related systems. In terms of Section 7(1) of the Waste Act:

“7. (1) The Minister must, by notice in the Gazette, set national norms and standards for the ... classification of waste;”

The classification of waste will be addressed through the Waste Classification and Management System (WCMS) which is being developed by DEA. The WCMS will be formalised into regulations in terms of the Waste Act.

The WCMS distinguishes between classification and categorisation of waste in the following terms:

- Waste Classification is the process by which waste is assigned to one or more hazard classes based on its properties, characteristics, and components.
- Waste Categorisation defines waste in terms of a list of categories and sub-categories which is used to determine procedures for classification and is used for the purposes of monitoring and reporting.

The classification system used for waste will be aligned with the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), described in SANS 10234.

Table 6: Hazard Classes of the SANS 10234 Classification System

1. Physical Hazards	2. Health Hazards
Explosives Flammable gases Flammable aerosols Oxidizing gases Gases under pressure Flammable liquids Flammable solids Self-reactive substances and mixtures Pyrophoric substances Self-heating substances and mixtures Substances and mixtures that, on contact with water, emit flammable gases Oxidizing substances and mixtures Organic peroxides Corrosive to metals	Acute toxicity Skin corrosion and skin irritation Serious eye damage and eye irritation Respiratory sensitization and skin sensitization Germ cell mutagenicity Carcinogenicity Reproductive toxicity Specific target organ toxicity – single exposure Specific target organ toxicity – repeated exposure Aspiration hazards
	3. Hazards to the Aquatic Environment Acute aquatic toxicity Chronic aquatic toxicity

The following wastes do not need to go through the classification process and are considered pre-classified wastes:

- health care risk waste (HCRW)
- asbestos waste;
- waste tyres;
- electronic waste (eWaste);
- waste batteries;
- putrescible waste;
- municipal waste (including household hazardous waste); and
- inert waste.

The WCMS will include a waste categorisation system, which will be used in the SAWIS for the purposes of reporting on waste management activities. It is envisaged that waste will be

grouped under primary categories based on the major types of waste. The current proposed primary categories are provided below for the purposes of illustration.

Table 7: Proposed Primary Categories for waste categorisation

Waste Categories	
Gaseous waste (CFCs, Nitrogen, HCl-pressure bottles)	Halogenated solvents and compounds with sulphur
Oxidizing waste (organic peroxides, strong oxidising compounds)	Halogenated organic solids
Reactive waste (react with water to generate flammable or acidic gasses)	Solvents without halogens and sulphur
Mercury waste, or mercury-containing waste (batteries, fluorescent lamps, thermometers)	Other organic hazardous waste
'Various' waste (low volumes, e.g. small packaging, aerosol cans, medicine, isocyanates)	Fly Ash & Bagfilter dust
Pesticides	Bottom ash
POPs Waste	Slag
Inorganic chemical waste (acids, sodium hydroxide, metal salts)	Foundry sand
Asbestos	Mineral waste (refractory waste)
Waste Oils	Reprocessed mining waste
Batteries	Polluted soil
Shredder waste	Health care risk waste
Tarry Waste	WEEE: Waste of Electric and Electronic Equipment
	End-of-life vehicles
	Others/Miscellaneous

Once a waste has been classified as hazardous or general waste, the generator then needs to consider the management options that apply to that waste. These will determine whether the waste is suitable for reuse, recycling, recovery, treatment or whether it must be disposed of. Before disposing of waste the generator will need to consider landfill acceptance criteria. If the waste does not meet these criteria, the generator will need to consider other waste management options. When sending waste for the appropriate identified waste management option, the waste generator will be required to complete a waste manifest document so that the waste can be tracked from the generator to the waste management facility and back.

DEA are developing a standard leach test that must be applied to any waste that has a land application e.g. in road building or agriculture. Leachate characteristics are crucial to determining appropriate management measures and defining acceptable use in these cases. These will be formalised through the South African Technical Infrastructure.

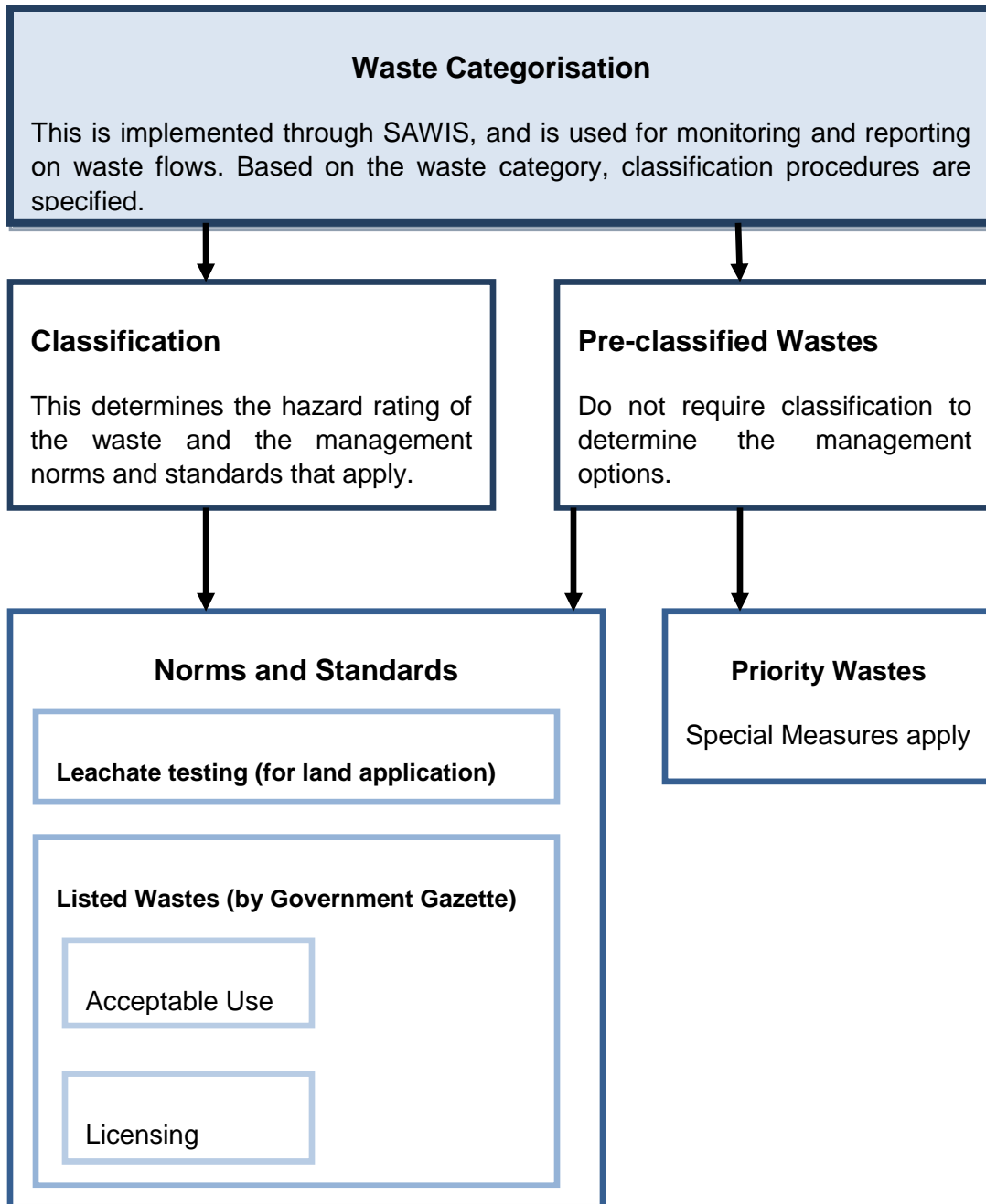
In general, waste management measures must give effect to the waste hierarchy and promote diversion from landfill. To this end, the WCMS will be accompanied by a 'Best Practice Technology Guideline' to serve as a reference for waste generators and managers. This

guideline will be supplemented by the additional norms and standards for the storage and handling of waste that are to be developed in terms of the Waste Act.

The application of norms and standards through the Waste Management and Classification System is schematically described in Figure 6 on the following page.

To promote the diversion of waste from landfill and reduce licensing burdens, the WCMS will include provisions for identifying waste streams to which general exemptions from licensing requirements would apply for specific waste activities across the entire value chain of the waste hierarchy, defined as “Acceptable Uses”. Acceptable use activities will be accompanied by the establishment of specific norms and standards for the specified waste activity, or, in the case of listed activities, specified requirements and standards that must be met as an alternative to licensing.

Figure 6: Application of norms and standards through the Waste Management and Categorisation System



3.3 Waste Information System

Section 60 of the Waste Act obliges the Minister to establish a national waste information system for recording, collection, management and analysis of waste data and information. The South African Waste Information System (SAWIS) plays a vital role in the management of waste and implementation of the NWMS by addressing the lack of reliable data on the waste sector.

SAWIS will provide a mechanism for obtaining accurate waste balance information through online submission of data by waste facilities, municipal waste service providers and the private sector, as well as vertical integration of information systems between national and provincial Waste Information Systems (WISs), and horizontal integration with other waste regulation and information systems.

SAWIS will provide information that can be used to inform the planning and development of Integrated Waste Management Plans and Industry Waste Management Plans, and to evaluate their implementation. The information in SAWIS must inform public health and safety management, and assist in the assessment of the impact of waste on health and the environment. It must also provide information on waste to educators and researchers for the purposes of raising public awareness and information.

While the process of establishing SAWIS was initiated as part of the 1999 NWMS, the new Waste Act provides a legislative framework for SAWIS, including compulsory reporting to SAWIS. Chapter 6 of the Waste Act establishes the following requirements of the national waste information system:

- It must record waste volumes not only on the generation of waste, but at every point in the hierarchy of waste management measures and quantify data in terms of the categories established in the National Waste Classification System.
- It must provide a register of licenses granted for S19 listed activities that includes the license holder, the location, and the activity.

The Act specifies that the Waste Information System can include any information required for the effective administration of the Waste Act, but specifically mentions that SAWIS may be used to record:

- Levels of waste management services provided by municipalities.
- Information on compliance with the Act.

While Section 62 of the Act provides for the optional creation of provincial waste information systems, in practice these present significant integration problems and risk fragmenting waste data. Furthermore, they will defeat the desirable objective of creating a nationally unified framework of reporting requirements for business and local government authorities. For this reason, the establishment of new provincial waste information systems is not recommended.

Where provincial waste information systems already exist, or are already planned, they should include all the information required by the national system. To avoid the need for multiple reporting, the Minister may exempt entities reporting to a provincial system from requirements to report to the national system once mechanisms have been established for replicating the information to the national system. In the long run, it is desirable that existing provincial and national systems are integrated into a single information system.

The Minister and MECs have broad powers to require any person to report to the SAWIS or provincial systems any information that is reasonably required for the purposes of the waste information system. The requirement to report to SAWIS will also form part of the licensing conditions for listed activities, and for listed activities that do not require licenses and are subject to norms and standards. Where information is required on activities or facilities that do not fall into these categories, Section 63 of the Waste Act will be used to provide notice to the relevant person or organ of state of requirements to report to SAWIS.

SAWIS is to be implemented within a new technology framework for information systems that DEA will pilot in early 2010. An overview of the new system is provided in Section 5 of the strategy. Horizontal integration of SAWIS with other waste regulation and information systems is required for licensing procedures (currently captured on the National Environmental Authorisation System (NEAS)). This will be facilitated by the new framework, which is focused on integrating business procedures on the back of a single underlying data base, to which the current implementation of SAWIS will be transferred.

An integrated procedure for licensing and registration on SAWIS is desirable, but does not exempt licensees from separately registering with SAWIS. It is also important to note that facilities that fail to meet licensing requirements or are granted exemptions from licensing requirements will still be required to register with SAWIS.

As a key element of such integration, a standard categorisation system is required for waste information submitted to SAWIS and which is aligned with reporting requirements stipulated in licensing. The categorisation system currently used by SAWIS is rudimentary, and an interim measure. SAWIS will use the categorisation system developed as part of the Waste Classification and Management System (WCMS),.

The current focus of SAWIS is on end-of-pipe waste data i.e. data from facilities dealing with waste disposal, recycling, recovery, and import and export of waste. While an incremental approach to implementation of SAWIS will be continued, the existing implementation plan for SAWIS will be revised to take into account functionality that will be exposed by the new architecture for information systems.

The National Waste Management Officer will play the role of the Waste Information Authority as required by the Waste Act.

Access by the public and industry to information stored on SAWIS is considered vital and is the *quid pro quo* for industry submitting information onto the database. It is also a statutory requirement in terms of the Waste Act. However, safeguards will be put in place to ensure that

while companies have access to their own information, and aggregated information for their industrial sector, proprietary company information is not exposed to third parties.

3.4 Industry Waste Management Plans

Industry Waste Management Plans (IndWMPs) are the main co-regulatory instrument within the waste management system. They describe the waste related issues within an industry, and specify how the industry will address these issues, giving specific actions, targets and timeframes.

Part 7 of the Waste Act, section 28 to section 34, sets out the requirements for IndWMPs, which may be prepared on a mandatory or voluntary basis. The Minister may request an IndWMP for waste generating activities that affect more than one province or which occur in more than one province. The provincial MEC may request an IndWMP for waste generating activities within the province, provided that such a plan has not already been requested by the Minister. Industry may also prepare and submit plans on a voluntary basis. Each of these mechanisms will be described in more detail below.

3.4.1 Mandatory IndWMPs

An IndWMP may be required where any activity results in the generation of waste. Section 28(1) to (6) of the Waste Act sets out the process the Minister or MEC must follow to require an IndWMP, including consultation with the affected person, category of persons or industry. When requesting an IndWMP, the Minister or MEC must consider the factors listed in section 28(4), which are, in summary:

- The actual and potential environmental and health impacts of the waste being generated.
- The consumption of sensitive natural resources in the production process.
- The potential for the IndWMP to mitigate these impacts, whilst achieving waste avoidance and minimization.

When a mandatory plan is requested, the Minister or MEC identifies the required parameters of the plan, specifying the content, as well as who should prepare the plan.

3.4.2 Voluntary IndWMPs

Section 28(7) of the Waste Act sets out the process whereby a person, category of persons, or industry whose activities result in the generation of waste may elect to produce an IndWMP voluntarily. As with mandatory plans, consideration of the factors listed in section 28(4) is required, and the Minister or MEC to whom the plan is submitted can exercise any of their powers with respect to Mandatory IndWMPs. This section of the Act has not yet been brought into effect, pending the preparation of guidelines for voluntary plans.

Through the process of developing a voluntary IndWMP, the affected person or industry is able to set out the measures they will undertake to address waste management challenges. In approving the plan, government agrees to work within the parameters of the plan, and only intervene if the plan is not being adhered to or is failing to meet its targets. The IndWMP gives industry the opportunity to set out the additional norms and standards it will meet for various waste management activities, and how it will adhere to these.

3.4.3 Persons appointed to produce IndWMPs

The Minister or MEC may give directions for an IndWMP to be prepared by a person, category of person or an industry that generates waste. However, on occasion the Minister or MEC may give directions for an IndWMP to be prepared by an independent person for the cost of the persons or industry responsible for the waste generating activities. In general this measure will not apply to well organised industries that respond to a request for the preparation of an IndWMP. This measure will only be invoked in instances where:

- There is no representative body or structure capable of preparing an IndWMP.
- The fragmented nature of the industry precludes the industry from agreeing on a suitable person to prepare the plan.
- The industry is comprised largely of SMMEs without a representative structure capable of preparing the IndWMP.
- An initial request to the responsible party is not satisfactorily met.

Section 33(1) of the Act states that in the event that an IndWMP or its revision is rejected more than once, or if a person required to produce a plan fails to do so, the Minister or MEC may, by notice in writing and without any criminal proceedings being affected, specify the waste management measures that must be taken, ensuring that the person is not unduly advantaged by the failure to submit an approved plan.

3.4.4 Organs of state appointed to produce IndWMPs

The Minister may require that an organ of state, excluding a municipality, prepare an IndWMP, and similarly, the MEC may request that the provincial department responsible for environmental affairs prepare an IndWMP. The cost of this will then be recovered from the person, category of persons or industry responsible for producing the waste. When requesting that an organ of state or provincial department prepare an IndWMP, a timeframe for doing so must be stipulated. This measure will be invoked in instances where:

- The nature of an industry makes it impractical for a party other than an organ of state to produce an IndWMP.
- The industry is largely dominated by state owned entities.
- The industry relates to defence of the state or deals with information that is deemed sensitive to the security of the state.

- The knowledge of the affected party regarding reduction, re-use, recycling and recovery is deemed to be limited.
- The party is comprised of SMMEs, and consensus cannot be reached on a suitable person to prepare the plan.
- The party originally requested to prepare the plan has failed to do so.

3.4.5 Contents of IndWMPs and Guidelines

Section 30(2) of the Waste Act indicates the information that the Minister or MEC may specify in requesting an IndWMP. Each IndWMP request will contain a set of specific requirements for the plan, within the remit of the Act.

A guideline will be made available regarding the process to draw up both mandatory and voluntary IndWMPs, and the content of such plans. The guidelines will describe in detail the contents and parameters for producing IndWMPs.

3.4.6 Types of plans

Four types of IndWMPs will be produced. These plans may be either produced mandatorily as a result of the Minister or MEC requesting them, or voluntarily by industry, an organisation or a group of organisations.

Waste Stream IndWMP – This type of plan will typically apply to a group of ‘waste owners’ who manage the product which results in the waste, such as producers or importers within a particular waste stream. Typically an industry association will be mandated or a section 21 company established to produce the IndWMP and manage the activities related to it. Funds for managing the operations contained within this type of plan will usually be raised via a levy. Industry agreements will be utilized to ensure that individual operators within the waste stream operate in accordance with the IndWMP. Examples of waste streams which would be considered for this type of plan include batteries, tyres and waste electric and electronic equipment (WEEE). Benefits of producing this type of plan include achieving international best practice and facilitating regulatory support from government.

Sector IndWMP – Sector plans will apply when there are multiple operators undertaking very similar activities and producing similar types of waste within a particular sector. A sector representative body will often be formed to undertake the production of the plan and management of activities related to it. The sector IndWMP may stipulate that individual organisations within the sector over a particular threshold will be required to produce company level plans which must be submitted to the sector body responsible for the sector plan. Company level plans required in terms of this arrangement would not be submitted to the Minister or MEC. Examples of sectors for which sector IndWMPs may be required are drum collectors, car wreckers, dry cleaners and photographic developers. Benefits of producing this type of plan would include approval of standard operating procedures, and partial compliance towards licensing applications where multiple licensing applications will be required.

Company IndWMP – Company level plans will be required whereby an individual company does not fit within a sector plan, but has waste management related activities for which it needs permits or approved standard operating procedures. A company level plan may be required in terms of a sector level plan, in which case it should be submitted to the sector body, or it may be required by the Minister or MEC, in which case it should be submitted for approval. Company level plans should identify company waste objectives, targets and standard operating procedures. Typically the Minister or MEC will require company level plans from large companies, especially those that have multiple sites which have standard operating procedures. Company level plans can result in some licensing requirements being replaced with an approved standard operating procedure, and they will support permit applications, especially where a company may have multiple permit applications.

Site IndWMP – Site plans will be developed by an operational branch or organization within a larger company. Site level plans are intended to support the application of a standard operating procedure which is specific to that site. These plans may be voluntary or mandatory, and will usually be requested by and submitted to the MEC. The plan will detail how the site manages waste, and it will set out targets for achieving the waste hierarchy, particularly in terms of waste reduction and recycling. Examples of this type of plan include individual power station sites of electricity producers. Benefits of this type of plan include the support for permit applications, particularly where a site may have multiple permit applications. Site plans may be prepared independently of a company level IndWMP.

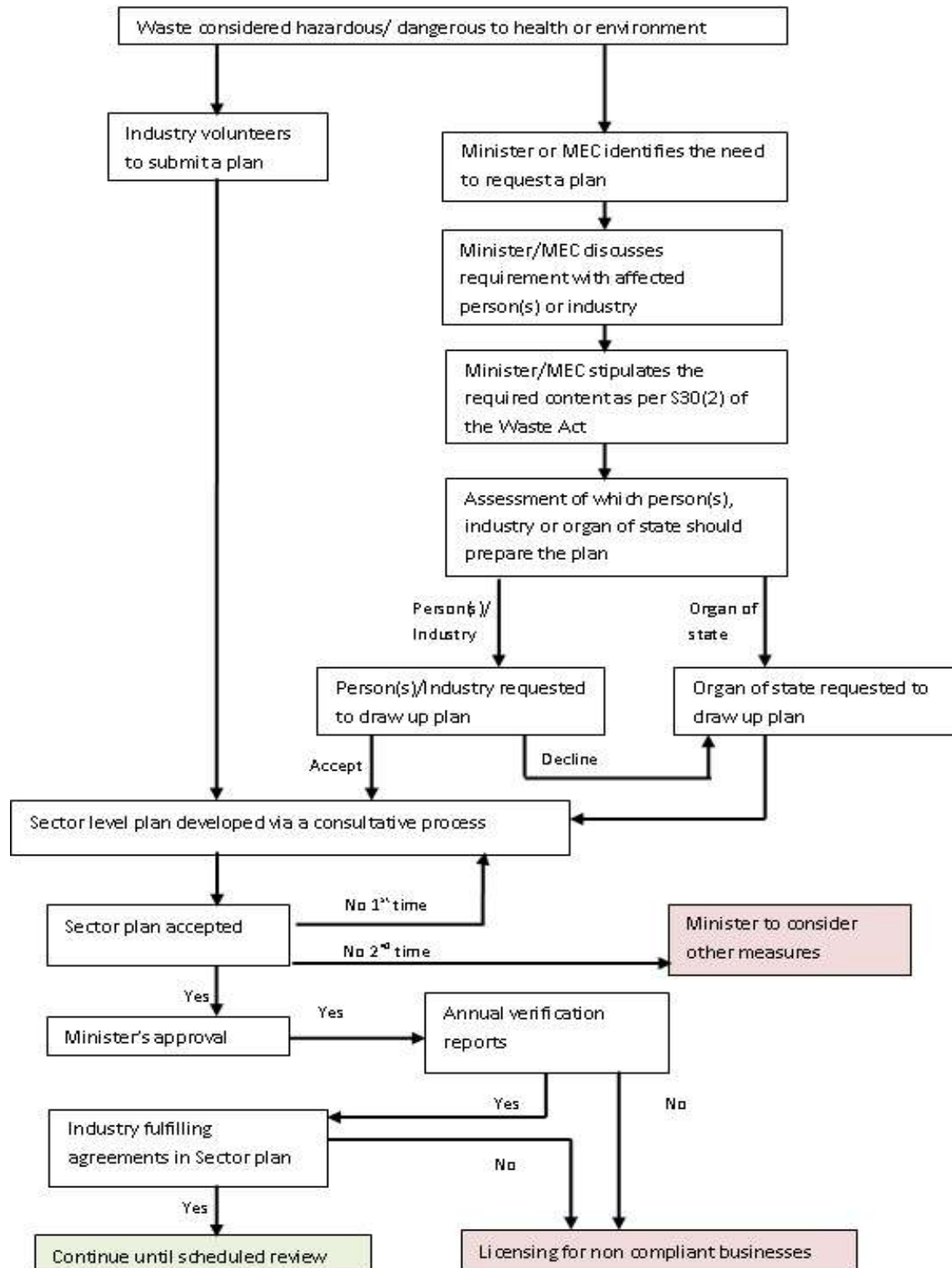
The diagram on the following page describes how and when these are to be prepared and reported on.

IndWMPs must be produced in a consultative manner in line with the directions given by the Minister or MEC, and the contents of a proposed IndWMP must be brought to the attention of relevant organs of state, interested persons and the public. Any comments submitted in respect of the IndWMP must be considered, and a copy of all comments received, submitted with the proposed plan to the Minister or MEC. This applies to the preparation of all plans, including when the plan is prepared by an appointed person or an organ of state.

On receipt of the plan the Minister or MEC may approve the plan in writing, with amendments, condition or directions; or require additional informal and a revised plan; or require amendments; or reject the plans with reasons as per section 32 of the Waste Act. If additional requirements are not met within the stipulated timeframes, it constitutes a failure to submit an IndWMP. On receipt of the additional information or the revised plan, the Minister or MEC must reconsider the plan, if it is the first resubmission.

An approval must stipulate the period for which the approval applies and notice of preparation of the plan and its approval must be published in the gazette. An approved plan prepared by an organ of state or provincial department must be published in the relevant gazette with an indication of how and when the plan will be implemented.

Figure 7: Process to be followed for Industry Waste Management Plans



Should the submission of a plan, its revision or amendment, be rejected, or fail to be submitted, the Minister or MEC may, in writing, specify the waste management measures that must be taken by the appropriate person to ensure no undue advantage is gained by the failure to submit. Where possible, measures should be aligned with other IndWMPs dealing with industrial or waste management activities that are related to the subject of the rejected or non-submitted plan.

IndWMPs must be reviewed at intervals specified in the written approval or gazette. When specifying review periods, the review periods applicable to waste management licenses must be taken into account.

3.4.7 Current and future IndWMPs

An initial set of IndWMPs are being prepared by the following industries in consultation with DEA:

- Tyres industry to manage waste tyres.
- Paper and Packaging industry to manage packaging and paper waste.
- Lighting industry manufacturing mercury containing lamps e.g. CFLs.
- Pesticide Industry to manage residual pesticides and pesticide containers.

It is envisaged that these plans will be completed and approved by the end of 2010.

Over the course of the next five years, it is envisaged that IndWMPs will be required at sector level from the following industries:

Table 8: Programme for development of Industry Waste Management Plans

Waste stream	Specific considerations	Timeframe
eWaste	There are seven types of recognised eWaste, lighting waste is already subject to an IndWMP, and therefore the other six types of eWaste should be considered and prioritized. Separate IndWMPs may be required.	Plans to be prepared within 2 years
Batteries	There are seven types of batteries and each type should be considered within the plan.	Plan to be prepared within 2 years
Mining waste		Plan to be prepared within 3 years

Once the sector level plans have been approved for the above industries, company level plans will be required to be submitted to give effect to the provisions of the sector plan within one year of the approval of the relevant sector level plan.

3.5 Listing and Licensing of waste management activities

In addition to standards which may be set for waste management activities, the process of listing and licensing of waste management activities is the primary means by which these activities are regulated. Listing of waste management activities, which is the first step in the process, establishes either a particular licensing regime for that activity, or a set of standards that need to be adhered to when engaging in the activity in the event that the activity is regarded as an acceptable use.

3.5.1 Listing of waste management activities

The Waste Act includes a detailed list of waste management activities in Schedule 1 of the Act. As provided by section 19 of the Act, this list has been subsequently updated. The list of waste activities which was gazetted on 3 July 2009 differs from the existing descriptions in the Act in that it specifies activities involving quantities and types of waste with respect to which licensing measures apply. This list will continue to be updated as the waste classification system is put into effect (refer to Section 3.1 on the categorisation and classification of waste types and activities).

Schedule 1 of the Waste Act and the notice on 3 July 2009 established two categories of waste management activities, both of which require licensing:

Category A: These activities require a basic assessment process as defined in environmental impact assessment (EIA) regulations provided in NEMA to be completed in order to obtain a license for the activity. A basic assessment process is appropriate where the environmental impact of a particular activity is well understood and limited in scope.

Category B: As a licensing requirement, these activities require a full assessment report in terms of the EIA regulations. A full assessment process is appropriate where the potential scope and extent of environmental impacts is not well understood, or is likely to be significant.

In terms of the notice, category A activities fall below set thresholds for health and environmental safety, and include:

- Storage of general waste and tyres, and temporary storage of hazardous waste.
- Reuse, recovery and recycling of general waste.
- Treatment of general waste and certain minimum and maximum quantities of effluent, flaring or burning of biogas and natural gas.

- Disposal of non-hazardous waste.
- Storage and treatment of animal waste.
- Construction or decommissioning of facilities and infrastructure for Category A waste management activities.

Category B activities, while covering the same types of activities, include hazardous waste, and exceed thresholds or quantities of waste set for Category A requirements. All incineration of waste falls under this category.

The Waste Act requires that the notice listing the waste management activities must indicate whether a waste management licence is required for that activity, or the standards that must be adhered to when conducting the activity. The latter provision provides for a third category of waste management activity, which does not require a license but which must conform to particular standards. The determination of those activities will be guided by the application of the following criteria, which will be refined through the finalisation of Waste Classification Management System, shown in Table 9.

Table 9: Criteria for waste management activities

Criteria for listed activities which do not require license	Criteria for listed activities which do require a license
Environmental risk easily assessed and is insignificant, trivial or low	Medium, high risk
Risk easily mitigated by simple general rules and does not require an EIA	Risk mitigated by complex rules/conditions
Either can be carried out anywhere or restrictions on locations can be easily defined	Have site specific considerations that require assessment
Regulator does not need to carry out risk assessment/screening required	Regulator needs to carry out risk assessment/screening
Waste types well characterised and consistent	Waste types not well characterised and /or inconsistent
In the public interest to take a low regulatory approach	In the public interest to regulate via a permit
Certainty of outcome	Risk of abuse
Operator competence either not needed or easily accredited	Operator competence needed
Unlikely to need regular inspection/ other compliance assessment	Needs regular inspection/other compliance assessment
Recordkeeping unlikely to be needed	Recordkeeping needed for regulatory and other waste management purposes.
Cessation of operations unlikely to need assessment.	Cessation of operations likely to need assessment

In general, listed activities which do not require a license are likely to apply to situations in which the types of wastes involved are low-risk activities that are consistent and well-understood, and it is in the public interest to avoid the administrative burden of licensing. However, persons undertaking such activities should adhere to particular standards and will be required to register on the Waste Information System (WIS).

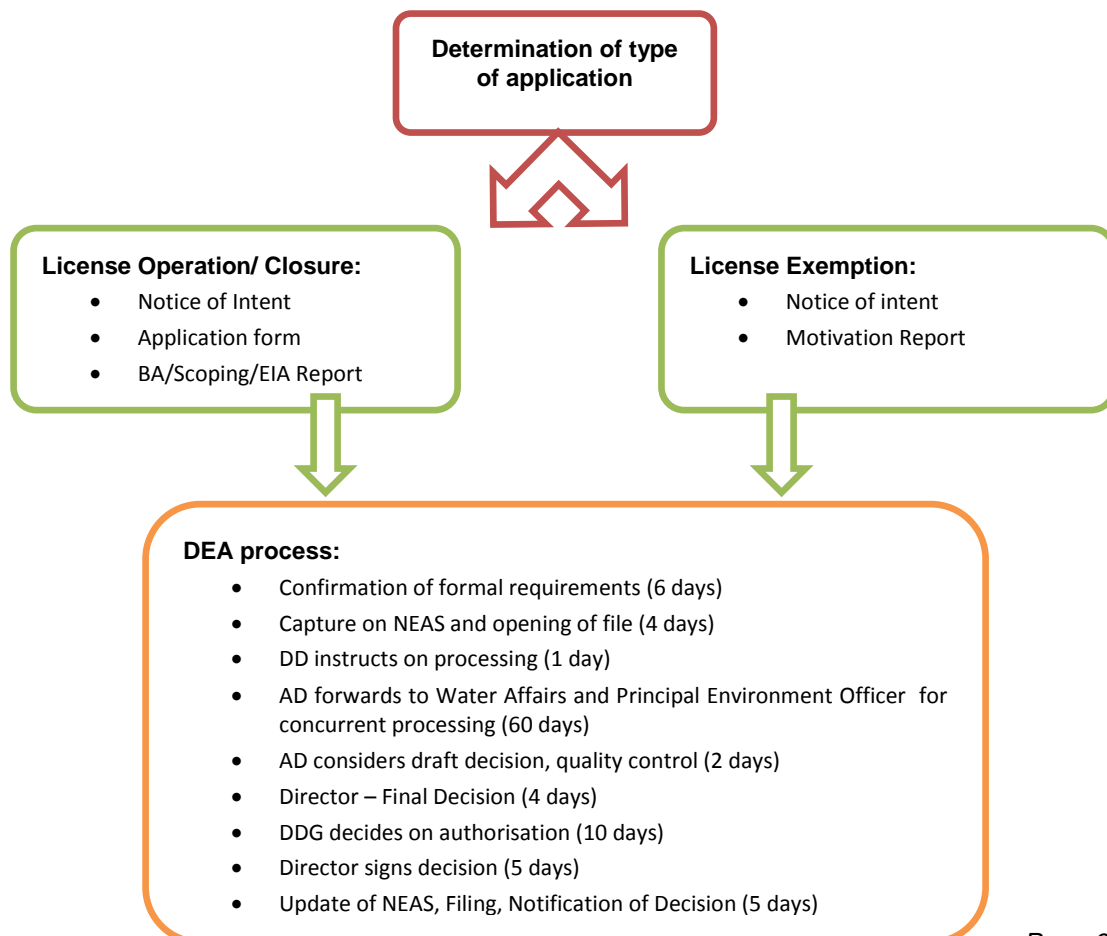
The mechanism for setting standards for those activities that do not require licensing is described in Section 3.2.

3.5.2 Licensing of activities

The Waste Act provides a licensing regime specific to waste management activities that replaces the current system of permits issued in terms of the now repealed ECA and the environmental authorisation promulgated under the EIA regulations. Nevertheless, the requirements for basic and full environmental impact assessments in terms of licensing applications are equivalent to the EIA regulations' requirements, and will be captured in the National Environmental Authorisation System (NEAS), which is used for EIAs.

A graphical overview of the process by which a decision is made to authorise or deny a license application or an application for exemption from a license is described in the diagram below.

Figure 8: Licensing Process



The first step in the licensing procedure is to determine whether the activity in question requires a licence as it may be classified as an acceptable use subject to the outcome of an assessment, which is a simplified EIA. If it is not classified as an acceptable use, category A listed activities require a Basic Assessment procedure, while category B activities require a full EIA.

The Waste Act provides for the Minister to optionally require a license application to be managed by “an independent and suitably qualified person”. As a minimum requirement, all license applications requiring a full assessment procedure, namely Category B activities, should be managed by an independent, certified Environmental Assessment Practitioner – with the independence of the practitioner established through a formal disclosure of interests by that person (this is already a procedural requirement). Furthermore, a risk analysis will be performed by the department on all listed activities falling under Category A to determine the circumstances under which licensing applications should be managed by a certified Environmental Assessment Practitioner (EAP).

Wherever necessary, an application must be forwarded to DWA for concurrent processing in order to obtain a water use license. This will be issued as part of an integrated license providing the required environmental authorisation.

The processes in relation to a basic assessment procedure and a full assessment procedure are graphically summarised in the diagrams below.

While transitional arrangements allow existing permits granted in terms of ECA to be treated as licenses in terms of the Waste Act, a significant number of new licenses will be required to address the current listing in terms of Section 19 of the Waste Act. Delays in licensing can have negative effects on waste management capacity and serve as a brake on economic activity. DEA is introducing a new technology framework for information systems that will improve the efficiency of the licensing process by the application of a workflow engine that will automatically route licensing applications and the relevant documentation along the chain of approvals and authorisations. Furthermore, the licensee will be able to track their application online, and reporting tools will assist DEA in identifying and resolving bottlenecks in the system.

Figure 9: Basic Assessment Procedure

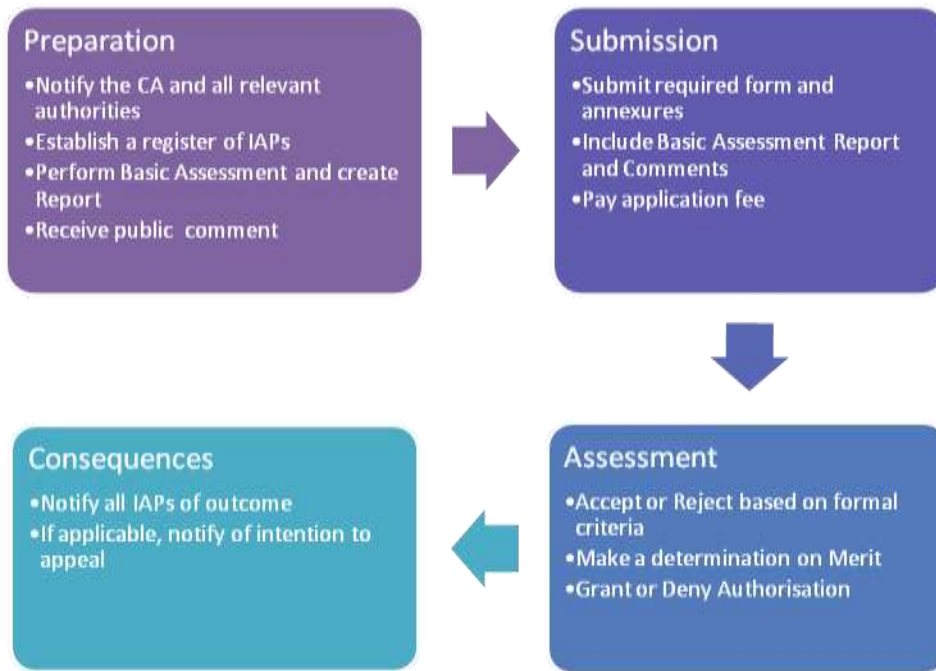
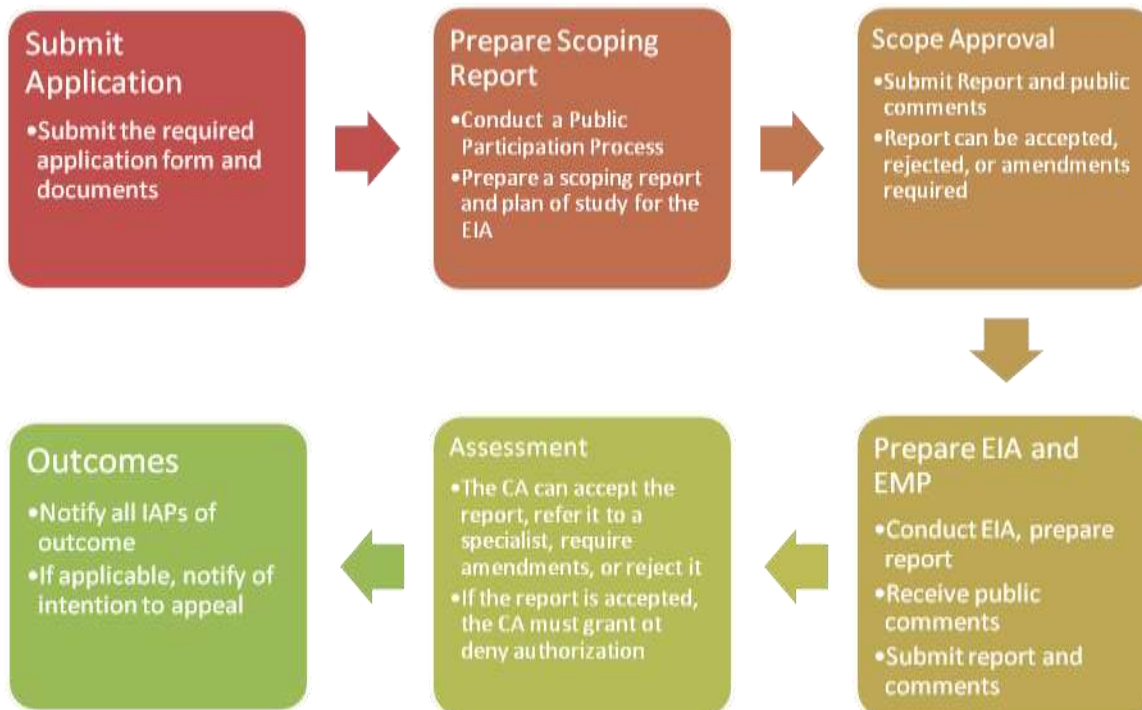


Figure 10: Full Assessment Procedure



3.5.3 Integrated and multiple licensing

DEA's goal is to provide integrated licensing systems for activities requiring environmental authorisation in terms of NEMA and other sectoral statutes. To this end, section 44 of the Waste Act, "Co-operative governance in waste management license applications", explicitly provides for integrated licenses. The intention is to streamline licensing for activities that may require licensing in terms of multiple statutes, and for which different government departments may be the licensing authority.

An integrated license must stipulate the statutory provisions in terms of which it has been issued, the authorities that have issued it and to whom applications for amendments or cancellations should be addressed, and the appeal procedure that should be followed.

In practical terms, since the value of an integrated license rests in large part on an integrated license application procedure, the implication is that the NEAS system needs to be sufficiently flexible to accommodate not only licensing requirements for basic and full assessment processes in terms of NEMA, but also licensing requirements in respect to activities that may require authorisation by multiple organs of state in terms of different statutes in order to commence.

There are instances in which multiple authorisations are required from the environmental authorities located in different spheres of government. In these instances the sphere responsible for the dominant activity will take responsibility for the required authorisations.

3.6 Priority wastes

Declaration of a priority waste is one of the more interventionist measures which can be implemented in terms of the Waste Act, primarily because the consequent waste management measures can severely limit or prohibit the generation of the waste, may require detailed registration and reporting on the waste, may limit its import and export, and ultimately culminate in a waste being phased out completely. The criteria for declaring a priority waste therefore need to be considered very carefully.

3.6.1 Criteria

Declaration of a priority waste is done in terms of section 14(1) of the Waste Act. A waste may be declared a priority waste by the Minister, or the Minister on behalf of the MEC, by notice in the Gazette. There must be reasonable grounds for the Minister to believe that the waste poses a threat to health, well-being or the environment because of the quantity or composition of the waste. It must also be demonstrated that either specific waste management measures are required to address the threat, or that the imposition of specific waste management measures in respect of the waste may improve the reduction, re-use, recycling and recovery rates or reduce the health and environmental impacts of the waste.

Due to the consequences of declaration, this measure should be reserved for either hazardous waste streams where other less interventionist measures are not appropriate or have failed to

control the situation, or for a specific waste stream whereby different government departments and stakeholders are involved, and problem specific solutions are required, such as for sewerage sludge or saline waste.

3.6.2 Process for declaration of a priority waste

Before a priority waste can be declared, the Minister must consult with stakeholders that may be affected by the declaration, following which the Minister may then gazette the declaration. When making the declaration, the Minister must stipulate which of the waste management measures must be undertaken, as per section 14(5) of the Waste Act. These include:

- The preparation of an IndWMP by a category of persons whose activities generate a priority waste.
- The prohibition of the generation of a priority waste.
- Measures to manage, minimize, store, re-use, recycle, recover, treat or dispose of the priority waste.
- Registering, monitoring, and reporting requirements.
- Any other measures the Minister deems necessary.

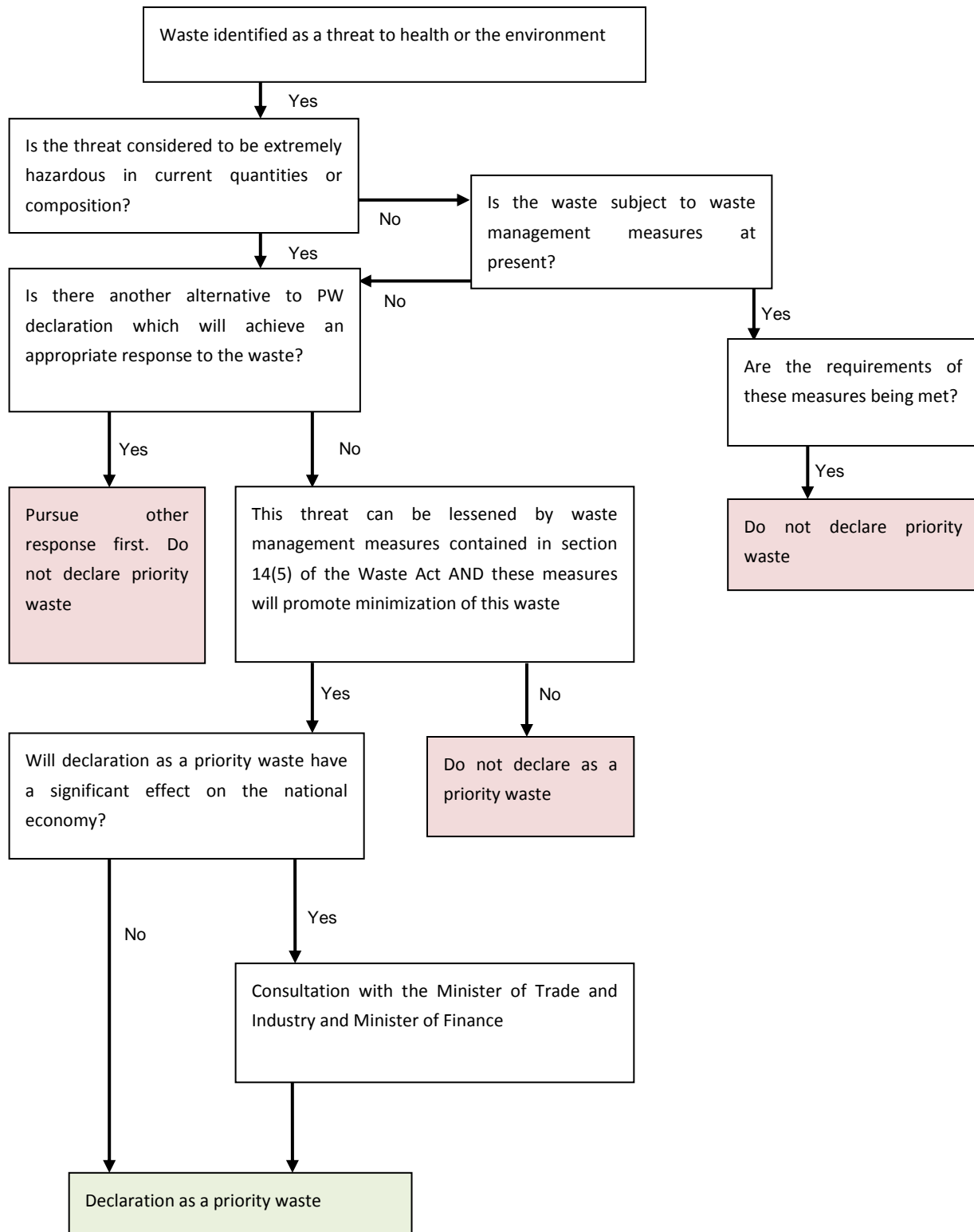
Should a declaration be likely to have a significant impact on the national economy, the Minister must consult with the Minister of Trade and Industry and the Minister of Finance before making the declaration.

3.6.3 Consequences of declaration

The consequences of the declaration will depend on the measures that are stipulated in the notice. As indicated above, these may include preparation of an IndWMP, the prohibition of the generation of the waste, various measures relating to the management of the waste, and requirements for registering, monitoring, and reporting. In addition, unless a priority waste is handled in accordance the above measures and the relevant Industrial Waste Management Plan, it may not be imported, manufactured, processed, sold, exported, recycled, recovered, treated or disposed of.

The following diagram illustrates the process for identifying and declaring a priority waste:

Figure 11: Process for Priority Wastes



3.6.4 Existing and potential priority wastes

Regulations for the prohibition of asbestos have been promulgated in terms of the Environmental Conservation Act, prior to the Waste Act coming into force. These regulations effectively declare asbestos as a priority waste. Due to the transitional arrangement in section 80(2) of the Waste Act, these regulations remain effective. Wastes to be considered for declaration as priority wastes include polychlorinated biphenyls (PCBs) and mercury waste. PCBs are organic compounds which were widely used in transformers, capacitors and coolants. They are highly toxic, and easily penetrate the skin. Their destruction through treatment processes is difficult and often extremely hazardous. PCBs are classified as a persistent organic pollutant under the Stockholm Convention, to which South Africa has acceded as described in Section 1.4.

Mercury is a chemical element, most commonly used in scientific apparatus, CFLs and batteries. Mercury is highly toxic, and can cause severe poisoning, debilitating neurological conditions and in some instances death. Pollution of water sources by mercury causes serious ecological damage. The use of mercury is severely controlled in several countries.

3.7 Reduction, reuse, recycling, and recovery

Sections 2.3 and 2.4 of this strategy provided an overview of the waste avoidance, reduction, re-use, recycling and recovery strategies for South Africa. These sections account for the first two levels of the waste management hierarchy, and are the foundation for waste management activities. This section focuses specifically on section 17 of the Waste Act, and provides further detail in relation to reduction, re-use, recycling and recovery of waste.

Section 17(1) of the Waste Act states that unless otherwise provided for in the Act, any person who undertakes an activity involving the reduction, re-use, recycling or recovery of waste must, before undertaking that activity, ensure that it uses less natural resources and, to the extent possible, is less harmful to the environment, than the disposal of such waste.

Section 17(2) of the Waste Act states that the Minister may, after consultation with the Minister of Trade and Industry and by notice in the gazette, require any person or category of persons to provide for the reduction, re-use, recycling and recovery of products manufactured by that person. The Minister may also determine a percentage of recycled material for a product that is produced, imported or manufactured by that person.

Products for which recycled content will be considered include items which are discarded in large quantities, items which have a high impact on health and the environment, and items which can be produced from a closed loop system, i.e. could be made completely from recycled materials and would themselves be 100% recyclable. Examples include metal cans and glass bottles, items produced from certain plastics, and lubricating oil.

The National Cleaner Production Centre, established by the dti in response to the 2004 Cleaner Production Strategy, has undertaken a number of demonstration projects, which aim to investigate the viability of various cleaner production initiatives and mechanisms.

Projects to date include: waste exchange pilot programmes; the effects of extended producer responsibility models on waste reduction; and the viability of recycling cooperatives. Further research is required on these projects in order to develop tailored measures aligned to specific industries or circumstances.

Whilst cleaner production and product design fall within the areas regulated by the dti, the Waste Act provides for DEA to identify suitable products according to their contribution to the waste stream, and liaise with the dti in terms of the appropriate response. The interdepartmental committee to be established between DEA and the dti will consider specific proposals in relation to different products, and agree on the appropriate regulatory response.

3.8 Storage, collection and transport

Part 5 of the Waste Act sets out provisions for the storage, collection and transportation of waste. The general requirements for the storage of waste are that any person who stores waste must at least take steps to ensure that the containers where waste is stored are intact and not corroded and are fit for the storage of waste. Adequate measures must be taken to prevent:

- Accidental spillage or leaking.
- Waste from blowing away.
- Nuisances such as foul odour; visual impact and breeding of vectors.
- The pollution of the environment and harm to health.

DEA will issue norms and standards further regulating the storage, collection and transportation of waste. Municipalities may also make by-laws to further regulate the storage of waste in municipal areas. Compliance with the general requirements for the storage of waste will be monitored by Environmental Management Inspectors at local and provincial level.

In terms of section 22 of the Waste Act, any person who generates waste that is collected by a municipality must place the waste in a container approved, designated or provided by the municipality for that purpose and in a location approved or authorized by the municipality. Waste that is intended to be reduced, re-used, recycled or recovered in accordance with the Waste Act need not be placed in a container provided by the municipality. However the municipality must as far as reasonably possible provide containers or receptacles for the collection of recyclable waste that are accessible to the public.

Communal collection points should be clearly demarcated areas with appropriate receptacles where household waste can be deposited for collection by the service provider. Community awareness programmes will be required to inform the community about collection points. The receptacles should be covered so as to prevent windblown litter and be user friendly to allow even children to safely deposit waste into the receptacles. The collection points must further be easily accessible for waste collection vehicles and encourage waste separation at source. The municipality must ensure that communal collection points are kept tidy at all times.

. The Waste Act obliges municipalities to provide equitable waste collection services to all households within the jurisdiction of the municipality, but it does allow municipalities to differentiate between categories of users and geographical areas in setting service standards and levels of service. The Waste Act obliges any persons utilizing the waste service to pay the applicable charges for that service. It is the right of a municipality to limit the provision of general waste collection services if there is a failure to comply with reasonable conditions set for the provision of the services. In instances where the municipality limits the provision of services, the limitation must not pose a risk to health and the environment.

The frequency of waste collection services is an important decision for the municipality. The frequency of the service should not encourage illegal dumping or cause a nuisance in terms of odours and volumes of waste being stored.

The collection and transportation of waste must take place in accordance with section 24 and 25 of the Waste Act. The Minister or MEC may require any private transporter of waste to register with the relevant WMO at national, provincial or local level. A number of municipalities already require registration of transporters of waste, and government will harmonise this system on a country wide basis. Appropriate thresholds for registration of transporters of waste will be set, and DEA will prepare a draft regulation to be published for consultation purposes. The following thresholds are proposed as the basis for consultation on the regulations:

- Transport of general waste below 30 tons per day: no registration required.
- Transport of general waste above 30 tons per day: registration with municipal WMO in place of origin and place of destination.
- Transport of hazardous waste below 3 tons per day: registration with municipal WMO in place of origin and place of destination.
- Transport of hazardous waste above 3 tons per day: registration with provincial WMO in place of origin and place of destination.

The Transportation of Hazardous Waste is covered by several Acts, but the most important legislation is the National Road Traffic Act 93 of 1996 and the regulations therefore in terms of Chapter 8, which cover the transportation of dangerous goods, including hazardous waste. It is the responsibility of the waste generator to ensure that the waste is packaged, transported,

treated and disposed of in terms of the legal requirements and that there is an auditable record of the steps involved in storing, collecting and transporting the waste.

The National Road and Traffic Act incorporates a number of South African National Standards (SANS) Codes of practice into law, which are relevant to the transportation of hazardous waste. The regulations, administered by the Department of Transport, and the associated SANS Codes, set out the standards for the transport of hazardous waste including but not limited to: classifications; labelling; vehicle requirements and licensing; driver training; licensing and responsibilities; loading, route planning; operator agreements; emergency response; reporting of accidents and incidents and compatibility of load.

3.9 Treatment, processing and disposal

This section describes how the strategic priorities for the disposal of waste will be implemented in terms of the regulatory framework provided by the Waste Act. Chapter 4, Part 6 of the Waste Act prohibits the unauthorised disposal of waste, and requires that where there is no household waste collection service the waste must be disposed of in the most environmentally and economically feasible manner. Section 26(1) (b) requires that waste disposal must be explicitly authorised and accomplished without polluting the environment or harming human health and well being.

In terms of Section 68(1) a maximum penalty of R10, 000,000 or a jail sentence of up to 10 years can be imposed for unauthorised waste disposal, depending on the severity of the impact on health and the environment.

S.27 (1) of the Act provides regulatory instruments focused specifically on littering. It stipulates that private land owners that provide public access to their property must provide suitable receptacles for litter and ensure that it is disposed of (in an authorised manner) before it becomes a nuisance. This is reinforced by Section 27 (2), which prohibits littering of public places by individuals.

In terms of Section 68(2) a maximum fine of up to R5, 000,000 or imprisonment for up to 5 years can be imposed for littering offences, depending on the severity of the offence.

The waste disposal and anti-littering measures provided in the Act are commonly implemented as municipal by-laws and are usually enforced by local law enforcement agencies. These measures should be seen as providing the minimum requirements that need to be implemented in terms of such by-laws or that apply in the absence of by-laws. DEA will develop model by-laws that will serve as a template for the implementation of the Waste Act by local authorities.

The system for monitoring, compliance, and enforcement and the role of Municipal Waste Management Officers (WMOs) is described in Sections 5.2 and 5.4 of this strategy.

DEA will develop norms and standards as part of the WCMS as it applies to disposal facilities, and will promulgate them in terms of Section 7(1) (c) of the Waste Act. The norms and standards will include:

- Norms and standards for the operation, maintenance and reporting requirements for general and hazardous waste landfills that will be build on the existing Minimum Requirements for Waste Disposal by Landfill guidelines and applied using the listing and licensing mechanism as described in Section 3.5.
- Norms and standards to be implemented as special measures for the disposal of priority wastes.

Standards for thermal treatment of waste and the use of waste in cogeneration have already been developed through the Air Quality emissions standards and the National Policy on Thermal Treatment of General and Hazardous Waste.

A task team will be formed under the Authorisations and Waste Disposal Management Directorate of DEA to develop and co-ordinate the implementation of the programme for licensing described in Section 2.6 of the strategy.

3.10 Extended Producer Responsibility

The Waste Act establishes Extended Producer Responsibility (EPR) as a regulatory mechanism. EPR applies to instances in which the nature of the waste from products is of sufficient threat to require producers to take responsibility for aspects of a products management beyond the point of sale. EPR programmes can focus on both the beginning stages of a product's lifecycle i.e. how to avoid the generation of waste, and on the end stages i.e. how to manage its use and disposal.

There are two main types of EPR initiatives - voluntary initiatives, which account for the majority of EPR schemes in South Africa to date, and mandatory initiatives, which have been initiated or implemented through government regulation. Voluntary initiatives are typically undertaken by industry, and are usually aimed at post consumer waste streams. An example of a voluntary EPR initiative which has worked well is that of the Recycling Oil Saves the Environment (ROSE) Foundation's used lubricating oil recycling initiative. Whilst industry is encouraged to initiate voluntary schemes, it is recognized that in some instances these need to be augmented by government regulatory support. For example, norms and standards are being developed to ensure that the garage and motor vehicle maintenance industry participate in oil recycling activities that are aligned with the ROSE Foundation scheme.

The mandatory EPR initiatives fall into two categories. The first category consists of government regulatory support to existing voluntary initiatives, i.e. where industry has initiated a voluntary EPR scheme but mandatory formalization of certain elements is deemed necessary to effectively enforce it. Such regulation may be at government's discretion, or on request by the industry. An example would be the tyre recycling scheme initiated by SATRPCo, in which the government has established regulations to ensure operational compliance. The second category of mandatory initiatives consists of those which are initiated by government through regulatory intervention in response to intractable problems. An example of such an initiative is the mandatory point-of-sale levy on plastic bags.

Invoking mandatory EPR as per Section 18 of the Waste Act is an interventionist measure which will be applied when industry self regulation through an industry waste management plan or other measures has failed. In the first instance, the role of regulation will be to strengthen and support voluntary EPR programmes which are initiated and run by industry.

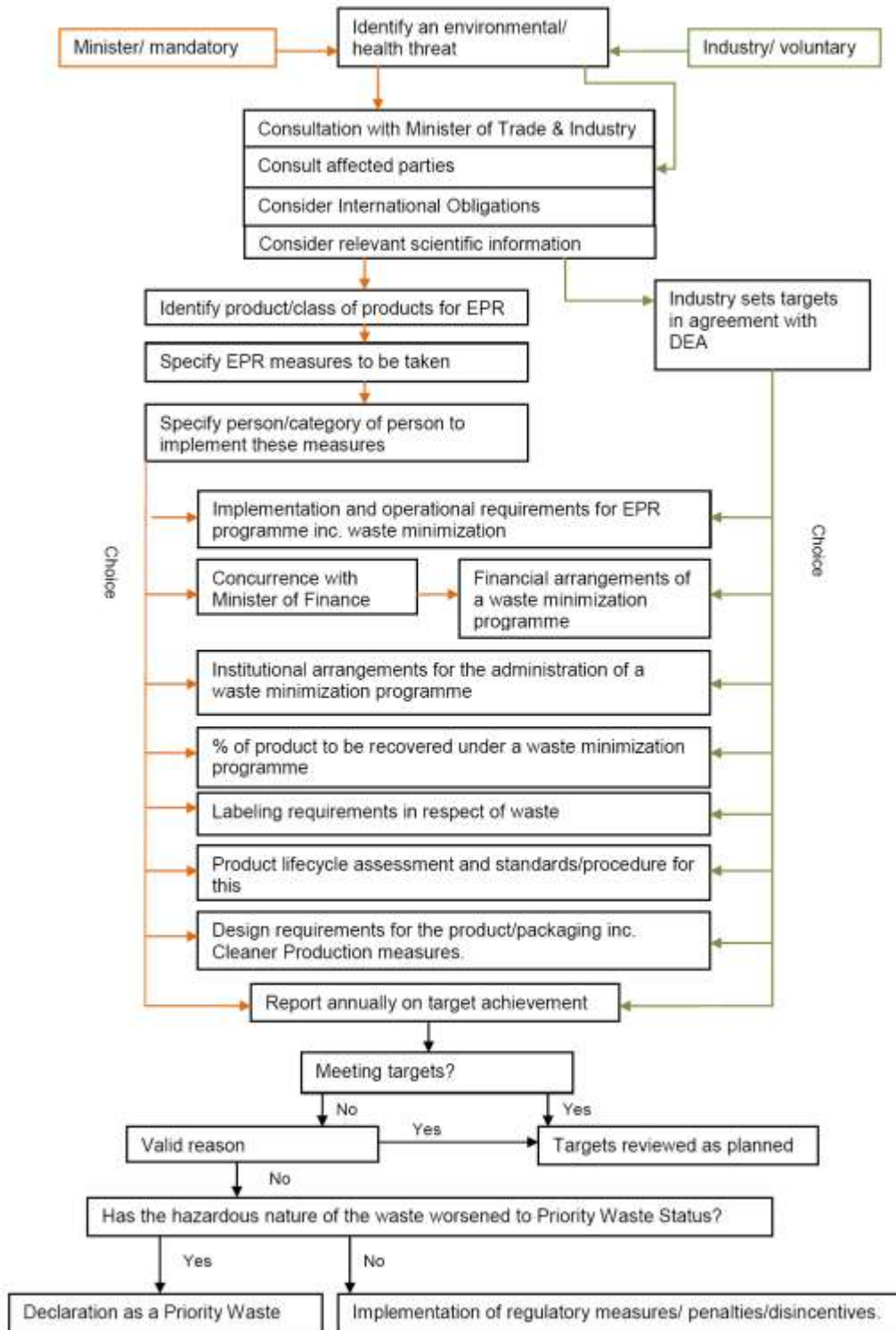
Before an EPR programme can be declared, the Minister must first consult with the Minister of Trade and Industry and the producers who will be affected by the notice. The Minister must also take into account the Republic's obligations in terms of any applicable international agreements and consider any relevant scientific information, where after the Minister may publish a notice in the gazette which gives effect to section 18 of the Waste Act.

When publishing this notice, the Minister must identify the product or class of products, the EPR measures which apply to that product(s), and the person who must implement those measures. The measures, contained in section 18(2), are in summary:

- Applying the waste hierarchy to the waste arising from the product(s).
- Implementation of a waste minimization programme and its funding.
- Product labelling in respect of waste.
- Product design in respect of waste minimization and cleaner production.
- Product lifecycle assessment.

The following diagram shows the steps to be followed in the process of declaring an EPR programme, including the considerations, consultations and possible mechanisms which apply to EPR:

Figure 12: Process for declaring an EPR programme



Currently there are no guidelines available for the development of EPR programmes. DEA will develop a set of guidelines in consultation with industry to assist with the development of voluntary and mandatory EPR programmes.

Section 18 of the Waste Act requires the Minister to consult with the Minister of Trade and Industry regarding any EPR initiative, and to consult the Minister of Finance regarding any financial arrangements for an EPR programme. This is especially pertinent where the EPR programme is likely to require product design considerations, or impact significantly on the economy or specific economic groups. The interdepartmental committee that is established in terms of section 5.8 of this NWMS will also consider proposals for mandatory EPR regulations.

Once the above guidelines and structures are in place, a pilot EPR project will be undertaken to test the approaches and mechanisms, using non-complex industries, such as lead paint.

It is important to note that the state is not obliged to fund EPR initiatives, and that the primary obligation for funding rests with producers, retailers and consumers along the value chain. Financial arrangements will need to be tailored to individual EPR programmes, and the key challenge in terms of financial arrangements will be establishing who along the value chain bears what portion of the costs. A guideline on the appointment of costs for EPR programmes will assist with this process, and this will be developed by DEA in consultation with industry.

3.11 Consumer responsibility and protection

Consumers are protected by the Waste Act at the same time as having responsibilities in terms of waste management. Section 16 of the Waste Act establishes a general duty in respect of waste management, and sets out various responsibilities for all holders of waste to minimize waste and its toxicity, to manage waste such that it does not endanger health and the environment, and to ensure that waste is disposed of responsibly. Section 16(1) is applicable to all 'holders of waste', which includes households and individuals.

Employers are also charged with preventing an employee from contravening this Act, which has implications for labour relations and terms of employment.

Section 16(2) obliges retailers to take reasonable steps to inform the public about the health and environment risks of products that are likely to result in the generation of hazardous waste. This measure needs to be read in conjunction with the Consumer Protection Act (CPA) which covers product labelling and trade descriptions. Section 24(4)(a) of the CPA states that the Minister of Trade and Industry may prescribe categories of goods that are required to have a trade description applied to them. This can be applied to goods which produce a category of hazardous waste. Section 24(5) goes on to include imported products within these provisions.

There are some additional measures in the Waste Act which also address labelling requirements and product information. Section 18(2)(e) of the Waste Act stipulates that the Minister may, as part of an EPR scheme, specify the labelling requirements in respect of waste. Further, section 30(2)(h) of the Waste Act states that when notifying an industry of the requirement for an IndWMP, the Minister may, as part of the notification, request that the

IndWMP include mechanisms for informing the public of the impact of the waste-generating products or packaging on the environment.

Therefore, if a category of goods is required to have a trade description applied to it due to the health or environmental implications of the waste it produces, this must trigger one of the above waste management measures dealing with information provision and / or labelling. Where a product is imported, labelling requirements should be aligned with the information requirements through the SARS tariff codes (see section 5.5 regarding mechanisms to give effect to international obligations).

DEA will coordinate efforts in respect of product labelling and information with the dti through the bilateral committee established to coordinate the application of waste management measures.

Section 25 of the CPA requires that goods which are reconditioned, rebuilt or remade, and which still bear the original trademarks, must apply a notice to these products stating that they have been reconditioned, rebuilt or remade. This will have implications for the re-use of reconditioned items, in which instance labelling and information requirements must be met.

Section 59 of the CPA stipulates that if a good, or any component, remnant, container or packaging, has been prohibited from disposal into a common waste collection system, the supplier of such an item must accept its return by a consumer, without charge, and in turn, the producer of such items must accept its return by the supplier. Section 59(2) of the CPA states that where IndWMPs or regulations have provided for a goods collection facility for specific waste types, consumers may dispose or deposit such goods at such facilities. It is therefore envisaged that where a prohibition on disposal, as contemplated in Section 59, is brought into effect, this would trigger the development of an appropriate waste management measure. Usually this would be in the form of an IndWMP, but in certain circumstances an EPR programme may be required. A consultative process between the affected parties and DEA will be followed to determine the appropriate measure. Where the provision of take back facilities already exists, mechanisms for informing the public of this provision must be included in the IndWMP or in regulations which provide for the facilities. In addition, norms and standards for the accessibility of the goods collection facility may be required.

Interpretation issues regarding the requirement to accept returned prohibited waste without charge, specifically in terms of the potential impact this may have on the use of taxes, levies and deposit fee systems have been raised. DEA will develop a guideline to clarify the interpretation of section 59 of the CPA and the associated use of economic instruments for waste management.

Section 16(3) of the Waste Act sets out the measures which may be used in order to implement section 16. These include measures to:

- Investigate, assess and evaluate the impact of the waste in question.
- Cease, modify or control the behaviour which produces the waste.
- Comply with norms, standards and management practices.
- Eliminate the cause of the pollution.

- Remediate the effects of the pollution.

The Minister or MEC may issue regulations regarding the implementation of these measures. DEA will monitor the threats posed by waste to health and the environment on an ongoing basis, and will develop appropriate measures to protect consumers and the environment.

3.12 Economic instruments

The Waste Act provides various legislative measures for the use of economic instruments. These will be applied within the context of the overall fiscal and taxation policy established by National Treasury, and the specific measures for environmental fiscal and taxation reform announced by the Minister of Finance in the annual budget tabled to Parliament. The selection and use of economic measure, including pricing, taxation, subsidies, incentives and fiscal measures will also be aligned with the principles established by NEMA, including the ‘polluter pays’ principle.

Economic instruments complement and support more traditional ‘command and control’ regulation. They can achieve behaviour changes indirectly by creating a set of incentives and / or disincentives through pricing and can offer a more cost-effective and dynamic form of regulation than the traditional command and control approach. However the introduction of economic instruments requires a number of factors to be in place prior to their widespread application.

According to the “polluter pays’ principle all generators of waste (including businesses and households) are responsible for covering the costs of managing the waste generated. These include not only the direct financial costs associated with the safe collection, treatment and disposal of waste; but also the *external* costs (externalities) of waste generation and disposal, such as health and environmental impacts.

Full cost accounting of the delivery of waste services is essential in order to ensure that waste services are appropriately priced. Currently only a portion of these costs are being passed on to households and commercial enterprises, which creates the wrong set of incentives, undermines waste minimisation efforts and ultimately undermines the polluter pays principle. A crucial component of this NWMS is ensuring that there is a proper understanding of costs in the sector and corresponding pricing of waste management services. Getting the prices right in the sector is not, strictly speaking, an ‘economic instrument’ but it lays the basis for more refined instruments to be introduced at a later stage.

The following strategic approach will be followed as a general approach to the preparation for and consideration of economic instruments:

- **Financial sustainability of the waste management system:** Government will ensure that public sector waste management is managed as a financially sustainable service. Financial sustainability also includes the use of cross subsidies as appropriate for under-provided public goods and for addressing negative externalities of inadequate service provision.

- **Full cost accounting and pricing of solid waste services.** Government will ensure that the full financial costs are accounted for and considered in the process of tariff setting. This includes the full costs of service provision, monitoring and enforcement costs, airspace development, and landfill closure costs. In support of this DEA will provide:
 - Tariff setting guidelines and requirements for municipalities and other providers of waste disposal services including full cost accounting requirements in a simple format; and
 - Guidance on the need to separate collection charges from disposal charges – and for municipalities to have appropriate internal charge / cost allocation systems for the provision of the correct internal incentives in the system.
- **Evaluation of the full social and environmental costs:** Once the full financial costs of solid waste management are accounted for, a further evaluation of the external costs of resource degradation and external costs of inadequate service delivery will be undertaken. An essential component of this is the development of the waste information system and associated research.
- **Establishment of administrative mechanisms:** The establishment of the administrative mechanisms needed for effective management of the sector (primarily information, monitoring, compliance and enforcement, and pricing) are preconditions for effective economic instruments.
- **Specific consideration of selected instruments:** DEA will undertake a process of evaluation of specific economic instruments in the light of the strategic objectives established by the NWMS.

The following issues will be considered when selecting and introducing the most appropriate economic instruments:

- **Environmental effectiveness:** The tax instrument must be focused on a clear environmental objective and must be well targeted to that objective. To ensure that the tax is as effective as possible, the best design should be aimed for and the number of exemptions kept to a minimum.
- **Tax Revenue:** The level of tax revenues and the way in which they are used are important considerations. Certain environmentally-related taxes will be capable of raising significant amounts of revenue, particularly where the demand for the good or service being taxed is price inelastic. In other cases, tax revenues may be small and therefore of secondary importance.
- **Support for the tax:** Taxes are necessary to fund government activities and the provision of public goods and services. With every tax reform, there are likely to be winners and losers and these groups of stakeholders need to be clearly identified. All relevant stakeholders need to be engaged in the assessment process.

- **Legislative aspects:** The Minister of Finance is responsible for the imposition of taxes, duties and levies. Different environmentally-related tax instruments may require different legislative amendments (e.g. direct versus indirect taxation). With respect to international commitments, environmentally-related tax measures will need to be compatible with World Trade Organisation (WTO) rules and with on-going tax harmonisation efforts within the Southern African region through SADC.
- **Technical and administrative issues:** Technical and administrative issues are important considerations that can influence whether or not a tax instrument may be appropriate. Ideally, the tax base should be as close as possible to the environmental objective, and the tax rate should be set according to the level of the externality. Minimising the possibilities of tax avoidance, tax evasion, compliance and collection costs are other important design considerations.
- **Competitiveness effects:** The impact of environmentally-related taxes on domestic industries and other aspects of the economy such as employment and inflation need to be considered, and mitigation measures may be required. These may include, amongst other things, reduced tax rates, tax ceilings, tax refunds, appropriate mechanisms to recycle tax revenues, or tax shifting options.
- **Distributional impacts:** An understanding of the way in which environmentally-related taxes impact on different income groups is important. For every proposed tax reform, the likely tax burden on different income groups and the anticipated distribution of environmental benefits needs to be assessed. The possibility of making environmentally-related taxes progressive should be integral to the design of any proposed instrument.
- **Adjoining policy areas:** The extent to which environmentally-related taxes can assist in meeting other government policy objectives is an important consideration. From an environmental point of view, it is important therefore that any tax measure is aligned with other regulatory or voluntary approaches.

A number of economic measures have been identified that merit further consideration and research, and will be considered for implementation once the above mentioned prerequisites are in place. These are:

- **Deposit Refund Schemes:** These schemes are most suitable for products that are easy to identify and handle; feasible to use and/ or recycle; require careful disposal (e.g. batteries); and where co-operation is feasible between producers, retailers and consumers. Deposit refund schemes will be considered for specific waste streams where the private sector is not effectively addressing the issue. Introduction of deposit refund schemes for specific waste streams will be done in close consultation with the industry concerned.
- **Waste Disposal Taxes:** Waste disposal taxes address the external social and environmental costs of waste disposal and provide pricing that takes into account the waste generation and disposal decision by private actors. These only impact on waste

generation if the generators experience increases in costs. The risk of waste streams being diverted to incineration and illegal disposal are high. Waste disposal taxes require effective regulation and monitoring of landfill sites to be in place. Where a specific waste disposal site is underpriced the capacity to tax a specific site will be considered. Consideration of alternate economic interventions will be compared to existing CDM incentives for methane recovery in landfill sites.

- **Product Taxes:** Product taxes will be directed at products or materials for which there exists a policy intention to diminish the product or material over time or remove it from use or production. This instrument will be considered if other instruments are not better suited to manage a specific problem.
- **Tax interventions for hazardous waste disposal:** Tax interventions for hazardous waste disposal will be considered in instances where more effective management of hazardous waste generators is required.

A crucial consideration for economic instruments will be where these are proposed as appropriate supporting measures to complement IndWMPs.

DEA and National Treasury will undertake a bilateral programme of research in order to develop and refine an appropriate set of economic instruments.

3.13 Fiscal mechanisms for waste management

In planning for the implementation of the Waste Management Act, DEA has undertaken a costing of the overall impact on government budgets as a result of the different measures contained in the Act. Current government spending on waste management is estimated to amount to approximately R 2 070 million per annum (2007 estimates)¹⁷. Importantly, the Act is expected to result in long-term savings due, amongst other things, to reduced resources spent on reactive environmental clean-up operations and reduced need for landfill airspace. However there will be short to medium term increases required in government budgets in the range of R 205 million in the first year after introduction of the Act, rising to approximately R390 million in the second year. The net savings in government budgets are only expected from year 9 or 10 onwards. The net present value (NPV) of these impacts over a 10-year period amounts to R 1 390 million at a discount rate of 3.5%. Implementation of the Waste Management Act will therefore add approximately 5% to the total discounted waste management cost over the next 10 years. This means that the additional costs to government budgets as a consequence of the Waste Act will be limited.

¹⁷ Clements J, on behalf of Department of Environmental Affairs and Tourism, "Assessment of the likely impact on government budgets of the proposed National Environmental Management Waste Bill", May 2007.

Funding for waste management functions in the national and provincial government is allocated according to the Division of Revenue Act which prescribes how revenue will be divided between the three spheres of government and between the nine provinces.

The budget for waste management is allocated to the national and provincial environmental departments. All budgets are formulated within the context of the Medium Term Expenditure Framework (MTEF), which details three-year rolling expenditure and revenue plans for national and provincial departments. Budgets are developed within the political priorities which are clearly spelt out in the annual State of the Nation address by the President and Medium Term Strategic Framework.

Allocations to the provinces are based on the equitable share from the division of revenue, and their share of conditional grants.

Local government is entitled to an equitable share of revenue raised nationally to enable it to provide basic services and perform the functions allocated to it. The equitable share is an unconditional transfer, and the distribution of the equitable share between individual municipalities is formula based, taking into account population, levels of poverty and service delivery, historical backlogs and capacity. The equitable share is part of the regulatory and institutional framework which enables local government to operate sustainably and contributes basic fiscal resources for each municipality to deliver a package of basic services to low income households. Included in this package is free basic refuse removal to the indigent.

The Municipal Infrastructure Grant (MIG) is a capital subsidy that supplements the funding of infrastructure programmes on municipal budgets, in order to address backlogs in municipal infrastructure required for the provision of basic services including waste services.

In December 2008, Cabinet approved the introduction of the Municipal Infrastructure Grant for Cities through splitting the Municipal Infrastructure Grant (MIG) into two windows. This decision allows a differentiated funding approach to be introduced to account for significant differences in context, challenges and capabilities between larger urban municipalities and smaller, more rural municipalities. Smaller, more rural municipalities will continue to operate under the existing MIG framework, with some innovations introduced over time to address capacity and resource deficiencies in order to improve expenditure outcomes. The MIG (Cities) focuses on enabling cities to more effectively manage, support and account for built environment outcomes.

The equitable share and MIG provide an operating and capital subsidy respectively for municipal services, including waste. Unlike the allocation to provinces, the municipal sector raises over 90% of its income from own revenue sources. The provision of waste services is funded primarily via local tariffs for waste services set by each municipality, supplemented by allocations from property rates. Given the public good nature of waste services provision, there is merit to a portion of waste management costs being subsidised from the property rates account.

Unlike the national fiscus, most municipalities are not favourably positioned to absorb the impact of the local fallout from the global economic crisis. Consequently, national government has sought to insulate the local government sphere from the full impact of the slowdown in national

revenue collections. To supplement municipal own revenue an additional R12.2 billion is allocated to local government over the medium term. This means national transfers to local government will grow by 8.4 per cent from 50.1 billion in 2009/10 to 73.2 billion in 2012/13, which is an important tool for supporting local operations and services.¹⁸ Despite the above average transfers to municipalities, the efficacy and sustainability of delivery of solid waste services is constrained by severe fiscal challenges. Capital and operating expenditures are much lower than the required levels, and operating deficits continue to expand. The structure of capital financing for waste services is not optimal, with reliance on grant financing, subsidy leakage to non-poor consumers, and user charge revenues that are too low. The municipal solid waste sector is in general facing a serious fiscal situation, with operating deficits ballooning to the point at which the sustainability of service delivery will be threatened.

In this context, the need to expand delivery solid waste services sector requires greater efficiency of fiscal mechanisms and a clear strategy to improve operating efficiencies, secure financial sustainability of waste services delivery, and boost municipal revenues.

As a first step, municipalities will undertake full cost accounting for waste services, in order to understand the long term capital and operating costs of the service, and to be able to properly evaluate different options for levels of service and extension of services to unserved areas. A municipal circular will be drawn up and circulated by National Treasury in order to provide guidelines for ring-fencing service budgets and the associated accounting practices required to facilitate a greater degree of transparency in subsidy levels relative to the cost of service delivery. Full cost accounting for waste services will be implemented in all municipalities by 2011.

Secondly municipalities will develop and implement cost reflective tariffs in order to correctly price waste service provision. Municipalities will structure the tariffs for utility services such that they generate the resources required to fund the maintenance, renewal and expansion of the infrastructure required to provide the services. Tariff increases will need to be appropriately phased in such that their impact on consumers and businesses can be managed. National Treasury requires that municipalities must justify in their budget documentation all increases in excess of the 6 per cent upper boundary of the South African Reserve Bank's inflation target. Excessive increases in property rates and other tariffs are likely to be counterproductive, resulting in higher levels of non-payment and increased bad debts. When considering increasing user charges, indigent populations and local economic conditions need to be taken into account. Nevertheless, in the long term, above-inflation increases in user charge rates will be unavoidable.

To avoid the unintended consequences of this approach (in particular an increase in illegal dumping as a result of increased disposal tariffs) the enforcement capacity in municipalities will need to be increased in parallel. Municipalities must ensure that by-laws are updated to support the enforcement of regulatory measures. These measures will be included in municipal IWMPs.

¹⁸ National Treasury 2010 Budget Review, Chapter 9

Once financial sustainability and operational efficiency have been achieved in waste service provision, further amendments to tariff structuring to promote waste minimisation can be considered. The impact of the introduction of *volumetric tariffs* in the City of Tshwane will be evaluated by DEA, and a guideline developed on municipal waste service tariffs.

Targeted subsidies to ensure the provision of a basic level of service to indigent households are required. In this regard DEA will finalise a policy on Free Basic Refuse Removal (FBRR) services in 2010. Municipalities must manage subsidies to reduce subsidy leakage to non-poor households. Indigent households registered for Free Basic Refuse Removal (FBRR) services must be re-evaluated after a given period of time as specified by the concerned municipality. Abuse should be managed through the disciplinary measures envisaged by the FBRR policy.

DEA will participate in municipal budget reviews undertaken by National Treasury, and in performance monitoring of metropolitan councils, in order to ensure that waste sector objectives are met in relation to municipal financial management.

To support the requirement for increased capital investment in the waste sector it is proposed that a solid waste project development fund will be established in consultation with National Treasury. The objective of the fund will be to:

- Ensure that capital expenditures in the sector increase.
- Create a robust pipeline of municipal projects.
- Develop an appropriate capital financing mix.

The fund will operate through two funding windows:

- *Universal service window*: this will be used to assist municipalities to make greater use of MIG for financing solid waste infrastructure to support labour intensive projects that expand services to poor households. The efficacy of the window can be measured by the proportion of total MIG funding allocated to solid waste infrastructure.
- *Private financing*: this window will support municipalities to develop projects that may be financed through development contributions, carbon credits, private investment or borrowing.

DEA will request that a proportion of MIG funding is earmarked for bulk solid waste infrastructure during the annual MTEC. This earmarked portion will support infrastructure in instances where MIG funding cannot be utilised, for example trucks and other infrastructure that are used for ongoing service delivery in small to medium sized municipalities.

DEA together with National Treasury will examine the creation of a remediation fund. The chapter on remediation describes the provisions and procedures related to the remediation of contaminated lands. A for specific fiscal allocation for remediation is required to enable the state to remedy the environmental damage where the person responsible for the damage cannot be identified. It is anticipated that fund this will be earmarked for administration of the costs related to state initiated site assessment and remediation, where the liability for land contamination cannot be apportioned.

Further investigation is required into the merits of a dedicated fund for supporting the extension of municipal waste services to unserved communities. DEA is currently conducting a pilot project in Mafikeng municipality, utilising EPWP funds, to deliver waste services through a community based, labour intensive and SMME driven model. At the same time a programme of technical assistance is supporting the municipality to take over and fund the service after an initial three year period. DEA is providing grant funds to cover the costs of the service and capacity building, and the level of funding support is progressively stepped down to the point that the municipality takes over the funding obligation. Based on the lessons learnt from this model, DEA together with National Treasury and COGTA will consider the most appropriate fiscal mechanism for rolling this model out on a broader scale.

The above mechanisms form part of an overarching fiscal framework for implementation of the NWMS and the achievement of the waste hierarchy. DEA will work in close conjunction with National Treasury and the Department of Cooperative Governance and Traditional Affairs to monitor the implementation of the framework, and ensure that the necessary policy and regulatory tools are implemented.

4 Responding to waste category challenges

The following section applies the above waste management measures and instruments to each of the main categories of waste described in Section 1.6 above.

4.1 Domestic and commercial general waste

General waste is waste that does not pose an immediate hazard or threat to health or to the environment, and includes domestic waste, building and demolition waste, business waste, and inert waste. The Waste Act defines 'domestic waste' as non-hazardous waste which emanates from premises that are used wholly or mainly for residential, educational, health care, sport or recreation purposes. Typically such waste contains foodstuffs, garden waste, old clothing, packaging materials such as glass, paper and cardboard, plastics, and, in certain cases, ash. Business and commercial waste from offices, stores, and schools consists mainly of packaging materials such as glass, paper, plastics, and cans, with a limited quantity of foodstuffs emanating from hotels and restaurants.

The mixed nature of general waste, the high proportion of recyclable materials going to landfill, and the presence of small quantities of hazardous waste are key challenges that need to be addressed. Where smaller industries are dispersed among normal commercial operations, regular monitoring is necessary to identify the need for special collection and disposal procedures.

The reliability of domestic and business waste generation data will be systematically improved through the establishment of SAWIS. Data on different waste types in SAWIS will assist in understanding the sources and generation of different waste types, and characteristics and total volume of each waste stream.

The Minimum Requirements for Waste Disposal at Landfills developed by the former Department of Water Affairs and Forestry regulate the measurement of general waste, including weighbridges at landfill sites depending on the classification of the landfill site. Where weighbridges are not currently available such as on communal waste disposal sites, alternative methods must be used to give a general estimate of waste volumes.

Various measures to aid the recycling of metal cans, paper, bottle glass and plastics have been described in earlier chapters, including waste separation and collection systems for recyclables. Specific measures to address scrap metal, window glass, appliance and eWaste are required. Based on the WCMS DEA will develop norms and standards regulating the storage, treatment and disposal of different waste categories.

Earlier chapters have also dealt with various measures to improve the collection, transportation and disposal of general waste. These include:

- Properly designing waste collection and transportation systems and choosing the correct type of vehicle
- Measures to improve capital investment in waste collection vehicles and asset maintenance of waste machinery.
- Measures to ensure properly planned, constructed, operated and maintained landfills.
- Building capacity for compliance monitoring and enforcement in relation to disposal and landfill management.

Wastewater sludge is a general waste stream that is regulated by the Waste Act in terms of the sludge disposal storage areas and in terms of the disposal of sludge ash. Typical sludge management practices include dedicated land disposal, waste piling, landfill disposal and to a lesser degree use in agricultural practices. Even though sludge may only be present in the sludge handling and storage area for short periods at a time, it is, however, on a continuous basis. Hence the sludge disposal sites require a permit according to the Environmental Conservation Act and the Waste Act. Landfill site owners and operators must manage the ash resulting from sludge thermal treatment accepted on the site as some ash can potentially be considered a hazardous waste as the ash may contain elevated concentrations of metals. For ash disposal the producer and user must comply with the DWA Minimum Requirements Waste Management Series (Latest edition). Sludge management is a growing challenge for municipalities as a survey undertaken in 2001 of 72 wastewater treatment works from all provinces in South Africa (including cities through to small towns) indicated that approximately 670 tons of sludge per day may be generated.¹⁹ Just for these 72 facilities this equates to nearly 245 000 tons per year. Guidelines for the Utilisation and Disposal of Wastewater Sludge have been developed by DWA, and the implementation of these guidelines by municipalities, landfill site owners and operators is the main priority. The Guidelines provide information on how wastewater sludge can be used as a resource. Appropriate use of sludge as specified in the guidelines can generate a range of economic and social spin-offs to the benefit of local communities.

4.2 Industrial and mining hazardous waste

In terms of fulfilling the Waste Act's objective of protecting human health and the environment from the negative impacts of waste, the regulation of hazardous waste is a key area of intervention in the national strategy. The Act defines hazardous waste as:

¹⁹Purnell G (2009) National Waste Quantification and the Waste Information System. Research Paper commissioned for the National Waste Management Strategy.

“...organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment ...”

In as much as they are regulated under separate legislation, certain classes of hazardous waste are not regulated by the Waste Act. These include:

- Radioactive waste, which is regulated by the Hazardous Substances Act, 1973, the National Nuclear Regulator Act, 1999, and the Nuclear Energy Act, 1999;
- Residue deposits and stockpiles from mining, which are regulated by the Mineral and Petroleum Resources Development Act, 2002;
- Explosives, the disposal of which is regulated by the Explosives Act, 2003; and
- Animal carcasses, the disposal of which is regulated by the Animal Health Act, 2002.

It is noted that the regulatory framework for mining residue stockpiles and deposits is under review, and that in terms of the amendment to the Mineral and Petroleum Resources Development Act, responsibility for the performance of environmental authorisations will revert to DEA. This issue is dealt with more fully in Section 4.4 of the strategy.

In terms of implementing the waste hierarchy for industrial and mining waste, waste avoidance and reduction is of particular importance due to the significant environmental impact of this waste, and the potential harmful consequences for human health. Where hazardous wastes cannot be avoided, emphasis needs to be placed on regulation, not only in defining standards for treatment and disposal, but also in ensuring reuse and recycling takes place in a safe and responsible manner.

DEA is developing a new waste classification system to address new technologies and treatment options that replaces the DWAF Minimum Requirements for the Handling, Disposal and Classification of Hazardous Waste. The Waste Classification and Management System (WCMS) will be finalized in April 2011 and is central to the regulation of norms and standards for the management of hazardous waste. The WCMS hazard classes will be aligned with the SANS 10234 Globally Harmonised System, ordered in terms of Physical, Health and Environmental Hazards.

The approach to classifying and categorising waste is described in Section 3.2 of the NWMS. The WCMS will prescribe the manner in which the waste is to be classified and treated. The WCMS will define waste types that will not be suitable for land application without prior treatment, and will establish the procedures and tests required to determine whether land application is acceptable. The WCMS will also identify acceptable uses of waste under particular circumstances.

For example, samples from generators of waste must be tested for the most hazardous compounds in the waste. The samples will then be assessed against the globally harmonised system of hazard criteria to determine whether the waste is classified as general or hazardous.

Based on the waste's classification, the WCMS will provide a best practise technology guideline to assist in determining the most appropriate management options for the waste. The WCMS will provide a land application procedure that must be followed should land application be an option. This procedure will include standard leach testing of the waste.

Diverting hazardous waste from landfills is an important priority and DEA has recently finalised the National Policy on the Thermal Treatment of General and Hazardous Waste. The disposal requirements for hazardous wastes in the WCMS will be aligned with this policy, which:

- Specifies air emissions standards for waste incineration in dedicated incinerators and as alternative fuels in cement kilns which are being formalized in the National Air Quality emission standards.
- Specifies types of waste which may not be co-processed in cement kilns, which includes asbestos, bio hazardous wastes, unsorted electronic waste, batteries, and waste that has not been properly evaluated.

Thermal treatment is a listed activity in terms of section 19 of the Waste Act, and licensing requirements in terms of section 19(3)(a) apply.

Listing and licensing applies to the operation of landfills accepting all types of waste including hazardous waste. Currently, regional shortages of treatment and disposal facilities for hazardous waste exist and act as a constraint on economic growth. Accordingly, DEA will perform an assessment of current hazardous waste disposal capacity – both traditional landfills and incineration and co-processing – and seek ways to facilitate the private sector addressing shortfalls through expediting licensing processes and the application of economic incentives in conjunction with the dti and the National Treasury. DEA views industry as partners in regulation, and recognises that licensing of waste activities represents an administrative burden for industry and the state that is only practical once certain thresholds of waste volumes are attained.

The mechanism for declaring priority wastes can also be used to entirely prohibit the generation of a particular waste. This is a useful tool to consider when implementing national obligations in terms of international conventions which require the safe management of waste streams containing banned or restricted chemicals.

Initially, extended producer responsibility and consumer protection in relation to minimising hazardous industrial and mining waste will be addressed through voluntary initiatives. DEA has developed a National Cleaner Production Strategy, and will work with the dti, the National Cleaner Production Centre, and Indalo Yethu to encourage the uptake of cleaner production technologies by industry. To minimise the generation of hazardous waste, substitution of non-hazardous materials into production and manufacturing processes will be promoted.

The effective regulation of hazardous wastes requires sufficient compliance and enforcement capacity on the part of DEA, and proposals in this regard are set out in Section 5.7 of the strategy.

4.3 Construction and demolition waste

The primary issues in relation to construction and demolition waste are to address the problem of illegal dumping, divert this waste stream from landfills and properly manage hazardous waste components in this waste stream.

Section 68 of the Waste Act stipulates substantial penalties for unauthorized disposal of waste, but on their own these will not sufficiently address the issue of illegal dumping of construction and demolition waste. A multipronged approach to the problem will be implemented, including the following elements:

- Raising public awareness of the issue of illegal dumping.
- Improving capacity to enforce national legislation and local by-laws in relation to illegal dumping.
- Establishing and publicizing municipal hotlines for reporting illegal dumping.
- Incorporating responses to this issue into municipal IWMPs.
- Putting producers of construction and demolition waste in touch with potential users of such waste.
- Diverting inert waste from landfill through the landfill acceptance criteria.
- Promoting reuse through the acceptable use provisions of the WCMS.
- Nelson Mandela Bay Municipality has established an online Waste Exchange System. Although the system is in its infancy, it provides a useful mechanism for private individuals and building contractors to link to potential consumers of construction and demolition waste.

Although a percentage of this waste stream can be used as landfill cover, due to the volume of construction and demolition waste the priority is to promote recycling and reuse. There is extensive opportunity for recycling and reuse of construction and demolition waste as fill for road embankments, land reclamation and drainage control. Furthermore, when construction and demolition waste can be separated into its constituent components e.g. wood, metal, drywall, rubble, concrete and cardboard/paper, these can be reused as raw materials. The importance of correctly characterizing and separating construction and demolition waste is underlined by the presence of hazardous components such as asbestos in this waste stream.

To achieve optimum levels of recycling and reuse, and to avoid the need for additional regulatory measures, it is suggested that stakeholders in the construction and demolition sector on a voluntary basis develop a sector-wide Industry Waste Management Plan, with particular attention placed on recycling and recovery, and the associated institutional arrangements funded by the construction industry to promote recycling and recovery and reduce illegal dumping. The ROSE foundation provides a useful model in terms of lubricating oil to be considered for application to the construction and demolition industry.

4.4 Mining waste

General, hazardous and industrial wastes from the mining industry fall within the scope of the Waste Act, and therefore are addressed by the NWMS. Section 4(1)(b) of the Waste Act specifically excludes residue deposits and stockpiles from the scope of the Act, in as much as these are regulated in terms of the Mineral and Petroleum Resources Development Act, 2002, (MPRDA) – which falls under the aegis of the Minister of Mineral and Energy Affairs.

Residue stockpiles are defined in the MPRDA as:

“any debris, discard, tailings, slimes, screening, slurry, waste rock, foundry sand, beneficiation plant waste, ash or any other product derived from or incidental to a mining operation and which is stockpiled, stored or accumulated for potential re-use, or which is disposed of, by the holder of a mining right, mining permit or production right;”

A residue deposit is any residue stockpile that remains at the termination of a mining or prospecting activity.

The MPRDA requires prospecting and mining operations to be conducted in accordance with the environmental principles set out in section 2 of NEMA, 1998 and provides further definition to this by establishing:

- Liability for environmental damage and the responsibility to rehabilitate the environment is assigned to permit holders, and the need for applicants for permits to make financial provision for environmental liability.
- Permit holders are required to receive environmental authorisation in terms of NEMA, which includes the requirement to submit an Environmental Management Programme that contains a waste management plan, and to comply with any prescribed waste standards.

The 2008 Amendment to NEMA further defines the requirements for an Environmental Management Programme (EMPR). It further empowers the Minister of Mineral Resources to perform environmental functions in terms of NEMA that relate to mining activities (including prospecting, exploration and production). In respect to these activities, the Minister of Mineral Resources is empowered to:

- Stipulate mining activities that require EIAs and EMPRs.
- Evaluate EIAs and EMPRs.
- Issue Environmental Authorisations.

These parts of the amendment are scheduled to come into force 18 months after the proclamation of the NEMA amendment. Before they come into affect DEA will consult with DMR

to determine whether the necessary capacity and administrative arrangements exist on the part of the DMR to fulfil the environmental functions that will be transferred.

In relation to mining waste, the strategic focus in terms of the waste hierarchy is on ensuring the treatment and safe disposal of mining waste. However, opportunities for reuse of mining waste need to be fully exploited.

It is in the interests of industry and good governance that norms and standards that apply to acceptable uses are developed for the storage, transport, disposal, reuse, treatment and processing of residue stockpiles and deposits. In relation to ash, for instance, it is necessary for standards for toxicity to be developed to ensure that potential re-use in brick-making or as cement extender does not pose a risk to health.

“Residue stockpiles” constitute a heterogeneous category of actual or potential waste substances. DEA will engage with DMR to determine if a memorandum of understanding is possible to classify residue stockpiles with the framework of the WCMS.

Appropriate waste management options for mining waste which falls outside of the Waste Act should be identified in an IndWMP for the mining sector. The central purpose of the plan will be to establish waste management guidelines and targets for the mining sector with which EMPRs must be aligned. In terms of the framework for IndWMPs described in Section 3.4 of this strategy, the waste management plan in an EMPR corresponds to a site-level IndWMP.

Institutional responsibility for the drafting of the mining sector plan will lie with the Chamber of Mines, who will be required to undertake a public consultation process in drawing up the plan. In approving or amending the Mining Sector IndWMP, the Minister for Environment Affairs will consult with the Minister of Mineral Resources.

4.5 Health care risk waste

Due to the significant risks associated with Healthcare Risk Waste (HCRW) and the strategic challenges outlined in Section 1.6, this is an area of priority for regulation in terms of the Waste Act’s provisions for listed waste management activities. This will, in turn, impact on the Department’s capacity requirements in terms of its responsibilities for monitoring, compliance and enforcement.

In terms of implementing the waste hierarchy, the key challenges in terms of health care risk waste management lie in the safe treatment and disposal of this waste.

These challenges need to be addressed on the basis of accurate information on quantities of HCRW to ensure that scarce government resources are efficiently allocated in addressing capacity shortages. The Department will seek to achieve full compliance of all thermal HCRW treatment facilities within 3 years of the gazetting of the air quality standards. Facilities that are unable to achieve compliance will be required to produce plans for their decommissioning within 1 year of the date on which the air quality standards came into effect.

Once the standards for non-thermal HCRW have been developed through the HCRW regulations, all permits for non-thermal HCRW treatment facilities will be reviewed to ensure alignment and compliance. Where non-thermal HCRW treatment facilities are not able to comply plans for their decommissioning within one year of the publication of the HCRW regulations with a view to decommission within three years of the gazetting of the HCRW regulations.

In addition to aligning with the overall objectives of the Waste Act, the regulatory priorities for the HCRW sector are:

- Establish reporting requirements and thresholds for SAWIS for the generation, treatment and disposal of this waste. To this end, HCRW has been included as a primary category in SAWIS.
- HCRW is also considered a pre-classified waste in terms of the WCMS.
- Systems to facilitate segregation within health care institutions have been developed for the rural and urban environment and have been piloted at institutions within these settings. In order to achieve the desired level of segregation these systems are to be rolled out to healthcare institutions nationally.
- Define safe, measurable and achievable minimum standards for the storage, collection, and transport, for HCRW management. These will include standards for new treatment procedures including low-heat thermal treatment, chemical, irradiative and biological processes in addition to incineration.
- Implement the performance standards for thermal treatment technologies which are being formalised through the air quality emission standards process and develop performance standards for non-thermal technologies through the HCRW regulations development process.

The Policy on Health Care Risk Waste Management being developed by DEA indicates that each health care institution must develop a HCRW management plan to ensure that HCRW is managed in a manner which is protective to third parties and which is environmentally sound. This plan must include the appointment of healthcare waste officers, provide information on waste quantities and management measures, and offer awareness and training programmes.

A differentiated approach that distinguishes between major and minor generators will be adopted to ensure regulation that is both practical and protects the public from exposure to HCRW. Differentiation will be based on the types and quantities of wastes generated, and will take into account the risk posed by even small quantities of HCRW. Individual medical practitioners must be issued with receipts by accredited licensed HCRW facilities that indicate the quantity and type of waste disposed. This will be enforced by the Medical and Dental Council, with the requirement to present such receipts becoming part of annual registration procedures for medical practitioners.

4.6 Pesticide waste

Pesticide waste generated by the agricultural sector consists amongst others of: herbicides, insecticides, fungicides, seed treatments and plant growth regulators as well as the containers used to store them. Despite being a relatively 'small' waste stream in quantity, these are highly toxic chemicals which may bio-accumulate in the food-chain and have major health consequences should they not be used and managed appropriately.

An approximated stockpile of 700 tons of residual pesticides and containers have accumulated in farming areas which require treatment disposal and in some instances remediation of contaminated land.

In terms of implementing the waste hierarchy, the immediate focus for this waste stream needs to be on safe treatment and disposal.

South Africa was identified as one of 7 countries to implement an Africa Stockpiles Programs which aimed to collect and safely dispose of obsolete and unwanted pesticides in Africa. A pilot project was undertaken in the Limpopo province where approximately 80 tons of stocks were collected. These pesticides will be shipped for incineration and disposal internationally. Remaining funds will be used to collect pesticides in an additional two provinces.

The agricultural and veterinary industry through their Agricultural and Veterinary Chemicals Association of South Africa (AVCASA) has been identified as one of the first four industries that have been requested to produce an IndWMP in order to identify how the industry will minimise, manage and fund the management of their waste stream.

AVCASA proposes that funds will be raised via a levy which is placed on each drum sold. The funds will be collected by the manufacturers and managed by AVCASA. Funds will also be used to remediate pre-existing contamination.

On acceptance of an IndWMP DEA will develop a supporting regulation relating to the proposed AVCASA levy.

4.7 Fly ash and coarse ash waste

Eskom produced 34,160,000 tons of fly ash in 2007, of which 6% was reused. Since Eskom is planning to expand its coal-powered generating capacity, quantities of fly ash waste will increase. In the same year Sasol produced an approximate 10,000,000 tons of coarse ash per year as a result of coal gasification processes.

The national strategy seeks to achieve waste reduction through the treatment, reuse and beneficiation of fly ash and coarse ash. To facilitate this, the WCMS will provide for acceptable uses of waste. Industry will determine appropriate and environmentally sound uses of various grades of ash which will then be assessed by Government and stakeholder through the "acceptable use" process and depending on suitability these uses will be identified in terms of section 19 (3) of the Waste Act i.e. activities not requiring licensing. A wide range of potential

uses for fly ash have already been identified, including treatment of acid mine drainage and stabilisation of sludge from a variety of industrial processes. Commercial exploitation of fly ash in brick-making and cement and concrete has already begun. The public benefit and economic potential for reuse of this waste stream is significant. Industry will be able to explore further reuse applications and assess these uses against the acceptable use criteria provided for within the framework of the WCMS.

4.8 Tyres

Waste tyres have been identified as a problematic waste stream as they are not compactable or degradable and prove problematic at landfills, with some sites historically refusing to accept them, and others charging higher fees for allowing their disposal. This, in part, has caused a large amount of illegal dumping and burning of tyres to recover steel for recycling, resulting in toxic air emissions and unsightly tyre stockpiles which prevent other land uses.

In terms of implementing the waste hierarchy, the strategic focus is on diverting tyres from landfill through recycling and the promotion of treatment and processing technologies.

There are at present 12 plants which can process waste tyres into a possible 250 products although at present the supply of waste tyres exceeds the demand. A potential use for waste tyres which exceed recycling demand is in the use of the energy potential of waste tyres in combustion processes, for example cement kilns. The cement industry has identified this use of waste tyres as a potentially beneficial alternative fuel and several kilns are currently applying for environmental authorization for this activity.

In 2002, the tyre industry formed the South African Tyre Recycling Process Company (SATRPCo), a section 21 company, which aims to manage the collection and distribution of waste tyres to recycling and reprocessors on behalf of the tyre industry. The procedures for the management of this waste stream have been identified in a draft IndWMP produced by the SATRPCo which is currently in a consultation phase. The plan must give effect to the waste hierarchy i.e. recycling must receive priority as a waste management option.

The waste tyre regulations which came into effect on 30 June 2009 require all producers and importers of tyres to submit an IndWMP for approval by the Minister, or to register with an approved IndWMP. The IndWMP must indicate how the tyres are to be managed and how management will be financed once the tyres become waste. The regulations also require that waste tyres with load index of 121 be rendered unusable. DEA will consider and approve the IndWMPs submitted by producers and importers. Organisations recycling and recovering the energy potential of waste tyres must report the quantities of waste tyres they process to the SAWIS.

Whilst it is thought that waste tyre recycling could potentially create jobs, the market demand for related products will need to be stimulated in order to achieve this. As part of the process of compiling the IndWMP, industry is requested to research potential mechanisms for market stimulation, and make proposals to DEA and the dti.

4.9 eWaste

eWaste refers to Waste Electrical and Electronic Equipment (WEEE). This waste stream is relatively new, rapidly growing, and in some cases highly hazardous due to heavy metals content. There are currently no reliable statistics for the amount of eWaste generated or recycled. With the increase of consumerism and the rise of the information age, eWaste will continue growing exponentially, and rapidly become a major waste challenge. WEEE can contain over one thousand different substances, many of which are toxic and some that have a high market value when extracted. There are seven recognized sub types of eWaste as per the Waste Classification System. Lighting equipment is one of these seven types and will be considered as a separate waste stream due to the specific mercury content issue and related IndWMP being prepared specifically for this waste stream. The other six sub types should be considered individually within the eWaste stream and where appropriate individual measures for each sub type may be required.

In terms of implementing the waste hierarchy, the main challenge lies in separating this waste from general waste to facilitate safe and economically sustainable recycling of this waste stream.

Informal recycling of eWaste is relatively prevalent, but often done without safety equipment, resulting in potential harm to health, and contamination of the recycling site, as well as the release of noxious fumes through the burning of plastic to access the valuable metals inside the equipment. Formal recycling is typically a partially mechanized process which separates materials, whilst WEEE is often dismantled by hand and then separated before shredding. Some mechanized processes do not necessarily allow for re-use or refurbishment, as the whole object is put through a shredder, and the shredded output is then mechanically separated using water, air or magnetism. The separated shredded plastics and metals are then sent for reprocessing as recyclates.

In July 2008, the eWaste Association of South Africa (EWASA), a section 21 company, was established to set up an environmentally sound eWaste management system, utilizing various programmes and networks. Membership of EWASA is R2000 per year for recyclers.

The two major emerging initiatives are voluntary take-back facilities at retailers which in turn increases recyclate availability, and a recycling fee on imported goods which may result in eWaste. This levy will be managed and regulated via industry. At present some retailers are agreeing to voluntary take-back facilities. Such facilities at electrical and electronic goods retailers should be mandatory and subject to an IndWMP for the eWaste industry.

EWASA will form a section 21 company to manage a 10% recycling fee charged on all imported goods which will result in eWaste. At present it is a voluntary fee and requires the manufacturer to declare imports to EWASA, who will then compare the data with customs to ensure the correct amount is paid. Whilst several large electrical and electronic brands have agreed to this voluntary scheme, it should be formalized in terms of an IndWMP, and be made universally applicable through mandatory measures, to ensure that there are no free-riders within the industry.

The use of take-back facilities is at present voluntary, meaning some eWaste still goes to landfill or the informal recycling process. DEA will make it a legal requirement for consumers to utilize these take-back facilities through regulations requiring producers and importers of WEEE to develop IndWMPs or to register with approved plans.

DEA will develop standards for the storage, treatment and disposal of electronic waste as part of the process to develop norms standards in terms of section 7(1)(c) of the Waste Act.

Further research must be undertaken by industry regarding the appropriate measures to protect the health and safety of the informal recyclers currently handling eWaste while seeking to protect their livelihoods. At present EWASA membership is likely to be too expensive for most informal recyclers, and therefore ways of redressing disincentives such as this and the limited accessibility of EWASA schemes (such as the online booking system which facilitates recyclers 'booking' the retailers that they wish to collect waste goods from) should be developed by industry.

The SAWIS categories have been expanded to include 7 categories for reporting on e-waste.

The measures set out in this section are to be contained within an IndWMP, produced by industry. The IndWMP will provide for mandatory take-back facilities at retailers, the process of formalizing the informal recycling practices, and the reporting requirements to the SAWIS.

4.10 Batteries

There are an estimated 50 million batteries sold in South Africa each year. Whilst some are rechargeable batteries, the majority are alkaline and silver oxide batteries which are not rechargeable. Various heavy metals including mercury and cadmium are present in these batteries, resulting in their classification as hazardous waste.

In implementing the waste hierarchy, the key challenges are to reduce this waste stream through recycling, and where recycling is not possible, to separate this waste from the general waste stream so it can be disposed of safely. The Waste Classification System provides for seven sub categories of batteries, and appropriate waste management measures need to be applied to each subcategory.

Currently, there are no regulations or official EPR initiatives in place for the domestic battery industry. One international supplier of domestic batteries has begun a battery recycling initiative, with collection bins placed at selected outlets. These batteries are then sorted and the recyclable batteries are sent to France as there are currently no domestic batteries recycling facilities in South Africa. Non-recyclable domestic batteries are encased in concrete and sent to landfill.

The South African Battery Manufacturers Association manages a scrap loading charge, or levy, on motor vehicle batteries, which are considered toxic due to the lead and sulphuric acid content. Battery retailers will generally take back one battery for every new battery bought from them, and will return the levy in exchange. The levy ranges from approximately R10 for

motorbike batteries, to R100 for motor car batteries. Breakthroughs in technology have resulted in the components of these batteries becoming almost 100% re-useable or recyclable, and the levy has assisted in high levels of motor vehicle battery recycling.

Standards for ensuring that batteries sold in South Africa meets international specifications should be set out through a SABS standard in consultation with the dti. These standards will then be legislated for in terms of section 18(2) of the Waste Act. Further research is required in order to explore potential synergies between various eWaste initiatives including batteries.

The battery industry will be required to produce an IndWMP which must among other requirements provide for an education and awareness campaign for the general public, with the aim of decreasing the number of batteries going to landfill, and promoting the use of rechargeable batteries as well as the recycling of batteries.

Should the IndWMP fail to be effective, a mandatory EPR programme will be considered by DEA.

Local facilities for recycling of batteries should be established in order to reduce the environmental and economic impact of sending them abroad whilst benefiting economically from the recycled product. Industry should set out a plan within the IndWMP for the development of such facilities. The requirement and provision of subsidies or other financial incentives to initially establish these facilities could then be considered by the dti with input from DEA.

4.11 Fluorescent lamps containing mercury

Lighting equipment is considered a sub type of Waste Electric and Electronic Equipment (WEEE) according to the Waste Categorisation System. Whilst WEEE or eWaste is considered as a waste stream within this strategy, due to the nature of the industry and consideration of the existing IndWMP, lighting equipment is considered separately. The use of Compact Fluorescent Lamps (CFLs) is a growing trend in South Africa due to their energy efficiency, which is an important consideration in a country which is experiencing mounting energy prices and shortages. However, CFLs are regarded as hazardous due to their mercury content and must be managed appropriately.

Currently there are no facilities to collect and manage CFLs separately and they are disposed of with domestic waste. In terms of implementing the waste hierarchy, the immediate focus for this waste stream is on preventing the unsafe and environmentally harmful disposal of CFLs.

Standards for the handling and recycling of CFLs are to be developed in support of the IndWMP to ensure safe and environmentally sound handling, recycling and disposal. These will be developed as part of the development of norms and standards for the storage, treatment and disposal of waste to be developed in terms of section 7(1)(c) of the Waste Act.

It is recommended that the IndWMP being produced includes the formalization of informal recycling practices within the sector and a take-back scheme for mercury containing lamps be produced by the industry.

Where feasible, synergies between lighting initiatives and other eWaste initiatives should be sought in order to streamline activities.

4.12 Lubricating oil

Whilst just over half of the lubricating oil sold in South Africa is consumed through use, the remaining 40% to 45% is highly threatening to the environment and human health if incorrectly disposed²⁰. The breakdown of additives and base oil releases and mixes a variety of chemicals in the used oil, the most harmful of which are poly-aromatic hydrocarbons (PAH) which potentially have carcinogenic effects. Used oil poses an especially serious threat to drinking water supplies and aquatic life, with one litre of used oil able to pollute one million litres of water.

The Recycling Oil Saves the Environment (ROSE) Foundation, a section 21 company, manages the collection, storage and recycling of used lubricating oil. ROSE is funded through levies of 5c per litre of oil sold from manufacturers and marketers of lubricants, and the sale of the oil it has recycled. ROSE uses the levy to pay collectors 10c per litre of used lubricating oil collected. ROSE is currently acquiring PBO status. ROSE established the National Oil Recycling Association of South Africa (NORA-SA) in 2005, which has 90 members.

NORA-SA's members have endeavored to provide receptacles for used oil, educational campaigns and training for all ROSE collectors. It is vital that all users of lubricating oil, including garages and the motor vehicle maintenance industry, are obliged to dispose of used oil according to certain standards, aligned with the ROSE initiative for the collection and recycling of oil. Such standards will be developed in terms of Section 7(1)(c) of the Waste Act, as part of the process to determine standards for the storage, treatment and disposal of different categories of waste.

²⁰ PURNELL, Geoff. 2009. National Waste Quantification and Waste Information System.[Online]. Available: <http://www.wastepolicy.co.za/nwms/library/index.htm> [17 February 2010]

5 Implementation mechanisms for the Waste Strategy

5.1 Roles and responsibilities

The implementation of the NWMS requires the identification of the different role-players and the roles and responsibilities that each are expected to play. There are three broad categories of role-players which are considered, namely the state, the private sector and civil society.

5.1.1 The role of the state

The state is comprised of three spheres of government, namely national, provincial and local government, and organs of state, including parastatals and agencies, the executive and the legislature. The three distinct roles of the state are:

- Policy making functions that encompass the establishment of norms, standards and targets, the system of planning for service expansion and improvement, as well as coordination and policy development activities.
- Regulation, which includes the preparation of regulations, listing and licensing of waste management activities, compliance and enforcement, and declaration of priority wastes.
- Waste service delivery, including the collection, transport and disposal of domestic waste, which is a municipal function.

As a principle of good governance, there should be separation of the regulatory role, particularly in terms compliance monitoring and enforcement, from the policy-making and service-provision roles. This is particularly important in instances where a department is responsible both for the delivery of waste management services and the overall regulation of the waste management sector.

The application of norms and standards, and the regulation of waste management activities, needs to be applied across both public and private sector providers equitably. Without clear role separation, it will not be possible to ensure unfettered and meaningful regulation of waste management activities.

5.1.2 Vertical division of responsibilities

Informed by the Constitutional assignment of powers and functions to the different spheres of government, the Waste Act assigns clear responsibilities to each sphere of government in relation to waste management activities.

Local government is responsible for the provision of waste management services, which includes waste removal, waste storage and waste disposal services, as per Schedule 5b of the Constitution. Municipalities are obliged to designate a waste management officer from their administration to co-ordinate matters pertaining to waste management. They must also submit an integrated waste management (IWMP) plan to the MEC for approval. The IWMP needs to be integrated into municipal integrated development plans (IDP), and the municipal annual performance report must include information on the implementation of the IWMP.

At their discretion, municipalities may set local waste service standards for waste separation, compacting of waste, management and disposal of solid waste, amongst others. Local standards must be aligned with any provincial and national norms and standards where these exist. In particular, where municipal by-laws on waste disposal exist, these must be aligned with Chapter 4 Part 6 of the Waste Act as described in Section 3.9 of the strategy. Municipalities may also require transporters of waste to register on a list of waste transporters.

Provincial government is obliged to promote and ensure the implementation of the NWMS and national norms and standards. Similarly to local government, it must designate a provincial waste management officer responsible for co-ordinating matters pertaining to waste management in the province. It must also prepare an IWMP and prepare an annual performance report on its implementation, both of which must be submitted to the Minister for approval. The provincial government is also deemed the primary licensing authority for waste activities for which the Minister is not deemed the licensing authority. Provinces have a number of discretionary powers, some of which may only be exercised in consultation with the Minister. These powers include:

- The setting of provincial norms and standards.
- Declaring a priority waste.
- Listing waste management activities.
- Registering waste transporters.
- Requesting the preparation of industry waste management plans.
- Identification of contaminated land.
- Establishing a provincial waste information system.

To provide a nationally harmonised regulatory environment for waste management, the provinces should only exercise these discretionary powers where clear and compelling reasons exist to do so, and should do so in consultation with DEA.

National government and in particular DEA is ultimately responsible for ensuring that the Waste Act is implemented and that the various provisions are harnessed in the most appropriate and effective way. The Waste Act specifies various mandatory and discretionary provisions that DEA is required to address.

In terms of mandatory provisions, DEA is responsible for:

- Establishing the National Waste Management Strategy.
- Setting national norms and standards.
- Establishing and maintaining a National Contaminated Land Register.
- Establishing and maintaining a National Waste Information System.
- Preparing and implementing a National Integrated Waste Management Plan.

The Minister is the licensing authority with respect to hazardous waste, international obligations, activities performed by a provincial environmental authority or statutory body other than a municipality, or an activity that takes place in more than one authority or transverses international boundaries. The Minister must designate a waste management officer from the DEA administration to co-ordinate matters pertaining to waste management.

DEA has numerous discretionary responsibilities that it may invoke if required. These include:

- Developing national norms and standards for waste minimisation, re-use, recycling and waste recovery.
- Setting standards for waste tariffs.
- Declaring priority wastes.
- Identifying products for the application of extended producer responsibility.
- The listing of waste management activities.
- Requesting the preparation of industry waste management plans.
- Registration of transporters of waste.
- Identifying land that may be contaminated for investigation.

The above summaries provide an overview of the main responsibilities directly provided for in the Waste Act. It is evident that the allocated roles and responsibilities need to be seen as elements within an integrated system, with a cascading of roles according to the level at which they are most logically performed.

5.1.3 Concomitant responsibilities

There are several areas of concomitant or shared responsibility between the different spheres of government. The mandatory and discretionary responsibilities are set out in the following tables:

Table 10: Mandatory shared responsibilities

Function	Responsibility	Comment
Section 9(4) Support to municipalities	Both national and provincial government are expected to support and strengthen the municipality's ability or right to perform its functions in relation to waste management activities.	Section 5.7 addresses capacity-building requirements.
Section 10(1)(2)(3) Waste Management Officers	Each sphere of government is required to appoint Waste Management Officers	Section 5.2 describes the system of Waste Management Officers
Section 11(1) Integrated Waste Management Plans	Each sphere of government is required to prepare an integrated waste management plan	Section 5.3 describes the system of integrated waste management planning
Section 43.(1) and Section 43(2) Licensing authority	<p>The MEC is the licensing authority except for those activities for which the Minister is deemed the licensing authority.</p> <p>The Minister is the licensing authority where the activity involves hazardous waste, international obligations, is performed by a provincial department of environmental affairs or other statutory bodies with the exclusion of municipalities, an activity that takes place in more than one province or traverses international boundaries, two or more activities at a facility where the Minister is a licensing authority of one activity.</p>	Section 3.5 addresses the requirement for the delegation of the licensing role in favour of integrated licensing especially where multiple licensing requires consent from different spheres of government.

Table 11: Discretionary shared responsibilities

Function	Responsibility	Comment
Section 9	The Minister or MEC or municipality may set standards, other than those that are mandatory	
Section 14(1)	The Minister or MEC may declare a priority	Section 3.6 addresses priority

Function	Responsibility	Comment
	waste.	waste.
Section 16(4)	The Minister or MEC may issue regulations to provide guidance on how to discharge this general duty of care, or identify specific requirements that must be given effect to.	
Section 19(1) and Section 19(3)	The Minister or MEC may publish a list of waste management activities.	Section 3.5 addresses the listing of waste management activities.
Section 25 Duties of persons transporting waste	The Minister, MEC or municipality may require any person or category of persons who transport waste for gain to register with the relevant waste management officer in the Department.	Section 3.8 addresses the registration of transporters.
Section 29 Industry Waste Management Plans	Both the Minister and the MEC may require the preparation of Industry Waste Management Plans.	Section 3.4 addresses the development of Industry Waste Management Plans
Section 36 - Section 40 Land contamination	The Minister or MEC are responsible for a whole range of actions in relation to land contamination and remediation.	Section 2.7 addresses remediation.

The exercising of these concomitant powers will be addressed within the cooperative governance mechanisms described in Sections 5.2 and 5.8.

5.1.4 Horizontal assignment of responsibilities

In considering the horizontal assignment of roles, it is important to understand how the provisions of the Waste Act interface with and build on the regulatory provisions of other pieces of related legislation. This policy harmonisation exercise also needs to draw on the Inter-governmental Relations Framework.

Department of Trade and Industry: the dti has a crucial role to play in relation to the overall system of industry regulation, and the utilisation of various mechanisms and capacities within the dti for implementing the Waste Act. The implementation of the system of norms and standards will require the support of the Technical Infrastructure under the dti, as described in Section 3.2. This system will be used to determine standards for products in relation to

packaging and recycling as well as the provision of waste services, and ensure their measurement and certification. In order to achieve this, the waste management sector will need to be identified as a lead sector by the dti.

Other issues that require the involvement of the dti include the declaration of priority wastes and implementation of EPR schemes; the implications of the Consumer Protection Act for waste management; the promotion of recycling schemes and the implications of competition policy for the provision and sub-contracting of waste services by municipalities.

National Treasury: The National Treasury has a crucial role to play in managing the overall system of taxation, and in implementing taxation measures that support the goals and objectives of the NWMS. National Treasury must also be consulted where the economic implications of measures with respect to a priority waste are potentially significant. National Treasury plays an important role in determining budget allocations for waste management functions at national level, and in addressing the fiscal mechanisms required for implementation of waste services and accessing of grants.

South African Revenue Services: In terms of the prohibition and restrictions on the import, export and selling of priority wastes, it is important that declarations of priority wastes are aligned with the product codes maintained by SARS in the Schedules to the Customs and Excise Acts.

Department of Co-operative Governance and Traditional Affairs: National and provincial government must provide support to municipalities with respect to their executive responsibilities, including delivery of services. This support needs to be co-ordinated with the Department of Co-operative Governance and Traditional Affairs. The Department also has an important role to play in ensuring that the Municipal Infrastructure Grant can be accessed for the development and upgrading of municipal landfill sites, many of which are not compliant or unlicensed. The Department must provide guidance and oversight to municipalities and the provinces with respect to the incorporation of Integrated Waste Management Plans into Integrated Development Plans.

Department of Water Affairs: There are three important areas that require the input and co-operation from the Department of Water Affairs, as they form concurrent mandates, namely:

- Integrated waste disposal licenses that include water use licenses.
- Contaminated land and its remediation.
- The management and disposal of sewage sludge emanating from wastewater treatment facilities.

Other government departments that have important role to play in implementing the NWMS include:

- The **Department of International Relations**, which must lead South Africa's engagement in multilateral forums that address sustainable development and waste management issues.

- The **Department of Mineral Resources** plays a key role in regulating waste management in the mining sector, which includes addressing waste management issues in relation to residue deposits and stockpiles which fall outside the ambit of the Waste Act, and the remediation of land contaminated by mining activities.
- The **Department of Health** has an important role to play in addressing health care risk waste and in advising DEA and provincial departments on the appropriate standards and measures to be applied to the sector.

5.1.5 The role of industry

With respect to industry, the NWMS envisages an important role for industry within a co-regulatory approach to achieving the objectives of the Act. The primary instrument for achieving this vision is the Industry Waste Management Plan. Private sector representative bodies have an important role to play in ensuring that the provisions of the Act are understood, implemented, and complied with by business and industry. The uptake of cleaner technology practices will also be a necessary step in the process of achieving waste minimisation.

Private service providers play key roles in all stages of waste management, including in waste service delivery. An expansion of waste services to unserved communities will require municipalities to explore alternative service delivery mechanisms, including public private partnerships, and the private sector is encouraged to actively engage in making universal service provision a reality. The private sector should also respond creatively to new technologies in the fields of waste to energy conversion and hazardous waste disposal, and establish capacity in these areas as technologies become commercially viable.

5.1.6 The role of civil society

NGOs, non-profit organisations, community based organisations, cooperatives and trade unions play important roles in all phases of the waste hierarchy, including in recycling initiatives and delivery of waste management services. A number of the interventions proposed in this strategy will aim to reinforce the work of non-profit organisations within their sectors. Civil society formations are encouraged to continue to engage with the regulatory authorities in the various public participation processes that are embarked upon in the development and implementation of the provisions of the Act. Furthermore, the role of citizen oversight, particularly in relation to the delivery of waste services, should be factored into the design of the provision of these services. As discussed in S5.6, education, advocacy and awareness-raising initiatives are required to ensure that civil society fulfils this role effectively.

5.2 System of Waste Management Officers

The Waste Act creates a specialized system of officials, referred to as Waste Management Officers (WMOs), who are charged with the broad responsibility of coordinating waste management matters at each level of government. This system addresses the historical

fragmentation of waste management functions within government by ensuring that a dedicated authority is responsible for implementing policy and regulations in terms of the Waste Act.

A WMO must be designated in writing by the appropriate authority at each sphere of government - by the Minister at national level, the MEC at provincial level and the Mayor at local level.

The Act states that WMOs must co-ordinate their activities with other waste management activities in the manner set out in the NWMS, or in terms of a notice published by the Minister in the Gazette.

The Department has produced guidelines regarding the appointment of WMOs and the role, powers, profile and rank of the WMOs. These guidelines need to be read in conjunction with the National Co-ordination Plan for the Implementation of the Waste Act and its Regulations.

The definition of the roles of WMOs at each level of government is informed by the responsibilities and duties assigned to that sphere of government in terms of the Waste Act and the NWMS, as well as the specific powers assigned to WMOs in terms of the Waste Act. How WMOs fulfil their roles and duties will be influenced by their status and profile, their positioning within their respective level of government, and the institutional mechanisms created to effect the implementation of the Waste Act.

In designating specific responsibilities to the WMOs, an important consideration is the distinction between regulatory functions, policy making functions, and service-delivery functions. In order for the WMO to be able to effectively ensure that services are delivered to the required standard and that the provisions of the Act are adhered to, they must have an independent regulatory role. This independent regulatory function does not mean that the system of WMOs is independent of government, but rather that WMOs be located in a separate functional division that enables them to retain oversight over the implementation of the provisions of the Act. This is particularly important for ensuring adherence to the national system of norms and standards, which are fundamental to achieving the objectives of the Waste Act.

The realisation of this independent regulatory function will determine where the WMOs are located in their respective organisations, what functions they can perform, and their lines of accountability and reporting. For this reason, at local government level WMOs should not be located within the waste services or engineering department, but rather in the Municipal Manager's office or a separate environmental regulatory component. Their duties should be limited to the regulatory aspects of the Act, whilst service-delivery should be fulfilled by other waste management personnel.

The Act assigns specific regulatory powers to the National WMO and Provincial WMOs. In terms of section 58(1) they may request the appointment of waste management control officers by holders of waste management licenses, and in terms of section 66(2) they may require the preparation of waste impact reports when waste management licenses are being reviewed.

The responsibilities of the **national WMO** are as follows:

- Chairperson of the National Waste Forum.
- Provision of advisory support to the Minister in relation to declaration of priority waste, EPR, and mandatory Industry Waste Management Plans.
- Sorting out issues related to co-operative governance.
- Addressing overlapping mandates, particularly at national and provincial level.
- Stakeholder management in relation to Waste Act implementation.
- Liaison with national EMI compliance monitoring activities.
- National IWMP: alignment of planning and reporting cycles.
- Capacity building in relation to Waste Act implementation.
- Formulation and oversight of Waste Act implementation plan.

The responsibilities of the **provincial WMO** are as follows:

- Advisory support to the MEC.
- Sorting out issues related to co-operative governance.
- Stakeholder management in relation to Waste Act implementation.
- Liaison with provincial EMI compliance monitoring activities in the province.
- Provincial IWMP: alignment of planning and reporting cycles.
- Capacity building in relation to Waste Act implementation.

The provincial WMO reports to the provincial Head of Department. The responsibilities of the **local WMOs** are as follows:

- Stakeholder management in relation to implementation of the Waste Act.
- Liaison with EMI compliance monitoring activities in the municipality.
- Municipal and local IWMP: alignment of planning and reporting cycles.
- Capacity building in relation to Waste Act implementation.
- Monitoring adherence to norms and standards in the delivery of waste services.

5.2.1 Relationship between WMOs and EMIs

The Environmental Management Inspectorate (EMI), which is described in greater detail in Section 5.4, is responsible for compliance and enforcement of the provisions of the Waste Act. As part of their regulatory function, the WMOs have an important role to play in supporting the EMIs with compliance monitoring, which will require a close working relationship between the WMOs and the Environmental Management Inspectorate (EMI). The greater the co-operation between the WMO and the EMI, the more effective the execution of the compliance monitoring function will be.

Currently the EMI operates primarily on the basis of reactive and strategic compliance monitoring, with proactive monitoring of secondary importance. In terms of the reactive monitoring, the EMIs will inform the WMOs of reactive monitoring initiatives to assist the WMOs in identifying areas of non-compliance and as a means of developing longer term support interventions, which will include brokering relationships with affected parties and finding consensual ways of addressing non-compliance.

Cooperation with the WMOs will free up resources in the EMI to support more proactive compliance monitoring. The WMOs will also provide guidance to the EMI to assist it in identifying priorities for strategic monitoring of activities that present a significant threat to health and the environment. A further area of co-operation is in the preparation of Waste Impact reports, provided for in terms of Section 66 of the Waste Act. Under certain circumstances, both can request a waste impact report and it is recommended that this be done in consultation and co-operation with each other.

5.3 Integrated Waste Management Planning

An important public sector implementation mechanism established by the Waste Act is the provision for an interlocking set of national, provincial and local Integrated Waste Management Plans (IWMPs). National and provincial departments responsible for waste management and all municipalities must prepare IWMPs in terms of section 11 of the Waste Act. IWMPs must be developed in a consultative manner, and municipalities are required to follow the prescriptions of section 29 of the Municipal Systems Act. There is a tiered system for approving IWMPs, with national and provincial IWMPs being submitted to the Minister for approval, and municipal IWMPs to the MEC for approval, whose responsibility it is to ensure alignment with other relevant plans. The MEC may also request amendments to an IWMP and enforce adherence to the planning procedures set out in the Waste Act.

To ensure the mainstreaming of IWMPs at every level of government:

- National and provincial government may integrate their respective IWMPs into their broader development or environmental plans.
- Municipalities are obliged to integrate their IWMPs into their Integrated Development Plans.

IWMPs are the initial strategic planning step in the overall planning and accountability cycle for government. At any given moment within a financial year, government will be busy with a number of such planning and accountability cycles - preparing strategic planning and budgeting for the coming year, implementing the plans previously formulated for the current year, and reporting on performance for the previous financial year. The table below shows how the IWMP process links with the planning and accountability cycle for all tiers of government.

Table 12: Linkage between IWMPs and accountability cycle of government

Accountability cycle	Accountability documents	Performance information
Strategic planning	<ul style="list-style-type: none"> • Strategic plans • IDP's • IWMP's 	<ul style="list-style-type: none"> • Indicate outputs • Specify performance Indicators
Operational planning and budgeting	<ul style="list-style-type: none"> • Operational plans budgets and performance agreements • Municipal budgets • Service delivery and budget implementation plan and performance agreements 	<ul style="list-style-type: none"> • Set performance targets • Indicate available resources • Allocate responsibility
Implementation and in year reporting	<ul style="list-style-type: none"> • Monthly budget reports and quarterly performance reports • Monthly budget statements • Mid-year budget and performance assessments 	<ul style="list-style-type: none"> • Report progress with implementation of plans and budgets
End year reporting	<ul style="list-style-type: none"> • Annual reports • IWMP Annual performance reports 	<ul style="list-style-type: none"> • Report on performance against plans and budgets

The sequencing of IWMPs within the annual calendar for planning and reporting for each sphere of government is important. The primary building blocks of the waste planning system are municipal IWMPs, and it is at the municipal level that the concrete plans for extending waste services and implementing the waste hierarchy will be set out. The municipal IWMPs must be aligned with the overall IDP as legislated by the Municipal Systems Act. In terms of Section 25 of the MSA Act, each municipal council must, within a prescribed period after the start of its elected term, adopt a single, inclusive and strategic plan for the development of the municipality. This period has been set as one year after the commencement of its elected term in terms of subsequent regulations. Since local government elections happen on a five yearly basis, it logically follows that an IWMPs should cover a five year planning horizon, and should be comprehensively reviewed and readopted in terms of this planning cycle. The next local government elections will take place in 2011, which means that the next round of IDPs need to have been drawn up and adopted by 2012. In order for IWMPs to be incorporated timeously into IDPs and substantively influence the next planning cycle, it is important that municipal IWMPs are completed in all municipalities by June 2011 i.e. the end of the 2010/11 financial year for local government.

In order for provincial and national IWMPs to provide sufficient direction for municipal IWMPs, it is important that these are completed by March 2011 i.e. the end of the 2010/11 financial year for national and provincial government.

DEA has developed an action plan for the integrated waste management planning system, and in terms of this action plan DEA will promulgate and enforce regulations for integrated waste management planning, prepare guidelines for the development of the plans, and initiate awareness campaigns regarding the need for and approach to integrated waste management planning.

The Department has prepared a National Framework Guideline for the Development of Integrated Waste Management Planning (January 2009), primarily directed at provincial departments and municipalities.

IWMPs need to be outcomes focused, and must include priorities, objectives, targets, and implementation and financing arrangements. The Waste Act specifically requires IWMPs to:

- Set out priorities and objectives for waste management.
- Establish targets for the collection, minimisation, re-use and recycling of waste.
- Set out the approach to planning any new facilities for disposal and decommissioning existing waste disposal facilities.
- Indicate the financial resources required for the IWMP.
- Describe the implementation mechanisms for the IWMP.
- For the national and provincial departments, the IWMPs must also set out how they intend to support municipalities to give effect to the objects of the Waste Act.

As stipulated by Section 12 of the Waste Act an IWMP must at least contain a situation analysis that includes:

- A description of the population and development profiles of the area to which the plan relates.
- An assessment of the quantities and types of waste that are generated in the area.
- A description of the services that are provided, or that are available, for the collection, minimisation, re-use, recycling and recovery, treatment and disposal of waste.
- The number of persons in the area who are not receiving waste collection services.

In the case of a municipal IWMP, it must address the delivery of waste management services to residential premises. When planning for domestic waste collection services it is important that the municipality consider the following criteria in selecting the appropriate waste management approach for a particular community:

- Affordability: capital and operational costs; level of income within the community; and grants or subsidies available.

- Accessibility: road infrastructure and conditions.
- Level of education: literacy and awareness of the community to understand the principles of waste management.
- On-site storage facilities: availability and suitability; and composition and volume of the waste.
- Potential benefits: clean and healthy environment; and job creation and upliftment.
- Available facilities and infrastructure: appropriate vehicles; and available expertise.
- Distance to disposal site: transfer facility requirements.
- Pollution potential: blocked sewers and stormwater canals; and illegal dumping and littering.

The development of IWMPs by municipalities, provinces and DEA is crucial to the success and roll out of integrated waste management in South Africa. The stark challenges of backlogs in the waste collection services, aging vehicles and equipment, growing human settlements and decreasing airspace in landfills, amongst others, mean that a coordinated approach by each sphere of government is required. The IWMPs provide the systematic framework in which these can be addressed, linked importantly to main stream budgeting and resource allocation, and performance monitoring and reporting systems.

5.4 Compliance and enforcement

Chapter 7 of the Waste Act addresses compliance and enforcement matters and stipulates the powers of the Minister in relation to the National Water Act's provisions for:

- Preventing and remedying the effects of pollution.
- Rectifying contraventions of the Water Act.
- Obtaining a high court interdict against any person contravening the Water Act.

Chapter 7, Section 66 of the Act provides for Waste Impact Reports which can be requested by EMIs in cases where a contravention of the Waste Act is suspected and by WMOs where a review of a waste management license is undertaken.

Section 67 of the Waste Act lists provisions of the Waste Act which constitute an offence if not complied with. The penalties for the offences are listed in section 68 of the Act.

Section 6(1)(e) of the Act requires that the NWMS provides approaches for securing compliance with the provisions of the Act, including 'monitoring of compliance'. Effective capacity to undertake compliance monitoring and the concomitant enforcement action where required is essential for the achievement of the objectives of the Act.

5.4.1 Environmental Management Inspectorate

The primary arrangements for compliance monitoring and enforcement of environmental legislation such as the Waste Act are provided by an amendment to the National Environmental Management Act, 107 of 1998 (NEMA), which came into effect on 1 May 2005. Chapter 7 of NEMA provides for Environmental Management Inspectors (EMIs) to be designated by the Minister and MECs.

Since EMIs are situated at all three levels of government, the Department has drawn up a guideline to assist in the determination of the compliance monitoring and enforcement roles and responsibilities as set out in the Act. The Environmental Management Inspectorate is not a single enforcement unit and the national inspectorate has no power over provincial and local inspectors. Consequently a code of conduct harmonising their actions and approaches to compliance monitoring and enforcement has been prepared by DEA.

There are several key principles that have been used to inform the allocation of responsibilities. A primary principle is that an institution cannot police itself. Other principles include:

- Where the Minister, in terms of the Act, exercises powers to issue orders and conditions, to require information and plans or to make requests, then the national department will undertake the compliance and enforcement activities.
- Where the MEC, in terms of the Act, exercises powers to issue orders and set conditions, to request information and plans, then the provincial department will undertake the compliance and enforcement activities.
- In circumstances where the Act regulates or controls issues that are typically covered by local by-laws and that fall within the competence of local government (e.g. public nuisance/cleansing), these issues will be dealt with by local government.
- Where there are international implications (e.g. transboundary movement of waste) or where a matter traverses provincial/national boundaries, then the national department will be responsible for compliance and enforcement activities.

In relation to compliance and enforcement activities relating to licensing of waste management activities (section 43), the following is the general principle:

- The national department has jurisdiction with respect to hazardous waste facilities.
- The provincial departments have jurisdiction with respect to general waste facilities.

However, where a province has been given the authority to license hazardous waste management facilities, then the provincial authority will assume compliance monitoring and enforcement responsibilities associated with such a licensing function.

The following identifies the roles of the EMIs at each sphere of government:

1. Local EMIs will work in conjunction with provincial and national EMIs to execute compliance activities in respect to waste management licenses (reacting to complaints and conducting routine inspections). In accordance with the principle that an institution cannot police itself, local EMIs are not expected to monitor the municipalities' compliance.
2. Provincial EMIs will monitor compliance with licenses for which the MEC is the licensing authority. This will include monitoring compliance by municipalities. It may delegate monitoring activities to EMIs in a municipality in which an illegal activity is taking place by a non-municipal entity and monitor compliance with the implementation of the IWMP.
3. National EMIs will monitor compliance with licenses for which the Minister is the licensing authority. This will include monitoring compliance by the province with the provisions of the Act. It may also delegate monitoring activities to EMIs in a province in which an illegal activity is taking place and monitor compliance with the implementation of the provincial IWMP.

A Memorandum of Understanding will be developed between DEA and Provinces, and between Provinces and the respective municipalities to enable a co-operative working relationship and to facilitate the delegation of compliance monitoring activities from one sphere to another.

5.4.2 Compliance monitoring

The monitoring of compliance with the provisions of the Waste Act, authorisations issued in terms of the Act and other environmental legislation forms the foundation of the system of compliance and enforcement. While EMIs are the primary agents responsible for compliance, the gathering of intelligence relating to non-compliance is the responsibility of all agencies involved in implementation of the Waste Act. The Act does provide specific reporting tools to facilitate monitoring of compliance.

Compliance monitoring will be undertaken on both a reactive and proactive basis. Proactive compliance inspections, also known as strategic compliance and enforcement inspections, involve the prioritization of sites for inspection and physical inspections involving multi-disciplinary task teams. These will be informed by routine inspections and information derived from the reporting mechanisms described above. Reactive compliance inspections and investigations are triggered by reporting of a contravention of the Act.

Information for compliance monitoring will come from the following reporting mechanisms:

1. Annual Performance Reports from each sphere of government, documenting the extent of the implementation of the IWMPs in each financial year. These reports must spell out the level of compliance with the plan and measures taken to secure compliance with waste management standards, and waste management monitoring activities. Furthermore, provinces must report on the extent to which municipalities have complied with the provincial IWMP and the reasons for non-compliance.

2. Reports on implementation of Industry Waste Management Plans as provided by section 30(2)(k) of the Waste Act. The Act provides for the appointment of an independent assessor to verify the achievement of an IndWMP on an annual basis.
3. Reports on compliance with the conditions of waste management licenses in terms of section 51(1)(k) of the Waste Act, including annual compliance reports prepared by independent SANAS-accredited assessors.
4. Annual compliance reports prepared by independent SANAS-accredited assessors on adherence to the norms and standards for activities listed in terms of section 19(3) of the Waste Act, that have been defined as acceptable use and which do not require a license.
5. Information from SAWIS, including information on any failure to fulfil SAWIS reporting requirements to SAWIS.
6. A national waste hotline will be established and promoted. It will be accessible by telephone, via the Internet and by email, and will be available to the general public to report possible illegal and environmentally damaging waste activities. The hotline will be managed by the EMI, and will supplement and reinforce reporting mechanisms available to the public at municipal level and provincial level. Where appropriate, the hotline will take into account the “whistleblower” provisions in NEMA described in Section 3.9 of the NWMS.

Furthermore, waste management officers are empowered to appoint waste management control officers to ensure compliance with licensing terms and conditions and reporting non-compliance. The Act specifies that the “nature and size” of the waste management activity should determine whether a waste management control officer is required. In terms of the nature of the activity, it is in the public’s interest that waste management activities that involve hazardous waste on any significant scale be carefully monitored, and this would relate to most, if not all, licences issued in terms of Category B listed activities and to all facilities that deal with priority wastes.

5.4.3 Addressing non-compliance

When a possible contravention is identified, a waste impact report may be requested. Waste impact reports are a discretionary reporting instrument provided for by section 66 of the Act. Either an EMI or a WMO may request a waste impact report where there is a suspected contravention of the Act, license conditions, or exemption conditions that are likely to be detrimental to health or the environment. The findings of the waste impact report may trigger an enforcement procedure to correct the illegal activity. An enforcement procedure may also be triggered by the findings of the compliance monitoring activities described above, without a waste impact report.

In the event that a contravention is suspected, the enforcement procedure is initiated by the compilation of an audit, which is based on the conditions of the license, NEMA section 28 (duty of care) and NEMA section 30. A waste impact report may fulfil the function of this audit. The

procedure followed once a problem has been confirmed by the waste impact report differs for organs of state and the private sector.

In the case of the private sector, once the audit report has been compiled and submitted to the offending party, the latter has 30 days in which to respond verbally. Thereafter an enforcement strategy is prepared, which may either follow a criminal route, or require the preparation of a pre-directive followed by a directive. If the directive is not complied with, the matter becomes a criminal one.

In the absence of aggravating factors such as clear evidence of bad faith on the part of the offending party, the preferred route is always to achieve compliance rather than pursue prosecution.

Directives take the form of a compliance notice that is issued by the relevant EMI, which has to be done in writing in accordance with a prescribed procedure. NEMA Chapter 7 makes it a criminal offence to fail to comply with a compliance notice.

If a person fails to comply with a compliance notice issued by an EMI, the Minister or relevant MEC may revoke or change that person's license, take the necessary remedial steps and recover the costs from the offender, and refer the matter to the National Prosecuting Authority for prosecution.

In addition, NEMA Chapter 7 provides that all offences under NEMA or any specific environmental management act are now Schedule 1 offences under the Criminal Procedure Act, 55 of 1977.

The court convicting a person of an offence in terms of NEMA or the Waste Act can withdraw any license or authorisation under NEMA or the Waste Act if the rights under that license have been abused. The courts can also disqualify that person from obtaining a license or other authorisation for up to five years, and notify all other licensing authorities of this disqualification.

With respect to non-compliance by organs of state, the Constitutional provisions for cooperative governance require that every reasonable effort must be made to settle a dispute and all remedies to be applied before a matter is taken to court for resolution. The Constitution also governs the ability of a sphere of government to interfere in the affairs of another sphere of government. A Standard Operating Procedure has been developed consisting of an eleven step process that will eventually culminate in prosecution if the offending practice is not averted. The procedure also allows for the development of an action plan to address the illegal practice.

5.5 Mechanisms to give effect to international obligations

Section 1.4 of the NWMS outlined the Republic's international obligations and related strategic challenges. This section will build on section 1.4, providing for mechanisms to give effect to South Africa's international obligations.

Section 6.(1)(b) of the Waste Act requires that the NWMS establish “mechanisms, systems and procedures for giving effect to the Republic's obligations in terms of relevant international agreements”. There are various international agreements that relate to the issue of waste management, and to which South Africa has acceded. There are also various conventions and protocols of a non-binding nature that are nevertheless relevant to the issue of waste management. The main actions in relation to implementation of the international agreements relevant to the NWMS are summarised below.

5.5.1 The Basel Convention

As stated in Section 1.4, while South Africa has given effect to the provisions of the Basel Convention, there is currently no legal framework for implementing the Convention. DEA is however, developing MOUs with the International Trade Administration Commission (ITAC) and the South African Revenue Service (SARS) which effectively address the provisions of the Basel Convention.

DEA is considering accession to the amendments to the Basel Convention which provide for absolute bans on the import and export of hazardous wastes. DEA is also currently developing a policy on imports and exports which will go some way to address this.

Together with the chemical conventions, the import and export control aspects of the convention are being addressed jointly by DEA and the dti through the issuing of permits via ITAC and the use of SARS tariff codes.

5.5.2 The Montreal Protocol

Although this convention does not deal specifically with waste management, the Waste Act will be used to declare chemicals controlled under the convention as priority wastes for ease of control. A National Implementation Plan has been under development for some time and DEA will expedite the finalisation and publication of this plan. DEA will also prepare a phase out plan for substances controlled under this protocol.

5.5.3 The Rotterdam Convention

Although this convention explicitly excludes waste, implementation of the convention may lead to the banning of listed chemicals, some of which may be included in stockpiles of obsolete pesticides that have been identified as a major waste management challenge. The provisions of the Act for regulation in relation to the import and export of priority wastes clearly provide a potential mechanism for the implementation of the Rotterdam Act, as do the provisions for extended producer responsibility.

DEA has prepared an internal action plan for the implementation of this Convention, which will be reviewed, updated in the light of the mechanisms set out in the Waste Act, and published for public comment.

5.5.4 The Stockholm Convention

Although this convention does not deal specifically with waste management, it is likely that some of the chemicals controlled under this convention will be declared as priority wastes in order to assist with their control and phase out. A National Implementation Plan has been under development for some time and DEA will review and finalise this in the light of the recently promulgated Waste Act.

5.5.5 Various conventions dealing with dumping of waste at sea

Despite decades of regulation at the IMO and elsewhere, and the prohibition of the discharge and dumping of nearly all shipping waste streams, such wastes routinely find their way into the sea with little evidence that these discharges are diminishing. As indicated in Section 1.4, the disincentive to use the Port Reception Facilities (PRF) can be removed by incorporating the cost of PRF use into the general harbour dues which all ships pay. Such an approach is generally known as a “no-special-fee” system, and is already in place in other seas. Accordingly the Department of Transport, in conjunction with DEA, will investigate and implement a “no-special-fee” system in all South African ports, and actively promote this as a standard international requirement.

5.5.6 Strategic Approach to International Management of Chemicals

At the first review of the SAICM there was a strong focus on Extended Producer Responsibility issues, particularly with respect to nano-technology, chemicals in products, lead in paint, and hazardous chemicals arising from e-Waste. South Africa is often on the receiving end of sales or “donations” of electronic goods nearing the end of their productive life-cycle, which is tantamount to the import of e-Waste. This represents a dual challenge, both in terms of regulation of imports, and developing local processing capacity for e-Waste. The SAICM is considering the possibility of amending the Basel Convention to take cognisance of the situation with respect to the export of used electronic products to developing countries that do not have the technical capacity to safely process the e-Waste that inevitably results.

5.5.7 Coordination mechanisms

DEA and the dti have established the Interdepartmental Committee for the Sound Management of Chemicals to coordinate the implementation of national legislation and action plans for chemicals management that are aligned with international agreements and instruments. This committee integrates previously separate structures for coordination of activities relating to the Rotterdam Convention (the Chemical Review Committee) and the Stockholm Convention (POCROC).

The committee is comprised of the representatives from all affected government departments, including the SABS, ITAC, South African National Defence Force (SANDF), and South African Police Service (SAPS). The committee also convenes a multi-stakeholder forum that includes

representatives from provincial and local government, labour, business, civil society, and academic and research institutions.

The work programme for the Interdepartmental Committee includes formulation of recommendations on whether to accede to international agreements, and advice on programmes of action with respect to agreements to which South Africa has already acceded, including proposals regarding the drafting of the necessary regulations.

5.5.8 Import and export control

The systems for controlling the import and export of chemicals and hazardous waste have now been integrated with the provisions of the International Trade Administration Act (Act 71 of 2003) which makes provision for control, through a permit system, of the import and export of goods specified by regulation. The system falls under a directorate in the dti - ITAC, the primary function of which is the administration of the provisions of the International Trade Administration Act.

The control of imports is done in terms of regulations issued by the Minister of Trade and Industry, who can either ban the import of goods of a specified class or kind, or require that they must adhere to the conditions stated in a permit issued by the Commission. DEA is required to identify the relevant tariff codes and associated restrictions required for chemicals and other products, which are submitted to the dti and promulgated by the Minister of Trade of Industry in terms of regulations issued under the International Trade Administration Act. The tariff codes are in turn utilised by the Customs and Excise division of SARS, which automatically acts in terms of the prohibitions or restrictions associated with a particular tariff code.

In order to assist both DEA and the dti with the administration of this system, it is important that the relevant Multilateral Export Agreement (MEA) Convention secretariats assist member countries with identifying the relevant tariff codes, which are used internationally. This alignment of mechanisms for import and export control with the MEAs is one of the central mechanisms to give effect to our international obligations.

5.6 Education, advocacy and awareness

The effectiveness of many waste measures, particularly those aimed at waste reduction, recycling and litter prevention, depends to a significant extent on public and consumer awareness and changes in behaviour. The development of a coherent communications and awareness strategy around waste issues, to be led by DEA, is therefore an important component of the NWMS.

Awareness of and responses to waste issues is very uneven across different South African communities, and there is a clear need for high-profile state-led public awareness campaigns to support initiatives in relation to littering, as well as to promote a general awareness of waste issues. Indalo Yethu, South Africa's Environmental Campaign, was established by DEA as an

outcome of the 2002 World Summit on Sustainable Development in order to promote public awareness of environmental issues. It includes an endorsement brand for environmentally sustainable programmes and products. The strengthening and promotion of this brand will play a central role in raising awareness of environmental issues amongst consumers. Indalo Yethu, in conjunction with DEA, will carefully plan the content of waste awareness campaigns and their alignment with possible waste delivery measures such as separation at source to maximise their impact and ensure the effective use of limited marketing budgets.

Money spent on effective awareness and education programmes is likely to lead to savings in terms of more effective collection and recycling of waste in the long run, and it is therefore important that such programmes are suitably funded and resourced.

There is also a lack of awareness of the importance of waste management amongst elected representatives and government officials, particularly at local government level. This has negative consequences for planning, personnel and budget allocations. Amongst other measures, there is a need for training of councillors in waste management issues. DEA will work with SALGA and COGTA to integrate waste issues into the existing councillor training programmes, and to develop training programmes and training resources for councillors and local government officials.

DEA's Cleaning and Greening Programme has expanded the previous "Cleanest town" competition, and has an important role to play in advocacy and awareness. To maximise the potential of this programme, opportunities for leveraging synergies with the DWA's Blue Drop programme for evaluating performance of local water authorities and Indalo Yethu's Eco-town programme will be pursued. Indalo Yethu's Eco-town programme is an environmentally sustainable development framework that provides an integrated approach to environmental issues in urban planning. This will help to deepen the context and maximise the impact of the Cleaning and Greening Programme.

It is noted that the Blue Drop programme is tied to regulatory measures. Once specifications for Integrated Waste Management Plans by local municipalities have been drawn up, the Department intends to establish a similar framework for the Cleaning and Greening Programme.

The increased involvement of citizens in oversight of waste delivery services provides an important avenue for raising public awareness of waste management issues. The inclusion of mechanisms for citizen oversight of waste service delivery will become one of the criteria for evaluating integrated waste management plans produced by local government.

In relation to consumer awareness, DEA and the dti will collaborate through the interdepartmental committee that will be established for the purposes of coordination of the provisions of the Waste Act. The committee will review implementation of the provisions of the Consumer Protection Act that are in alignment with the principles and mechanisms of the Waste Act.

Schools have a particularly important role to play in advocacy and awareness around waste issues. Waste management is currently included as a cross-cutting issue at the higher levels of the school curriculum, along with broader principles of environmental protection and water

conservation. The implementation of waste as a topic in the curriculum will be strengthened by being linked to practical projects such as recycling and litter control. DEA will assist the Department of Basic Education in the development and review of guidelines for these projects.

Existing recycling initiatives in schools need to be supported and extended, although the fund-raising potential of these initiatives needs to be realistically framed. Local business and community stakeholders are encouraged to find practical ways of initiating and supporting creative waste management initiatives in schools.

At a broader industry level, industry associations and business bodies will have an important role to play in raising the awareness of their members with respect to the provisions of the Act that impact on them, and in promoting the use of the voluntary instruments provided by the Act.

5.7 Capacity building

The ability to implement the Act requires the requisite capacity among the three spheres of government which have been mandated to implement the Act as well as industry, which has to comply with various provisions of the Act. Furthermore, the Act provides for independent persons to fulfil a number of requirements in relation to implementation of provisions in the Act.

Capacity requirements are informed by both adequate human resources to fulfil obligations as well as appropriate skills and training. This section will identify the main capacity challenges that need to be addressed.

5.7.1 Common challenges across all spheres of government

Integrated Waste Management Planning: The Act has established an integrated waste management planning system, which requires the preparation and implementation of integrated waste management plans at all three spheres of government. Capacity will be required in all three spheres to ensure that this interlocking system of integrated waste management planning is effective, and in particular at local level, since this is where the concrete plans and targets for waste service provision will be set.

Monitoring capacity and enforcement: Capacity amongst EMIs is required both in numbers and areas of specialisation. It is estimated that approximately 800 additional EMIs are required to fulfil the compliance monitoring and enforcement of the Waste Act. Two-thirds of these EMIs will be located at local government level, averaging out to two EMIs per municipality. These EMIs will also need to receive specialised training in the Waste Act. Whilst it would be ideal if they only focused on the Waste Act, in practice they will likely fulfil broader environmental compliance monitoring functions. The required modules will be developed and offered at accredited institutions that have a Memorandum of Understanding with DEA.

5.7.2 National government

The main capacity challenges for the Department of Environmental Affairs are in the following areas:

Norms and standards: Capacity is required to develop both discretionary and mandatory norms and standards. Specialist capacity will be built within the Department to develop and process standards, as these are a critical element of achieving the objectives of the Act. A dedicated unit including technical experts such as process and chemical engineers and legal drafters will be established.

Licensing: The Department requires capacity to process licenses for activities where the Minister is the licensing authority. The most critical function to be performed is the environmental impact assessments, and review of the work conducted by external experts. The full assessment procedure specified for Category B license applications is a technically demanding process that already requires the appointment of an independent Environmental Assessment Practitioner (EAP). Currently, an effort is underway to set standards for EAPs and a Certification Board for Environmental Assessment Practitioners in South Africa has been established. The Board's certification criteria include both academic qualifications and professional experience and take into account ethics and values.

Contaminated Land and Remediation: This is one of the most significant new areas of regulation in terms of the Waste Act. It requires that a register of contaminated lands be established, with accompanying provisions to remediate, and it is retroactive in that it applies to land that was contaminated prior to the promulgation of the Act, or which experiences contamination now as a result of activities that took place prior to the Act's promulgation. A new division is required with technical capacity to administer the system as described in Section 2.7 of the strategy.

Waste management measures in relation to industry: The Act provides several waste management measures directed at industry, which includes norms and standards, industry waste management plans, Extended Producer Responsibility, and declaration of priority wastes. Capacity is required at national level to develop a sound understanding of industry waste management, and develop working relations with industry players, as this is critical to achieving the consensual, co-regulatory approach to waste management activities.

Information management: The Department is the custodian of waste and waste management information, and a dedicated capacity for ensuring that appropriate information is collected, analysed and disseminated to support decision-making is required.

5.7.3 Provincial capacity

The two biggest challenges for provincial environmental authorities are the licensing of waste management activities that are not the responsibility of the National Department and its involvement in integrated waste management planning.

Provinces have a number of concomitant and discretionary powers and thus the provincial challenges will be largely influenced by which of these they choose to exercise. This will be done in conjunction with the national department and appropriate capacity initiatives will be developed through the intergovernmental coordination structures described in Section 5.8.

5.7.4 Municipal capacity

Municipal capacity for the sustainable provision of waste management services and proactive planning and management of landfill disposal is the single greatest capacity challenge. The following areas will require specific attention as part of a country wide capacity building programme for local government around waste management:

- Planning capacity to prepare Integrated Waste Management Plans and to coherently plan for appropriate levels of service, the extension of services, and the planning and management of landfills.
- Engineering and contracts management capacity for the actual delivery of waste services, either through internal mechanisms or through contracting private waste service providers.
- Engineering and planning capacity to promote waste separation, collect recycled materials, and establish and operate MRFs.
- Financial management and administrative capacity to undertake full cost accounting, ring fence waste service budgets, establish and implement cost reflective and volumetric tariffs, and implement the free basic services policy through targeting subsidies to the indigent.
- Financial planning and infrastructure modelling capacity to undertake capital expenditure planning for waste services.
- Engineering and project management capacity to ensure proper landfill management, permitting of landfills, and preparation of proposals for MIG funding.
- Compliance monitoring and enforcement capacity to deal with situations of illegal dumping and non-compliance with Waste Act provisions.
- Communications and stakeholder management capacity to effectively communicate with communities regarding the importance of proper waste management practices.

A nationally coordinated local government capacity building programme for waste management will aim to address the above challenges. The programme will be developed jointly between DEA, provinces and SALGA, and will be aligned with the overall strategic framework for local government capacity building that is being driven by COGTA. The programme will consist of various elements, including national policy guidance on systems and procedures, training and information programmes for officials and councillors, expert advice and placement for limited

periods, and capacity building grants to support local initiatives. The programme will be finalised during 2010, and will be implemented at scale from the beginning of 2011.

5.8 Co-operative governance

The Constitution requires the different spheres of government and organs of state to exercise their powers and functions in a mutually supportive and cooperative manner. This has been given legal expression in terms of the Co-operative Governance Act. In relation to waste management, co-operative governance refers to harnessing the network of government institutions at national, provincial and local level to achieve the goals and objectives set out in this strategy.

This section of the NWMS will identify existing and proposed intergovernmental structures, as well as specific areas of co-operative governance required for particular provisions of the Waste Act.

5.8.1 Existing mechanisms to facilitate co-operative governance

The existing intergovernmental systems for coordinating environmental management provide the basis for cooperative governance in relation to waste management. These structures consist of the following:

- **MINMEC: Environment** is a standing intergovernmental body consisting of the Minister of Environmental Affairs, members of the provincial Executive Councils (MECs) responsible for environmental management functions and SALGA. MINMEC meets quarterly.
- **MINTEC: Environment** is a standing intergovernmental body that provides technical input into the MINMEC. The MINTEC consists of the Director-General of the DEA, the heads of the provincial departments responsible for environmental management functions, and SALGA. MINTEC also meets quarterly.
- **Committee for Environmental Co-ordination** was established in terms of Section 7 of the NEMA. The object of the Committee is to promote the integration of environmental functions of the relevant organs of state, and in particular to promote the achievement of the purpose and objectives of environmental implementation plans and environmental management plans. This will be the appropriate forum to align the activities of DEA with other government departments, and integrate the IWMP into their strategic plans.

5.8.2 Compliance monitoring and enforcement

MINTEC Working Group 4 deals with compliance and enforcement issues, and it is working on clarifying the respective roles and responsibilities between national, provincial and local levels. This working group will review and provide guidance regarding the respective roles of the EMIs and the WMOs.

EMIs also coordinate their activities closely with the South African Police Services (SAPS), who play a crucial role in enforcing environmental legislation. EMIs work closely with police officials in the investigation of environmental crimes. In terms of NEMA, all police officers also have the powers of an EMI.

Coordination with the National Prosecuting Authority is extremely important for the prosecution of environmental crimes. EMIs are not empowered to prosecute cases in court, and the results of their investigations are handed over to prosecutors of the NPA to prosecute. The Department of Environmental Affairs and the NPA will collaborate to ensure the successful prosecution of environmental crimes.

5.8.3 Establishment of new co-ordinating structures

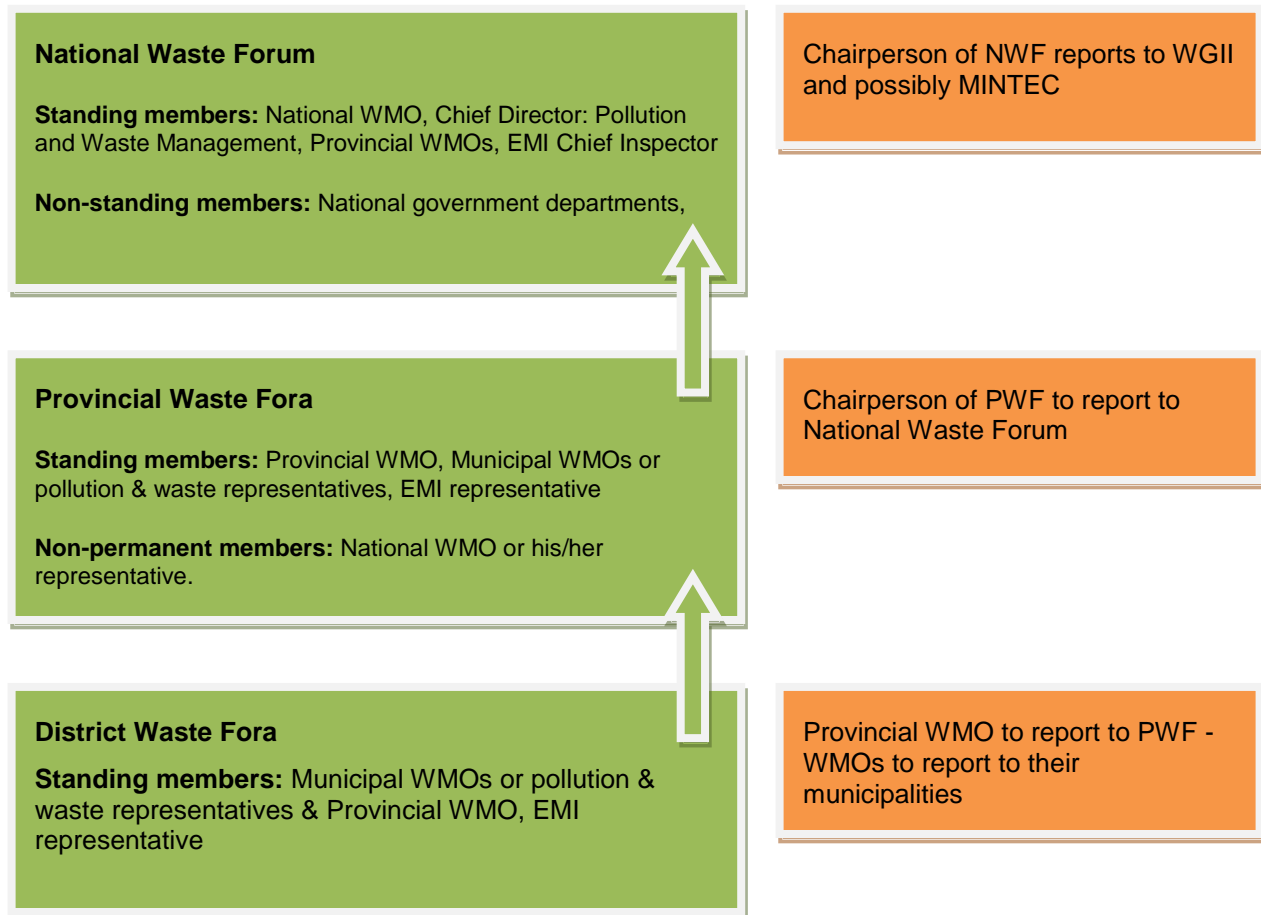
An important principle in the formulation of co-ordinating structures is to leverage on existing structures as far as possible and to minimise the establishment of new structures. However, with respect to the relationship between the DEA and the Departments of Trade and Industry and Finance, a number of issues have been raised in the NWMS where coordination is required. A dedicated co-ordinating committee will be established to address the application of the South African Technical Infrastructure; the declaration of priority wastes and EPR schemes; the implications of the Consumer Protection Act; recycling schemes and the implications for competition policy; and incentives for cleaner production. The committee will also evaluate proposals for the promotion of reduction, re-use, recycling or recovery of waste, as well as their economic impact, in order to guide their further implementation.

With respect to land remediation, coordination is particularly important as this is a concurrent mandate. There is an existing Government Task Team comprising the Departments of Mineral Resources, Environmental Affairs and Water Affairs focusing on mine closures that addresses remediation in relation to mining activities. The mandate of this committee will be broadened to address remediation in its entirety. DEA will convene and provide the secretariat for this committee.

5.8.4 Co-ordination of the WMOs

The Act provides for the appointment of Waste Management Officers whose broad role will be the co-ordination of waste management activities. The diagram below represents the co-ordination mechanism for the WMOs. The creation of three structures is envisaged at local, provincial and national levels.

Figure 13: Coordination mechanisms for WMOs



The role of WMOs is primarily regulatory, hence the requirement for a national waste forum independent of the existing MINTEC Working Group: II: Pollution and Waste, which is responsible for waste management policy. In the interests of effective co-ordination of the regulatory and policy-making roles in relation to waste management, the chairperson of the National Waste Forum will report to Working Group II.

5.8.5 Specific areas for co-operative governance

5.8.5.1 Waste management licensing

Section 44 of the Waste Act requires that a waste management license may only be issued with the required approvals from other organs of state that are legally mandated to consent to that activity. Furthermore, the Act makes provision for integrated licensing by means of, an integrated environmental authorization as contemplated in NEMA section 24L.

When issuing a waste management license, DEA submits the license to the Department of Water Affairs (DWA) for a Record of Decision. DWA may request a water use license as per the provisions of the National Water Act. In the interests of integrated licensing, DWA in consultation with DEA may determine waste management activities for which a Record of Decision will suffice i.e. no separate water use license is required.

In the event that a contravention of a waste management license has resulted in the contamination of the water resource, the Minister may issue a remediation order or measures to monitor and manage the risk in terms of the National Water Act. This power must be exercised in consultation with the relevant MEC.

To achieve integrated licenses incorporating air quality, waste and water use licensing, licensing requirements must be harmonized through intra-departmental co-ordination with respect to air quality and waste management, and interdepartmental co-ordination with the Department of Water Affairs. Integrated licenses will reduce the administrative burden associated with licensing requirements.

5.8.5.2 Integrated Waste Management Plans

The inclusion of IWMPs in Integrated Developed Plans (IDPs) is required to ensure the mainstreaming of waste management in local government. A co-operative relationship is envisaged between the MEC for local government and the MEC for environment to ensure that municipalities are supported and monitored in the development and implementation of integrated waste management plans. In developing guidelines for these plans, DEA will consult with the Department of Co-operative Governance and Traditional Affairs.

5.8.5.3 Declaration of priority waste

Where the declaration of a priority waste is likely to have a significant impact on the national economy, the Minister of Trade and Industry and the Minister of Finance must be consulted.

5.8.5.4 Waste minimization and Extended Producer Responsibility

There is a co-operative relationship envisaged by the Act between DEA and the dti with respect to waste minimization activities and extended producer responsibility as provided by sections 17 and 18. In terms of section 17, the Minister of Environmental Affairs must consult with the Minister of Trade and Industry before requiring the reduction, re-use, recycling and recovery of products or requiring the inclusion of a determined percentage of recycled material in a product. The same consultation is required for the declaration of measures to achieve EPR as contemplated in section 18.

5.8.5.5 Land remediation

With respect to land remediation, the Minister or the MEC may only act in terms of the various provisions of the Act, having consulted with any other organ of state concerned, and in the case of the MEC having consulted with the Minister.

5.8.5.6 Regulations

The Act provides for the development of a regulations regarding various aspects of the Act, which need to be developed in consultation with the relevant Ministers – these Ministers include variously the Ministers of Trade and Industry, Finance, Co-operative Governance and Traditional Affairs and Water Affairs.

5.9 Business and information systems

The restructuring of the Department of Environmental Affairs under the Ministry for Water and Environmental Affairs provides an opportunity for the department to restructure its business and information systems to better fulfil its mandate. In addition, the adoption of the Waste Act and the implementation NWMS will require a critical appraisal, and where necessary, restructuring of existing business process within the department, particularly in relation to:

- The implementation of the WCMS, which requires approval procedures for the classification and characterisation of particular wastes, and a process for the development of the norms and standards that will be applied to particular waste activities.
- The implementation of SAWIS, which will need to avoid duplication of business processes and information with other areas of work in DEA such as contaminated land processes, licensing applications and EIAs.

The department will implement a new technology strategy that will integrate all digital information within a single technology framework, thereby assisting in the avoidance of organisational silos that result in unnecessary duplication of information and business processes. This will also assist in the digitisation of business processes within the department, thereby freeing up staff to concentrate on their core responsibilities and decision-making roles.

The new technology strategy provides a unified architecture for the implementation of processes, legislation, organisational structures and data as objects in a software library. These then form the basis on which business rules are implemented that stipulate what processes in the system a particular user can access, and the types of operations the user can perform. The business rules are applied by a workflow engine that routes transactions to the responsible staff members and allows for bottle necks to be identified and service delivery goals to be more effectively monitored.

The technology framework integrates document management with business processes in a context sensitive manner, so that electronic documents relevant to a particular process can be accessed by users without requiring them to search.

An example of the type of process that will be implemented by the workflow engine in terms of business rules is the processing of licensing applications. The security architecture of the new framework will provide single sign-on's that automatically apply appropriate restrictions based on the user profile. A license applicant will be able to submit their application online, attaching

electronic versions of required documents. The application will then be routed automatically through the chain of authorisations and approval, with the applicant able to track its progress. As part of the process, the applicant will be automatically granted an appropriate level of access to SAWIS, and through SAWIS to the WCMS, in order to fulfil reporting requirements stipulated in their license.

The technology framework will be implemented on a common, extensible database for all systems within the Department. To protect the integrity of information in this database, it will be necessary for all provincial systems to be implemented within the technology framework. Where provincial systems such as waste information systems have already been implemented, these must:

- Preferably, be migrated to the national technology framework.
- Arrangements must be in place for provincial data to be transferred to the national system on a regular basis, and in conformance with standards for data validation determined by the national department.

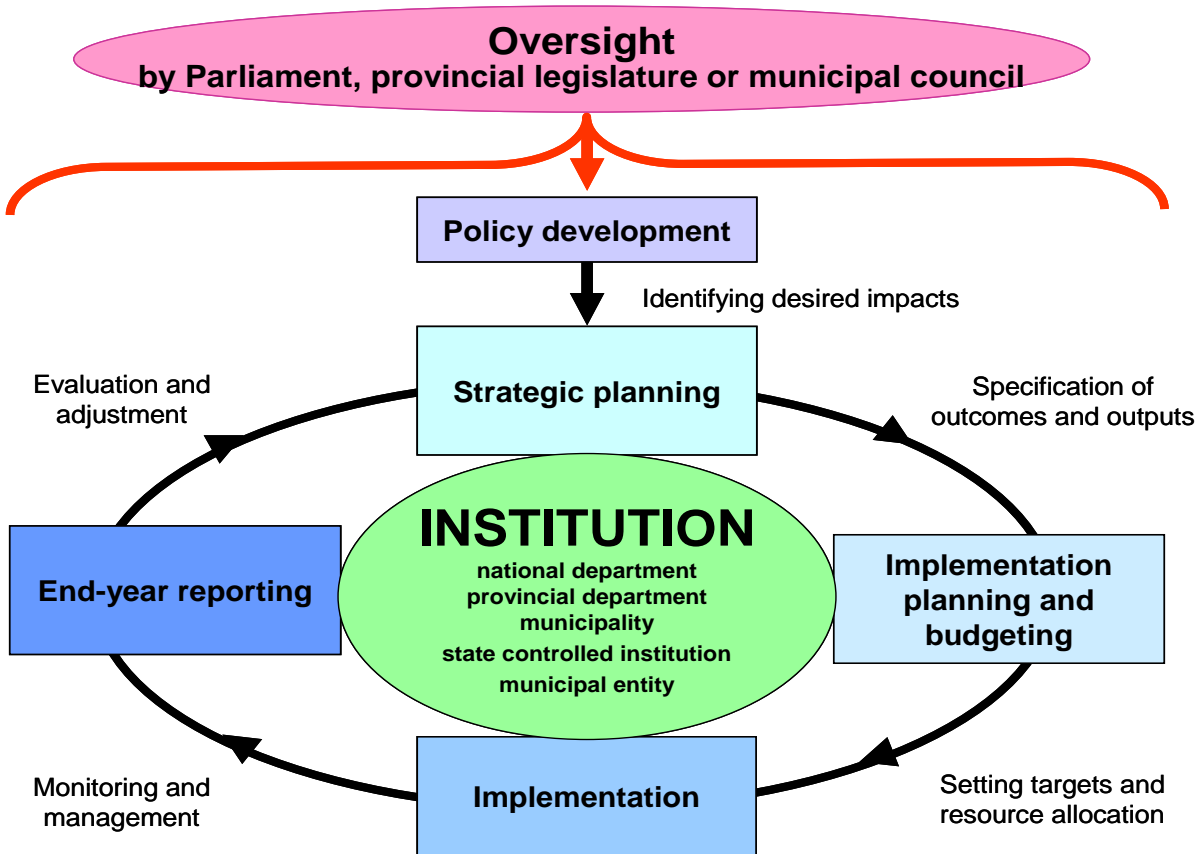
An integrated national technology framework with a common database for information systems will support the use of business intelligence tools such as trends analysis and “what if” reporting to support effective decision making.

5.10 Monitoring and evaluation

The *Policy Framework for Government-Wide Monitoring and Evaluation System (GWM&ES)* published by the South African Presidency in 2007 is the overarching policy framework to institutionalise monitoring and evaluation in the public service. Reporting required for monitoring and evaluation of the implementation of the Waste Act is aligned to this framework.

National Treasury’s planning, budgeting and reporting cycle depicted below is reproduced from the Framework for Managing Programme Performance Information 2007. It provides a schematic depiction of the way that performance information must be considered throughout each of the planning, budgeting, implementation and reporting stages. Waste related targets and indicators must be incorporated in the strategic planning documents of the national and provincial departments and the municipal IDPs, and consequently into the annual performance reports of municipalities required in terms of the Municipal Systems Act.

Figure 14: Strategic planning and performance cycle for government



5.10.1 Reporting on the implementation of the Integrated Waste Management Plans (IWMPs)

Section 13 of the Waste Act requires annual performance reporting on the implementation of integrated waste management plans. Annual performance reports on the implementation of the IWMPs must include information on:

- The extent in which the plan has been implemented during the period.
- The waste management initiatives that have been undertaken during the reporting period.
- The delivery of waste management services and measures taken to secure the efficient delivery of waste management services, if applicable.

- The level of compliance with the plan and any applicable waste management standards.
- The measures taken to secure compliance with waste management standards.
- The waste management monitoring activities.
- The actual budget expended on implementing the plan.
- The measures that have been taken to make any necessary amendments to the plan.
- In the case of a province, the extent to which municipalities comply with the plan and in the event of any non-compliance with the plan, the reasons for such non-compliance.
- Any other requirements as may be prescribed by the Minister.

National and provincial departments responsible for environmental affairs are required to submit annual performance reports of their integrated waste management plans for approval to the relevant MEC's and the Minister by 31 May each year.

The annual performance report prepared in terms of section 46 of the Municipal Systems Act must contain information on the implementation of the municipal IWMP. Local authorities are obliged to establish performance management systems that are commensurate with their resources and in line with their priorities, targets and indicators contained in their IDP. Municipalities are required to table their annual reports in terms of the Municipal Systems Act, 2000. The municipality must adopt its annual report within 14 days of tabling and submit a copy of the report to the MEC and Minister of Cooperative Governance and Traditional Affairs and the MEC and Minister of Water and Environmental Affairs.

Each province is responsible for the consolidation of the integrated waste management performance reports of all the municipalities in the specific province and must send the consolidated report to the national department for review and publication in the national department's annual report.

Specific reporting information required by Chapter 3 of the Act is described in the table below.

Table 13: Requirements for reporting on implementation of integrated waste management plans

Government level	National Department	Provincial Department	Municipality
Deadline for receipt of annual performance report	No later than 31 May each year		No later than 31 August each year
Report required	Annual performance report on implementation of IWMPs		Annual performance report to include progress reports on IWMPs
Approval required	Minister	MEC and Minister	Respective councils; copy to MEC ; Minister DWEA and GOGTA
Required to submit prescribed annual performance report on IWMPs	✓	✓	✓
Extent to which the plan has been implemented during the period	✓	✓	✓
Waste management initiatives undertaken during reporting period	✓	✓	✓
Delivery of waste management services	✗	✗	✓
Level of compliance with IWMP and applicable waste management standards	✓	✓	✓
Measures to secure compliance with waste management standards	✓	✓	✓
Waste monitoring activities	✓	✓	✓
Actual budget expended on implementing the plan	✓	✓	✓
Measures taken to make any necessary amendments to the plan	✓	✓	✓
Extent to which municipalities comply with the plan and reasons for any non-compliance	✗	✓	✓
Any other requirements as may be prescribed by the Minister	✓	✓	✓

5.10.2 Targets and Indicators

Monitoring and reporting on the implementation of the waste management strategy requires each municipality, provincial department and DEA to compile a set of targets and indicators for each stage of implementation of the waste hierarchy.

In order to establish a uniform platform for monitoring and reporting on progress with the achievement of the NWMS, a minimum set of targets and indicators for each stage of implementation of the waste hierarchy is set out in this document. Targets should be set during the planning phase, linked to specific indicators. The targets and indicators must be reported on in the annual performance reports.

Indicators provide information on progress towards achieving targets and must be specific, measurable, achievable, and time bound. The indicator must be specified upfront for each target to enable comparative monitoring over time and allow for the process of data collection to be in place. The first year of monitoring will provide a baseline and each year's performance could become the following year's baseline.

In order to measure progress with implementing the NWMS, targets and indicators have been set for each of the objectives for the NWMS defined in section 2.1 above. The primary focus of these indicators and targets is on measuring progress with the achievement of the waste hierarchy, as well as the broader social and economic objectives which the strategy aims to achieve.

Indicators and targets for the achievement of the goals and objectives of the NWMS are set out in Table 14 and 15 below. The targets have been set for the year 2015, i.e. five years from the date of publication of the NWMS, which is the period in which the next review of the NWMS must take place.

Table 14: Goals, objectives, indicators and targets for NWMS

Goal 1: Securing ecologically sustainable development while promoting justifiable economic and social development	Proposed indicators	Targets (2015)
Objectives <ul style="list-style-type: none"> • To ensure the protection of the environment through effective waste management measures • To protect the health and wellbeing of people by providing an affordable waste collection service • Grow the contribution of the waste sector to GDP • Increase number of jobs within waste services, recycling and recovery sectors • Promote SMMEs in waste sector 	% of waste management activities above required threshold which have been licensed	All new waste management activities above threshold licensed
	% of households that receive basic waste collection services	All households receiving at least a basic waste management service
	Waste sector as a % of GDP	Waste sector to contribute 2% to GDP
	% increase in jobs within waste services, recycling and recovery sectors	10% increase in employment within waste services, recycling and recovery sectors
	Number of SMMEs operating sustainably in waste sector	20% increase in SMMEs within waste sector
Goal 2: Avoiding and minimizing the generation of waste	Proposed indicators	Targets (2015)
Objective <ul style="list-style-type: none"> • Design and manufacture of products to avoid or minimize waste generation • Discourage waste generation through cost reflective and volume based tariffs • Consumer awareness of waste minimization issues 	% of IndWMPs which contain targets for waste minimisation	IndWMPs for main industrial sectors contain waste minimization targets and cleaner production methods
	The uptake of cleaner production methods	All industries reporting on IndWMPs indicates uptake of cleaner production methods
	Per capita and per GDP waste generation	Per capita and per GDP waste generation declines by 10%
Goal 3: Reducing, re-using, recycling and recovering waste	Proposed indicators	Targets (2015)
Objective: <ul style="list-style-type: none"> • Increase reuse and recycling rates of products • Reduce % of recyclable material to landfill • Implement separation at source in all metros and local municipalities • Establish MRFs at all waste disposal sites 	The % of metal beverage cans, glass, paper and plastic recycled	Achievement of recycling targets in Packaging IndWMP
	Percentage of recyclable material going to landfill	% of recyclable material to landfill reduced by 20%
	The % of municipalities implementing separation at source	Separation at source implemented in all metropolitan municipalities and secondary cities
	The % of municipalities with MRFs established	An MRF established in every municipality

Goal 4: Promoting and ensuring the effective delivery of waste services	Proposed indicators	Targets (2015)
Objective: <ul style="list-style-type: none"> • Provide at least a basic level of waste service to all • Solid waste management to be performed efficiently and effectively • Implement free basic refuse removal policy for indigent households 	% of households that receive at least a basic level of waste services	Universal provision of at least basic level of waste service
	Cost per household of waste collection services	Cost of waste service below R50 per household per month (2010 prices)
	Number of municipalities implementing full cost accounting for waste services	All municipalities implementing full cost accounting
	% of municipalities implementing FBRR policy effectively	All municipalities implementing FBRR policy
Goal 5: Treating and safely disposing of waste as a last resort	Proposed indicators	Targets (2015)
Objective: <ul style="list-style-type: none"> • Quantity of waste disposed to landfill to stabilize, and then reduce. • Regionalisation of waste management services • Landfills to be properly managed and compliant with legislation • Increase thermal treatment and conversion of waste to energy 	Total volume of waste disposed to landfill	0% increase in volume of waste to landfill
	The % of district municipalities operating regional landfill sites	All landfills licensed and compliant
	The number of (1) permitted and (2) compliant landfill sites as percentage of total	One third of municipalities have access to regional landfill sites
	The % of municipalities with waste to energy conversion projects	All metropolitan municipalities and secondary cities implementing waste to energy projects
Goal 6: Remediating land where contamination presents a significant risk of harm to health or the environment	Proposed indicators	Targets (2015)
Objectives: <ul style="list-style-type: none"> • Quantify the extent of contaminated land • Implement contaminated land measures in the Waste Act • Remediate priority areas of contaminated land • Clarify extent of state liability for contaminated land 	Assessment of extent of contaminated land	Assessment of extent of contaminated lands completed
	The establishment of a contaminated land register	Contaminated land register established
	The number of notices of contaminated land	The terms of urgent land remediation notices issued by December 2011 to be fulfilled
	The number of declarations of contaminated land by owners	The terms of urgent land remediation notices issued by December 2011 to be fulfilled
	Clarification of state liability in respect of notices of contaminated land	State liability for remediation identified prior to 2012 to be resolved by 2015

Table 15: Process related goals, objectives and indicators

Goal 1: Achieving integrated waste management planning	Proposed indicators	Targets (2015)
Objectives <ul style="list-style-type: none"> • Reliable information on waste flows and an accurate national waste balance • Establish an effective system of performance based IWMPs at all levels of government • IndWMPs adopted for key industrial sectors 	Public availability of reliable information on waste balance from SAWIS	Publically accessible information from SAWIS provides accurate waste balance
	The % of municipalities who have prepared IWMPs and integrated them with IDPs	All municipalities have prepared IWMPs and integrated them with IDPs
	The number of IndWMPs approved for sectors identified in NWMS	All sectors identified in NWMS have approved IndWMPs
Goal 2: Sound budgeting and financial management for waste services	Proposed indicators	Targets (2015)
Objectives: <ul style="list-style-type: none"> • Sound financial planning for waste services • Full cost accounting for waste services • Cost reflective and volumetric tariffs implemented • Waste services sustainably financed 	% of municipalities which have developed a medium term capital and operating plan for waste services	All municipalities have developed a medium term capital and operating plan for waste services
	% of municipalities which have implemented full cost accounting for waste services	All municipalities have implemented full cost accounting for waste services
	% of municipalities which have implemented cost reflective and volumetric tariffs	All municipalities have implemented cost reflective tariffs
	% of municipalities with balanced waste services budgets	All municipalities have balanced waste services budgets

Goal 3: Adequate staffing and capacity for waste management	Proposed indicators	Targets (2015)
Objectives: <ul style="list-style-type: none"> • WMOs appointed at all levels of government • Additional technical capacity developed to deal with norms and standards, industry regulation and remediation • EMI capacity expanded to deal with Waste Act • Private sector capacity mobilized to support waste service delivery and community based collection models 	% of government agencies which have appointed WMOs	All designated government agencies have appointed WMOs
	% of national and provincial departments with the requisite technical capacity	National and provincial departments have the requisite technical capacity
	Number of EMIs dealing with Waste Act at local, provincial and national level	At least 300 EMIs dealing with Waste Act enforcement
	% of municipalities with PPPs and community based collection models	All metropolitan municipalities and secondary cities have implemented waste PPPs and/or community based waste collection models
Goal 4: Effective compliance with and enforcement of waste regulations	Proposed indicators	Targets (2015)
Objectives: <ul style="list-style-type: none"> • Systematic monitoring of compliance with regulations and permit conditions • Culture of compliance with waste act regulations established • Establishment of a hotline to report non-compliance • Waste offenders successfully prosecuted 	% of permitted waste activities that have annual compliance monitoring reports	All permitted waste activities have annual compliance monitoring reports
	% of reports of non-compliance via hotline which are followed up	100% follow up of reports of non-compliance via hotline
	The number of illegal activities that are investigated	EMIs investigate 500 incidents of illegal activities per annum
	Number of incidents of non-compliance by organs of state taken up by EMIs	All incidents of non-compliance by organs of state taken up by EMIs
	Number of prosecutions and % of successful prosecutions	67% success rate in prosecutions

Goal 5: Effective monitoring and reporting on performance with waste functions	Proposed indicators	Targets (2015)
Objectives: <ul style="list-style-type: none"> • Systematic monitoring of key performance indicators by each sphere of government • Reporting on key performance indicators in line with Waste Act • Regular evaluation of performance with waste functions and IndWMPs 	% of NWMS key performance indicators on which reliable data is available	Reliable data is available on 90% of NWMS key performance indicators
	% of organs of state responsible for waste functions submitting annual performance reports	100% of organs of state responsible for waste functions submit annual performance reports
	% on industries reporting on progress with IndWMPs	All industries report annually on progress with IndWMPs
	Completion of annual performance assessment	Annual performance assessment published
Goal 6: Ensure that people are aware of the impact of waste on their health, well-being and the environment	Proposed indicators	Targets (2015)
Objectives: <ul style="list-style-type: none"> • To develop national and local awareness campaigns on the social importance of waste management • Promote waste minimization and recycling through education system • Establish an equivalent to the “Blue Drop” award for waste management by municipalities 	% of municipalities running effective local awareness campaigns	80% of municipalities running effective local awareness campaigns
	Annual qualitative assessment of public awareness about waste	60% of South Africans show meaningful awareness of waste issues
	% of schools that have waste awareness or recycling programmes	50% of schools have waste awareness and recycling programmes
	% of municipalities participating in the Cleanest Town programme	80% participation of municipalities in the Cleanest Town programme

The above indicators and targets will be used as the basis for reviewing progress with implementation of the NWMS, and a comprehensive review of progress against each indicator will be undertaken at end of the five year period.

On an annual basis DEA will collate and publish information on a prioritised list of indicators, which reflect progress in the priority areas as set out in the annual business plan of DEA.

Waste services indicators and targets

At local government level the primary focus on the reporting system should be on solid waste management, and a specific set of indicators and targets are required in order to monitor the sustainable provision of waste management services. A minimum set of targets for use by municipalities in provision of waste services is set out below. The actual setting of relevant targets will be the responsibility of each municipality.

- The number of households receiving a waste management service (% over time).
- Budget allocations to ensure financial support (% increase in budget over time).
- Equipment and infrastructure provision.
- Number of staff trained or capacitated to improve service.
- Percentage of community being aware of the waste management services.
- Reduction of waste to landfill
- Improvement of cost recovery measures.

Reporting on Industry Waste Management Plans

Industry waste management plans that have been submitted for approval, whether obligatory or voluntary, by a category of persons or an industry, must be monitored by the relevant national or provincial department responsible for environmental affairs. The monitoring and reporting system for IndWMPs must be set out in the plan, and should include an annual review of the achievement of targets set out in the IndWMP. The report should reflect the priorities and the performance targets set by the industry for the following financial year; and include measures that were or are to be taken to improve performance.

Reports by industry on performance in terms of IndWMPs will be consolidated by the national and provincial departments, and will be published as a consolidated report for public information purposes.

6 Conclusion

The development of the NWMS is an important milestone in the process of implementing the Waste Act, and establishing an integrated approach to waste management across government and society more broadly. As stated in the introduction to the NWMS, South Africa faces particular challenges in relation to waste management that require a coordinated effort by government and stakeholders. Addressing these challenges will not be easy, given the capacity and resource constraints we face as a developing country with large income inequalities and competing development priorities. Nevertheless the implementation of the waste hierarchy and achievement of the objectives outlined in this strategy is integral to achieving the vision of a zero waste society, and establishing a sustainable future and a better life for all South Africans.

The NWMS provides the framework within which the actions of different stakeholders are located. This strategy is addressed to stakeholders in all spheres of government, industry, labour unions, community based and non-governmental organisations, and the public at large. It sets out the different roles and responsibilities that need to be taken up by each stakeholder and level of government.

The NWMS is a living document, which needs to be regularly updated and revised on a regular basis in order to keep it relevant. The Waste Act requires that the NWMS be reviewed and updated at least every five years.

The process of producing this first draft of the NWMS has involved extensive consultation with a variety of stakeholders. Many people have given very generously of their time and experience in making inputs to this document. Government wishes to thank all the stakeholders for the contribution they have made to the compilation of this NWMS, and for their commitment to implementing its provisions.

On the basis of the next round of public consultation and stakeholder inputs to the NWMS, government will finalise and adopt the NWMS.

Appendix 1: Sectoral legislation relevant to the Waste Act

The relevant sectoral legislation impacting on the Waste Act is summarised below.

No. and year of law	Title of Legislation	Relevance to NWMS	Administering Department
Act No. 7 of 2002	Animal Health Act	Regulates disposal of animal carcasses, which is excluded from Waste Act.	Department of Agriculture, Forestry and Fisheries
Act No. 108 of 1996	Constitution of South Africa	Establishes rights based approach to environmental law, regulates division of legislative and executive powers between spheres of government.	All departments and institutions
Act No. 68 of 2008	Consumer Protection Act	Overlapping provisions with Waste Act, regulates disclosure, labelling, compulsory take back schemes.	Department of Trade and Industry
Act No. 73 of 1989	Environment Conservation Act, 1989 and Amendment Act, 1992	Historic legislation regulating permits for waste disposal sites, most sections repealed by Waste Act.	Department of Environmental Affairs
Act No. 15 of 2003	Explosives Act	Regulates disposal of explosives, which is excluded from Waste Act.	South African Police Service
Act No. 15 of 1973	Hazardous Substances	Impacts on disposal of nuclear waste, which is excluded from Waste Act.	Department of Health
Act No. 61 of 2003	Health Act	Regulates environmental health inspections, and allows Minister regulate medical waste and health nuisances	Department of Health
Act No. 27 of 1998	Local Government: Municipal Demarcation Act	Regulates demarcation of municipal boundaries, which affect service delivery districts.	Department of Cooperative Governance and Traditional Affairs
No. 32 of 2000	Local Government: Municipal Systems Act	Establishes main planning, performance management, service delivery, monitoring and reporting systems for local government, including waste services .	Department of Cooperative Governance and Traditional Affairs

No. and year of law	Title of Legislation	Relevance to NWMS	Administering Department
Act No. 28 of 2002	Minerals and Petroleum Resources Development Act	Regulates mining residue deposits and stockpiles.	Department of Mineral Resources
Act. No. 56 of 2003	Municipal Finance Management Act	Regulates financial management, budgeting, accounting and reporting by municipalities.	National Treasury
Act No. 117, 1998	Municipal Structures Act	Establishes municipalities and provides for functions and powers of different categories of municipalities.	Department of Cooperative Governance and Traditional Affairs
Act No. 107 of 1998	National Environmental Management Act and Regulation No. R. 385, No. R. 386, and No. R. 387.	Framework environmental legislation. Regulation deals with environmental impact assessments.	Department of Environmental Affairs
Act No. 39 of 2004	National Environmental Management: Air Quality Act	Provides for national norms and standards regulating air quality, monitoring of air quality and specific air quality measures	Department of Environmental Affairs
Act No. 53 of 2008	National Radioactive Waste Disposal Institute Act	Establishes the National Radioactive Waste Disposal Institute to manage radioactive waste disposal on a national basis.	Department of Energy
Act No. 47 of 1999	National Nuclear Regulator Act	Establishes National Nuclear Regulator in order to regulate nuclear activities and safety standards	Department of Energy
Act No. 36 of 1998	National Water Act	Protection, management and control of water resources, includes municipal obligation to prevent contamination from inadequate waste management	Department of Water Affairs
Act No. 46 of 1999	Nuclear Energy Act	Regulates disposal of radioactive waste and storage of irradiated nuclear fuel.	Department of Energy
Act No. 85 of 1993	Occupational Health and Safety Act	Protects health and safety of workers, including against hazards to health and safety.	Department of Labour

No. and year of law	Title of Legislation	Relevance to NWMS	Administering Department
Act No. 2 of 2000	Promotion of Access to Information Act	Environmental Information (including the NWMS) must be treated in accordance with this Act	Department of Justice
Act No. 6 of 2009	Second-Hand Goods Act	Regulates the business of dealers in second-hand goods and pawnbrokers, in order to combat trade in stolen goods and promotes ethical standards in the second-hand goods trade	South African Police Department of Police

Appendix 2: National Waste Management Strategy: Action Plan

This action plan contains a series of actions that underpin the strategy and have been grouped according to the waste hierarchy as presented in Chapters 2 and 3, or as implementing mechanisms presented in Chapter 5. Furthermore, a timeline has been developed to assist in the sequencing of the achievement of the actions – this has been presented in quarters of an annual cycle (Y=year, Q=quarter), with the starting point being July 2010 (Y1 Q1).

NWMS Chapter	Action	Responsibility	Time-frame	Dependency
2.3	Waste Avoidance & Reduction			
	Incorporate waste minimization as focus within Cleaner Production Strategy, finalise and publish strategy	The dti in consultation with DEA	Y2 Q1	
	Develop regulations under Waste Act for producers to provide for the reduction of waste products or components	DEA and the dti	Y2 Q3	Establishment of DEA-dti forum
	Develop and publish norms and standards for waste minimization	DEA	Y2 Q2	
	IndWMPs to set targets for waste minimisation	Various industry bodies	Various, see section 3.4	
	Evaluate current volumetric charging for waste collection and issue guidelines for municipalities	DEA	Y2 Q1	
	Implement awareness campaigns around waste minimisation	DEA, industry bodies	Various, according to timeframes set in IndWMPs	
	Establish monitoring and enforcement measures based on the norms and standards for waste minimization.	DEA	Y4 Q1	Norms and standards for waste minimization, and SAWIS

NWMS Chapter	Action	Responsibility	Time-frame	Dependency
2.4	Waste Re-Use, Recycling & Recovery			
	Develop and publish norms and standards for re-use, recycling and recovery (aligned with waste service standards for separation at source and recycle receptacles)	DEA	Y3 Q2	
	IndWMPs to set targets for reuse, recycling and recovery	Various industry bodies	Various, see section 3.4	
	Develop regulations under Waste Act for recovery, reuse and recycling of products, and for products to contain a minimum recycle content	DEA and the dti	Y2 Q3	Establishment of DEA-dti forum
	Develop strategy for job creation within recycling industry	DEA and the dti	Y2 Q1	Establishment of DEA-dti forum
	Create public awareness around recovery, reuse and recycling as part of national waste awareness initiatives	Indalo Yethu in conjunction with DEA		MTEC allocation to support awareness campaign
2.5 and 3.8	Collection, storage and transportation			
	Publish the National Domestic Waste Collection Standards	DEA	Y1 Q1	
	Develop and distribute model by-laws as required by municipalities for waste management services	DEA in consultation with COGTA	Y2 Q1	
	Develop and publish a guideline on the specific indicators and targets for monitoring the provision of waste management services	DEA	Y1 Q4	
	Targets for waste services delivery to be set in municipal IWMPs and IDPs	Municipalities	Y2 Q4	Guideline on indicators and targets for waste services
	Develop a detailed Sector Plan for addressing waste services backlogs	DEA in consultation with COGTA	Y1 Q3	

NWMS Chapter	Action	Responsibility	Time-frame	Dependency
	Publish Free Basic Refuse Removal Policy	DEA	Y1 Q1	
	Develop and publish guidelines for the Free Basic Refuse Removal	DEA	Y1 Q2	
	Examine the feasibility of various waste service delivery mechanisms, including external delivery mechanisms, public private partnerships, and community based mechanisms	Municipalities	Y5 Q4	Expansion of waste services
	Develop and publish norms and standards for the storage of waste (as part of norms and standards for the treatment, storage and disposal of waste)	DEA	Y3 Q1	WCMS
	Develop and publish National Domestic Waste Transportation Standards	DEA	Y2 Q2	WCMS
	Set appropriate thresholds for transportation in alignment with the WCMS	DEA	Y2 Q2	WCMS
	Develop an integrated registration mechanism to be adopted by all municipalities, provinces and national DEA	DEA	Y4 Q1	
2.6 and 3.9	Treatment, Processing and Disposal			
	Develop and publish norms and standards for treatment, processing and disposal, including for thermal treatment of waste	DEA	Y2 Q1	
	Awareness-raising among municipalities regarding sewage sludge guidelines	DEA & DWA in consultation with COGTA	Y1 Q3	
	Develop and publish guidelines for municipalities regarding options for the thermal treatment of waste	DEA	Y2 Q1	
	Develop and publish best practice guidelines for properly planned, constructed, operated and maintained landfills, and measures for general waste entering landfill sites	DEA & COGTA	Y1 Q4	

NWMS Chapter	Action	Responsibility	Time-frame	Dependency
	Assessment report regarding steps to regularise management and permitting of existing landfills, and planning for new landfill sites.	DEA	Y3 Q2	
	Full implementation of programme to permit landfill sites and assess compliance	DEA	Y5 Q2	
	Cost benefit analysis of the regionalization of waste management services	DEA	Y2 Q3	
	District by district survey of landfill capacity and future need	DEA	Y3 Q1	Cost benefit analysis of regionalization
	Develop and publish guidelines for the regionalization of waste management services	DEA	Y3 Q3	Cost benefit analysis of regionalization
2.7	Remediation			
	Establish register of contaminated lands, linked to the deeds register	DEA	Y1 Q4	
	Finalise definitions, technical requirements and standards for both the identification and remediation of contaminated lands, including independent persons suitable to perform site assessments	DEA	Y2 Q1	
	Resolve jurisdictional conflict at an inter-departmental level	DEA and DWA	Y1 Q4	Coordinating mechanism described in Section 5.8
	Guidelines for determining in which instances the provisions for contaminated lands will be exercised by the provinces	DEA	Y1 Q4	
	Develop regulations to implement contaminated land provisions, including exemptions from contaminated land provisions	DEA	Y2 Q3	
	Establish remediation fund or funding mechanism	DEA, National Treasury	Y2Q4	Motivation to MTEC for allocation of remediation funds

NWMS Chapter	Action	Responsibility	Time-frame	Dependency
3.1 and 3.5	Categorisation and classification, listing and licensing			
	Promulgate regulations to establish WCMS	DEA	Y1 Q2	
	The development of norms and standards to regulate S.19(3) “acceptable use” waste management activities	DEA	Y2 Q4	WCMS
	Application of information technology framework to expedite licensing and allows for tracking the status of a license by the applicant	DEA	Y3 Q1	
	The provision of an integrated license for air quality, waste and water	DEA, DWA	Y4 Q1	Cooperative governance arrangements within DEA and between DEA and DWA
	Draw up an MOU with the DME in terms of the classification of mining waste.	DEA, DMA	Y1 Q2	
3.3	South African Waste Information System			
	Use WCMS categorisation system for all data submitted to SAWIS	DEA	Y1 Q2	WCMS
	Establish baseline waste quantification for waste generation and the effects of current reduce, re-use & recycling initiatives	DEA	Y1 Q4	Funds allocated to support research
	Publish revised implementation plan for SAWIS	DEA	Y1 Q2	Implementation of the new technology system for DEA
	Expansion of SAWIS in order to meet all provisions of the Act	DEA	Y2 Q4	
	Ensure on-line access to information via SAWIS for industry, municipalities and provinces	DEA	Y3 Q2	Implementation of the new technology system for DEA

NWMS Chapter	Action	Responsibility	Time-frame	Dependency
	Develop protocol to monitor and evaluate data flowing into SAWIS	DEA	Y3 Q2	
3.4	Industry Waste Management Plans			
	Develop guidelines for IndWMP in consultation with industry	DEA	Y1 Q1	
	Develop an IndWMP for the paper and packaging industry to include a proposal for an industry levy on raw materials	PACSA	Y1 Q2	IndWMP guidelines
	Develop an IndWMP for the pesticide industry	AVCASA	Y1 Q2	IndWMP guidelines
	Develop an IndWMP for the CFLs industry, to include standards for the handling and recycling of CFLs	Industry	Y1 Q2	IndWMP guidelines
	Develop an IndWMP for the tyre industry which embodies the current waste tyre programme	SATRPCo	Y1 Q2	IndWMP guidelines
	Develop IndWMP for the eWaste industry to include proposals for redressing disincentives to membership	Industry	Y2 Q3	IndWMP guidelines
	Develop an IndWMP for the battery industry, which includes norms and standards to ensure batteries meet international specifications, and proposes required incentives for the development of battery recycling facilities including the financial incentives required	Industry	Y2 Q4	IndWMP guidelines
	Develop an IndWMP for the Mining sector to include norms and standards	Department of Minerals	Y2 Q4	IndWMP guidelines
	Develop regulations for an industry levy for the pesticide IndWMP and investigate application of Section 18 of the Waste Act to this sector, in support of the IndWMP	DEA	Y3 Q1	
3.6	Priority Wastes			
	Investigate and prepare regulations for declaration of PCBs and mercury as priority wastes	DEA	Y2 Q4	

NWMS Chapter	Action	Responsibility	Time-frame	Dependency
3.10	Extended Producer Responsibility			
	In support of the existing ROSE Foundation EPR programme, develop standards for the collection and recycling of lubricating oil for the garage and motor vehicle maintenance industry	DEA in collaboration with the ROSE Foundation	Y1 Q1	
	Develop and publish guidelines for compiling EPR programmes	DEA in consultation with industry	Y1 Q2	
	Develop and publish guidelines on the appointment of costs for EPR programmes	DEA in consultation with industry	Y1 Q3	
	DEA to identify an appropriate waste stream for a pilot study to test approaches and mechanisms	DEA in consultation with the affected industry	Y2 Q1	Guidelines for EPR programmes and the appointment of costs
3.11	Consumer responsibility and protection			
	Coordination and alignment of provisions of Consumer Protection Act and Waste Act	DEA and the dti	Y1 Q4	Establishment of inter-departmental committee
	Develop and publish guidelines to clarify the interpretation of Section 59 of the CPA and the use of economic instruments for waste management.	DEA	Y1 Q4	
3.12	Economic instruments			
	Research programme to identify and evaluate specific economic instruments	DEA and National Treasury	Y3 Q1	
3.13	Fiscal mechanisms			
	Municipal circular to provide guidelines for ring-fencing service budgets and the associated accounting practices	National Treasury	Y1 Q2	
	Full cost accounting of waste management services to be implemented in all municipalities	Municipalities	Y1 Q4	Municipal circular
	Guidelines on waste service tariffs	DEA, National Treasury and COGTA	Y1 Q3	

NWMS Chapter	Action	Responsibility	Time-frame	Dependency
	Municipal tariffs to reflect full cost of waste services	Municipalities	Y4 Q4	Guidelines on waste service tariffs
	Review of volumetric charging in waste service tariffs and development of guidelines	DEA, National Treasury and COGTA	Y2 Q4	
	DEA to participate in local government budget reviews and MTEC discussions	DEA and National Treasury	Y1 Q1	
	Establish of solid waste project development fund for capital grants and private financing	DEA and National Treasury	Y2 Q3	
	Earmarking of portion of MIG for solid waste management	DEA, National Treasury and COGTA	Y2 Q3	
	Investigation into dedicated fund for supporting extension of municipal waste services to unserved communities	DEA and National Treasury	Y2 Q3	
5.2	System of Waste Management Officers			
	Finalise and circulate guidelines for the appointment of WMOs and co-ordinating arrangements	DEA	Y1 Q1	
	Appointment of Waste Management Officers at national, provincial and local levels	DEA Provincial env auth Municipalities	Y1 Q2	
	Guidelines for for co-operative working relationship between WMOs and EMIs	DEA	Y1 Q2	
5.3	Integrated Waste Management Planning			
	Finalise and publish the Integrated Waste Management Planning guideline, including schedule for preparation of IWMPs, and integration within IDPs	DEA	Y1 Q1	
	Distribute and workshop IWMP guidelines with provincial authorities and municipal officials	DEA	Y1 Q1	

NWMS Chapter	Action	Responsibility	Time-frame	Dependency
	Prepare national and provincial IWMPs, including indicators and targets, and submit for approval	DEA and provinces	Y1 Q3	IWMP guidelines
	Prepare municipal IWMPs, including indicators and targets, and integrate with municipal IDPs		Y1 Q4	IWMP guidelines
	Develop criteria to assist in the assessment and approval of local and provincial IWMPs	DEA & COGTA	Y1 Q4	
	Develop reporting requirements for annual performance reports (what, to whom, by when) and accompanying report templates	DEA, COGTA & SALGA	Y1 Q1	
	Prepare and submit annual performance reports in terms of IWMPs	DEA Provinces Municipalities	Y2 Q4 for national and provinces Y3 Q1 for municipalities	Preparation of IWMPs
5.4	Monitoring, Compliance & Enforcement			
	Publish guidelines on the compliance monitoring and enforcement roles and responsibilities of EMIs and WMOs at different levels of government	DEA	Y1 Q1	
	Finalization and dissemination of Standard Operating Procedure for non-compliant organs of state	DEA	Y1 Q1	
	Finalise and adopt code of conduct for EMIs	DEA	Y1 Q2	
	Determine number of EMIs required at each level of government for Waste Act compliance and enforcement	DEA	Y1 Q3	
	Develop and disseminate templates for monitoring reports	DEA	Y1 Q4	
	Appoint additional EMIs	DEA Provinces Municipalities	Y1 Q4	MTEC allocation for additional capacity
	Train EMIs in operating procedures	DEA Provinces Municipalities	Y2 Q4	

NWMS Chapter	Action	Responsibility	Time-frame	Dependency
	Establish a central hotline to facilitate reporting of illegal activities and non-compliance	DEA	Y1 Q4	
5.5	Mechanisms to give effect to international obligations			
	Finalize joint strategy for import and export control in relation to MEAs	DEA and SARS	Y1 Q3	
	Review and update the Rotterdam Convention Action Plan, and publish for comment	DEA	Y1 Q3	
	Finalize MOUs with SARS and ITAC which give effect to the requirements of the three main MEAs.	DEA	Y2 Q2	
	Finalize and publish the National Implementation Plan for the Montreal Protocol, to include a phase out plan for specified substances	DEA	Y2 Q3	
	Finalize and publish the National Implementation Plan for the Stockholm Convention	DEA	Y2 Q3	
	Implementation of a 'no-special-fee' system in all ports	DEA & Dept of Transport	Y2 Q4	Consultation with COT, Transnet and shipping industry
5.6	Education, Advocacy and Awareness			
	Establish national awareness campaign to address importance of waste reduction, reuse and recycling.	Indalo Yethu DEA	Y2 Q4	MTEC allocation for waste awareness campaign
	Training municipal officials and councillors on importance of sound waste management	DEA, SALGA & COGTA	Y2 Q2	
	Incorporation of waste in the school curriculum	Department of Basic Education	Y2 Q4	
	Develop a framework for and implement revised national Cleaning and Greening campaign for municipalities.	DEA	Y1 Q4	Implementation of IWMP system

NWMS Chapter	Action	Responsibility	Time-frame	Dependency
5.7	Capacity Building			
	Appointment of specialist capacity within DEA Pollution and Waste Management Directorate to develop norms and standards	DEA	Y1 Q2	MTEC allocation for additional capacity
	Finalisation of standards for Environmental Assessment Practitioners (EAPS) and appointment of EAPs to review EIAs for Cat B license applications	DEA	Y1 Q3	
	Establishment of a Directorate within DEA to address land remediation	DEA	Y1 Q4	MTEC allocation for additional capacity
	Provincial capacity in place to fulfill licensing responsibilities and integrated waste management planning	Provinces	Y1 Q4	MTEC allocation for additional capacity
	Capacity for monitoring compliance and enforcement through the appointment and training of approximately 800 EMIs at national, provincial and local level	DEA	Y2 Q4	Additional budget allocation for EMIs at all levels of government
	Municipal capacity for the sustainable provision of waste management services and proactive planning and management of landfill disposal	Municipalities	Y2 Q4	Sustainable financing arrangements for waste services
	Dedicated capacity to ensure that appropriate information is collected, analysed and disseminated to support decision-making	DEA	Y2 Q4	MTEC allocation for additional information management systems and capacity
5.8	Co-operative Governance			
	Develop and distribute Terms of Reference for the Local, District and National Waste Fora	DEA	Y1 Q2	
	Broaden the mandate of the Government Task Team dealing with mining remediation to include all forms of remediation	DEA, DMR and DWA	Y1 Q3	Consultation with DMR and DWA
	Establish an interdepartmental committee between DEA, COGTA and SALGA to address waste service delivery and relevant provisions of the Waste Act.	DEA, COGTA & SALGA	Y1Q1	

NWMS Chapter	Action	Responsibility	Time-frame	Dependency
	Establish an interdepartmental committee between DEA, and the dti to address relevant provisions of the Waste Act.	DEA, the dti & the Dept of Finance	Y1 Q3	The Department of Finance will be consulted as specified in the Act.
	Co-operative governance arrangements to facilitate integrated licensing (air quality, water, waste)	DEA, DWA	Y2 Q1	Business and information systems to support this