



Strategic Plan for the Environmental Sector 2009 - 2014



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA



REPUBLIC OF SOUTH AFRICA



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Preface

This strategic sector plan should be read as a forward looking common perspective for the environmental sector within government under the custodianship of the Department of Environmental Affairs, the provincial departments responsible for the environment and the public entities at both national and provincial level.

To a limited extent the plan also addresses the role for local government. It is therefore not developed as a new policy instrument but as a concise policy and programme communiqué and a platform to guide the framework for policies, common programmes and priorities in the mid-term to long term outlined in frameworks such as the Medium Term Strategic Framework (MTSF) and the National Framework for Sustainable Development. (NFSD)

It would be useful if this strategy evolved into an integrated sector strategy but is currently not sufficiently comprehensive as it excludes environmental resource management functions that fall under the mandate of other national departments which are listed later in the document. This is a key challenge in mainstreaming environmental governance.

This sector plan is supplemented by a sector delivery agreement which was signed by all relevant provincial Members of the Executive Committees (MEC's) as well as relevant ministers of national departments with mandates that have environmental and/or resource implications.

The delivery agreement outlines actions, targets and indicators on critical areas viewed as a Government's "change agenda" as defined by the Presidency's Performance Monitoring and Evaluation unit. This sector plan has therefore been reviewed to reflect the sector's 'sustained' agenda and it is by no means exhaustive of all environment sector issues requiring strategic attention.

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Executive Summary

The strategic plan for the environment sector has seven main chapters and a forward looking conclusion; these chapters are briefly outlined below:

1. Introduction- Environment and Development

This part clarifies the purposes of the sector plan and provides a brief description of the structure. The introduction scopes the composition of the sector, the legal and constitutional mandate and outlines high level strategic priorities for the sector.

The strategic plan locates environmental management within a broader developmental context and the current developmental state paradigm as outlined in the Medium Term Strategic Framework. It highlights the sectors' role in South Africa's development trajectory and discusses the sector from both growth and development perspectives.

It further provides an overview of the entire sector and the rationale of the plan as well as the process and methodology of developing it.

2. Vision

Since the plan is not a new policy pronouncement it reaffirms the vision as articulated within the White Paper on Environmental Management Policy (1997) and the 2008 National Strategic Framework for Sustainable Development (NFSD) and reiterates that the sector will seek to achieve this vision through a sustainable development approach based on integrated and coordinated environmental management that addresses the socio-economic demands and imperatives of a development state.

3. Goals and Priority Areas of the Sector

This chapter further outlines specific challenges and priorities including the need to (1) provide leadership and coordination of government's approach to large, complex and cross-sectoral issues affecting the environment, as per the MTSF and (2) effectively implement its own sectoral mandates within the context of new and evolving regulatory frameworks with additional responsibilities, striking a balance

between capacity constraints and opportunities.

4. Sector Mandates

Key inter-related issues have been highlighted that are of concern to the sector as a whole. These require action across all of its institutions and strong leadership must be provided within government and society as a whole by the sector. These issues are (1) Implementation of sustainable development, (2) Developing appropriate responses to the challenges of climate change and (3) to pursue and explore the concept of green jobs and promote green economy

These issues have implications for social and economic development. From a governance perspective these issues are 'cross-sectoral' in their nature and therefore cannot be addressed by the environmental sector in isolation, but require integrated and coordinated policy and action across all sectors of government and society.

The sector is emerging from a period of legislative reform and is faced with significant challenges in the implementation of its own sector specific mandates within new and often incomplete regulatory frameworks.

Over the next five years there is significant work to be done to complete the development of regulatory frameworks and to establish the systems and capacity to implement them. The second set of outcomes for the sector is one of delivery of its core areas of the responsibility in line with Treasury allocations and responsibilities.

Within the context of the above, a set of core focus areas have been identified by the sector. These are broadly aligned to the main funding programme areas across the sector and to its core areas of statutory responsibility.

For each core focus area, key priorities, outcomes, activities, targets and responsibilities for delivery and indicators have been identified. These have been located within the current Provincial budgetary provisions, on the basis that funded mandates are most likely to be implemented.

The core focus areas are:

Air Quality Management
 Waste and Chemicals Management
 Pollution Incident Management and Response
 Environmental Impact Management
 Conservation and Sustainable Use of Biodiversity
 Marine and Coastal Management

Whilst the priorities, outcomes and activities are well spelt-out in the plan, the challenges remains inconsistency of targets in the areas where there are no commonly agreed sector wide targets, particularly at provincial and local levels. The unavailability of these targets is the result of varying provincial priorities and capacities and also the degree of implementation and development of national legislation and regulations, and must be pursued as a matter of urgency.

5. Means of Implementation

The 'Means of Implementation' addresses how the various 'challenges' to delivery of the outcomes will be addressed by the sector (listed below). Many of these are related to strengthening and refining the 'enabling environment' for delivery and are cross-cutting in their nature i.e. they are relevant to all of the core focus areas above and are experienced throughout the three spheres of government.

Only if these challenges are addressed, can the enabling environment be created within which the sector will be able to work effectively and efficiently towards the achievement of its vision.

'Means of Implementation' will involve:

Sharing responsibility and improving environmental governance within government and through society at large,
 Mainstreaming environmental management into planning, growth and development planning and implementation,
 Providing Support and Building Capacity both within and outside government,
 Financing the sector, both through treasury and externally through user and polluter

pays, as well as other cost recovery strategies and principles,
 Promoting compliance and strengthening enforcement through legislative instruments and implementing agencies,
 Improving environmental information for decision making both within government and society at large,
 Communicating and raising awareness both within government and throughout society.

While legislative reform has reached an advanced stage, the primary challenge for the sector lies in its implementation and delivery. Thus, over the next five year period the emphasis of the sector will shift from legislative reform legislation toward dealing with the challenges of implementation and delivery.

6. Monitoring and Evaluation

It could have been fruitless to have the strategic goals and priorities for the next five years without developing Monitoring and Evaluation (M&E) framework that will evaluate the extend and magnitude of government intervention to address environmental challenges. This framework is informed by core key focus area and strategic priorities and it seeks to provide comprehensive and coherent mechanisms for monitoring progress towards achieving the intended outcomes, using performance indicators and impact evaluation instruments. It also intended to cause changes and improvements in programmes, structures and methods of implementing the strategic goals and priorities. This framework covers all three spheres of the Government of South Africa, namely, the National, Provincial and Local.

The primary purpose of this monitoring and evaluation system is to offer a strategic tool for enhancing the Environment Sector's performance through escalating relevance, effectiveness, efficiency, sustainability and impact. An important component of the purpose is to ensure continuous and purposeful learning that feeds into the system as well as increase the capacity of the Environment sector to fulfil its mandate.

7. Implications - Conclusion

The sector plan concludes by identifying numerous implications related to the implementation of the plan, as well as unrelated implications which may arise as result.

This extends governments' commitment to adopting a broad long-term strategy that extends beyond DEA and into government and society at large. The role of DEA to

mainstream and integrate environmental governance is critical to its existence. As lead agency it is required not only to drive this strategic plan but also considers the priorities as outlined in the NFSD and then also to link the identified priorities with the MTSF and emerging government policies to ensure a healthy and sustainable environment, which supports the governments mandates, through promoting a green, growing economy, with a rapid increase in the availability of decent work through the development of green jobs.

Background

This sector plan arises out of the constitutional imperative for a clean, healthy environment that benefits present and future generations. Its time frame of 2008 – 2013 needs to be realigned to that of the MTSF of 2009 – 2014, for reasons of operational co-ordination and continuity, which has been carried out in this review.

The implementation of the suite of NEMA legislation has transformed the legislative landscape around environmental governance yet the implementation of this legislation remains a work in progress.

Accordingly MINMEC and MINTECH identified the need to develop a sector wide strategic implementation plan, backed by programmatic National Treasury structures aimed at improving accountability, efficiencies and financing of all mandated roles of this sector, and to mainstream environmental governance across all sectors of government and into civil society.

Therefore this plan is the framework upon which the implementation of intent behind the radical changes to the nation's environmental legislation hinges. As such the review aims to assist in supplying clarity and direction and to also align it with the MTSF and the NFSD, and other government macro socio- economic policies, over the next five year period.

The need for a sector plan

Since 1994, National, Provincial and Local Government institutions responsible for the Environment have been engaged in transforming and building capacity to meet the Constitutional imperative for a safe, clean and healthy environment which benefits both present and future generations.

Guided by this Constitutional imperative and by obligations arising from the international environmental agreements ratified by South Africa since 1994, an intensive policy, institutional and legislative transformation and development programme is taking place.

New legislative and policy requirements have major practical implications for

implementation, particularly with respect to financial, technology, systems, material and human resource capacity requirements.

Consequently, DEA and National Treasury have instituted a budget reform process aimed at improving accountability and efficiency; and to ensure adequate financing of the environment sector regarding implementation, facilitation and support of environmental management and sustainable development in South Africa.

Given the need to now focus on implementation and to maximise efficiencies within the envelope of limited resources, MINMEC and MINTECH have identified the need to develop a common national sector wide strategic implementation plan for the environmental sector in South Africa.

This plan is to be informed by an understanding of where the sector is in its reform process and has at its core a clear statement of the medium term challenges and priorities faced by the sector.

The application of the sector plan

The sector plan has been produced primarily to identify the agreed key strategic priorities for action by the sector over the next 5 years. It is planned to be used to communicate these priorities to the rest of government and the public sector in general.

It can be used to identify where partnerships are required between the sector, other government sectors, industry, and civil society and so on. Importantly, the plan can also be used as the basis upon which a motivation for necessary funds for the sector can be built.

In terms of its usefulness to the sector, it is intended that this plan provide the broad agreed strategic direction for the environment sector upon which the strategic plans for its component institutions are then based.

This plan has been prepared by the Department of Environmental Affairs in consultation with, the Provincial Environment Departments, the South African National Biodiversity Institute, South Africa National Parks, and South African

Weather Services. It is based on information from a range of key documents which have been produced within the environment sector in recent years.

The Outcome Based Approach

Based on the Election Manifesto Government translated the priorities into the Medium Term Strategic Framework 2009-2014 which identified 10 strategic priorities. These priorities were further developed into 12 key outcomes with each outcome further elaborated in terms of measurable outputs and key activities to achieve the outputs. Each of the outcomes has a delivery agreement which in most cases involve all spheres of government and a range of partners outside government. Combined these agreements reflect government's delivery and implementation plans for its priorities.

The coordinating Ministers coordinated the process of negotiating the delivery agreements through the established delivery forums depending on the nature of the outcome. The monitoring of the implementation of the delivery agreements will provide a feedback loop to regular reviews of the agreements. Quarterly reports will be submitted through the Department of Performance Monitoring and Evaluation to Cabinet.

The department through the Ministry of Water and Environmental Affairs has coordinated the development of the delivery agreement on Outcome 10 which focuses on Environmental Assets and Natural Resources that valued, protected and continually enhanced. This Outcome respond to the Constitutional imperative of Section 24 which stipulates that all South African's have the right to a clean and healthy environment which is not harmful to their health or well being and to have the environment protected for the benefit of the present and the future generations.

The Outcome 10 therefore seeks to address four critical challenges:

- Water that is unsustainably used and the quality and quantity of water resources is in decline;
- Reduce green house gas emissions, prepare strategies to cope with projected climate change impacts and reverse the rising trend in relation to the release of pollutants into the atmosphere;
- Proper and better management of our environment; and
- Protection of our biodiversity.

1. Introduction

1.1 Context: The Balance between Environmental Sustainability and Developmental Requirements

The plan seeks to strike the balance between the requirements of both economic development and environmental stewardship, working towards maintaining the integrity of the renewable and non renewable natural resources that form the basis of economic activity, be it farming, mining, manufacture, distribution, retail and disposal, and pre-empting the effects of these, such as pollution and waste, from harming the environment.

This requires the department to work with all role-players, as a lead agent, to co-ordinate the work of the sector at all levels. Therefore there is a need for a coherent vertical integration at various levels; internationally, regionally, nationally, provincially and perhaps most importantly at local level. This devolution is emphasised by the stipulations of the MTSF for inclusive governance, for the environment is not an isolated, notional concept but constitutes the very system upon which we all depend.

Equally the stipulations of the MTSF and of the government mandate require horizontal integration of environmental governance between all organs of the state and civil society and business interests in order to manage the balances between environmental and social protection, and economic activity.

Given that environmental management in South Africa has been designed with a developmental focus, there is clear alignment and agreement with the developed frameworks and the MTSF.

The challenge is to fully implement the intentions behind the suite of environmental legislation into frameworks that ensure delivery of outcomes as measurable impacts as budgeted for by the National Treasury, whose stipulations must be utilised as management goals and tools for implementation.

1.2 Legislative Mandates for the sector

As pointed out above the suite of environmental legislation built around the NEMA goes some way to fulfilling the constitutional mandate of maintaining environmental integrity across all the sectors regulated by this department, which includes:

- Overall environmental governance as set out in the National Environmental Management Act (NEMA) of 1998, which established cooperative and developmental governance through facilitatory structures,
- Air Quality management as set out in the Air Quality Management Act of 2004, in order to set ambient air quality and emission standards,
- Waste and chemicals management as set out in the Waste Management Act of 2009 and in the Integrated Coastal Management Act (ICMA) of 2009, which seek to manage pollution incident management, integrated waste management and monitoring and control of these by all spheres of government,
- Environmental Impact Management as set out in NEMA itself and in the NEM Amendment Act of 2003 and 2004, that deal compliance and enforcement as well as EIAs and other tools for environmental assessment, and which also relies on related acts such as the NEM Biodiversity Act (NEMBA) and the Integrated Coastal Management Act,
- Conservation and sustainable use of Biodiversity as set out in National Environmental Management Biological Diversity Act (NEMBA), of 2004 and the Protected Areas Act of 2003 set out mechanisms to protect biodiversity, ecosystems, indigenous resources and specific species,
- Marine and Coastal Management, as set out in the Marine Living Resources Act (MLRA) and the recently promulgated ICMA, which seeks to manage and protect the marine and coastal environments.
- Pollution incident management has been removed as separate entity as it belongs in the same category as that dealing with waste management, which is included under the Waste and Chemicals management sector of the department.

1.3 Composition of the sector

The legislative instruments set out above are devised in order for government to play an expanded role in managing all environmental functions of state and to facilitate the implementation of environmental legislation while simultaneously keeping the regulatory burdens on the public and private sector as low as possible.

As a lead agency DEA has a central role in mainstreaming environmental management throughout government, both vertically between national, provincial and local government and laterally through other government departments that have environmental responsibilities as part of their key objectives. These are set out in the table (Box 1) below.

Given the realignment of DEA under the recent departmental rationalisation, where Tourism has been reformed into a new department, fisheries management has been merged into the new department of Agriculture, Forestry and Fisheries and Water Affairs shares a Ministry with Environmental Affairs, it is inevitable that a transitional phase occurs as far as the management of this realignment is concerned.

What is essential is that this rationalisation occurs as smoothly as possible so as to reduce the impact on both departmental programmes and line functions but also

so that the new structures strengthen and not weaken environmental management and oversight.

New national and provincial structures will have to be created as part of the implementation stipulations of the ICMA, and while this is noted in the plan it needs to be institutionalised within the Treasury funding frameworks as a line item as it will require vertical integration of the various spheres of government and will thus require to be sufficiently resourced.

While Environmental empowerment services are an earmarked Treasury allocation, additional resources may have to be motivated for to fund the rollout of the ICMA, the Waste Act (particularly at the local level), the Air Quality Act, and other yet to be identified unfunded mandates at (particularly) local government level.

Finally, in order to mainstream environmental best practice and governance, it is essential that motivation for the inclusion of specialist environmental expertise in the office of the president; within the new economic cluster; and in future iterations of the MTSF.

It is essential that we outline what the role of national, provincial and local government is as far as environmental management is as reflected in the current sector plan. This is missing on this document.

Box 1: National departments with environmental management responsibilities and functions

Department	Responsibility (as per legislation overseen by these departments)
Agriculture, Forestry and Fisheries	Agricultural resources, pests, regulation of fertilisers, farm feeds and agricultural remedies, GMOs, pesticides, GHG impacts (up to 50% of total GHG) and alternatives to fossil fertilisers and chemicals; promote diversion of organics (green materials and sewage sludge) to food production; improve the local production of food as a GHG response and MTSF response; promotion of nutritious food security; alien species, system integration, SD as policy; Sustainable Bio/agro fuels, Veld, Forests and Forestry, Mountain ;; Catchments, sustainable fisheries, integrate research with SANBI.
Basic Education	Include SD in the curriculum
Communications	Share the SD vision and mission throughout government, mainstream.

Cooperative governance and Traditional Affairs	Municipal Planning, Integrated Development Plans, EIAs, EIRs, municipal service delivery, Disaster Management, Coastal management, GHG impacts; waster, waste, air, built and natural environments improve capacity At local level on environmental mandates. Traditional respect of environment as strength to build on. Mainstreaming environmental governance across all departments of government and all spheres of government.
Defence and Military veterans	Responsibility for toxic and hazardous military wastes. Monitoring and policing pollution and wastes at sea, monitoring and checking marine resource harvesting, dedicated environmental officers on large ships, monitor conditions within the marine environment.
Economic Development	Determining the shape and form of a Green Economy. Impact of development path on social and environmental arenas, sustainable development mainstreamed. Valuation of environmental services as part of integrated production costs. Reduce externalisation of industrial impacts as policy.
Energy	Move away from fossil fuels and toward sustainable energy, in line with MEAs, and NFSD.
Environmental Affairs	Lead agency for environmental management on cross cutting issues as well as air quality, pollution control and waste management, environmental impact management, biodiversity conservation, marine and coastal management.
Finance	Stipulations on tracking fiscal responsibility on environmental management. Ring fencing environmental funds as in MLRF and others.
Government Communications	Communicate the SD message internally and to the public
Health	Hazardous Substances, Medical waste, Impacts of GHGs and pollution; and full cost accounting of health impacts; monitoring of various environmental pollutants; GMO labelling and tracking,
Higher education and Training	Integrate SD into curriculum
Human Settlements	Human settlements constructed along SD lines, mainstreaming integrated resource management.
International Relations and Cooperation	Oversight and integration of MEA's etc with other bi and multilateral agreements.
Justice and Constitutional development	Develop environmental courts and body of jurisprudence in line with complex environmental legislation – along with police and other justice branches.
Labour	Worker health; jobs; sustainable and decent livelihoods; responsibilities of oversight on companies as part of triple bottom line; just transition to Green Jobs.
Mineral Resources	Mine waste, pollution, energy use, water pollution, EIAs.
Public service and administration	Mainstream environmental management throughout administration under guidance of DEA.
Public works	Environmentally friendly and sustainable infrastructure and built environment, energy reduction, SD, care of public land, EPWP.
Rural development and land reform	Management of rural land, protection of water resources, shifts towards SD food security and food production; promotion of decentralised development models
Science and Technology	Need to include SD as technological thrust within research and education, with an emphasis on pollution avoidance, sustainable technologies and green business and industry; direct research towards local sustainable energy, food and water options, remediation of mine waste and pollution (non-toxic approaches), water remediation, alien infestation, global warming, etc.

SA Police service	Develop knowledge of environmental law, green scorpions, develop contact points for environmental crime;
SA revenue service	Issues of ring-fencing funds - As in MLRF as a precedent, pollution levies, fines, confiscations, taxing pollution according to user pays principles, can be implemented for cost recovery and funding.
State security	Intelligence gathering around illegal resource use, international criminal cartels, linked to green scorpions
Social development	Mainstreaming healthy living standards and healthy built and natural environment; limitation and avoidance of negative health and other social impacts,
Statistics SA	Maintenance of comprehensive and accurate green statistics in relation to treasury goals; improved measurement of effectiveness, outcomes and impacts.
The Presidency and Ministers in the Presidency	There must be a SD/ green central communication and capacity building person within the presidency if environment is to be mainstreamed.
Tourism	Green tourism accreditation, good transport, maintain parks and natural areas, improve direct and financial local community and PDI benefit; reduce negative impacts on environment.
Trade and industry	Mainstream SD, analyse all bi and multilateral agreements in light of MEAs, trans-boundary transport of waste, pollution, dangerous substances; development and promotion of a Green Industrial Development Process
Transport	Develop green transport options and public transport, energy saving in transport, reduce transport GHGs. Maritime Law, Movement of Substances, Harbours, hazardous substances, pollution control, GHG reduction plan, promotion of sustainable and public transport
Land Affairs	Development of principles governing land development, Land Use, Aquaculture.
Minerals	Access to minerals and petroleum resources and related EIAs , nuclear energy, Mine related health and safety, mine drainage/ pollution, air quality, underground air quality;
DTI	The trade policies and Bi and multilateral agreements managed. Economic Development policies that reduce negative impacts on social and environmental health; develop and promote green jobs, local jobs; improving local stakes in local environment as a developmental approach.
Treasury	Use treasury stipulations as means of measurement of outcomes and impacts, as per audited responsibilities and budget programmes to monitor environmental efficiency and true cost analysis, full life cycle analysis, Require fiscal reform to fast track and implement the removal of subsidies to unsustainable products and processes, and moving such to sustainable products and processes – also to implement Polluter Pays; Life Cycle Cost Recovery; Extended Producer Responsibility. Take into account cluster issues with regard to the MTSF
Water Affairs	Water management, Water resources and water services.

Vision of the Sector

Our vision is informed by the environmental, social and economic and other fundamental human rights enshrined in our Constitution, and the global and national priorities captured in the MDG, JPOI and the government's macro socio-economic policies. It is a projection of our nation's aspirations of achieving a better quality of life for all now and in future, through equitable access to resources and shared prosperity.

The vision for the Environment Sector is that of: **A prosperous and equitable society living in harmony with our natural resources.**

This vision is articulated within the White Paper on Environmental Management Policy (1997) and has also been adopted by DEA as its vision.

The sector will seek to achieve this vision through an integrated and coordinated environmental management that addresses:

- People's quality of life and their daily living and working environments
- Equitable access to land and natural resources
- The integration of economic development, social justice and environmental sustainability
- The sustainable use of social, cultural and natural resources
- The conservation and sustainable use of our biological diversity
- Public participation in environmental governance

Furthermore in the National Environmental Management Act (NEMA), (Act No. 107 of 1998) define sustainable development as "the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations."

So the strategic importance of the sector is unquestionably linked to its role is ensuring sustainable development, through promotion of the benefits of a Green Economy and Green Jobs for decent work and upliftment of people, as well as protection of the natural resource base upon which the economy of the country and the well-being of its population depend.

However, in addition to the integration of sustainable development into its mandated

areas of activity, the sector also has a role to play in coordinating and encouraging government and society to embrace and implement sustainable development.

The National Framework for Sustainable Development (NFSD) vision for sustainable development aspires to economic prosperity, a self-reliant nation, and democratic approaches to the meet the needs of the people which should take cognisance of equitable use of, and limits to, ecological resources. The sector should also support integrated planning and collaborative governance at national, regional and global levels to meet these ends.

The NFSD emphasises that a "national vision can only be achieved if we succeed in directing investment and capital expenditure, and orientating technological innovation and institutional cooperation on a course that does not degrade and destroy the resource base and natural ecological cycles of renewal on which we depend."

Fundamental to understanding sustainable development is recognising the interdependence of our economic, social and environmental systems. In its draft policy on a framework for considering market-based instruments to support environmental fiscal reform in South Africa, the National Treasury notes that:

"As the South African economy continues to develop, it is increasingly important to ensure that it does so in a sustainable way and that, at the same time, issues of poverty and inequality are effectively addressed. It is, therefore, important to appreciate that it's not just the quantity of growth that matters, but also its quality."

The sector is committed towards the achievement of the vision for sustainable development. This strategic plan together with the actions and targets form part of the contribution to the implementation of the environmental elements of the NFSD. The environmental sector has a particularly important role to play in achieving this vision through ensuring the adoption of "an integrative and systemic approach that recognises and functions within natural ecological cycles of renewal" as pointed out in the NFSD.

Moreover this Sector Plan will make an important contribution to **South Africa's Vision 2025** in all the elements related to the environment and particularly the

¹This statement is also taken from the White Paper on Environmental management Policy (1997).

element of managing the country's natural wealth and human resources in a manner that contributes to an equitable and growing economy, which benefits all and which uses natural resources in an equitable and sustainable manner.

The vision is translated into goals, priorities and core focus areas, which guides how the sector intends to realise its vision, through the implementation of specific programmes and the achievement of certain targets.

3. Goals and Priorities for the Sector

3.1 Priority areas for activity

The purpose of the Sector Plan is to provide a strategic direction for the various institutions within the sector. In broad terms, the sector faces challenges in three specific areas in the coming years:

- To pursue and explore the concept of green jobs, promote green economy and create decent work and sustainable livelihoods.
- To continue to provide leadership and coordination of government's approach to large, complex and cross-sectoral environmental issues – specifically: responding to climate change and championing sustainable development.
- To increase the effectiveness of the implementation of its own sectoral mandates within the context of new and evolving regulatory frameworks and capacity constraints.

Over the next five years it will therefore be imperative that the sector is clear, coordinated and innovative in its own approach to these cross-cutting issues. The sector will also have a vital role to play in both championing and coordinating government activity in these three areas.

3.2 Promoting green economy

A green economy is a growing economic development path based on the knowledge that aims at addressing the interdependence of economic growth, social and natural ecosystem and the adverse impact of economic activities on the environment.

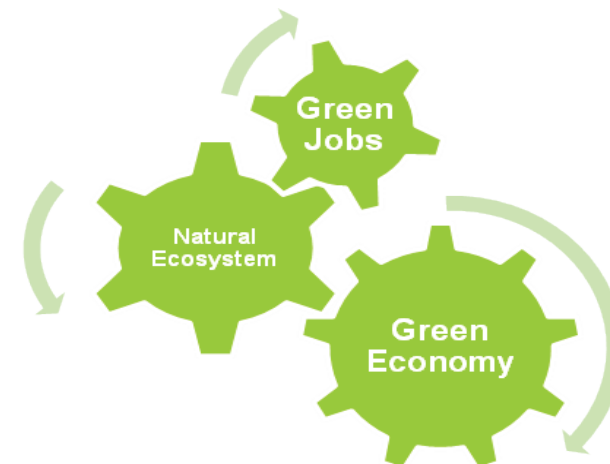


Figure 3.1 Interdependence of economic growth, social and natural ecosystem

In the 2009 framework for South Africa's response to the international economic crisis, government recognise "the opportunities in industries that combat the negative effects of climate change and believe that South Africa should develop strong capacity in these green technologies and industries. Accordingly it is agreed to develop incentives for investment in a programme to create large numbers of 'green jobs', namely employment in industries and facilities that are designed to mitigate the effects of climate change.

The government MTSF 2009 -2014 prioritised to pursue and explore further the concept of green jobs including scaling up labour intensive natural resources management practices that contribute to decent work and livelihood opportunities.

In the midst of the global economic crisis, the UNEP called for a Global Green New Deal (GGND) according to which governments are encouraged to support its economic transformation to a greener economy. The GGND three key objectives are to make a major contribution to reviving the world economy, saving and creating jobs and protecting vulnerable groups. It should promote sustainable and inclusive growth and the achievement of the Millennium Development Goals. It must also reduce carbon dependency and ecosystem degradation. The green economy is

considered being able to create both green jobs and ensures sustainable economic growth.

In addition to quantities of jobs, there is a range of qualitative questions including that green jobs need to provide equal hope for the environment and the jobholder. This equal hope is illustrated in the quadrant on green and decent (Figure 3.2)

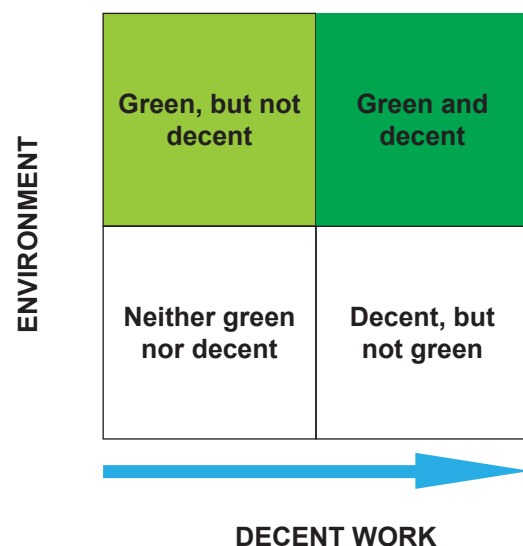


Figure 3.2 Green and decent jobs? A Schematic Overview
(Source: Adapted from UNEP, 2008)

The green economy cannot be addressed by the environmental sector in isolation but require integrated and coordinated policy and actions across all sectors of government and society.

3.3 Responding to Climate Change

There is international consensus that global warming caused by the atmospheric build-up of carbon dioxide (CO₂) and other greenhouse gasses² from the burning of fossil fuels and food production, particularly livestock are key contributors to human-induced climate change.

The Provincial Budgets and Expenditure Review of 2005/6 to 2011/12 as relates to the Sector Plan, recognises that this global environmental challenge requires a coordinated response from various government departments as well as non-governmental stakeholders. Accordingly, responding to climate change will require a cross sectoral response from, amongst others, the energy, agriculture, built environment, information and communication technologies (ICT), infrastructure, transport and manufacturing sectors. The Fourth Assessment Report of the Intergovernmental Panel on Climate Change points out that “The global increases in carbon dioxide concentration are primarily due to fossil fuel use and land-use change, while those of methane and nitrous oxide are primarily due to agriculture.”³

The priorities of the sector plan needs to address both climate mitigation and adaptation within the focus areas. For example mitigation action in land use is required to maintain biodiversity and keep ecosystems intact to maintain global temperatures by stabilising emissions. Additionally, adaptation plans must be developed to increase biodiversity resilience against the potential adverse of effects of climate change.

Furthermore the MTSF strategic priority 9, on sustainable resource management and use, includes establishing a National framework response on climate change mitigation and adaptation whilst maintaining our reputation as a global player. In addition, the diversification of the energy mix by pursuing renewable energy alternatives and energy efficiency are prioritised

3.4 Championing Sustainable development

Since hosting the World Summit on Sustainable Development in Johannesburg in 2002, South Africa has continued to play a prominent role in international environmental governance. There has been increased attention towards sustainable development including environmental fiscal reform, cleaner production, energy efficiency, and renewable energy among others, which indicates a growing understanding of the need to manage the country's natural resources better.

² Greenhouse gases are the gases that occur in the lower atmosphere which cause the greenhouse effect or global warming. These include gases such as ozone, methane, CFC's, carbon dioxide, water vapour and nitrous oxides.

³ Intergovernmental Panel on Climate Change. Climate Change 2007: The Physical Science Basis, Summary to Policymakers. Contribution of Working Group 1 to the The Fourth Assessment Report of the Intergovernmental Panel on Climate Change

Cabinet has approved the National Sustainable Development Framework, as a long term plan, which essentially makes the case for sustainable development in South Africa. While devising a national sustainable development strategy is an international obligation, the five critical NSDF pathways described in the NSDF provides the basis for the transition in key sectors to improve the quality of lives for the majority of South Africans and set South Africa on a pathway toward sustainability. The five priority focus areas include:

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

The MTSF 2009 -2014 further priorities the requirements for the society in which the country's natural wealth and its human resources are harnessed to ensure a growing economy which benefits all, and uses natural resources and modern technology in a beneficial and sustainable manner. Government recognises that science and technological innovation and development are important particularly to address among other issues challenges and opportunities presented by climate change. Technology has a major role to play in sustainable development issues because it provides the means by which humans take resources from the environment and transform them to meet their needs. Technology, however, comes with a price; the environmental impact of the processes involved in the manufacture of the technology itself, the process involved in accessing resources made available through the technology, or both¹. Therefore in contributing to green economy and sustainable development, the key factors of sustainable technology to consider in the environment sector include consideration for technology alternatives, technology life cycle, material and energy, toxicity of material used, waste, effluent discharges, atmospheric emissions, global concerns, health and safety, operational efficiency, financial efficiency, social efficiency and institutional capacity.

Once the National Sustainable Development Strategy has been finalised the environmental sector resources will be required to be mobilised to ensure the implementation capacity is in place together with appropriate institutional

mechanisms across all spheres of governance.

The National Department of Environment, together with relevant stakeholders will initially continue to play an oversight role but will be specifically responsible for implementation of the core focus areas, and for instituting the Sustainable Development Strategies.

3.5 Increasing the effectiveness of delivery of sectoral mandates

The second area of activity for the sector will be to work to achieve effective delivery of its core areas of responsibility. The sector is emerging from a period of legislative reform and is faced with significant challenges in the implementation of its own sector specific mandates within new and often incomplete regulatory frameworks.

Over the next five years there is significant work to be done to complete the development of regulatory frameworks and to establish the systems and capacity to implement them.

Within the context of the above, a set of core focus areas have been identified for the sector. These are broadly aligned to its core areas of statutory responsibility and their aim is to articulate the agreed strategic approach to be taken in each of these areas and to provide clear targets for the sector to work towards.

The six core focus areas have been identified:

- Air Quality
- Waste and Chemicals Management
- Pollution Incident Management
- Environmental Impact Management
- Conservation and Sustainable Use of biodiversity
- Marine and Coastal Management

These core focus area aligned with the key focus areas for implementation of the programmes and sub-programmes as gazetted in the 2007 Provincial Environment Budget and Programme Structure for the sector:

- Environmental Quality Management
- Biodiversity Management and Conservation
- Compliance and Enforcement
- Policy Coordination and Environmental Planning
- Environmental Empowerment Services

The link between the six core focus areas identified and key focus areas classified in the Provincial Environment Budget and Programme structure is shown through the cross cutting priorities, to be demonstrated by programmes and targets.

3.6 Priorities

Strategic Goals for Environmental Sustainability and Integrated Environmental Management

The work of the environment sector is firmly rooted within the overarching goal of sustainable development, as explained in section 2 above.

Within the framework of the overarching goal of sustainable development, government has identified eight strategic goals for achieving environmental sustainability and integrated environmental management. These goals are interdependent and implementation must address all of them, as per funded treasury mandates, in order to be effective.

It is vital to recognize and communicate to other sectors of government the extent to which environmental concerns and issues cut across various sectors and functions. Therefore sustainable and integrated management of the environment depends on cooperation and initiatives from all sectors of government and society.

Many supporting objectives address functions of other government departments that impact on the environment and will require their cooperation and commitment for effective implementation in order to mainstream environmental management.

The strategic goals and their supporting objectives address the major issues government faces in its drive to achieve sustainable development and ensure an integrated system of environmental management. The vision and policy principles

have guided the choice of goals, objectives and policy implementation over the last decade.

This sector plan is aligned with the eight strategic goals for environmental sustainability and integrated environmental management and contains mandated Treasury funded targets and programmes to enable the sector and government to achieve these goals. The goals are set out in box 2 below.

It should be noted that the concern is more on creating the enabling frameworks within which sustainability can be achieved.

These issues are explored further within section 5 of this document. Goal 2 is an exception and is related to the core focus areas of the sector, the strategy for which is provided in section 4 below.

Many of existing governmental and sectoral institutional arrangements are not conducive to delivering the cross-sectoral - or in the case of climate change, the trans-boundary - approaches that are required, and require to be addressed in the next review of the strategy.

Box 2: Strategic Goals for Environmental Sustainability and Integrated Environmental Management**Goal 1 Effective Institutional Framework and Legislation**

Create an effective, adequately resourced and harmonised institutional framework and an integrated legislative system, and build institutional capacity.

Goal 2 Sustainable Resource Use and Impact Management

Promote equitable access to, and sustainable use of, natural and cultural resources, and promote environmentally sustainable lifestyles. Integrate environmental impact management with all economic and development activities to achieve sustainable development.

Goal 3 Holistic and Integrated Planning

Develop mechanisms to ensure that environmental considerations are effectively integrated into the development of government policies and programmes, all spatial and economic development planning processes.

Goal 4 Participation and Partnerships in Environmental Governance

Establish mechanisms and processes to ensure effective public participation in environmental governance.

Goal 5 Empowerment and Environmental Education

Promote the education and empowerment of South Africa's people. Increase their awareness of, and concern for, environmental issues, and assist in developing the knowledge, skills, values, and commitment necessary to achieve sustainable development.

Goal 6 Information Management

Develop and maintain mechanisms to increase access to information and ensure effective management of environmental information.

Goal 7 International Cooperation

Develop mechanisms to deal effectively and in the national interest with international issues affecting the environment.

Goal 8 Green economy

Design and integrate a Green economy to align with the visions of the MTSF as a vehicle for poverty reduction through the provision of safe and decent work, and environmental sustainability.

Table 1: Relationship between sector focus areas and the priority areas of activity

	Green Economy	Climate Mitigation	Climate Adaptation	Sustainable Development
Air Quality	<p>Supporting broad – based industrial processes that encourage cleaner and lower energy intensive technologies and green jobs.</p> <p>Reduce unsustainable production methods by shifting towards products and processes that maximise labour intensity, while reducing materials, energy/water intensity and air pollution.</p>	<p>Transition in major polluting sectors to reduce GHG emissions by shifting to sustainable production and consumption and adopting appropriate technology.</p>		<p>Poor air quality has a costly negative impact on human health and economic productivity. Health care costs rise as air quality deteriorates. Fossil fuel airborne pollutants lead to the acidification of soil and introduction of noxious compounds into the food chain. Reducing emissions levels has a direct positive effect on social, economic and ecological systems</p> <p>Reduction of energy demand and the incentivisation of sustainable energy generation, shifts us toward energy self sufficiency and protects from cost fluctuations in foreign energy sources, such as oil.</p>
Waste and Chemical Management	<p>Waste reduction and an increased diversion of resources back into the economy will create jobs at a far higher rate than that which currently exists – for each job in directing waste to landfills currently, up to 30 can be created through diversion of resources.</p> <p>Jobs; improved results; At least 30 professions can thus be added to the economy in this sector alone, as set out in the green jobs appendix.</p>	<p>Reduction in embedded and indirect GHG emissions through the manufacturing, use and re-use of products and processes.</p> <p>Waste disposal is an important contributor to greenhouse gases. Waste minimisation creates industrial efficiency while reducing waste volumes to landfills, with a goal of zero waste by a set date.</p>		<p>Sustainable waste services are needed for improved human health and protection of crucial resources, such as soil and water</p> <p>A key defining feature of a sustainable society is whether it has managed to transform all solid, liquid and airborne wastes into productive inputs, ultimately resulting in a de-materialised economy</p>

⁴ Department of Environmental Affairs and Tourism, People – Planet – Prosperity: A National Framework for Sustainable Development in South Africa, July 2008.

Pollution Incident Management	<p>Refining and scaling up sustainable production process methods reduces pollution incidents and in the long run will remove remediation costs from the economy.</p> <p>Increasingly effective responses to control pollution must be made available for monitoring and enforcement of Pollution incidents, both toward the technical and non-technical aspects of remediation. This provides further opportunities to create jobs through effective institutional oversight and responses.</p> <p>Cleaner production and pollution control is closely aligned to GHG emission reductions.</p>	<p>Cleaner production and pollution control is closely aligned to GHG emission reductions.</p> <p>Emissions must be reduced through improved enforcement on a user/polluter pays basis.</p> <p>Improved skills in mitigation of emissions developed</p>		<p>Effective pollution control and the Reduction in the use of hazardous materials are required for the protection of natural systems and human health, and to reduce the costs to maintaining ecosystem health.</p>
Environmental Impact Management	<p>Environmental impact management based needs to be based upon ecological economics models that recognise nature as the basis of life and resources. Valuation methods must shift beyond monetary valuation and incorporate full cost – benefit analysis on a case by case basis.</p>	<p>Integrating environmental planning and sustainability measures are crucial in developing lower carbon development paths of development.</p>	<p>Effective EIM is required to address climate change impacts, such as sea level rise and increased disruption of natural cycles and natural disasters</p>	<p>Effective planning and management is needed to balance social, economic and environmental pressures. For instance the development of guidelines and information resources to support the built and natural environments to design in and incorporate sustainability criteria into the design and construction of infrastructure and buildings</p> <p>Reduction of negative environmental impacts through improved coordination of urban development strategies, including</p>

				housing delivery, infrastructure construction, social services, safety, health and transportation.
Conservation and Sustainable Use of Biodiversity	The strategic objectives of the NBSAP and NBF form an important basis for a green economy. For example creating an enabling policy and legislative framework that integrates biodiversity management objectives into the economy, takes into account full cost accounting of ecosystem services capable of improving social and economic security, making it essential to develop a green economy. Furthermore a green economy needs to ensure human development and well being is enhanced through sustainable use of biological resources and the equitable sharing of benefits	Mitigation options such as restoring degraded biomes need to be considered, as has occurred in Kenya and elsewhere, to prevent desertification, soil degradation, loss of food security while improving water retention. Sustainable land use management is required to reduce the country's overall carbon balance. Planting appropriate and indigenous plant species for carbon sequestration.	There needs to be a wider recognition of the critical role of healthy and intact ecosystems enables human society to more readily adapt to the adverse impacts of climate change and instability. Climate change impacts on biodiversity need to be understood and managed. Helping communities adapt to changed ecosystems	Integrate biodiversity considerations into land use planning and decision making across all spheres of economic activity.
Marine and Coastal Management	Supporting equitable access for small-scale and artisanal fishers to ensure their right to food and contribution to local economic development. Maintaining fisheries resources through avoiding exploitation and over fishing of these marine resources. Provision of sufficient resources to manage and conserve marine and coastal systems to maintain ecosystem services and derive income for tourism.		Effective management of future impacts of and risks of climate change on marine and coastal systems and livelihoods Refine the understanding of the socio-economic impacts of reduced fisheries and adaptation considerations, establishing a balance between extractive and conservation practices.	Managing marine and coastal resources in manner that supports social and economic development, while at the same time maintaining the environmental resource. Review and reverse policies and procedures that negatively affect artisanal fishers and their livelihoods.

Compliance and Enforcement	Provision of sufficient resources of compliance of enforcement of legislation, policies, norms, standards and guidelines has the potential to create large number of jobs especially at the community and local government levels.	The establishment of monitoring and enforcement measures linked to specific mitigation programmes, on user/ polluter pays principles	The establishment of monitoring and enforcement measures linked to specific adaptation programmes.	Ensure that there is sufficient capacity in all spheres of government to implement, comply and enforce sustainable development responsibilities. Ensure funding at local levels.
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4. Sector Mandates

4.1 Air Quality

Where are we now?

The quality of South Africa's air remains one of its most challenging environmental issues and is an issue that has been raised on several occasions specifically in terms of the impacts it has on the health and welfare of South Africa's population.

Pollutant concentrations, particularly for sulphur dioxide and particulates, exceed recognized thresholds and are generally worsening in a number of the country's urban areas.

The most common sources of atmospheric emissions that impact on air quality in South Africa include:

- Electricity generation – power stations for the national grid
- Industrial and commercial activities and non-domestic fuel-burning appliances operated by businesses, schools, and hospitals
- Transport – petrol- and diesel-driven vehicle tailpipe emissions, vehicle-entrained road dust, brake- and tyre-wear fugitives and rail- and aviation-related emissions
- Waste treatment and disposal – waste incineration, landfills, and wastewater treatment work
- Residential – household combustion of coal, paraffin, liquid petroleum gas, dung, and wood
- Mining – fugitive dust releases and spontaneous combustion emissions
- Agricultural – crop residue burning, intestinal fermentation, and fertilizer and pesticide application (this is way too mild!!)
- Tyre-burning, wildfires, and fugitive dust from open areas.

The health impact related to indoor air pollution in fuel burning, largely low-income, households remains the most serious national air pollution problem. Emerging air pollution issues, such as SO₂, Nitric Oxide and Ozone, are closely associated with the transportation sector, especially road transport (SAEO, 2006). Air quality is the

highest environmental priority for many provinces, and is of particular importance to those with a high density of industrial facilities and dense settlements. Dioxins, Furans, particulate matter and PAH's are generated mainly from the burning of waste in various forms, including incineration, pyrolysis, open-burning and in cement kilns.

South Africa is responding to its air pollution challenges in various ways. These include legislative reform, revision of ambient air quality limits, proactive planning by local authorities, and sector-specific controls.

The promulgation of the National Environmental Management: Air Quality Act (AQA) (No. 39 of 2004) reflected a move towards a more rigorous approach towards air quality management in the country. The effective implementation of the Act will be the major thrust over the next five years. Key elements of the AQA include:

- Establishment of a clear institutional and planning framework for air quality management addressing vertical and horizontal government coordination. This includes the publication of a National Framework for achieving the air quality objectives of the AQA.
- Source-based approaches to the management control and licensing of identified activities, emitters and fuels that have a significant detrimental effect on the environment.
- Allowing for alternative pollution reduction measures including market incentives and disincentives, voluntary programmes and information and awareness.
- Providing for access to information and public consultation

Credible and readily available data has been a consistent problem with regard to air quality management. The process of developing a South African Air Quality Information System (SAAQIS) has therefore been initiated in order to ensure that appropriate measures to improve air quality are taken and that their benefits can be measured clearly.

There is a very small pool of skilled air quality specialists in South Africa relative to the scale of the management task. For example, there are currently only five

national air pollution control officers. This limited expertise constrains the ability to effectively implement air quality management strategies.

In short there have been a number of enablers and achievement to date:

- Local governance systems
- Air Quality Management Plans (AQMPs)
- Air Quality Act
- Air quality monitoring systems in major city centres. The City of Johannesburg, Ekurhuleni Metropolitan Municipality, and the City of Cape Town have already developed AQMPs.
- Sector-specific controls are being employed to reduce the impact of emissions from household fuel burning, electricity generation, energy and vehicles.
- Emission permits for industry and energy generation issued under the APPA paid insufficient attention to the cumulative impacts of co-located industrial operations. The new NEMAQA now takes such cumulative impacts into account.
- Recent changes to fuel composition have included the reduction in the sulphur content of diesel from 5 000 parts per million (ppm) to 3 000 ppm. Further reductions to 500 ppm of sulphur in diesel and the total phasing-out of lead in petrol are intended as part of the proposed Implementation Strategy for the Control of Exhaust Emissions from Road-going Vehicles in South Africa (DEA, State of the Environment Report).
- Decentralization of air quality management responsibilities is needed, as well as the setting of ambient air quality targets as goals for driving emission reductions.
- The recognition of source-based (command-and-control) measures in addition to alternative measures, including market post-compliance incentives and disincentives, voluntary post-compliance programmes, and education and awareness of the major polluters.
- The promotion of human development optimized mitigation and management measures and the provision of access to information and public participation and consultation.

Over the next 5 years the sector will....

- Develop and maintain an effective governance framework for air quality management, as provided for in the AQA, so as to ensure that the unacceptable current and future impacts of atmospheric emissions are avoided, minimized, mitigated or managed (Working Group 2: Environmental Quality Management, Work Plan 2007-2008).
- Create sufficient capacity in the public sector to effectively implement air quality planning, management and enforcement.
- Ensure that there are significant improvements in air quality in declared priority areas. Ambient air quality standards to be promulgated in terms of the AQA will be used as performance indicators.
- Improve indoor and ambient air quality in dense, low-income urban settlements.
- Make comprehensive and reliable air quality information easily accessible to all stakeholders.

A clear focus and concern for this sector in the coming years will be that of climate change. At local level, GHG reductions can be achieved alongside policies designed to improve the quality of life of communities. Reducing air pollution yields short, medium and long term benefits, which include decent work, improved health, improved food security, improved energy security and enhanced SMME development. South Africa was taking a “cradle to grave” approach; however, the cutting edge approaches for some years now speak to a “cradle to cradle” approach.

The sector will achieve this by.....

- Managing an efficient transition from the provisions of the Atmospheric Pollution Prevention Act (No.45 of 1965) to the National Environment Management: Air Quality Act which will come fully into effect by the end of 2009. Including:
- Replacing the administration by DEA of Registration Certificates issued for scheduled processes under APPA with the administration by provinces and municipalities of Atmospheric Emission Licenses (AELs) for listed activities under the AQA.

- Moving from the current limit values for ambient air quality as published in Schedule 2 of the AQA to national ambient air quality standards.
- Publishing the National Framework for Air Quality Management which will detail the approaches for achieving the objectives of the AQA.
- Ensuring that all obligations of Government as contained in the AQA and the National Framework have been discharged, including listing of activities and the development of air quality management plans at provincial and local authority level.
- Developing sufficient human resource capacity within the recipient authorities (provinces and municipalities). Capacity development will include the training of municipal and provincial officials in atmospheric emission avoidance, licensing, compliance monitoring and enforcement. This will be supported by the development of a licensing manual and other documentation and will build on capacity development already underway in the Metro municipalities.
- For the next five years the focus of the transfer of authority and capacity development will be on the 23 District Municipalities that been identified as having poor or potentially poor air quality.
- Expanding skills in the sector through the consideration of improving tertiary level training; development of in-service training and internships; and preparation of targets, timelines, guidelines and manuals for air quality management, driven by Sustainable Development principles
- Continuing and escalating compliance monitoring and enforcement activities (against existing Registration Certificates under APPA) to increase the impact of existing regulatory approaches. In the short term this will be done through inspection programmes led by the DEA EQP Branch targeting specific industry sectors. As licensing authority is devolved to municipalities and provinces compliance and enforcement functions will accordingly be carried out by EMI's at these levels.
- Ensuring that all municipalities with poor or potentially poor air quality have prepared air quality management plans.
- Developing and implementing two priority area air quality management plans for areas that have been identified as having problems with poor air quality (Vaal Triangle air-shed and Highveld priority areas). The DEA will also assist provinces to identify provincial priority areas.
- Developing and implementing the South African Air Quality Information System (SAAQIS) in partnership with the South African Weather Service

(SAWS) which will ensure that a strong basis exists for air quality management actions. This will be supported by improving local air quality monitoring facilities and capacity. SAAQIS will be developed incrementally with key functionality being in place by 2012.

- Developing and implementing a strategy, in cooperation with the Departments of Health, Minerals and Energy and Science and technology, to address poor indoor and ambient air quality in dense, low-income settlements, through the provision and use of safe and sustainable energy sources, and the avoidance and reduction of emissions from industrial sources, landfills, incinerators, household chemicals and fossil fuels.
- Developing a national air quality reference laboratory as either a single physical laboratory or a "virtual laboratory" acting as a coordinating institution. The laboratory will also perform outreach, support and accreditation functions.
- The development of a joint climate change mitigation and air quality management strategy
- Cross sectoral and cross departmental co-operation for the development of integrated plans and programmes (health, minerals and energy etc.)
- The development of formal and informal, low level and high level green jobs that are sustainable and assist in working towards the aims of the air quality management systems, Act and local Air Quality Management Plans

How the sector will work together...

The sector will work together through the ongoing interactions that occur in the Air Quality Management Forums, as well as the Annual Air Quality Management Governance Lekgotla.

The *National–Provincial* Air Quality Officers' Forum is a subset of the existing MINTEC Working Group II (WGII). Quarterly WGII deliberations on air quality management issues act as the deliberations of the National–Provincial Air Quality Officers' Forum.

National, provincial and local government at the Metro and District level will work together to ensure that there is the necessary capacity, in terms of human resources and systems development, to take on the licensing responsibilities as envisaged in the AQA. *Provincial–Municipal* Air Quality Officers'

Forums already exist in the three key industrialised provinces of Gauteng, Western Cape and KwaZulu-Natal. In order to facilitate the efficient, effective and cohesive functioning of these forums, DEA has provided all provincial Air Quality Officers with generic terms of reference for such forums.

The effective development and implementation of the priority area air quality management plans is also dependent on the provinces, local government and a number of national departments working together in a manner that supports the objectives of inter-governmental co-operation due to the nature of the issues and jurisdictions such plans cover. This also includes accessing funds from their own budgetary processes to support specific elements of the plans developed.

DEA is to engage with other Government Departments particularly those involved in health services, minerals, energy and transport to ensure cross sectoral alignment and common vision to address air quality concerns.

A tabulated summary for delivering outcomes for Air Quality is included in Appendix 8.3.1 (pg 99).

4.2 Waste and Chemicals Management

Where are we now?

Historically, South Africa followed an 'end of pipe' waste management approach which focused on the disposal of waste at landfills – cradle to grave. The health and environmental risks associated with landfill operations, reduced land availability for new landfills, increased transport costs and associated impacts, the lost potential for many Green jobs along with lost valuable recyclable resources (like organic material, glass, metal, paper and some types of plastics) discarded at landfills have made the 'end of pipe' approach incompatible with the aims of sustainable development. Further, the requirement to move towards a Green economy insists that landfills be phased out, and improved efficiencies be realised with material, energy, water and carbon intensity in production and consumption. The approach, as initiated in the new National Waste Management Act, is one that shifts Waste from a "cradle to grave" approach, to a "cradle to cradle" one, which fulfils the requirements of the National Sustainable Development Framework, and the future

⁵ It is a method used to minimize the environmental impact of products by employing sustainable production, operation, and disposal practices and aims to incorporate social responsibility into product development. Under the cradle-to-cradle philosophy, products are evaluated for sustainability and efficiency in manufacturing processes, material properties, and toxicity as well as potential to reuse materials through recycling or composting.

National Strategy for Sustainable Development. (See Greening Growth, attached as supplementary note 1.)

The major issues are that waste volumes and disposal volumes have both risen. This is a key indicator showing whether waste diversion is occurring sufficiently. Diversion of waste away from disposal to re-integrate it back into the economy is a priority required and arising from various policies and legislation. The focus - especially at local level - requires change from an "end of pipe" approach, to addressing the problem further up the waste and value chain.

Budgets and KPI's / KPA's at provincial and local government level must reflect these changes. This cannot remain an unfunded mandate at the local sphere of governance.

A new approach was required, emphasising waste avoidance and bringing South Africa in line with international best practice in waste management through a new National Waste Management Act which has been widely consulted since 2003, and was promulgated this year.

The Bill emphasises the waste avoidance approach and will set South Africa on the path to better and more sustainable waste management nationally.

This section includes all those functions which are 'broadly' related to waste and chemicals management and which are a responsibility of the sector i.e.

- waste avoidance, minimisation, reduction,
- waste management (covering materials diversion, collection, re-use, value adding, and where necessary disposal, with disposed waste being thereafter considered priority wastes for phasing out,
- remediation of sites contaminated or degraded through previously inadequate management and disposal of waste,
- Life Cycle chemicals management and responsibility.

Dematerialising the economy is a key component of the NSDF

This refers primarily to massive improvements in the efficiency of production

Cradle-to-cradle designs are examples of "eco-effective" business practices that optimize human health, recyclable and compostable materials, product life, use of renewable energy, water efficiency and quality while keeping the manufacturers socially responsible.

and consumption systems by reducing the total quantity of materials and energy required per unit of production. The quantity of waste outputs that are predominantly disposed of in landfills, air, marine and aquatic systems are eventually reduced to zero. The promulgation of local waste management regulations will be critical in this respect, and must be supported as per treasury stipulations for policy coordination and environmental planning.

Food security and natural resource-based livelihoods have been identified as a key way in which a Green economy can be built:

Allied to land reform, food security and employment creation in expanded agricultural sectors (as envisaged by ASGI-SA and MTSF) can only be achieved if resources are committed to a national soil rejuvenation programme.

“A key defining feature of a sustainable society is whether it has managed to transform all solid, liquid and airborne wastes into productive inputs. “

The greatest risk concerning waste management outcomes is insufficient knowledge and capacity at local government level to implement sustainable solid waste management strategies and methodologies.

The drive by the government for various positive outcomes (particularly within the MTSF) insists that the waste services provided by government benefit all.

- The requirements of the new Waste Act imply that the performance measures of waste managers will change.
- Waste volumes are rising fast and landfills are generally in crisis
- Key policy issues, such as Polluter Pays; Extended producer Responsibility; and Cost Recovery are required to be integrated into current performance.
- The lowering of the energy intensity of the economy is a National imperative
- That this become a fully funded mandate, with adequate provision of human capacity at local level,
- That job creation is prioritised as in the EPWP and other programmes.

The sector carries a greater degree of responsibility for Climate Change than most.

Recently assessed impacts of products and land use have been found responsible for around 40% of all climate change gas emissions. This places a particular responsibility on this portion of the sector.

MTSF

One of the key deliverables by this sector is contained within the MTSF. In order to give effect to the requirements contained within this framework it is advised that this sector will benefit from infrastructural spending that facilitates a shift from wasteful spending on traditional “hump and dump” practice, to one that serves local communities, business, industry and government with waste services that divert waste towards productive use and re-use.

A halt must come to the current system of subsidised disposal. The diversion of resources to sustainable infrastructure will also result in greater local employment, with concomitant reduced local and national environmental impacts.

Legislative reform

The National Waste Management Act drives an approach to waste management that is based on the need to avoid and reduce the amount of waste manufactured and generated, and to re-use, recover and safely recycle materials where possible. Within this approach, disposal to landfill is seen as a last option.

This approach will result in major cost reductions for municipalities and business, with increased Green jobs and growth in related SMME's. However the institutionalisation of this approach, which includes the establishment of infrastructural and operational capacities, will result in a short term cost increases. These should be covered by the polluter pays principle.

The task for the sector in the next five years is to concentrate on roll-out and implementation of the new legislation, supported by activities to enable human capacity development, while also providing the required resources to enable this, such as institutionalising waste avoidance and so on.

In addition to the broad legislative framework, a priority for the sector is also to continue to expand the policy and regulations governing the sector to ensure that current gaps in this area are addressed. For example, there are policies on incineration of waste and for standards for adequate waste management and the provision of waste services that are aimed at in reducing national backlogs in service provision. However, this must all be premised on the successful diversion of waste resources away from disposal and destruction, back into the local economy.

In addition to the reform of national legislation, many provinces are also developing new legislation to address issues in this area and this process must be continued through the period of the sector plan.

The current waste management objectives of concern to the sector fall into five broad areas:

- To avoid, prevent and reduce the amount of domestic and hazardous waste being manufactured and generated in the country. The definition of “generator” requires review to identify the manufacturer and those who derive financial benefit from the waste life cycle.
- To provide adequate and appropriate waste collection services across the country, thus ensuring protection of the environment from unmanaged waste, and providing the population with access to a basic service premised upon waste avoidance in previously under- or none serviced regions.
- The ramping up of diversion of waste to productive and job creating, poverty alleviating activities, and which focus on giving life to a Green economy.
- To ensure that all waste proven to be unavoidable is adequately disposed of in a manner which is not detrimental to people or the environment.
- To address the remediation of areas where waste has not been managed adequately and has had a detrimental impact on people and the environment.

Waste Avoidance, Reduction/minimisation

The National Waste Management Strategy (1999) emphasised the need to move away from excessive focus on waste treatment and move more towards waste prevention and minimisation. The Polokwane declaration on waste management

sets the following specific targets for waste management in South Africa:

- To reduce the volume of waste generated by 50 per cent by 2012;
- To reduce the volume of waste being disposed of by 25 per cent by 2012; and
- To develop a plan for Zero- Waste by 2022.

The sector will continue to work towards these targets for waste minimization as a priority. However they are not immediately achievable as budgets, Key Performance Indicator's and Key Performance Area's (particularly at Provincial and Local levels) do not support these outcomes, particularly at local level.

There is a need for the sector to define and agree achievable targets for the timeframe of this plan, whilst simultaneously diverting budget from transport and land filling of waste, to more sustainable waste interventions, such as avoidance and recovery activities. Some short term steps can lead to good reductions, such as the banning of the disposal of organic waste and diverting same to composting (achieving more than one delivery imperative in the process) and working towards achieving the targets stipulated.

So, one could consider that a 50% diversion of waste will require up to 50% of the budget and related resources, etc. The current concentration of spending in end-of-pipe must be turned around. This is also particularly relevant to the achievement of a Green Economy, a specific Goal of this sector.

The greatest challenge in meeting waste minimisation targets will be faced by local government, which is mandated with waste collection, disposal and management functions. A major shift in emphasis at the local level is required from disposal towards waste avoidance, minimisation, re-using, re-manufacturing, recycling and composting. National and provincial government (with appropriate KPI's and KPA's) will support local government in this regard. Capacity constraints are best illustrated by research undertaken by the CSIR, confirming that 88% of capacity in waste is “pollution management” (end of pipe); with only 10% directed toward resource management and a paltry 2% on cleaner technologies and products (the latter two more in line with the Waste Act requirements).

The sector will also step-up its interaction and engagement with industry to create instruments that will encourage producers to avoid and reduce waste and improve management of waste, focusing initially on prioritized waste streams and cost recovery through the Polluter Pays and EPR principles. Efforts must be made to involve local communities in this process, and capacity building and resources must be directed to this end, as per the MTSF.

Waste Management

Increased effectiveness in government's performance of waste services is a high priority for the sector. In particular, there is an urgent need to:

- **Increase access to sustainable waste services.** About half of South Africa's population still do not have regular waste services. Schedule 5 of the Constitution provides local government with exclusive authority over the functions of cleansing; refuse removal; refuse dumps; and solid waste disposal. Schedule 5 requires to be re-written to include waste avoidance, re-use, recycling and composting. This will not only ensure delivery of key provisions of the Waste Act, but will also address the provisions contained in the MTSF, the NFSD and the drive towards a Green Economy with decent work for all. The current paradigm fails to reduce the amount of waste disposed of, nor to deliver decent work. The vast majority of work for poor people is unsafe, unhygienic and often does not provide for even basic human survival. Numerous successful models confirm the potential for decent jobs.

Job Creation: Reuse and Recycling vs. Landfill and Incineration

Type of Operation	Jobs per 10,000 TPY
Product Reuse	
Computer reuse	296
Textile Reclamation	85
Misc. Durable Reuse	62
Wooden Pallet Repair	28
Recycling-Based Manufacturers	
Paper Mills	18
Glass Product Manufacturers	26
Plastick Product Manufacturers	93
Conventional Materials Recovery Facilities	
Composting	4
Landfill and Incineration	1

Source: Institute for Local Self-Reliance, Washington DC, 1997; "Wasting and Recycling in the United States 2000"; GrassRoots, Recycling Network, Prepared by Brenda Platt and Neil Seldam

- Provincial governments have a role in monitoring and providing support to local government and ensuring that the allocated responsibilities in relation to waste management are effectively performed. Provincial government may also provide legislative support where necessary, for example, in addressing the phasing out of priority wastes, etc. (Note: the term waste collection services must be changed to "waste services" to encompass all required by the new act)
- Within the next year, DEA and the Department of Provincial and Local Government will work together to produce a 'Sector Master Plan' on waste services which will address many of these issues, by ensuring that:
 - end of pipe processes are decreased in importance
 - avoidance at source (manufacturing, transport and retail) is promoted
 - materials prices are regulated adequately
 - The maximum number of Green jobs are created

Ensure more effective operation and regulation of existing waste disposal facilities. A significant number of the waste disposal facilities in South Africa

currently operate illegally (without a permit) primarily due to a lack of resources and capacity within municipalities to ensure that the facilities are managed to a standard that meets minimum requirements for permitting. Resource constraints are not the sole reason for poor management and greater emphasis needs to be placed on waste avoidance (as required by the Act) to minimise the need for compliance monitoring and enforcement. It is necessary to ensure that more sites are re-designed with materials recovery in mind (MTSF and the NSDF) and where necessary are permitted to become compliant with their permits. Permits must stipulate that waste avoidance measures take priority over disposal, to ensure compliance.

- DEA is embarking on a five year national programme to identify all non-permitted sites and to support municipalities to bring sites to an acceptable standard for permitting. This can happen in parallel with a waste avoidance, re-use and recycling programme, which will reduce the need for future landfills, as required in the Act. A particular priority is to ensure safe and legal management of hazardous waste sites given the intrinsically high impact these sites can have on people and the environment if poorly managed, with a view to reducing the need for such in the future Green economy.
- The sector has much work to do in terms of determining the financing requirements for bringing all disposal sites to required standards, and ensuring that waste avoidance intervention measures are fully costed. Local government will need to identify funding options for the required capital expenditure – including local revenue sources and the possibility of representations to Provincial Treasuries and National Treasury for additional funds via the Municipal Infrastructure Grant (MIG). The steps taken in this regard will specifically help delivery on social mandates, such as Decent Work and Greening the Economy, through measures such as:
 - cost recovery from those benefiting from the value chain, such as manufacturers, wholesalers and retailers,
 - instituting deposit systems on products and packaging;
 - levies on manufacturing of wastes, as in the Buyisa-e-bag model, which although it has yet to recover plastics, could be made applicable to other waste streams.

- Achieve increased compliance with waste related multi-lateral environmental agreements. At present this only refers to two MEA's, namely:
 - The Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal (Basel Convention). Administration of permits required under this convention is the responsibility of the Department of Trade and Industry but with input from DEA (EQP Branch). Responsibility for monitoring compliance with this convention is not sufficiently clearly defined.
 - The Stockholm Convention on Persistent Organic Pollutants. This appears misaligned with the policy on incineration, as UNEP notes that 69% of the world's dioxins and furans (both referred to under the Convention) are generated through incineration. This requires rectification, as there is a contracted requirement to reduce and phase out the POP's chemicals, not to encourage further production by increasing the number of incinerators.

DEA will lead the sector by clarifying roles and responsibilities under these conventions and communicating the requirements to relevant institutions. If South Africa wishes to assume a leadership role within Africa in this sector, the ratification of the Bamako Convention is a further imperative.

Remediation

At present, the requirement for remediation is understood across the sector yet little activity is taking place in practice. Work is required by the sector to understand the scale of the task and then to identify the funding and resources required to carry out the remediation work required. Much of the problem stems from old municipal disposal sites which have not been adequately managed in the past. Thus the onus will rest with local government to fund and carry out remediation required, with the potential for "landfill mining" and technologies (such as bio-remediation) that improve availability of Green jobs within the sector.

However, given the clear funding challenges faced by local government (unfunded mandates) in the areas of waste management, the sector as a whole will investigate this problem and identify a strategy for addressing remediation through avoidance and tracking, with responsibility for historic liabilities being carried by the relevant

industry, as is currently done with E-waste. This is closely linked to the programme of improved regulation of waste disposal outlined above.

In general, DEA will take a leadership role in ensuring that provinces and local governments fully understand their mandates as regards to waste related issues, as well the mandates of other key national departments such as, DWAF; DTI, Tourism, Public Works and the Department of Health.

The sector will establish discussion and capacity building forums to encourage communication between spheres of government on waste issues, with an underlying drive towards a Green economy. This model has proven effective in the area of air quality management and is recommended for application in the waste focus area.

Chemicals Management

The management and regulation of hazardous and potentially hazardous chemicals is carried out under a wide range of legislation and by a number of national departments creating a potentially fragmented and inconsistent management system. There is also the potential for certain chemicals or components of chemical life-cycles to remain outside of the scope of regulatory oversight, which must be corrected.

The main role of the environment sector is to support current regulatory measures but also, where these measures may be insufficient, to ensure that chemicals are managed in a manner which does not cause a detrimental impact to people or the environment.

International best practice is moving towards a life-cycle responsibility approach to chemicals management. This indicates a shift toward the design of green chemicals, as well as managing production, transport, storage, distribution, use, re-use, re-integration of chemicals into the economy. Where chemicals are shown to be unavoidable they must be disposed of in a safely managed manner. Understanding and applying a movement towards the life-cycle approach to waste and chemicals management remains a challenge for South Africa.

South Africa has specific international commitments with regard to chemicals

management. These include Prior Informed Consent (PICs) of import and export of POP's under the Stockholm and Rotterdam Conventions respectively. These need to be translated into national regulatory requirements. Provinces and local authorities have no clearly defined roles in this area which is of increasing concern to them.

The formalisation of these international commitments, together with clear indications of the relative roles and responsibilities of the different spheres and Departments of government is an important issue for the sector over the next five years.

Suggested KPA's and KPI's for the sector.

KPA's

- Diversion of waste budget away from disposal,
- Increase in personnel upstream from disposal,
- Job creation (jobs and Rand value per annum).

KPI's

- Total waste avoided – volume and mass,
- Total waste collected – volume and mass,
- Total waste diverted – volume and mass,
- Total waste to which value was added,
- Total GHG avoided by interventions,
- Total Rand value of jobs created,
- Total number of sustainable jobs created,

What is test of relevance?

- Whether budget is spent on diversion as opposed to disposal,
- Whether volumes increase or decrease in traditionally high consumption areas,
- Whether the “highest use” option has been exercised for waste services.
- Whether compactor trucks and landfills are decreasing in number and volume.

Over the next 5 years the sector will....

- Shift the emphasis of waste management in the public and private sector towards avoiding waste, while shifting budget and capacity building to support this
- Improve performance in waste services to show measurable progress towards universal access to adequate household refuse, through avoidance, re-use, local economic development, diversion, recycling and removal services for the residue
- Significantly improve the management and control of waste disposal sites nationally, while driving the reduction in the need for future sites.
- Prioritise remediation activities to address contamination and degradation of the environment caused by poor past management of waste sites and other improper waste practices – an option that will be explored shall include the “mining” of existing and closed landfills for the recovery of usable materials.
- Support the implementation of clean production based on Green Economy principles, with clear targets and timelines
- Ensure that institutional and regulatory clarity is achieved with regard to life cycle chemicals management in the country, including the definition of clear goals for the country and delineation of the roles of the three spheres of government.
- Ensure that South African is able to meet its international commitments with regards to the PICs and POPs conventions and is able to use these agreements to protect the country from improperly managed chemicals, and the avoidance of unintended POP's, such as dioxins and furans. Support will also be provided to Agriculture through safe and environmentally sustainable alternatives to POP's and other chemicals.

The sector will achieve this by....

- Implementing a plan to roll-out the provisions of the National Waste Management Act, including identification of capacity and funding gaps related to its implementation. The key focus will be on the increase of decent work in the sector, through provisions that speak to waste avoidance and on the generation of revenue from those who benefit from the waste value chain, e.g.: manufacturers, wholesalers, and retailers,

- Fully implementing a waste information system,
- Developing and implementing a landfill permitting plan to address the problems of unlicensed landfills – and to identify funding sources to assist with upgrading of infrastructure that supports the reduction in future landfills.
- Implementing a strategy to address service provision issues to address the backlog in the provision of services to un-served communities – this will also include analysis of funding and capacity gaps and strategies to address these. Given the implementation of the next point, the need for collection will decrease over time.
- Identifying and agreeing realistic targets for waste avoidance, minimisation, re-use, recovery, diversion, recycling and composting.
- Working with industry to develop clean production and Green Economy approaches/strategies that lead to decent work and the highest potential for materials being re-integrated into the economy.
- Increasing awareness raising and education to influence production and consumption patterns by the general public as well as to reduce waste manufacture and waste generation by the supply chain, given that the majority of waste is generated pre-consumer.
- Understanding its responsibilities under the Basel and Stockholm Conventions and putting systems in place to facilitate implementation of these responsibilities. The policy on incineration requires alignment in light of this.
- Developing programmes to ensure delivery of South Africa's obligations as regards sound and responsible life-cycle management of chemicals and improve the growth of the Green Chemistry economy.
- Instituting a review of chemicals requirements and life-cycle management in South Africa. This to be used as a basis for developing a comprehensive chemicals management system for the country, with an associated implementation plan based on Sustainable Economy principles.

How the sector will work together.....

Addressing the overarching problem of un-served areas with regard to waste management will require national government to work closely with provinces and local government to ensure that the necessary planning is done and funding sourced for the implementation of sustainable solutions, which will not focus

on collection and disposal, but rather the provision of a range of services that increase the number of decent work opportunities that are an outcome of extended producer responsibility.

Addressing landfill management will require DEA and Provinces, once they are allocated responsibility for regulation of landfill sites, to work closely with local authorities. This will require “developmental regulation” where the regulatory authorities provide both support and oversight and enforcement functions.

Integrated Waste Management Plans will be key tools for ensuring that local government activities are in alignment with objectives of national government in this area and that service delivery targets for local government are established and implemented. Budgetary allocations in this regard will also be tracked and monitored, with budgets growing towards the upper ends of the waste hierarchy.

A tabulated summary of the strategy for delivering outcomes for Waste and Chemicals management is included in Appendix 8.3.2 (pg 104).

4.3 Pollution Incident Management

Where are we now?

Pollution incidents when they occur, often impact several media (e.g. air, water, soil) and can have serious impacts on natural resources, human welfare and the economy. It is thus vital that there is an effective response mechanism in place within government to ensure that pollution incidents are dealt with in a way which minimises harmful impacts on both society and the environment.

With the fragmentation of responsibility for the environment - impacts of pollution incidents often involve more than one sector of government (most commonly, the environment and water sectors). Coordination across sectors in terms of responsibility for ensuring clean-up and remediation (as well as for coordinating investigation and prosecution efforts if required) is therefore often essential.

Management and response to pollution incidents also often requires cooperation within the environmental sector across spheres. Local government often has a

critical part to play in terms of provision of emergency services if required. There is also a requirement for DEA and provincial environment departments to communicate to determine which sphere of government will act as overseeing authority to ensure that an incident is adequately dealt with. The level of government which is involved will in many cases relate to the type, scale and impact of the incident involved. At present there is no agreed classification system in place to guide this decision. However, the application of subsidiarity is called for in this regard. The responsibility for action lies with the lowest level of government possible, but at the highest level of government necessary to resolve the incident timeously and sustainably.

Section 30 of NEMA does provide for a process for ensuring that information on ‘emergency’ incidents is received by government. This section also places the onus on the ‘Responsible Person’ to contain, clean up and carry out required remediation following an emergency incident. The role of government (the Relevant Authority) under section 30 is to receive information on the incident and then to ensure that adequate procedures are followed by the Responsible Person. However, to date this section has been difficult to implement in practice. The term ‘emergency incident’ is not clearly defined and thus there is no clarity in terms of when this section of NEMA should be enacted. The section has not provided the clarity required in terms of which sphere of government is responsible for oversight of ‘emergency’ pollution incidents and fails to provide a framework for coordination of effort across sectors. Again, the principles of subsidiarity and precaution must be applied.

There is thus a definite need within the sector to clarify a process through which coordination both between sectors and spheres as well as within the sector is achieved when a pollution incident occurs, in order to ensure that effective management and response is achieved and ensure that impacts on the environment are minimised.

Within South Africa there is no dedicated ‘superfund’ to provide funds for the management of pollution incidents. As a result, government institutions are often slow to respond as there may not be readily available funds to implement a response. There may therefore be a need to review funding requirements for incident response to ensure that institutions are able to intervene when necessary to reduce impacts to the environment. Currently, this is yet another “unfunded mandate” that should be rectified down to local government level.

Over the next 5 years the sector will....

- Work with other sectors to ensure that the environmental impacts of pollution incidents are dealt with in an effective manner, with input from government coordinated and mobilised quickly when required.
- Ensure that there is clarity across all sectors as to when and how input is required from national departments and spheres of government.
- Ensuring that funds are available for incident management, with a view to full cost recovery from the relevant industry or polluter.

The sector will achieve this by....

- Developing guidelines (in conjunction with other relevant sectors) for management and response to pollution incidents (including post-incident investigation and enforcement activities)
- Developing and implementing an information management system for collating accurate information on incidents and responses to these - and linking this information to efforts on compliance and enforcement
- Reviewing the effectiveness of section 30 of NEMA- with a view to ensuring there is a clear and effective legislative basis for government response to incidents with significant potential effect on the environment
- Reviewing the effectiveness of current funding arrangements for government intervention in pollution incidents, and motivating and supporting funding for local government in this regard.

How the sector will work together.....

DEA will lead the sector to review current arrangements for pollution incident management and response – involving all relevant sectors across government. All spheres of the sector will be involved in this process.

This can be funded under national and provincial Treasury programmes under environmental empowerment services, environmental quality management, compliance and enforcement and policy co-ordination and environmental planning.

A tabulated summary for delivering outcomes for Pollution Incident Management is included in Appendix 8.3.3 (pg 110).

4.4 Environmental Impact Management (EIM)**Where are we now?**

In 1997, South Africa took a proactive step towards better environmental protection through the implementation of Environmental Impact assessments (EIAs), which were mandatory for all new developments with potential environmental impact. As beneficial as the EIAs were for environmental quality, the lengthy application process created a bottleneck in development, which hampered the national priorities of economic growth and job creation. So the branch set about revising the EIA regulations to streamline the application process while maintaining stringent environmental protection. The review took five years, and was one of the most exhaustive consultation and revision processes in South African environmental legislation history.

The environmental sector is currently within a period of change with regard to EIM. In 2006, a new set of regulations for EIM under the National Environmental Management Act (NEMA) were gazetted. This has required the competent authorities within the sector to change their systems and processes to comply with the contents of the new regulations. Work has also begun to ensure that applicants and interested and affected parties are made aware of the new regulations and the implications these have on EIA processes.

Over the next 5 years, the sector will have to continue this process of rolling-out the new regulations. However, this period will also require the sector to address some of the more fundamental challenges with the implementation of environmental impact management it now faces. Presently, the sector focuses its EIM approaches on the use of one particular tool – the EIA. The current reliance on and over-use of the EIA approach has been due primarily to the lack of alternative EIM tools available for use both by applicants and competent authorities. The reliance on the relatively inflexible EIA process which is costly and time consuming to administer, places a significant burden on resources within the competent authorities. This combination of lack of alternative tools, inefficiencies within the EIA system itself – and a

shortage of capacity and resources within both DEA and provincial environment departments has resulted in significant backlogs in processing of EIA applications. The net result is a perception among developers and the general public that the EIA process is an inhibiting factor as far as development is concerned.

In addition, there is also uncertainty as to the effectiveness of the EIA process in managing the environmental impacts of developments and qualifying activities. Whilst the existing system does have many benefits and has had significant positive impacts – it is also clear that an inconsistency in quality of authorizations issued through the EIA process, and a low level of monitoring and enforcement of breaches with these authorizations have reduced its effectiveness.

In order to address the issue of a need to respond to a developing regulatory framework, national government and its agencies have opted for a programmatic approach. This has enabled significant short-term gains. However there are concerns relating to the capacity of provincial and local government to respond to sustain these gains, especially since not all of these programmatic responses have enabled embedded capacity within mandated agencies.

It is thus a priority of the sector over the next five years to address all of the issues above through:

- Improving the efficiency and effectiveness of the EIA system.
- Developing a broader 'toolkit' of EIM approaches and instruments.
- Developing capacity and provide support - to ensure that regulators, practitioners and interested and affected parties are equipped to implement their roles within the EIM system effectively and efficiently.

To enable the above to take place, continued reform of the legislative and regulatory framework for environmental impact management is required.

This reform process will focus on amending chapter 5 of NEMA and revising the 2006 NEMA EIA regulations to increase the efficiency of the EIA process – but also to make provision for the use of alternative EIM tools (i.e. 'rationalisation' of the EIA process). Mechanisms being considered include:

Box 3: Evolution of current legislative and regulatory framework for EIM

The evolution of South African legislation for the statutory implementation of environmental impact management (EIM) commenced on 9 June 1989 with the promulgation of the Environmental Conservation Act, Act 73 of 1989 (ECA). This Act authorised the then Minister of Environmental Affairs to identify, by regulation, certain activities which may not be undertaken without prior consideration of the environmental impacts thereof.

After several years of inter-departmental negotiations the first environmental; impact assessment (EIA) regulations were issued on 5 September 1997. A year later, on 19 November 1998, the ECA was superseded by the National Environmental Management Act, Act 107 of 1998 (NEMA). However, the ECA regulations remained in force until 21 April 2006 when the comprehensive EIA regulations in terms of NEMA were promulgated. The preceding period of nine years was devoted to a process of extensive intra-and extra-governmental negotiations and consultations to develop the NEMA regulations. As a consequence, the first amendment thereof is already under consideration. This assessment will be continuous and the regulations can thus be regarded as being in a state of active evolution

This reform process will focus on amending chapter 5 of NEMA and revising the 2006 NEMA EIA regulations to increase the efficiency of the EIA process – but also to make provision for the use of alternative EIM tools (i.e. 'rationalisation' of the EIA process). Mechanisms being considered include:

- Identification (and prescription) of sensitive environments (ecologically or culturally sensitive - or environments of compromised quality) - and the identification of additional activities that would only require EIA authorization if occurring in such areas.
- Development and adoption of Environmental Management Frameworks for geographical areas. Compliance with - or development in accordance with these frameworks would then result in 'pre-approval' or exclusion from EIA requirements of certain pre-determined activities.
- Pre-approvals of exclusions - as specified by means of approved sector policies or guidelines.
- Class or group applications.

- Refinements of thresholds to address province specific needs and challenges.

An additional factor which has been gradually increasing the administrative burden on both applicants and competent authorities - has been the proliferation of sector-specific environmental authorizations, permits and licenses many of which are required for one development but relate to the regulation of different activities under different pieces of legislation.

The sector is thus currently working on amendments to Chapter 5 of NEMA which will provide for the rationalisation of environmental authorization processes and will, in practice, allow an Environmental Authorizations issued through an EIA process to be expanded to include the requirements set in Specific Environmental Management Acts (SEMA's).

This integration will thus achieve a 'one process - one permit' situation. Whilst the sector may not achieve widespread implementation of 'integrated permitting' in this way in the next 5 years, this is a goal for the future and the next five years will see establishment of the required legislative framework - and the consideration and development of appropriate 'routes' for its implementation in practice.

Current priorities are to provide leadership to government on environmental issues and effectively implement departmental sectoral mandates. It can be argued that these would both be served by more deliberate efforts to promote public understanding, involvement and endorsement. Owing to the critical and urgent nature of many of the issues (which should not simply be labeled 'environment') both priorities are strongly relevant.

Over the next 5 years the sector will:

Continue to roll out the implementation of the new regulations for EIA
Continue to reform and improve the EIM approach within South Africa - and to do this specifically through the following:

- Development and implementation of an effective and efficient EIA system.
- Development and implementation of a wider range of EIM tools.

- Providing for rationalized environmental authorization processes and identifying options and approaches for its implementation into the future.
- Building of capacity and provision of support across the sector for regulators, practitioners and interested and affected parties.
- The development of formal and informal, low level and high level green jobs that are sustainable
- Cross sectoral and cross departmental co-operation for the development of integrated plans and programmes

The sector will achieve this by...

Rolling out of regulations will be achieved by...

- Creation of appropriate administrative systems and processes for the implementation of the new EIA regulations
- Establishment of programmes for the training of administrators in the regulations and in the application of the administrative systems and processes
- Creation of channels for the effective communication of information on the regulations and interpretation of the regulations to competent authorities, practitioners, applicants and interested and affected parties.

Improving efficiency and effectiveness of EIAs will be achieved by....

Development of best-practices, guidelines, manuals and standard operating procedures and the promotion of the sharing of these between all competent authorities. This will include guidelines and templates for the production of robust environmental authorizations, performance targets etc.

Continuing reform of the legislative and regulatory framework to ensure increased effectiveness and efficiency of the EIA process – and provision for the development of a broader set of EIM approaches in South Africa.

Development and implementation of electronic/ web based application, permitting and information management systems to support regulatory activity (e.g. the NEAS system being developed and rolled out by DEA).

Building the capacity of officials and private practitioners to ensure accurate reports first time and clear TORs issued from authorities

Ensure clear process is provided for the processing of scoping reports, screening and EIA.

Development and implementation of a wider range of EIM tools will be achieved by...

- Development of a national strategy and action plan for Environmental Impact Management – which will identify the future agreed approach to EIM and how and when this is to be implemented. This is a key strategic activity for the sector over the
- next 5 years,
- Analysis of capacity and resource requirements for EIM for the sector. This analysis will be used to inform the development of the strategy (above) and to guide recruitment, the generation and distribution of funds, skills and other resource requirements across the sector.
- The development of tools for use by specialists in EIAs to ensure a transparent and thorough process is followed

How the sector will work together

DEA and the provincial environment authorities are the main role players in this area of the sector. DET will act in a leading and coordinating capacity over the next five years in the further development of the legislative and regulatory framework for EIM. The role of municipalities is currently limited to ‘applicant’ although their extensive role in local level planning and economic development means that they must have an in-depth understanding of the EIM processes. Both provincial and national government will work with local government to increase its understanding in this regard.

A tabulated summary for delivering outcomes for Environmental Impact Management is included in Appendix 8.3.4 (pg 112).

4.5 Conservation and Sustainable Use of Biodiversity

Where are we now?

South Africa is one of the most biologically diverse countries in the world and has a rich and spectacular array of terrestrial, aquatic and marine ecosystems.

These resources underpin the livelihoods of the majority of South Africans and contribute significantly to the country’s economy. Nevertheless, South Africa’s biodiversity is increasingly threatened by human industrial activities, which in turn threaten the very resource base upon which we depend.

South Africa’s biodiversity provides an important basis for economic growth and development –through the provision of natural resources and vital ecosystem services, as well as the right of ecosystems to exist. Further, the cultural history of South Africans embraces biodiversity, for a variety of cultural practices.

The country is one of the most biologically diverse countries in the world (containing over 10% of the planet’s plant species and 7% of its reptile, bird and mammal species (SAEO 2007)).

The need to protect vulnerable components of biodiversity from threatening processes through the establishment of conservation areas is widely accepted as one of the primary ways to conserve biodiversity directly.

These conservation areas include:

- the formal statutory protected areas (Type 1),
- the less formal protected areas e.g. mountain catchment areas, state forests (Type 2), and
- informal landowner activities such as game farms and conservancies (Type 3).

South Africa has a long history of proclaiming conservation areas. However, the historic establishment of conservation areas was ad hoc, focussing on land with low agricultural potential or high tourism potential. The resultant conservation area network is therefore biased towards some ecosystems, and is far from wholly representative of the diversity of biomes and habitat types in the country. Further, benefits derived from such areas do not necessarily flow to ordinary South Africans, but to already wealthy businesses, particularly in tourism.

Although South Africa is renowned internationally as a country of abundant national parks, we are still short of meeting our national targets for land and sea areas under protection. The 2010 target is to have 8% of our land area and 20% of our coastline under protection. Over the longer term, the total land under formal protection will increase to 12%. These long-term targets translate to around 5.4 million hectares for land (an increase of about 50% on the current conservation estate) and about 1.8 million hectares of marine areas (28 times the current area under protection).

Expanding our parks (and the tourism and income generation opportunities that go with them) is a key priority for the Department in preparation for the 2010 World Cup™, and R181 million has been allocated for land purchases to grow the parks.

The recent national State of Environment Report (DEA 2007) and the National Biodiversity Framework (DEA draft January 2007) both cite the following as the major threats to biodiversity:

- Loss, fragmentation and degradation of natural habitat in terrestrial and aquatic ecosystems
- Invasive alien species
- Over-exploitation
- Climate Change (NBF 2007 draft, p. vii)

The last two are particularly the result of the promotion of unsustainable business and industry, indicating that the development path of the country should be changed.

Despite the presence of an extensive protected areas network in South Africa,

many of the areas of highest biodiversity lie outside the borders of protected areas and are currently experiencing great pressure. The result is rapid biodiversity loss in many areas although the absence of comprehensive and accurate data on biodiversity across the country means that policy-makers do not have an accurate assessment of the situation at present. However, there is sufficient information in place to provide a starting point for action and analysis.

Much of the work of national and provincial government in recent years has been focused on continuing the updating and reform of the legislative and regulatory frameworks for conservation and sustainable use of biodiversity. As for other areas of the sector, one of the main challenges is now to complete this reform process, to develop the strategies and implementation plans to guide implementation and to identify the resources required to ensure implementation can be carried out effectively.

A summary of the achievements in terms of legislative and regulatory reform – and production of related strategies and action plans is included in box 4. It should be noted that the issue of resources required is still to be determined.

Box 4: Recent progress made on legislative reform and the publication of regulations, strategies and implementation plans for biodiversity and conservation.

The National Environmental Management: Protected Areas Act and National Environmental Management: Biodiversity Act were promulgated in 2003 and 2004 respectively. With the legislative reform completed at national level, the focus of last few years has been on the development of regulations and implementation strategies for these Acts. This work continues, with the following now completed:

- National Biodiversity Strategy and Action Plan (NBSAP) in 2005 which provides a long term strategy for the conservation and sustainable use of South Africa's biodiversity. Production of this document was a requirement under the Convention on Biological Diversity (CBD)
- National Biodiversity Framework (NBF) (as provided for under the Biodiversity Act). This draws from both the NBSAP and NSBA and focuses attention on the immediate priorities for attention by the sector. A draft was produced for public comment in January 2007 and the final NBF was published in August 2009, with a 5 year implementation period of 2008 to 2013.
- Regulations for the proper administration of special nature reserves, national parks and World Heritage Sites (2005). In compliance with these regulations, management plans for 19 national parks have been produced and a protected areas register developed. Management plans have also been produced for a large number of provincial reserves.
- The National Action Programme (NAP) – a strategy to combat land degradation and alleviate rural poverty was developed and approved by Cabinet in 2004. The production of this document was a requirement under the United Nations Convention to Combat Desertification. The main priority of the NAP is to coordinate an integrated approach to addressing the physical, biological and socio-economic aspects of the processes of desertification and land degradation.
- Community based natural resource management guidelines were developed and launched in 2003. These provide a framework for the implementation of community based land management related projects across the country.
- A Guideline regarding the determination of bioregions and the preparation and publication of bioregional plans has been prepared and will be gazetted

for public comment in 2007.

- Regulations for Threatened or Protected Species (TOPs) have been published.
- A list of Threatened or Protected Species has been published (both in 2007),
- The Protected Areas Register has been developed. The first level of information is now active on the world wide web
- In addition to the above, work is continuing on the following:
 - Regulations in terms of the NEM: Biodiversity Act are in preparation (on Alien and Invasive Species; Bioprospecting; Access and Benefit Sharing), were published in April 2008.
 - An elephant management policy statement was published in May 2008.
 - Norms and standards for the hunting industry, published in 2008
 - Listing of threatened or protected ecosystems (to date)
 - Norms and standards for Biodiversity Management Plans for Species (to date)
 - Environmental Risk Assessment Framework for Genetically Modified Organisms (GMOs)
 - Regulations for the Knysna and Wilderness protected environments;
 - Standard regulations for provincial nature reserves in terms of the Act;
 - The development of indicators and a monitoring the performance with regard to the management of protected areas
 - At a provincial level, progress has also been made in reforming and updating provincial biodiversity legislation in many provinces. There is a need for provinces to commit to continuing and completing this process, with a view to alignment with the national acts and rationalization of the law, especially in those provinces where there has been little activity. As this is a funded mandate timeframes must be set.
 - Significant progress has also been made in the establishment and development of Transfrontier Conservation Areas. To date, six agreements have been signed between South Africa and the immediate neighbouring countries towards the establishment of six TFCAs, covering a land area of 9 716 444 hectares. Tourist access facilities (border posts) have also been constructed in the TFCAs to facilitate cross border tourism.

^e National Spatial Biodiversity Assessment (NSBA) was completed in 2005 and provides a spatial picture of the location of South Africa's threatened and under-protected ecosystems.

In terms of coordinating and prioritising the work of the sector, the National Biodiversity Framework was published in August 2009. The NBF is intended to provide the framework for action by the sector in terms of biodiversity and conservation over the next 5 years. The NBF builds upon a series of objectives identified for the biodiversity sector within the National Biodiversity Strategy Action Plan (NBSAP) – but provides a series of priority actions for each. The fact that the NBF is on a different 5 year framework to that of the MTSF indicates that a review of its cycle needs consideration, along with that of this review, to coincide with national frameworks.

There are five broad areas of activity outlined in the NBF, which are centred on the 5 long term (20 year) objectives outlined in the National Biodiversity Strategy Action Plan (NBSAP 2005):

- SO1: an enabling policy and legislative framework integrates biodiversity management objectives into the economy
- SO2: Enhanced institutional effectiveness and efficiency ensures good governance in the biodiversity sector
- SO3: Integrated terrestrial and aquatic management minimises the impacts of threatening processes on biodiversity, ecosystem services and improves social and economic security
- SO4: Human development and well being is enhanced through sustainable use of biological resources and equitable sharing of benefits – the focus of this objective is on genes and species rather than whole ecosystems.
- SO5: a network of conservation areas conserves a representative sample of biodiversity and maintains key ecological processes across the landscape and seascape.
- An additional regional SO relates to SO2, priorities for regional co-operation in the next five years.

Priority actions for each of these objectives for the next five years have been identified within the NBF and targets and responsibilities allocated. These details are provided in table 7 below.

The NBF has been developed through a systematic process which resulted in a list of priorities for the sector. However, whilst it contains a list of priorities, these are not presented in a ranked or hierarchical manner. Thus, in terms of implementation

and use of resources, there is little in the way of guidance as to 'where to start' or where to allocate scarce resources. An implementation plan for the NBF is thus required which will identify an 'internal priority' within the list of actions contained within the document.

This is a key requirement if the most important 'building blocks' upon which many other initiatives and actions rest are to be put in place. For example, within the context of sustainable development, the greatest challenge facing the sector is to ensure that both conservation of biodiversity and development can take place (as opposed to positioning the two in an either/or situation). Thus the issue is now where and how development takes place (NBF 2007 draft).

In order to enable this to happen, the sector has to establish a spatial understanding of the location, extent and sensitivity of its key biodiversity resources – and develop this understanding at a 'fine scale' for the areas of highest priority and sensitivity. Only with this in place, can the planning and land-use decision making processes in the country be influenced by biodiversity concerns. In addition incentives and mechanisms need to be found which will encourage the sustainable use and management of biodiversity by communities and landowners and to minimize the impact of developers.

Both of these issues are raised in the NBF and stated as priorities for action. However, it is apparent that these actions are fundamental to the success of other work in the sector and should be considered for prioritisation above others. Of specific importance is to ensure that the institutions charged with carrying them out have the capacity and resources to do so.

For example, some provinces are already in the process of preparing bioregional plans (also known as conservation plans or spatial biodiversity plans). These incorporate both aquatic and terrestrial features and identify critical biodiversity areas for which land-use planning and decision-making guidelines are then produced. To date three provinces have completed spatial biodiversity plans (Gauteng, KZN, Mpumalanga), two more are in preparation (Eastern Cape and North West Province), and initial discussions are underway in the remaining provinces. However, it is clear that there are significant financial constraints within these remaining provinces which need to be addressed by the

sector if the country is to have a spatial understanding of its important biodiversity resources for all provinces. The biodiversity planning process is reliant on research programmes, especially in the areas of taxonomy and ecosystem services. Work is also needed to identify key research areas to assist in this process and to provide resources to fund these. As these are all funded mandates with treasury allocations under several sectors of the allocated funding, this matter needs to be finalised, as per treasury stipulations.

In addition to the need to prioritise fundamental 'building block' actions over others within the NBF, there are also several issues of concern to the sector which have not been dealt with within the NBF – or require further work in order to provide detailed guidance for implementation. For example:

- The need to identify and clarify mechanisms for improving cooperation **between** and amongst sectors: both in terms of developing policy and management of biodiversity. This is critical to ensure integrated management of ecosystems can be delivered in practice. A priority area for work in this regard is the conservation of **freshwater biodiversity** (where the mandate for water quality lay with DWAF and the mandate for the biodiversity lies with DEA but the departmental rationalisation where Water affairs has now become part of this department should enable improved co-operative policy development and implementation.
- The need for improved communication and cooperation between and amongst the spheres. Much more communication and engagement is required between national and provincial spheres of government on the practical issues to be addressed in the implementation of biodiversity conservation – including the management of protected areas. Given that this is a Treasury funded mandate, any reasons for non performance should be limited through the audit process.
- The need for a greater emphasis on developing approaches to protecting natural ecosystems and species from the effects of **climate change** (i.e. adaptation strategies for biodiversity) – especially for areas outside protected areas. Opportunities for this exist within the enabling regulations for protected environments under the NEM Protected Areas Act and for Biodiversity Management Plans and Agreements under the NEM Biodiversity Act.
- The need to refer to and include reference to the future expansion strategy

for **protected areas - including Marine Protected Areas** - and for targets for management and monitoring of protected areas.

- The need for rationalisation and consolidation of institutional arrangements for conservation and protected areas management at the provincial level. DEA and the Western Cape are currently reviewing institutional arrangements in this regard – the findings of which may prove to be useful in this process.
- The need for improved performance in regulation of authorised activities. Permitting, monitoring and enforcement must be made more efficient and effective. Capacity for all of these activities is a constraint in both national and provincial spheres of government. The current EMI registration and training programme will assist with this.
- The need to transform the conservation and hunting industries to ensure that access to the economic benefits of the industry is provided to previously disadvantaged groups and individuals. This remains one of the least transformed sectors of the economy and its transformation is a priority for national and provincial governments. Transformation of the 'biodiversity' sector is covered in the NBF and is to be addressed primarily through a capacity building programme. However, the sector should also set firm targets for transformation of both the conservation and hunting industries in South Africa, to ensure that action in this area is prioritised and monitored.

Over the next 5 years the sector will....

- Continue to develop the NBF to ensure that it covers all areas of concern for the sector – and provides adequate detail on how key priorities should be implemented in practice
- Concentrate on implementation of the NBF through the identified lead agents and as per funded mandates.
- Facilitate its implementation through improving communication, engagement and support between spheres and with other sectors of government who play a pivotal role in the conservation of biodiversity.

From a **regional** perspective, the sector will also aim to deliver the specific priorities for action within the NBF:

- Strengthen and improve the development of integrated management and tourism plans of the Transfrontier conservation areas
- Develop and implement appropriate incentives and penalties for biodiversity conservation and its sustainable use in cooperation with neighbouring countries

⁷EMI: Environmental Management Inspector programme. For more information – see section 4. 5

- Develop, implement and strengthen programmes for local, regional and international scientific collaboration, sharing of information and technology transfer to avoid and reduce the impacts of waste, pollution and chemicals
- Develop and implement a coordinate regional programme to increase awareness, knowledge and appreciation of biological resources at various levels
- Strengthen the research and development capacity of the protected area system - and research programmes to support key biodiversity initiatives, such as bio-regional planning.

Table 6 below contains the priority actions, responsibilities and targets set out within the NBF for implementation by the sector.

The sector will achieve this by....

- Continuing to implement and develop the NBF to ensure that it covers all significant issues for the sector – and provides additional guidance on priorities for action (i.e. prioritisation of the priorities it contains!), with relevant deliverable outcomes in line with treasury allocations,
- Driving the implementation of the NBF, integrating the priority activities and targets into institutional operational plans, monitoring and reporting on progress as required by the NBF, with relevant deliverable outcomes in line with treasury allocations.
- Identifying the capacity and resource requirements for implementation of the NBF and ensuring that required resources are mobilised.

How the sector will work together.....

DEA and SANBI are the lead agencies for many of the priority activities within the NBF and are thus responsible for 'driving' the implementation of the document. In addition, these two organisations have a vital role to play in catalysing actions of other lead agents, especially those whose core business is not biodiversity but whose active collaboration is required in order to achieve the NBF targets. Provinces particularly appreciate the role played by SANBI in the sector but require more communication and support from the national department in fulfilling their responsibilities in line with treasury allocations.

Provincial environment departments have a key role to play in ensuring that biodiversity considerations are integrated into planning and development strategies (provincial and municipal), resource management and resource use regulations and guidelines. Key to achieving this will be the development of spatial biodiversity plans for all provinces as a short-term priority. The reform of provincial biodiversity legislation must also continue to ensure that it is aligned with national legislation and strategies such as the MTSF and the NFSD.

For local government, the priority is to ensure that biodiversity concerns are integrated into IDPs and SDFs for municipalities and to ensure that systems are put in place for the control and management of 'priority' resources at the local level.

The NBF recognises that capacity is a significant constraint across all spheres of the sector and it contains activities related to building capacity in biodiversity conservation and management. Given that the devolution of this role to provinces and particularly to municipalities takes the form of an unfunded mandate. Accordingly there is no capacity or budget to fund these mandates and they cannot be met by cash strapped municipalities. Accordingly, appropriate M&E of outcomes needs to be included into the planning and outcome process, otherwise the stipulations will not be met. This matter also needs to be brought to the attention of treasury. There is treasury funding of Environmental Empowerment Services but this would appear to be inadequate for the full roll out of these multifaceted functions at local level.

A tabulated summary for delivering outcomes for Conservation and Sustainable Use of Biodiversity is included in Appendix 8.3.5 (pg 113) and a Summary of the Objectives and Outcomes of the National Biodiversity Framework in Appendix 8.3.6 (pg 114).

4.6 Marine and Coastal Management

Where are we now?

A specific responsibility of the sector is to manage the development, sustainable use and orderly exploitation of our marine and coastal resources, as well as protecting the integrity and quality of our marine and coastal ecosystems.

The marine and coastal resources of South Africa are rich and diverse and provide important social and economic benefits for the population, particularly those people living in coastal areas. South Africa's 3751km coastline is a natural asset, serving as a major shipping trade route, home to a vast biodiversity of marine and coastal species, provider of food and jobs for many of our people, and attracting growing numbers of local and international tourists each year.

However, increasing human and environmental pressures on marine and coastal ecosystems are changing the functioning and structure of many of their components and are in many cases, leading to over-exploitation, degradation and resource loss. The primary role of the sector is to protect marine and coastal ecosystems and biodiversity, and to ensure that opportunities are available for sustainable use (whether consumptive or non-consumptive) of these resources in an equitable way.

In terms of functions within the sector, it is important to clarify that competence for 'marine' issues lies solely at the national level – residing with the Marine and Coastal Management Branch of DEA. However, responsibilities for coastal management are shared across all three spheres of government with provinces playing a pivotal role linking national policy and strategy to action at a local level. In addition, marine and coastal issues are dealt with under separate pieces of legislation (marine – under the Marine Living Resources Act and coastal management under the new Integrated Coastal Management Act). This separation will be maintained in this section of the sector plan to try to provide clarity on roles and responsibilities in this area.

Given that the Fishing component of the marine sector has now migrated to the Department of Agriculture, the management of this rationalisation is important to maintain governance continuity.

With respect to **Marine** resources – the on-going challenge for the sector is to ensure sustainable consumptive use of marine biodiversity resources.

This must also be done in a manner which ensures equitable access to resources in order to redress the barriers to resource use experienced by previously disadvantaged communities in the past. Transformation of the fishing industry has

made good progress, but continues to be an issue of importance for the sector. It is also important to ascertain how exactly the matter of artisanal and community fisheries will be devolved and managed. Besides legal action against the state clearing the way for action on this matter, the MTSF has at its heart intentions to ensure fair and just allocations of natural resources to communities.

In 2005, DEA MCM embarked on a process of allocating long-term commercial fishing rights in fisheries sectors ranging from the more accessible to the most capital intensive fisheries. A General Fishing Policy and 20 specific policies were developed in 2005/06 to guide this process. By the end of March 2006 almost all the long-term rights in the respective fishing sectors had been allocated. New fishing sectors are also being explored and opened, as set out in the tables below. There is now a need to carefully monitor fish stocks to detect over-exploitation or negative impacts on the integrity of marine ecosystems.

Research is a primary function of the sector – particularly research to determine the state of fish stocks and modelling of Total Allowable Catch (TAC) and Total Allowable Effort (TAE) for the important commercial fish species – and is an essential input into the long term rights allocation process. The increasing role of SANBI in dealing with national biodiversity research draws attention to how the research functions of both the marine and coastal aspects of this important management aspect.

South Africa is also working towards the implementation of an ecosystem approach to fisheries management. This goal was identified at the WSSD in 2002 and progress towards its fulfilment is being made, particularly in work being done through collaboration with neighbouring coastal countries through the Benguela Current Large Marine Ecosystem (BCLME) programme which is allowing fish stocks in this area to be managed jointly and holistically on a regional basis. The promulgation of the ICMA also has relevance to large ecosystem management in fulfilling the significant proportional expansion of Marine Protected Areas.

DEA MCM is also responsible for preventing and eliminating illegal marine activity. South Africa now has a fleet of Environmental Protection Vessels (EPVs) which operate in both South African and SADC waters. In 2005-06 171 Fisheries Control Officers had been stationed at 31 locations to conduct patrols and inspections. However, it should be noted that DEA MCM experiences critical capacity and

⁸South African Environment Outlook DEAT 2007

resourcing challenges in these areas. In terms of capacity, there is an urgent need for additional technical and enforcement skills in the sector. A financial resource to fund operation of the EPVs is also a critical issue at present and currently uses a significant proportion of the total MCM annual budget.

Concerns around the MLRF, which was devised to partially fund enforcement functions, need to be urgently addressed. This is not just about management of the fund, but more importantly as to whether this function is adequately funded - which it would appear not to be. A full cost analysis of the impact on ecosystems by unsustainable fishing (e.g. Perlemoen) can be used to justify increased allocation towards marine inspection and enforcement.

The MTSF would also indicate that community participation in management of natural resources may offer some opportunities in extending these roles, through the EPWP and other mechanisms.

South Africa has designated Marine Protected Areas and the primary challenge for the sector in the next five years is to increase the effectiveness with which these are managed. There are also specific areas where expansion of the network would increase the representativeness of the system (e.g. to include off-shore marine ecosystems). A strategic approach to further expansion of the marine protected area network is needed in order to guide the selection and designation of any further areas. This expansion is stipulated under both ICMA and the Biodiversity Act, with suggested time frames. This work must also feed into and inform national government as stipulated under the MTSF.

In the face of changes in climate and the impacts this may have on ocean currents, marine species and ecosystems, a priority for the sector over the next five years is to increase its research and thus understanding of the potential impacts of climate change on the marine environment – and the vulnerability of these ecosystems to such changes. DEA currently has insufficient knowledge in this area and additional research is needed to provide the platform of understanding upon which any adaptation strategies could be based in the future. This should be undertaken in concert with NBI and mainstreamed across all sectors.

In terms of **coastal management**, challenges facing the sector are related primarily

to minimising pressure on the coastal zone from human activities. These stand to be significantly addressed through the imminent implementation of the ICMA. Particular concerns include:

- The control of development in the coastal zone (which is transforming natural habitats, disrupting coastal ecosystems and reducing their resilience). Commercial developments, including mining are the greatest cause for concern
- ensuring sustainable consumptive and non-consumptive use of coastal biodiversity resources through participative governance across all spheres of government and local communities, as stipulated under the MTSF
- Encouraging the development of **responsible** marine aquaculture activities. This is a rapidly increasing activity in the coastal zone which is to be encouraged given its role in providing a source of fish to supplement natural fish stocks - however, strict control is required to ensure that this industry (which does provide some inherent risks to the environment) is managed in a sustainable way. Control is to be achieved primarily through the EIA process, the development of guidelines for the industry and amendments to the Marine Living Resources Act.
- Protection of estuarine ecosystems from pollution and waste water resulting primarily from land-based activities.

As for marine resources, there is also a need for additional research on the potential impacts of climate change and the vulnerability of coastal ecosystems to changes in climate and to plan for the potential of sea level rises. There is also a need for additional compliance and enforcement activity in relation to consumptive use of coastal resources and environmental authorisations for developments.

In all of these areas, the challenge for the sector is to ensure effective cooperative governance. Coastal zone management is governed under very fragmented set of institutional arrangements which require significant effort in terms of communication and coordination to be effective. At present there is an urgent need to improve the performance of all institutions involved in this regard. The production of coastal management plans by both provincial and local municipalities are an important tool in this regard and emphasis should be placed in ensuring that all coastal provinces and municipalities have one in place. This is all clearly set out under the ICMA,

and the timeous implementation of the stipulations contained in the act will address these long standing concerns, as well as support the aims of the MTSF.

For both marine and coastal management, there is a need for the sector to continue to work on the development of an effective legislative and regulatory framework for marine and coastal zone management – and to ensure that this is implemented effectively. The promulgation of the Integrated Coastal Management Bill in 2009, and the 2008 Amendment to the Marine Living Resources Act largely address these needs but the stipulated structures now need to be put in place.

It should be noted that the finalised National Biodiversity Framework contains many actions and targets which are relevant to both marine and coastal management. Thus the sector will work with its colleagues within SANBI, provincial environment departments and the Biodiversity and Conservation Branch of DEA to implement the relevant actions within the NBF. It is essential that these various role-players establish cohesive mechanisms to institutionalise and operationalise relationships.

Over the next 5 years the sector will....

Marine

- Continue to work towards the equitable and sustainable use of marine natural resources and implementation of an ecosystem approach to the management of marine resources,
- Reduce levels of illegal commercial fishing and poaching with stringent confiscation and fining criteria (user pays principles),
- Improve the effectiveness of existing marine protected areas and develop a strategy to guide any future expansion of the network,
- Increase its knowledge of the vulnerability of marine ecosystems to climate change,
- Improve the financial management of the MLRF.

Coastal

- Implement and operationalise the ICMA,

- Improve protection of marine and coastal areas from unsustainable development,
- Promote and prioritise the enhancement of sustainable livelihoods of coastal communities,
- Ensure the marine aquaculture industry is developed and managed in a manner which is sustainable and prevents negative impacts on marine and coastal biodiversity,
- Work with provincial government, local authorities, DWAF, Department of Agriculture and other relevant sectors to decrease impacts from land-based activities on estuarine ecosystems.

The sector will achieve this by....

Marine

- Distributing long term commercial fishing rights and other concessions equitably and sustainably, prioritising local and small scale operations.
- Taking steps to allow recovery of overexploited resources – such as certain linefish and abalone,
- Establishing additional commercial fishing opportunities where appropriate and where fish stocks can support this,
- Encouraging non-consumptive use of marine resources where feasible,
- Increasing compliance and enforcement activity and effectiveness - through increasing numbers, skills and resources available for fisheries control officers. FCOs will be a component of the national Environmental Management Inspectorate. MCM branch will work with the EMI unit in the EQP Branch to develop and deliver the training and development required by the specialist FCOs.
- Implementing the relevant components of the National Biodiversity Framework (i.e. those that relate to the conservation and management of marine biodiversity). This framework contains strategy for the consolidation and expansion of the marine protected areas network and the production of management plans for these areas,
- Increasing research efforts to focus on increasing understanding of the vulnerability of marine and coastal ecosystems to climate change,

- Developing and implementing sound and robust financial management systems for the MLRF
- Expand MPAs in line with agreed targets,

Coastal

- Developing and implementing integrated coastal planning and management systems,
- Increasing control of unsustainable coastal developments,
- Implementing sustainable livelihoods programmes in coastal areas,
- Developing and implementing opportunities for sustainable non-consumptive activities within coastal and marine areas,
- Developing guidelines and a regulatory framework for marine aquaculture – and working with provinces to ensure sound application of the EIA process to aquaculture development applications,
- Implementing all relevant sections of the National Biodiversity Framework – as they pertain to the conservation and sustainable use of marine biodiversity (including ecosystems).

How the sector will work together.....

As noted above, the three spheres of government hold responsibilities for the marine and coastal environment and so cooperation and coordination of effort is vital.

Departmental realignment needs to be managed in such a manner as to minimise any interruption of service delivery as well as to maintain continuity in environmental governance. The shift of Fisheries to the department of Agriculture is particularly relevant in this regard but the inclusion of Water Affairs into this Department is also relevant as riverine and estuarine coastal management is equally relevant to this particular sector.

The lead agent for marine and coastal management is the DEA Branch 'Marine and Coastal Management' based in Cape Town. This branch is responsible for protection and management of the marine environment and is also lead agent

for coastal management. Thus for marine issues it is both the lead agent and is responsible for implementation (in terms of fisheries this includes regulation, permitting, monitoring and enforcement). For coastal issues, responsibilities for implementation are distributed amongst the three spheres. The MCM Branch is responsible for implementation of the relevant sections of the National Biodiversity Framework which relate to marine and coastal environments and will work with relevant partners to ensure implementation.

Provinces have responsibilities for elements of coastal management and carryout integrated coastal management and planning (including interventions to prevent and remove illegal development in coastal areas).

Coastal municipalities are responsible for many day-to-day management activities for coastal management in the area above the high water mark (e.g. planning, engineering, beach management and tourism). They have a responsibility to develop coastal management plans and are supported by their province in this activity. This mandate requires funding.

Coordination, cooperation and partnership are vital activities – both within the sector (between the three spheres of government in coastal areas) and between governmental and non-governmental coastal role players. The priority cooperative governance challenge for this area of the sector is to improve coordination and integration of coastal and marine resource management.

It is essential that all proposed outcomes for this particular sector of the department are met by adhering to mandated Treasury outcomes and that where insufficient funding is allocated, additional funding is sought to achieve the desired outcomes.

A tabulated summary for delivering outcomes for Marine and Coastal Management is included in Appendix 8.3.7 (pg 116).

5. Means of Implementation

Most of the elements of the enabling environment for government delivery are prevalent across all the spheres and programme areas of the sector and thus are in essence 'crosscutting'. They therefore require sector-wide, coordinated approaches which consider how the challenges are dealt with by the sector as a whole – rather than by individual spheres or programme areas.

The key elements of the enabling environment which require attention are as follows:

- Improving cooperative environmental governance
- Promoting and Strengthening Enforcement and Compliance
- Proving Support and building capacity
- Financing the Environmental sector
- Improving environmental information for decision making
- Mainstreaming the environment into strategic development planning and decision making.
- Communication and Awareness Raising

5.1 Sharing responsibility and improving environmental governance

The term environmental governance can be interpreted in many ways. In this section, it is used to include the frameworks within which the sector works and the manner in which it works.

This section focuses on the mechanisms for more frequent and meaningful engagement with local government (in policy and decision-making), including cooperation agreements and forums and looks at structures to facilitate this. Without cooperative governance, roles and responsibilities can overlap and become indistinct. This can lead to system fragmentation and problems with coordination.

Where are we now?

Environmental functions are fragmented horizontally (e.g. between national departments) and vertically (across the three spheres of government). Thus,

despite the reform of legislation there remains within the sector a level of confusion as to where the responsibilities lie for certain environmental functions. In particular, there is significant uncertainty at the local government level as to the environmental functions of municipalities.

Local government also has a responsibility to conduct its business in a way that is consistent with sustainable development principles and to integrate environmental issues into its planning processes. This is a very broad mandate, the implications of which are not well understood by many municipal officials.

As a result of the fragmentation of functions, there is a need for communication and cooperation both horizontally (i.e. between sectors/ across spheres) and vertically (i.e. within the sector/ between spheres). In addition, the nature of 'the environment' and sustainable development is such that virtually every sector of government has responsibilities or mandates which may impact on the environment. This makes the sector's role (and DEA's in particular) in ensuring that the environment as a whole is protected and sustainably managed, very challenging indeed.

The function of Cooperative Government is thus to:

- Ensure that institutions from different sectors can work together to achieve effective environmental management and protection. This is an emerging need given the trend towards trying to manage ecosystem, catchments and human settlements as holistic entities requiring integrated approaches to management and protection, in contrast to traditional methods of governance, which were "silo-like" in approach leading to reduced effectiveness and delivery.
- Ensure that responsibility for 'environmental decision-making' is clearly understood across the sector and that the environmental sector can position itself strongly in decisions that are taken by other sectors which affect the environment
- Ensure that institutions within the sector can work together to achieve effective implementation of sectoral responsibilities

Two frameworks for cooperative governance currently exist:

i) The Framework for “cooperative environmental governance” provided by section 12 of NEMA (which has repealed the Committee for Environmental Coordination (CEC and replaced it with establishment of fora or advisory committees) and creates the obligation on all national departments and provinces to produce Environmental Impact Plans (EIPs) and/or Environmental Management Plans (EMPs)

ii) The Intergovernmental Relations (IGR) Act. This introduces new mechanisms for implementing cooperative governance, such as ‘Implementation Protocols’ and ‘Joint Programmes’.

In addition, the sector has established a MINMEC and MINTEC - to facilitate ‘vertical’ cooperation i.e. to enable national and provincial environmental decision-makers to communicate and cooperate on sector priorities. The DG of DEA also participates in national government DG Clusters as a means of integrating discussion of environmental issues into wider government discussions. Despite the presence of the above, cooperative governance remains a challenge to implement both within the sector and across sectors. Factors influencing this include:

‘Horizontal’ cooperation:

- The ‘newness’ of the IGR mechanisms means that there have been few instances of implementation of these mechanisms and their potential has yet to be tested widely.

‘Vertical’ cooperation:

- MINMECs and MINTECs seem to work relatively well in coordinating communication and activity between national and provincial spheres although there is a general demand from within the sector for more less formalised interaction between the spheres.

At the national level, significant progress has been made in reforming environmental legislation with the promulgation of NEMA (and amendments), the NEM: Biodiversity Act, NEM: Protected Areas Act, NEM: Air Quality Act. In addition, important policy

documents produced include White Papers on: Environmental Management Policy (1997), Integrated Pollution and Waste Management (2000 and the 2008 Waste Act) and Sustainable Coastal Management (2000). Currently, processes are underway in the development of an Integrated Coastal Management Bill and additional amendments of NEMA and the Marine Living Resources Act.

Of continued concern are the remaining levels of fragmentation of environmental legislation and the increase this has led to, in terms of proliferation of different and increased volumes of environmental authorisations issued by the sector.

There is some work underway to make legislative provision for the rationalisation and integration of environmental authorisations. At a provincial level, progress to reform provincial legislation is underway in many provinces, although there is also inactivity in others.

- Continue to produce regulations required under recent legislation
- Realise a rationalisation of some forms of environmental authorization, without compromising sustainable development for the benefit of people and the environment
- Continue to develop policy (national and provincial) required to guide the functions of the sector
- Continue to reform provincial legislation, with guidance for improved localized regulation relevant to that province

Current activity with regard to sector performance and accountability is taking place in three forms at present:

- Adoption by the public sector (including the environmental sector) of the Batho pele principles - as a framework for improved service delivery and customer service focus.
- Monitoring of elements of performance of the sector by DEAT.
- Formal monitoring and evaluation of the performance of institutions within the sector through government wide monitoring and evaluation processes.

This will be achieved by...

- The amendments to NEMA and the Marine Living Resource Act.
- Developing and gazetted regulations norms and standards under the NEM: Biodiversity Act, NEM; Air Quality Act.
- Reforming key provincial legislation on an on-going basis across all provinces including proposing amendments to NEMA to make provision for rationalisation and integration of environmental authorisations (through the EIA process), with a focus on post-authorisation compliance and enforcement.
- Reviewing the administrative implications of the fragmented legislative framework and large number of environmental authorisations it provides for - with a view to finding approaches to reduce administrative burdens and improve efficiency, while maintaining the highest quality.
- Clarifying and communicating the environmental functions of local government, particularly linkages with other functions.
- Ensuring that issues related to the powers and functions of the environment sector are thoroughly addressed in work to clarify powers and functions led by CGTA.
- Committing to making cooperative governance work by giving time and resources (at all levels) to intra-sectoral communication, discussions and decision-making.
- Reviewing the effectiveness of EIPs and EMPs and recommending improvements if necessary to the documents, how they are prepared and how they should be used. The lack of minimum standards must be addressed.
- Examining all options provided for cooperative approaches within the IGR Act - and communicating options, standards and guidelines within the sector.

How the sector will work together...

- DEA will lead the process for national legislation, policy and regulations.
- DEA and Provinces (through MINTEC) will identify priorities for revision of provincial legislation and policy – the process of which will then be driven by provinces.
- DEA and Provinces will work together to ensure that Local Government regulations, standards, by-laws and IDP's are consistent with national norms

and standards, with the environment sector correctly pitched with regard to the National Strategy for Sustainable Development and other policies.

- DEA will also lead on the review of the CEC and EIPs/EMPs and work with provinces and other national sectoral departments to identify future options for horizontal high level interaction which will be effective and which all parties concerned will engage with fully – ongoing participation by the highest level officials is critical for success.
- Identifying mechanisms for more frequent and meaningful engagement with local government (in policy and decision-making, and building capacity in sustainability).

Over the next five years the sector will...

- DEA will lead a process of examining options within the IGR Act and providing the sector with guidance on this, although this process should include discussions with any institutions which have already implemented mechanisms within this Act to incorporate lessons learned.
- Increase clarity within the sector on the mandates related to the environmental sector for local government, particularly unfunded mandates and capacity issues.
- Improve the effectiveness of 'vertical' cooperative governance within the sector.
- Provide clarity on mechanisms and approaches for achieving cooperation with other sectors (horizontal cooperation at all levels – i.e. national, provincial and local).
- DEA will represent the sector within high level national forums, such as the DG clusters. The Sector will support the DG in this process through the provision of information, clarification of issues and effective implementation of its responsibilities.
- All institutions within the sector will commit time and effort (at all levels) to making cooperative governance work.

Sector monitoring

Performance of institutions within the sector is currently monitored by DEAT using some key indicators:

- Compliance with relevant prescripts and policies
- Level of compliance with government framework
- Compliance with specific requirements of NEMA (e.g. EIP/ EMP prepared and submitted)

This is done mostly through the preparation of compliance audit reports. Best practice suggests that the sector should also be using environmental monitoring and the identification of trends in the state of condition of the environment – as a method for monitoring the performance of the sector over time.

However, this will require the sector to make a shift towards committing itself to achieving specific environmental outcomes and targets against which its performance will be measured. At present, this approach is rarely adopted probably based on an insufficient understanding of current state of the environment or of desired future states it wants to achieve for this to be a reality. However, this approach is recognised as best practice in many other countries and is one which the sector will strive to establish.

Government – wide monitoring and evaluation

The sector, like all others in government, has an obligation to monitor and report on its performance in implementation of its mandates and specific programmes. National Treasury requires the sector to produce a 'chapter' for the Intergovernmental Fiscal Review process (every two years) where the sector must report on its expenditure in relation to outputs delivered.

In addition, in 2004 a Government-Wide Monitoring and Evaluation System (GWM&E) was established by the Presidency. This is in its initial establishment phase at present, but will be rolled out country-wide to all public sector institutions by mid 2007.

The purpose of this system is to contribute to improved governance and to information on programmes to ensure: transparency and accountability, promotion of service delivery, compliance with statutory and other regulations – and the promotion of a 'learning culture' within the public sector.

Information will be collated on four levels:

- Overall government performance
- Individual institutional performance
- Progress in implementation of programmes
- Information on Impact

All institutions in the sector will have to provide information to this system. DEA has already established an 'M&E' internal structure to support its inputs.

5.2 Promoting and Strengthening Enforcement and Compliance

Where are we now?

Throughout the sector, within all programme areas and spheres of government, the need for increased compliance and enforcement activity is a priority.

Specific challenges facing the sector include:

- Few systems and procedures in place to support permitting, monitoring and enforcement – or to provide guidance to officials as to how this should be done
- Inconsistent quality of authorizations issued – there is a specific need to ensure that authorizations (e.g. permits, RoDs) are both 'monitorable' and 'enforceable' in practice.
- Low levels of resources are available to fund this activity – across all institutions. Insufficient numbers of staff exist to tackle the large scale of the task and as a result there are low levels of activity and activity is often reactive in its nature (i.e. only takes place in response to an incident or complaint). Increasing compliance levels will necessitate a much higher level of proactive compliance monitoring activity to take place (routine inspections to check compliance supported by sufficiently punitive enforcement, to reduce the need for enforcement).
- Incomplete regulatory frameworks. The legislative framework for environmental regulation is still in transition – legislation has been issued for some areas (e.g. marine, biodiversity, air quality, waste) but is still in the process of approval for others (coastal management). As a result, not

all the 'regulatory authorities' have been identified in legislation (i.e. those authorities responsible for permitting and monitoring of compliance) – and in some cases where they have been identified, responsibility has not yet been transferred (e.g. air quality licensing functions under AQ Act).

- There are severe technical skills shortages. Many institutions which are responsible for regulating the use of the environment do not have sufficient staff in place with the technical skills to carry out monitoring and enforcement activities (e.g. process engineers, biodiversity specialists, EIM experts)
- Little 'compliance promotion' is being done by the sector in order to increase awareness within the regulated community as to how to comply – and to encourage voluntary compliance - no meaningful disincentives exist to promote compliance
- Basic training courses have been designed and delivered (coordinated by the EQP Branch in DEA) and EMIs have been designated in institutions across the country. However, there is a great need to extend the training of these officials to provide them with the knowledge of standard operating procedures and the technical skills required to implement compliance and enforcement responsibilities effectively.
- Working Group IV now provides strategic guidance for compliance monitoring and enforcement – for all parts of the sector involved in this activity (biodiversity, marine and coastal, EQP). Through this approach a coordinated approach can be developed and lessons and knowledge shared.
- Working group IV intends to align strategies for compliance and enforcement across all three areas of activity.
- DEA, SANParks and many of the provinces are establishing compliance and enforcement units to drive this activity forward and to develop systems and approaches to guide officials in their duties.
- DEA has initiated a series of joint enforcement programmes to target specific sectors of industry for compliance inspections (e.g. Ferro metals industries, Refineries). These programmes carry out integrated inspections and monitor compliance with any environmental authorisation in place for a facility (e.g. APPA permit, ECA permit for waste disposal, EIA authorization). These programmes have been greeted with enthusiasm by all officials involved and have as an additional objective, the transfer of skills from external consultants assisting with the inspections to government officials

Despite the above, some key challenges remain for the sector.

The EMI registration and training process has completed its first phase for which the funding of training was provided by DEA (supported by international donors). This situation has now changed – with the costs of training now having to be paid by the institutions from which the EMIs originate. The total cost to these institutions of having officials attend EMI training is now significant and may act as a barrier to the attendance of officials at required training. There are doubts within the sector as to the effectiveness of this approach and a re-examination of funding arrangements may be required at the end of the current phase of training.

Within the EQP element of the sector, compliance and enforcement activity is still currently very low and characterized by low staff numbers and low skill levels across the sector. A strategy is currently being developed to address this and to increase the level of capacity and activity taking place across the sector for air, waste and EIA related monitoring.

However, in the short term the responsibility for developing procedures and systems and for training officials in other institutions in the application of these, will fall to the DEA Directorate Compliance Monitoring. This unit will also be responsible for carrying out urgent compliance inspections whilst capacity is built elsewhere to do this.

- Increase compliance and enforcement activity across the sector.
- Increase the success rate of enforcement activity (increase number of successful prosecutions/ convictions).
- Achieve increased voluntary compliance by the regulated community (compliance promotion).
- Ensuring there is clarity on which institutions are responsible for authorizations, compliance monitoring and enforcement for each.
- Dedicating increased funds and staff to compliance and enforcement activity (targeting this in the short term to dedicated units responsible for developing systems and processes and increasing the capacity of other institutions – such as the DEA EQP Directorate Compliance Monitoring and the Directorate Enforcement).

Over the next five years the sector will...

- Rolling out additional programmes to more sectors of industry.
- Continuing to train and designate EMIs for all areas of the sector.
- Increasing the level of training provided to increase practical capacity to carry out inspections and investigations.
- Increasing the quality (monitorability and enforceability) of authorizations issued.
- Developing and implementing a national compliance and enforcement strategy for each programmatic area of the sector.
- Carrying out awareness raising and capacity building for the judicial service in environmental legislation.
- Implementing a strategy for 'compliance promotion' for all areas of the sector - to promote voluntary compliance by the regulated communities involved. Responsibility for regulatory activity is currently fragmented across many institutions (DEA, SANParks, Provinces and local government) and requires streamlining.

However, DEA will lead the sector in:

- Completing regulatory frameworks and clarifying regulatory roles and responsibilities for all new frameworks.
- Training and designation of EMIs. Awareness raising for the judiciary.
- Provision of support to the sector through the development and roll out of systems, processes and information management system for compliance and enforcement (for EQP. What is the situation for the rest of the sector?) This process will be done with participation and input from all regulatory authorities.
- Development of and management of joint programmes for monitoring and enforcement of industry.
- All institutions will be responsible for motivating for additional funds for this activity and for ensuring that staff required for carrying out these activities is in place.

5.3 Providing Support and Building Capacity

Where are we now?

Across the sector, many institutions in the three spheres of government cite 'lack of capacity' as the primary constraint faced when attempting to perform their functions. In this context, the term 'capacity' refers to a range of issues, such as:

- Staff numbers
- Skills and knowledge of staff (ranging from general management and communication skills - through to technical skills in the areas of air quality, environmental engineers, biodiversity conservation and management, EIM, inspection, investigation)
- Institutional structures and processes
- Infrastructure and equipment
- Funds
- Information to support decision making

However, although 'capacity' is often cited as a serious constraint to the work of the sector, not enough accurate analysis has yet been carried out to identify the specific capacity requirements of each institution upon which to develop budgets, recruitment and training strategies required to address the issue. Continued development of this information is a vital activity for the sector in the short term.

Despite the lack of accurate figures, commentary from across the sector implies that lack of capacity is prevalent in all institutions within the sector but is more severe in the 'implementation' arms of the sector i.e. provincial and local government. There is a need in the sector to build capacity in the following broad areas:

- Government environment officials - to implement specific environmental mandates.
- Government officials in general - to understand and integrate environmental issues into wider plans and processes.
- Politicians (particularly at the provincial and local levels e.g. Mayors, Councillors).
- Regulated community - to understand regulatory frameworks, provide required information on application for permits etc.
- Civil society - to access and then participate in government consultation processes on the environment.

Thus, in addition to increasing capacity within its own institutions, the effectiveness of the sector will also depend on its institutions working with stakeholders outside the sector to increase their capacity to understand environmental issues, legislation and regulatory frameworks – and to enable them to participate effectively. The most urgent task, however, is to provide support and build capacity within the institutions of the sector - to enable them to effectively implement their functions. Within local government, capacity needs affect even the most basic of activities, with many municipalities not having adequate technical capacity, or in severe cases, not yet having established environmental structures or systems. Fundamentally, many municipalities are not clear about their environmental mandates and with insufficient budgets allocated to environmental management activities, capacity and thus effectiveness remains low.

DEA and its national entities also have capacity needs – mostly in technical positions, although DEA also requires increased staff complements to implement emerging priority activities, such as regulation (permitting, compliance monitoring & enforcement). In all institutions, high staff turnover is an additional factor resulting in loss of institutional memory and providing a significant barrier to achieving an overall increase in capacity over time.

Capacity constraints at the provincial level have significant impacts in several areas including the processing of EIAs, the compilation of effective waste management plans and the enforcement of environmental legislation.

In terms of government institutions within the sector, capacity is required ‘across the board’ (i.e. in all areas and activities):

- Implementation of Regulatory activity (i.e. permitting, compliance monitoring and enforcement).
- Development of Plans (both specific environmental plans (e.g. AQMPs, IWMPs etc and integration of environmental issues into broader plans such as PGDS, IDPs).
- Service delivery - (e.g. waste management services, refuses collection, protected area management and so on).
- Several areas of the sector (e.g. biodiversity, air quality) have been developing strategies to address capacity constraints in the past few years. DEA and

provinces have been developing and ‘rolling-out’ IDP ‘Toolkits’ to try to increase understanding of environmental legislation and local government mandates by municipalities. Provinces have also been developing and implementing capacity building approaches internally and with local government. Many of these approaches are in early stages of implementation but are believed to be showing dividends. In addition,

DEA has developed a local government support strategy and has placed ‘Community Environment Workers’ (CEWs) within district municipalities to increase input on environmental issues into district planning systems and processes (e.g. IDPs). In terms of broader context, capacity has been recognized by government in general as a priority issue requiring urgent attention. Most activity has focused on capacitating local government, primarily because of the decentralization and delegation of powers to local government via the Constitution, and the failure of many municipalities to deliver their increasing number of responsibilities effectively. In general, two approaches have been used by government to address capacity shortages:

- Provision of ‘support’ to fill gaps required to improve governance (e.g. develop legislation, deliver services & infrastructure, assist existing officials). Support is often provided from outside an institution and in many cases fails to also build capacity or transfer skills to existing officials.
- Capacity building programmes – but with a focus on achieving ‘outputs’ in the context of urgency for delivery. These often also fail to build sustainable institutional capacity

The 2006 Five Year Strategic Framework for Local Government identifies “mainstreaming of hands-on support for local government to improve municipal governance, performance and accountability” as one of its three strategic objectives. The approach is thus focusing on the provision of support but with the understanding that any support provided works towards an outcome of increasing municipal capacity.

This strategic agenda is an important document for the environmental sector to understand and implement. It places the onus on national and provincial government to prioritize support for municipalities through the actions identified in the strategic

agenda. It also specifies that all national and provincial sector departments must implement guidelines on supporting local government, dedicate personnel and financial resources to supporting municipalities and reflect support strategies in their strategic and business plans. Provinces have specific responsibility for developing 'municipal support plans' and to coordinate and monitor hands on support to provinces (via the Office of the Premier and the Premier's Coordination Forum).

The National Skills Development Strategy (2005-2010) is another initiative of government which may provide opportunities for the sector to develop skills, although this potential may be under-developed at present given the absence of a SETA specifically dedicated to environmental professionals.

A priority for the environmental sector is thus to understand its capacity needs and develop a strategy to address these - but within the imperative of ensuring that its approach is based on and integrated into the overarching framework and approach to capacity building being developed by government as a whole. This is particularly important with regard to capacitating local government.

Over the next 5 years the Sector will...

- Achieve increased awareness, understanding and integration of environmental issues within institutions and planning processes
- Achieve a measurable increase in capacity (of officials, institutions and politicians) – resulting in increased effectiveness in performance of functions across the sector.
- Achieve increased participation in environmental consultation processes – as a result of increased capacity of stakeholders.
- Carrying out skills and capacity assessments (audits) for all environmental institutions at national and provincial level.
- Ensuring that environmental skills and capacity are adequately assessed via the CGTA competency Framework and National Government Skills audit for local government.
- Developing and implementing a national strategy for support and capacity building for the environment sector– to cover all spheres of government and focusing both on environmental officials and other officials and politicians.

- Approving and implementing the (draft) Local Government Support Strategy for Environment and Tourism Sectors – and ensuring that this is aligned to the Five Year Strategic Agenda for Local Government. (With the intention being that this would be integrated into a wider support and capacity building strategy for the sector once prepared).
- Building on existing programmes and approaches – and incorporating lessons learned into new initiatives.
- Reviewing the role of Community Environmental Workers with a view to increasing their effectiveness in capacity building and support.
- Establishing a reporting, monitoring and evaluation system to monitor the effectiveness of the capacity building strategy (and its activities) on an on-going basis.
- Achieving integration/ mainstreaming of environmental capacity building into existing support and capacity building programmes for local government– particularly those emanating from: Five Year Strategic Framework for Local Government National Skills Development Programme
- Ensuring capacity building (e.g. skills transfer, building of institutional capacity) is an integral component of any support projects or other out-sourced projects commissioned by the sector.

The sector will achieve this by...

- Increasing use of learnerships and bursaries as a means of increasing access to the sector at the entry-level.
- Developing strategies and approaches for increasing staff retention (for example, developing a COR (Code of Remuneration) for environmental professionals in the government sector).
- Increasing access to environmental related information by all stakeholders.
- Developing and implementing national strategy for capacity building of stakeholders (containing topic specific strategies e.g. coastal communities, compliance promotion to industry/ EIA applicants etc.).

How the sector will work together...

- DEA and Provinces have defined roles to support local government – and to plan and allocate resources for this function. This obligation has been

formalised within the Five Year Local Government Strategic Agenda.

- Increasing use of learnerships and bursaries as a means of increasing access to the sector at the entry-level.
- Developing strategies and approaches for increasing staff retention (for example, developing a COR (Code of Remuneration) for environmental professionals in the government sector).
- Increasing access to environmental related information by all stakeholders.
- Developing and implementing national strategy for capacity building of stakeholders (containing topic specific strategies e.g. coastal communities, compliance promotion to industry/ EIA applicants etc.).
- Within the sector, there are many initiatives emerging which are topic specific (e.g. capacity building strategy for biodiversity, air quality, general support and capacity building for IDP processes) and which are being driven by different institutions (e.g. DEA, provinces, SANBI).
- To ensure activities are coordinated and targeted towards priorities, the sector will produce a coordinated strategy (the National Capacity Building Strategy – as noted above). Specifically, there is a need to coordinate activity at the municipal level to ensure that municipal environment departments are not bombarded with a series of un-linked programmes in an ad hoc way – but receive targeted and integrated support and capacity building programmes.
- Development of a common capacity building programme to ensure sharing of resources and best practice within the sector.

5.4 Financing the sector

Where are we now?

A significant portion of the DEA budget is made up of transfers to the public entities reporting to the Minister including the SA Weather Service, the Marine Living Resources Fund, SA National Parks, the iSimangaliso (previously Greater St Lucia) Wetland Park Authority, and the SA National Biodiversity Institute.

The fastest growing expenditure within the DEA has been within the department's social responsibility programme, mainly because the Department's share of the Expanded Public Works Programme has increased. The programme continues to promote job creation, community training, and infrastructure development by

implementing projects in sustainable land-based livelihoods, coast care, people and parks, tourism, and waste disposal and recycling projects. These projects are mostly in the rural and urban nodes prioritized by government as part of its Integrated Sustainable Rural Development Programme and Urban Renewal Strategy. However, the temporary nature of some of the interventions should be re-considered.

There is additional expenditure outside of the national and provincial budgets via the various public entities, particularly the national and provincial conservation bodies. Local government also budgets for environmental management services including the provision of solid waste collection and disposal. However, upstream waste activities, such as waste avoidance, minimization, re-use, recycling and composting are generally unfunded, and do not make up part of the KPI's and KPA's at local government level.

Much additional expenditure is financed from own sources which include park and accommodation fees in the case of conservation bodies and refuse collection and disposal charges at the municipal level.

Certain sub-sector plans, such as those for biodiversity and conservation, but more so for waste management and pollution control, continue to specifically identify insufficient financial resources as a constraint. Further, the institutional and human resource capacity constraints identified in Section 4.3 above imply that significant expenditure will be required to develop and retain the skilled staff required to implement sector strategies.

At the local level it appears that solid waste services continue to lag behind other basic municipal services, partly due to smaller budget allocations being made available via the national Municipal Infrastructure Grant to solid waste infrastructure, and due to waste services receiving inadequate operational budgets at the municipal level. The large backlog in ensuring that waste disposal sites are brought to an adequate standard for permitting will impose substantial new capital expenditure requirements for the sector over the next five years, much of which could be avoided by upstream interventions.

Given the new regulatory powers over air quality management at the Provincial and Local Government level there is also significant risk that air quality management will not be sufficiently resourced in the near term, particularly enforcement and compliance activities.

Given the new regulatory initiatives in the sector it is very important to understand the implementation costs of new regulation and legislation. This has been done to a limited extent for some regulation but has not been comprehensively undertaken. The sector therefore does not have a clear indication of budgetary requirements for the implementation of new programmes nor cost implications for regulated sectors to meet government objectives. It is a priority that the sector generates sound estimates of required expenditure to identify areas where further revenue is required to meet sector objectives. Improved and expanded budget estimates are also needed to justify funding requests to national and provincial treasuries, and to identify the level of application of policy options such as Polluter Pays, Extended Producer Responsibility, and others cost recovery mechanisms, such as stepped tariffs.

A difficulty facing the sector is that environmental expenditure at times needs to be justified on the basis of the avoidance of environmental, social and economic costs, and on public good grounds. There has been progress in the valuation of environmental goods and services and the valuation of environmental costs but the sector still faces the challenge of providing sound quantifications of environmental, social and economic costs and benefits in support of additional budget allocations for the protection of environmental public goods and public health, while enhancing Green job opportunities.

The environment sector has historically generated little of its own revenue, aside from conservation bodies. There is the growing acceptance of the need to recover the administrative costs of authorizations directly from the polluter. For example, the new Air Quality Act and Waste Management Bill both provide for the recovery of costs for the provision of licenses. This has the potential to raise additional revenue to finance costs of authorizations and compliance monitoring. The Environmental Fiscal Reform process of the National Treasury provides further impetus to raising revenue through the implementation of the polluter pays principle.

The EFR policy outlines a clear framework for the establishment of environmental charges and taxes. This opens many new opportunities for the use of economic instruments in support of environmental objectives and has the ancillary objective of raising revenue for the fiscus and for environmental authorities.

Although the EFR framework has been established by the National Treasury it is incumbent on the environmental authorities (at all spheres of government) to develop practical instruments within this framework.

Over the next 5 years the sector will...

- Secure adequate financial resources to meet sector objectives based on a sound understanding of the costs of implementation of environmental legislation at all spheres of government.
- Increase own sources of revenue from the increased implementation of the polluter pays principle through user charges and other mechanisms.

The sector will achieve this by....

- The expansion of own revenue sources within the sector – including the introduction of appropriate charges for environmental authorizations and compliance across the sector to ensure implementation of the polluter pays principle. This will include the use of user charges for atmospheric emission licenses; charging for authorizations under the new Waste Management Act; consistent user charges and the implementation of Extended Producer Responsibility for solid waste recovery systems and others.
- Ensuring that effective cross subsidization is in place. For example, while some popular protected areas can raise significant revenues not all protected areas can be self-financing. This may require review and rationalization of resource allocation in relation to biodiversity values and significance of the protected area. Similarly, those benefiting financially from the manufacture and distribution of what eventually becomes waste, must also be contributing to the cost of waste systems.
- Establishing economic instruments for environmental protection within the Environmental Fiscal Reform framework in collaboration with the National Treasury. Economic instruments will be developed to support biodiversity

management and environmental quality.

- With respect to biodiversity protection instruments will be developed which encourage private landowners to contribute their own resources to effective biodiversity management. These may include incentives such as income tax deductions for expenditure on controlling invasive alien species and estate duty provisions that encourage philanthropy towards the environment.
- Mechanisms will also be developed to support the payment for ecosystem services, and reinvestment of the revenues generated in securing the health of ecosystems.
- Resource use charges for atmospheric emissions (pollution taxes) will be evaluated for introduction in support of traditional licensing approaches to air quality protection.
- Deposit and levy systems that are indicative of costs incurred by waste streams, and full Extended Producer Responsibility programmes must be implemented.

A range of organizations should contribute to a better understanding of the benefits of environmental protection. Important ecosystem valuation work already undertaken should be extended by appropriate institutions, such as SANBI and SANParks, while the national DEA should continue to support research on the valuation of other environmental costs. A critical analysis, so far lacking in previous financial research, is the key one of avoided costs – such as the R4 billion that poor air quality currently costs the country. Other such valuations must be made mandatory for all financial and economic analyses. At a more local level specific valuation studies will contribute to developing a national understanding of the public good benefits of a sound environmental management system. User charges can be designed and implemented at all spheres of government. For purposes of consistency the national department should either establish national charges (for example, under the AQA) or provide guidance on the principles for establishing user charges. It is important to work in collaboration with the National Treasury in the elaboration of new economic instruments, and the notion of specific ring fencing, and the possibility of pollution cleanup funds from industries which historically benefited from the process responsible must be finalized. The precedents for this are many.

Similarly, the line function departments should be involved in consultation on

economic instruments which impinge on other sectors. These would include the Department of Agriculture in the case of biodiversity and the Department of Trade and Industry in the case of industrial pollution taxes.

5.5 Improving environmental information and decision making

Where are we now....

There are four main areas of activity within the sector at present which are designed to improve environmental information available for decision-makers:

- Monitoring of environmental conditions and trends (environmental monitoring)
- Development of indicator sets to assist in the measurement of various factors: environmental quality, sustainable development, performance of government
- Development of information management systems and datasets
- Implementation of research and development – by or on behalf of the sector

Monitoring of environmental conditions is a crucial element in understanding the state of the environment but also in detecting changes in the environment (which may in turn be used to reflect the performance of the sector and the effectiveness of its policies and decision-making). Monitoring information also enables the scientific community to build models (e.g. climate models) and ensures that vital warnings of natural weather events which can lead to drought or floods can be provided. The South African Weather Service (SAWS) is responsible for a significant monitoring network which must be maintained to ensure that the information required by decision-makers is available.

Following the recent process for development of the National State of Environment Report (South African Environmental Outlook) and the National Framework for Sustainable Development – a set of environmental sustainability indicators has been developed. Work is now underway to ensure that information gathered on performance against these indicators can be collated into a web-based indicator database. The indicator set is shown in Appendix C.

In the past the information management systems used in environmental decision-making have been extremely limited in their effectiveness. The realization that this

was the case is reflected in the numerous information management requirements in the legislation that have emerged since the environmental law reform process began.

This implies a level of information management system development and capacity is required, that is likely to become a severe impediment to effective and efficient environmental management in the future if not addressed proactively.

Work is taking place across the sector to develop urgently needed information management systems like a South African Air Quality Information System (SAAQIS), Waste Information System (WIS), a web-based system for biodiversity information; a protected areas register and a compliance and enforcement information management system.

There is also a need to shift towards integration of information systems, to provide in essence 'one-stop-shops' for information for a particular area of the sector. SANBI is working towards the creation of such an approach for biodiversity information.

In addition, it is becoming increasingly important for the sector to be able to access and use information that is traditionally held in other sectors or institutions. For example, spatial information held by the Agricultural Research Council, information on water resources held by DWAF and so on. Thus a major focus in the next 5 year period will be the development of an integrated GIS system (Enterprise GIS) to collate all information on the environment which may be of use to the sector.

State of Environment reporting has moved forward significantly in the country. Whilst not mandatory, most provinces now have a current State of Environment Report, as do some of the larger municipalities. The national report has recently been updated (published July 2007). Work will be on-going to maintain reports in a relevant and up-to-date form and to develop a state of environment internet portal.

Finally, scientific research and development remains a fundamental activity for the sector- required to provide the understanding of the environment upon which sound decision-making can be based and for the development of new and innovative approaches to the conservation and management of natural resources.

The sector must become much more effective at identifying and communicating its research needs – ensuring that research programmes are coordinated and targeted towards national priorities.

SANBI continues to provide this strategic process for the biodiversity and conservation area of the sector. DEAT has worked with Department of Science and Technology and a number of leading research institutions in South Africa to developing a Research and Development Strategy for climate change.

Over the next five years the sector will....

- Continue to provide the key environmental monitoring information required to support the work of the sector
- Improve access to information through the integration of information management systems and development of a 'one-stop-shop' approach to communicating and providing access to information
- Move towards a much more spatially-oriented approach to information collation, management and presentation
- Continue to develop the State of Environment reports process as a means of increasing the understanding of the environment and the pressures it is experiencing
- Develop a more strategic approach to the planning and funding of research and development needs – focusing on national research priorities for the core focus areas of the sector

The sector will achieve this by:

- Maintaining the environmental monitoring systems required to supply the sector with vital information on environmental quality and conditions
- Continuing to develop, refine and publish indicator sets – and establish reporting processes against these
- Developing information management systems and ensuring integration of these systems where required in order to make the information more accessible and meaningful
- Continuing to update geospatial information on the environment – integrating systems from other sectors where possible
- Developing state of environment reports at national and provincial level

- Developing research and development priorities and strategies for each of the core focus areas of the sector.

How the sector will work together.....

In general, development of information management systems and indicator sets is led by the national spheres of the sector (DEAT, SAWS, SANBI and so on), although all rely on information collected across all three spheres of government.

A standardised approach to the measurement and reporting of environmental information must therefore be followed by all involved.

Research priorities and strategies must be identified at a national level – to ensure that requirements from across the sector are collated and communicated in a coordinated and targeted manner.

5.6 Mainstreaming the environment into strategic development planning and decision making

Where are we now....

There is a need to ‘mainstream’ the environment into many different levels and sectors of society if sustainable development is to be achieved in practice. The behaviour of consumers, the corporate sector, investors and other sectors of government – must all be influenced by environmental concerns and issues. However, the ‘mainstreaming’ of the environment into planning, growth and developmental strategies and processes is a key issue for the sector which if achieved will facilitate the achievement of many of its objectives.

The need is for environment considerations to be effectively embedded in the key tools and decision making processes the Government is using to take its development strategy forward. Too much reliance has been placed in recent years on using specific environmental management tools (such as the EIA process) to achieve sustainable development – with the result that EIAs are seen as impediments to development. Rather, the environment needs to be given adequate and balanced consideration within instruments such as provincial growth and development strategies, spatial development frameworks (provincial and local) and Integrated

Development Plans (local).

In general, the proposed amendments to NEMA Chapter 5 (which aim to increase the number of EIM tools available) will go some way to reducing reliance on the EIA process to protect the environment – and promote the use of broader, more strategic approaches that will in effect lead to greater mainstreaming of the environment into land use planning and decision making processes. Such approaches include Environmental Management Frameworks and spatial maps of environmentally sensitive areas, such as the spatial biodiversity plans currently being produced at the provincial level. These instruments will encourage the strategic consideration of environmental issues, leaving the project –level EIA process to be used as a last resort.

This shift towards a more strategic inclusion of environmental issues is beginning to take place. Provincial and Local Growth and Development strategies are beginning to reflect the benefits of environmental considerations, in some cases demonstrating a thorough understanding of the services the environment provides to communities and the benefits of maintaining or enhancing these services.

SANBI is working with provinces to assist them in the production of bioregional plans (spatial biodiversity plans) – to ensure that each province has an understanding of the location and nature of critical areas for conservation and can integrate this information into its spatial development planning. The Bioregional plans are also being used in many areas by municipalities to inform their SDF and IDP processes (see section 4.2.5 for more on bioregional planning approaches).

DEAT is working in partnership with some of the provinces on the production of IDP toolkits to assist municipalities in understanding and integrating environmental issues into their IDPs.

In terms of mainstreaming into larger growth and development strategies, the National Framework for Sustainable Development (and its eventual action plans) will be a key means of ensuring that mainstreaming of the environment takes place at the national level. This framework is also vital in demonstrating that addressing the environmental pillar of sustainability supports a number of national developmental imperatives.

The challenge for the sector over the next five years is to fulfil the shift towards the mainstreaming of the environment into growth and development planning – across all spheres of government.

At the national level, DEA needs to take leadership on this issue to ensure that National Departments also reflect environmental imperatives in the work and planning they do.

Over the next five years the sector will...

Ensure that the environmental considerations are firmly embedded in all key Government planning and development documents and approaches including Growth and Development strategies and Spatial Development Frameworks.

The sector will achieve this by:

- Promulgating amendments to legislative which make provision for strategic EIM tools (see section 4.2.4 for details)
- Developing guidance on and best practise examples of how environmental issues can be incorporated into Growth and Development Strategies and Spatial Development Frameworks.
- Demonstrating how other approaches to planning based on environmental principles such as bioregional planning and EMFs can be used to enhance the benefit of existing approaches such as IDPs.

How the sector will work together.....

The sector will do this by working together to ensure that the environment is considered in all planning and development processes in a rigorous manner that supports alignment and effective use of resources. The use of alternative approaches will be used to add value, and not replace mandated approaches to planning and development.

5.7 Mainstreaming the environment into large scale public events

Where are we now.....

With the hosting of the 2010 FIFA World Cup™, as the host country, South Africa was presented with unique planning opportunities and challenges. The challenges were to balance the scales of development on the one hand with environmental sustainability on the other. South African Cities have already begun to feel the impact of preparation towards 2010.

The opportunities provided in terms of development and poverty upliftment are immense, but so too, is the need to ensure that such interventions are sustained beyond 2010.

Therefore, 'Green Arena' strategy for South Africa aimed to organise and implement the 2010 FIFA World Cup™ in an environmentally responsible manner and to use the publicity around the event to promote responsible environmental living. It is essential to ensure that the World Cup™ was hosted in a sustainable manner with minimum negative impact on the environment.

The effective use of the various planning instruments is key to promoting an event that not only does the host nation proud but does so within the parameters of the situation faced by the country.

Greening is a new phenomenon that is fast becoming the way for countries and cities to host an international event. The principles of the greening process include:

- Environmental best practice,
- Social and economic development,
- Education and awareness,
- Monitoring, evaluation and reporting and,
- Leaving a positive legacy.

South Africa has during WSSD 2002; event organizers were determined to reduce, re-use and recycle as much waste as possible and implement interventions that would collectively diminish the environmental "footprint" of the event. During WSSD 2002, important public awareness initiatives mobilizing and involving the public in sustainable development best practice projects were embarked upon.

The objectives of the greening programme are to create a platform to:

- Raise Environmental Awareness using the 2010 opportunity
- Minimise the environmental impact
- Leave a positive Legacy
- Strengthen the case for mainstreaming sound environmental consideration into major programmes
- Contribute to the broader objectives of hosting an African World class event To achieve these objectives the sector will need a well coordinated Greening 2010 campaign that has both tangible (legacy) and intangible (minimum impact) broad based benefits (inclusive) to the South African population.

The opportunities provided in terms of development and poverty upliftment are immense, but so too, is the need to ensure that such interventions are sustained beyond 2010.

Such a Campaign should build a sustainable partnership with various stakeholders and mobilise individuals and organisations to support environmental initiatives in the future and in the lead up to 2010.

Over the next five years the sector will....

- Implement a series of sustainability projects related to the 2010 FIFA World Cup
- Implement a series of Legacy Projects and Capacity Building initiatives
- Plan and implement work in order to sustain the green agenda post 2012

The sector will achieve this by.....

Sustainability projects

A number of projects which can be implemented by all the 2010 Greening partners include:

- Climate Change
 - Carbon offsets for Cup™ participants
 - 2010 Carbon Fund
- Water Management

- Waste
- Inclusion: awareness-raising of communities especially in host cities
- Energy Efficiency and Renewable Energy Initiatives

Legacy Projects and Capacity building

- Sport and Environment Fund
- Sustainable Procurement
- The development of a event greening guidelines

Sustaining a Greening Agenda – 2010 to 2013

The following work will be carried post 2010

- An environmental Assessment of the 2010 Cup™
- Improving Strong Relations and supporting a Sport and Environment Commission
- Sports and Environment Awards
- Provide a resource portal and modelling system of greening of sporting and cultural events information at the international and national level

A detailed strategy for implementation of the above is currently in preparation and will be rolled out in 2008 - 2011

5.8 Communications and Awareness Raising

Where are we now....

Since 1994, South Africa has extended participation to diverse voices from civil society, as shown by the consultative processes undertaken to compile the Constitution, the CONNEP process to develop the White Paper on Environmental Management Policy, the various institutions set up to promote participation around the country, as well as significant progress in the representation of women in parliament.

Substantial public participation has taken place in policy development, but less in

decision-making and implementation. The participation of the poor, disadvantaged, and rural communities (including women, youth, indigenous peoples, and subsistence farmers), has, in the past, been insufficient. These groups are severely constrained regarding access to information, to communication networks, to transport, and, thus, to participatory processes. However, greater emphasis is now being placed on engaging poor communities.

Currently, there is a need to raise awareness both of environmental issues and of governance processes in order to broaden public participation in processes that touch on environmental concerns. In addition, behavioural change is needed on an individual level to support the initiatives and legislation Government implements.

Compliance promotion is thus a vital tool which will be crucial in the future if increased compliance with environmental legislation is to be achieved. The sector must thus be more effective in communicating the value of services that the environment provides to communities and the key role that the environment plays in economic development.

All of the above point to the need for the sector to become more effective in communicating its role and the value of the environment to the rest of society and to continue to increase its activities in the area of environmental education.

Within the sector, there are several current initiatives to try to facilitate input to policy and decision making:

- Imbizos held between the sector and communities (e.g. the series of Imbizos held by DEAT MCM with fishing communities, Imbizos held with communities in relation to poverty relief programmes)
- Formal participation forums

The National Committee for Climate Change (NCCC) is a similar sort of advisory forum for national government on climate change, which brings together representatives from national departments, provinces, local government and civil society – and its primary purpose is to assist government in the development of positions for climate change negotiations and the development of national policy

and strategy on climate change.

There is a specific need for institutions within the sector to become more 'accessible' to the public in this regard – and to develop a better connection to people on the ground.

Over the next five years the sector will....

- Become more effective in communicating the value and role of the environment and the environmental sector
- Ensure that the general level of environmental awareness is increased throughout the country
- Ensure that education and awareness of environmental legislation and regulations is carried out with a view to increasing levels of compliance (this is discussed within section 4.5 above)
- Consolidate and improve the effectiveness of formalised structures for citizen participation
- Work towards increasing participation levels in environmental policy making and implementation at the local level, particularly among the poor, disadvantaged and rural communities
- Facilitate increased participation through improving access to information

The sector will achieve this by:

- Developing detailed communication strategies to support the implementation of environmental initiatives, and Developing an approach to behavioural change that can be incorporated into such communication strategies.
- Support the Department of Education in the development and implementation of environmental components of the curriculum
- Planning and implementing specific environmental awareness and educational activities aimed at individuals, communities and sectors of society currently creating impact on the environment
- Increasing the participation in and effectiveness of consultation and advisory forums such as NEAF, NCCC
- Continuing to consult with communities and stakeholders via Imbizos and increasing its language reach through the introduction of more than one

official language for written communications

- Implementing capacity building and awareness raising programmes for stakeholders in civil society (see section 5.3 below)
- Improving access to information and Ensuring the sector is in compliance with the Constitution, Promotion of Access to Information Act (no. 2 of 2000), Promotion of Administrative Justice Act (PAJA) (no. 26 of 2000) and NEMA (which guarantees access to information on the state of the environment and threats to it)

How the sector will work together....

DEAT will lead the sector in developing and ensuring a consistent approach to communication strategies to achieving behavioural change in all stakeholders. Support the Department of Education in terms of the development of formal approaches to environmental education within schools and tertiary institutions. All institutions within the sector will develop environmental educational programmes and activities to support their areas of work. National institutions such as DEAT, SANBI and SANParks will provide leadership in this regard.

DEAT will lead on ensuring that the NEAF and other national participatory/ advisory forums (such as the NCCC) run effectively and frequently.

All institutions within the sector will carry out capacity building for stakeholders and residents and ensure that there is stakeholder involvement and consultation in all planning processes.

All institutions will establish systems to provide information to stakeholders and will ensure that they are compliance with the legislation related to access to information.

5.9 Summary of Means of Implementation per Focus Areas within the Sector

The means of implementation for each focus area have been added into the original sectoral frameworks of the ESPS, giving far more detail than was originally supplied as far as delivery of outcomes and measurables are concerned. In addition

a further column covering each sector, setting out indicators for each sector activity, further reinforces the means of implementation, which in turn need to be allied to the monitoring and evaluation criteria.

This chapter summarises a broad view of the means of implementation of each focus area, as included in this review, as well as giving insights into means of compliance and enforcement of the sectoral outcomes and targets. Accordingly this chapter sets out this information as per the sectoral criteria.

As far as compliance and enforcement of agreed goals of implementation are concerned, these are covered by sector but it should also be mentioned that overall compliance and enforcement should be dealt with at national departmental level in co-operation with other sectors such as the justice and police sectors in order to ensure the implementation of the various national laws and regulations across the board.

5.9.1 Air Quality

The implementation of the outcomes within this sector is tied to relevant regulations and stipulations of the National Environmental Management: Air Quality Act (AQA) (No. 39 of 2004). This is in turn tied to the development of South African Air Quality Information System (SAAQIS), which aims to provide quality control mechanisms to be implemented by provincial and local authorities. The two major constraints in this area are funding and shortage of trained personnel which must be addressed if implementation is to be achieved.

The replacement of the old Atmospheric pollution act by the AQA will result in the issuance of Atmospheric Emission Licenses as under the AQA, by relevant delegated authorities. These must be measured and transgressions be dealt with through inspectorates that are duly funded through treasury allocations, in order that this is not an unfunded, and therefore unimplementable, mandate under provincial and local authorities. Jobs will be created by the formation of inspectorates, with centralized measurement and management functions to ensure compliance.

This is managed through the National–Provincial Air Quality Officers' Forum, which is in turn a subset of the existing MINTEC Working Group II, which is to meet

quarterly and which will be the effective delegated authority to act as a conduit between national and provincial authorities.

This forum then further devolves into the Provincial- Municipal forums, which already exist in the larger metropolises but which need to be rolled out into the smaller municipalities, especially the 23 district municipalities identified as having poor or potentially poor air quality problems.

Generic terms of reference have already been developed for provincial air quality managers which need in turn to be devolved in a measurable way in order to ensure compliance with the act and so that the act is enforced.

The proposed targets and indicators, as revised, are clearly set out in the associated tables but the line managers within the departments need to ensure that all timelines are adhered to and that outcomes of the means of implementation are met as per the proposed targets and their associated indicators.

5.9.2 Waste and Chemicals Management

While this sector now has the National Environmental Management, Waste Management Act (WMA) in place, which shifts from a cradle to grave to cradle to cradle approach to waste and chemical management, the means of implementation require extensive work in order to achieve the desired outcomes.

These include a shift towards a dematerialized economy as set out in the NSDF, which will be achieved mainly through the roll out and implementation of the WMA at national, provincial and most relevantly, local levels, the latter as part of Schedule 5 of the Constitution. There is necessity to ensure that this mandate becomes funded at local level, as allocated by treasury in the Provincial Environmental Budget Programme Structures.

In order to achieve the desired outcomes it is essential that local government is not only funded but capacitated to fulfill these mandates; otherwise the entire programme of implementation of the WMA is at risk. In order to address these challenges this sector has committed to development and finalization, within a year, of a sector Master Plan for Waste Management.

Two key measurements of funded implementation, as defined under the Polokwane Declaration, are the reduction of waste volume by 50%, and the reduction of waste being disposed of by 25% by 2012, which will form the core of the Master Plan.

Next, the sector needs to prioritize the licensing, operation and management of presently unregulated waste disposal sites, particularly hazardous waste, as defined under MEAs to which we are party. Hazardous waste will be best managed by institutional of full life cycle responsibility by product originators, (EG. manufacturers, importers and retailers of CFL lights, which contain mercury, will take responsibility for their collection and safe disposal, as this will place unsustainable pressure on local authorities.)

The remediation of both licensed and unlicensed sites equally needs to be prioritized under the Master Plan. All of these requirements tie into the MTSF for job creation and improved environmental conditions for communities.

Further details of implementation of these priorities in the master plan are covered in the sectoral analysis under KPAs, KPIs, and tests of relevance for implementation, on pages 41 – 43. Further targets and outcomes are clearly laid out in the tables under the revised targets, linked to indicators, which again need to be allied to the relevant monitoring and evaluation programmes in the chapter 8.

Compliance and Enforcement of Waste and Chemical management will be managed as per treasury allocations in the provincial budget structures. The compliance and enforcement stipulations of environmental quality management authorizations must be met as per agreed monitoring and evaluation measures set out in chapter 8.

5.9.3 Pollution Incident Management

As far as implementation goes this sector has the weakest implementation mechanisms and relies largely on cross cutting legislation, such as the AQA, WMA, ICMA and other related acts and regulations. The note that there is no dedicated 'superfund' to manage pollution incidents points to a major shortcoming, especially in light of emerging threats of Acid Mine Drainage problems in Mpumalanga and

downstream in Mozambique and KZN, as well as other ongoing continuous threats, such as pesticide and fertilizer pollution of settlements and watercourses, that require urgent management.

Therefore it is important that such a fund be investigated and implemented as a matter of urgency using the principle of polluter pays. The expansion of coal mining, allied to the lack of public oversight of EIAs and monitoring of the Department of Minerals and Energy are major hurdles to implementing proper oversight of these real and expanding threats pollution incident threats, for example. It would appear that a useful mechanism to manage Pollution Incident Management would be the establishment of reporting lines from local municipal level to the provincial level so that overall oversight and management of incidents remains a provincial responsibility while reporting mechanisms are funded in a dedicated manner.

Accordingly the primary means of implementation for this sector remain the establishment of guidelines at national level, which can be devolved to the other spheres of government under existing Provincial budget structures, as well as through the establishment of dedicated user pays funding mechanisms, which must be included in these guidelines.

These should not only be concluded but put in place by the proposed target times as set out in the sectoral tables in pages 51 -52 and aligned with the indicators shown, all in line with funding as per national treasury stipulations for reporting of outcomes and implementation, as under Policy Co-ordination, legislative development and information management services, amongst others.

The compliance and enforcement of this policy requires to be monitored and evaluated on an ongoing basis as per the finalized guidelines.

5.9.4 Environmental Impact Management

Environmental Impact Management is perhaps the most mature of the sectors as far as means of implementation are concerned. While EIAs have been implemented under NEMA since its inception, the new 'rationalized' EIM protocols are still being implemented under the revised guidelines and monitoring and evaluation of this process needs to be established, in order to measure the effectiveness of its

compliance and enforcement.

Accordingly these new mechanisms need to be implemented across all provinces as set out in the timelines as given in the tables on pages 57 – 61 of the proposed implementation targets.

However this process cannot be taken as a stand-alone authorization process but the system also requires evaluation as to whether the impacts are in fact being properly managed under the new EIM process and that the desired outcomes, as far as reducing the environmental impact of development applications, is being met and that conservation and sustainable use of biodiversity is being properly managed within the sector. Accordingly measurements and evaluation of implementation of EIRs will, to a great degree, be reflected in the success of that sector.

Therefore quality measurement indicators must be developed as per the monitoring and evaluation of a full suite of impact criteria as already defined under existing NEMA and the NSDF criteria.

As far as the compliance of developments with the EIA and EIM process is concerned these too require qualitative and quantitative assessments to be monitored and evaluated as per the terms of delivery of these legislative and environmental guidelines, as well as per international developmental criteria as defined under the MDGs, JPOA and other MEAs, amongst others. As with the other sectors these stipulations are set out in the tables from pages 54 – 58, under the proposed targets and indicators, as shown.

5.9.5 Conservation and Sustainable Use of Biodiversity

The management and implementation of the conservation and of sustainable use of our national biodiversity are primarily legislated under NEMA – Protected Areas Act and NEMA – Biodiversity Act. Under these two acts various benchmarks have already been achieved as far as implementation structures and goals are concerned. The challenge is now to meet these requirements during this review period.

It is noted that there is a requirement to implement the protection of 10% of terrestrial

area and 20% of the coastline by 2010. If this implementation target is to be met these goals require prioritization. This is achievable and additionally interfaces with requirements of the MTSF and the NBSAP as set out in the sectoral analysis on pages 64 and 65 as far as job creation, conservation of biodiversity and other criteria are concerned, as set out in the 5 priority strategic objectives.

These strategic objectives are implemented through following of the 'building block' actions as set out on page 66 – 67 of the review, where some of the compliance and enforcement mechanisms are covered.

Further means of implementation include regional obligations as per expansion and management of trans-frontier conservation areas, implementing penalties and incentives for regional co-operation in scientific collaboration, reducing pollution impacts and technology transfers in order to achieve the agreed goals of regional conservation.

Nationally there needs to be increased empowerment of the local sphere of governance through funding this mandate, by devolution from provincial to municipal levels. The NBF has already developed deliverable outcomes that are in line with treasury outcomes and which institutionalize the priority targets into operational plans that deliver mandated delivery outcomes and the mobilization of capacity and resource requirements. These paths toward implementation will be driven by both the department, at an oversight level, and by SANBI at a detail level, towards delivery of the NBF agreed outcomes.

The uneven implementation of the NBF at provincial level requires SANBI to prioritise the integration of biodiversity management into planning decisions, such as EIAs and EIRs, in order to ensure alignment with national requirements of the NFSD and MTSF, and to bring these requirements into local management structures in order they are implemented at this level. A clearly defined monitoring and evaluation system will be essential to measure the success of these aims and requirements of the NBF and associated treasury outcomes.

The timelines and responsibilities to implement the requirements of the NBF are clearly set out in the tables in pages 69 – 76.

5.9.6 Marine and Coastal Management

While most of the requirements of the marine sector have been met, as far as implementation goes, there remain major gaps as far as compliance and enforcement go, especially regarding capacity constraints. As noted in the sectoral analysis and as shown by the practical experiences of failure to implement the MLRA and to adequately enforce the relevant laws, as noted in the SPES, this failure denotes a challenge the meaningful implementation of the MLRA and consequently other marine conservation stipulations such as MPAs and other MLAs to which we are signatory.

The institutional realignment between Marine and Coastal sections of the department presents further challenges to the implementation of management measures and protection of marine resources. These challenges require urgent attention if meaningful implementation is to be achieved in this sector.

That being said the implementation management criterion of the local extractive fishing sector by MCM has largely been successful except for the proper management of the MLR Fund. This has a direct bearing on enforcement within this sector.

As with the previous sector, Biodiversity management, with which this sector has many cross-cutting relationships, it is essential that these shortcomings are addressed at national level in the justice and police sectors in order that full implementation of the MLRA is achieved as far as monitoring and evaluation of the outcomes are concerned. It may be valuable to draw these outcomes into a matrix of deliverables for this sector as far as the monitoring and evaluation criteria are concerned, in order that full implementation is achieved, in consultation with department heads and responsible authorities.

Further enforcement of the MLRA as set out through the use of FCOs, situated on both local and licensed international fishing vessels working within our territorial waters, stands to improve management and implementation of our fisheries quotas while also providing employment on a user pays basis.

The implementation of the requirements of legal actions taken against this

department - which incidentally align with the MTSF - as far as the allocation of resources to artisanal and subsistence fishers is concerned, need to be prioritized and monitoring and evaluation of this requirement must be put in place, as per the enhanced livelihoods of coastal communities as per the table on page 87.

The recent promulgation of the ICMA and its ongoing implementation as per the stipulations of the Act and the timelines contained therein, provide an accountable framework to roll out its stipulations at national and provincial levels. As set out in the tables on pages 85 – 87, it is important that the rollout of ICMA is funded at local level to empower decision making in coastal municipalities as far as development constraints are concerned, in order to implement a precautionary approach to climate change and future sea level rises.

Measurement of implementation of this sector can be assessed by completing monitoring and evaluation criteria for this sector against the indicators set out in the tables, to be reviewed as required, notably with cross cutting issues like biodiversity management, MPAs, as well as ongoing management of research stations, offshore bases and other ongoing projects, which need to be properly set out as per monitoring and evaluation criteria in chapter 8.

6. Monitoring and Evaluation

6.1 Background

This Chapter on Monitoring and Evaluation (M & E) system supports a coordinated approach to monitoring and evaluation in the Government Environmental Sector. The implementation of the system is intended to contribute towards the realisation of the Environment Sector Core focus area and priorities as outlined in the previous chapters. It is primarily aimed at enhancing the implementation of the Core focus areas and Strategic priorities for the Environmental Sector 2009-2014, through both monitoring and evaluation.

At the core of the M & E system is a drive for learning from practice for more effective results. The strategic value of monitoring and evaluation towards the realisation of national priorities is underscored in South Africa's third developmental phase since 1994. Key to ensuring the realisation of strategic priorities is monitoring and evaluation because, used appropriately, M & E can increase individual, institutional, local, provincial and national performance, delivery and impact.

6.2 The Environment Strategic Priorities

The strategic direction of the environmental sector is underpinned by the country's sustainable development vision, which is:

South Africa aspires to be a sustainable, economically prosperous and self-reliant nation state that safeguards its democracy by meeting the fundamental human needs of its people, by managing its limited ecological resources responsibly for current and future generations, and by advancing efficient and effective integrated planning and governance through national, regional and global collaboration (DEAT, 2008, p. 8).

This M & E framework is informed by what is discussed in the core key deliverables on the previous chapters and it seeks to provide comprehensive and coherent mechanisms for monitoring progress towards priorities using performance indicators derived from the priorities and goals. This M & E system provides mechanisms for evaluating achievements and impact of the Strategic goals against the indicators.

Monitoring and evaluation is intended to cause changes and improvements in programmes, structures and methods of implementing the Strategic goals and priorities. This framework covers all three spheres of the Government of South Africa, namely, the National, Provincial and Local. The four main pillars that the vision of the environment sector wishes to achieve are:

- People's quality of life and daily living and working environments;
- The integration of economic development, social justice and environmental sustainability;
- The conservation and sustainable use of biological diversity; and
- Public participation in environmental governance.

6.3 The Three Sustainable Development Principles

The Environment Sector is also underpinned by three orders of sustainable development principles which have been taken into account in developing this chapter of M & E system (Table 9).

⁹ DEAT. (2008). People, planet and prosperity: A national framework for Sustainable Development in South Africa. DEAT: Pretoria

Table 2: South Africa's Sustainable Development Principles

Order of principle	Green Economy
First order principles - Fundamental human rights that are guaranteed in the Constitution	Human dignity and social equity Justice and fairness Democratic governance
Substantive principles – The conditions that must be met in order to achieve a sustainable society and are based on existing policies and legislation and underpin a cyclical and systems approach	Efficient and sustainable use of natural resources Socio-economic systems that are embedded with and dependent upon ecosystems Basic human needs must be met in a way that ensures that resources necessary for long-term survival are not destroyed for short term gain
Process principles – Refer to how the National Strategic Framework for Sustainable Development should be implemented	Integration and innovation Consultation and participation Implementation in a phased manner
Source: DEAT National Framework for Sustainable Development, 2008	

6.4 Government-wide Monitoring and Evaluation Strategy

In addition to the Environmental Sector priorities and the Sustainable Development Principles, this M & E Framework is shaped by the Government-wide Monitoring and Evaluation Strategy (GWME), which was built on the World Bank Monitoring and Evaluation model. The Presidency has made it a requirement for each public entity to establish a monitoring and evaluation system: "It is a statutory requirement that the accounting officer of a department or municipality, or the chief executive officer of a public entity is required to establish a monitoring and evaluation system for the institution" (The Presidency, 2007, p. 4). The principles of the GMWE, which underpin this M & E framework, are to:

- Link relevant prior and ongoing government reforms and initiatives.
- Incorporate and consolidate existing monitoring and evaluation systems at

national, provincial and local levels;

- Clearly defined and link roles and responsibilities of each stakeholder to their mandate;
- Link implementation plan to existing capacity and the ability to build capacity in the medium term;
- Facilitate the integration and inter-operability in government;
- Monitor and enforce statistical standards as important pre-conditions for effective evaluation; and
- Regularly review of the government monitoring and evaluation plan for its improvement.

6.5 Best M & E Practice in the Public Sector

- The fourth dimension of influence for this M & E system is best practices in government monitoring and evaluation elsewhere in different parts of the world. World Bank assisted or evaluated government M & E systems offer the following lessons for this system:
- It is important to first diagnose the existing monitoring and evaluation systems, and to then build on them.
- The process of establishing a comprehensive M & E evaluation must have a capable champion, who is in a central position to drive the process. This can be a unit in the case of a Department.
- The M & E system should not be over-engineered but stick to the fundamentals.
- An M & E system will work well if supported by strong information management systems.
- Performance indicators are an important dimension of good monitoring and evaluation. In addition, it is critical to understand why a certain level of performance has been achieved or not achieved.
- Incentives should accompany the introduction of M&E framework in order to ensure utilisation of monitoring and evaluation information/results.
- The success of an M & E system is largely determined by the extent to which the results of the monitoring and evaluation are used to improve performance and determinants of such performance.
- The M & E system itself should also be regularly reviewed for improvement.

¹⁰ DEAT. (2008) Strategic Plan for the Environment Sector 2008-2013. DEAT: Pretoria.

¹² The Presidency. (2007). Republic of South Africa. Policy framework for the government-wide monitoring and evaluation system.

- Regulations and legal requirements to conduct monitoring and evaluation have limited effect.
- A good M & E system should be accompanied by structural arrangements that ensure objectivity and quality by paying attention to such matters as:
 - Role definition that ensures credibility, objectivity and quality in monitoring and evaluation;
 - Clarity on who is to be responsible for planning, carrying out and using evaluations;
 - Whether self-evaluations or individual evaluations (or both);
 - Determining how much monitoring and evaluation is adequate;
 - Provision for continuous review and change of the M & E system;
 - Making adequate provisions for the funding of M & E; and
 - Ensuring that there are linkages with other information systems in government.

From several country experiences (e.g. Chile and Australia) three main factors have been identified as determining the success of an M&E system, namely:

- **Intensive utilisation** of monitoring and evaluation results, which suggests the mainstreaming of M&E;
- **The provision of good quality information** and evidence which forms the basis for sound decision-making at various layers. This is informed by the quality of M & E systems and that of evaluations conducted; and
- **Sustainability** of the system in spite of changes in administration, ministers and top government officials, which also tends to happen when there has been strong buy-in and an institutionalisation of the practice.

A fourth lesson appears to be around provision for negotiating the evaluation findings between the commissioning organisation/unit and the evaluated units, and the planning together for the following year's targets.

6.6 The Process of Developing this M & E Framework

It could have been fruitless to have the strategic goals and priorities for the next five years without developing M&E framework that will evaluate the extent and magnitude of government intervention to address environmental challenges. The

process of developing and designing this M&E framework followed the following stages:

- The identification of core focus areas and strategic goals and priority areas.
- The clustering of strategic goals into manageable units and numbers.
- The development of indicators for each cluster of strategic goals by representatives from environmental sub-sectors, three spheres of government, NGOs and SMEs.
- The socialisation and testing of the M&E system among key stakeholders to elicit further improvements and ensure that they knew the tool that was to be used for monitoring and evaluating their Strategic Plan.
- The adoption of the M&E system by respective stakeholders and its incorporation into their institutional work plans and programmes.

The process of developing the performance and impact indicators, to focus and facilitate monitoring and evaluation heavily drew on input from stakeholders of the sector who came from relevant disciplines, all spheres of government management.

6.7 Components of the M & E System

A monitoring and evaluation system is a set of organisational structures, management processes, standards, strategies, plans, indicators, information systems, reporting lines and accountability relationships which enables national and provincial departments, municipalities and other institutions to discharge their M&E functions effectively. In addition to these formal managerial elements are the organisational culture, capacity and other enabling conditions which will determine whether the feedback from the M&E function influence the organisation's decision-making, learning and service delivery (The Presidency, 2007: 4).

Government monitoring and evaluation systems elsewhere suggest that a good M & E system improves accountability (value for money, good practice, audit follow up), governance (participation and transparency), public sector management (policy implementation and performance management), and financial management

(budget execution and expenditure quality). Monitoring prevents build up of errors. In short the use of an M & E system in government is likely to foster and performance orientation and approach to work, as units and branches relate their plans to outputs, outcomes and budgets more consciously. This M & E system provides for mechanisms that seek to achieve the same as the next sub-section (6.8) outlines.

6.8 Purpose and Objectives

The primary purpose of this monitoring and evaluation system is to offer a strategic tool for enhancing the Environment Sector's performance through escalating relevance, effectiveness, efficiency, sustainability and impact. An important component of the purpose is to ensure continuous and purposeful learning that feeds into the system as well as increase the capacity of the Environment sector to fulfil its mandate.

More specifically, the objectives of the M & E system are:

- To increase, service delivery, performance and proper utilisation of resources;
- To support policy making, resource allocation and budget decision-making;
- To support sectoral and national planning;
- To strengthen sector and national accountability and transparency;
- To support cohesion and synchronisation of efforts in the sector;
- To generate learning which can be fed back into the designing of new policies and programmes and the generation of best practice;
- To find explanations, causal relations and interpretive theories for deviations, unplanned results and different trajectories; and
- To highlight new and emerging problems (and contradictions) that must be dealt with at a systemic level.

In keeping with the GMWE intentions, the Environment Sector M & E system will highlight success so that they can be replicated; reveal challenges so that they can be addressed; provide evidence that will be used for decision-making and ensure that stakeholders are involved in the process consistently and extensively.

6.9 The Scope of the M & E

- Covers self-evaluation; internal evaluation and external evaluation;
- Covers process; performance/outcome; and impact evaluation;
- Covers the Environment (including water) in all three spheres of government;
- Links with other governmental departments with environmental dimensions (this means virtually all departments although some such as the energy sector will have more to do with the environment sector than others);

6.10 Ethical Principles in M & E System

The monitoring and evaluation system in the sector will ensure that M & E processes are conducted ethically through responsible use of power by those who commission evaluations; ensuring the credibility of the results through fair, impartial and complete assessment by those tasked to do evaluations because ethical conduct is likely to result in acceptance of the evaluation results by those for whom it is done, leading to responsible use of resources. This system therefore observes the following principles;

- *Intentionality*, meaning that monitoring and evaluation shall be conducted, when necessary and to serve the needs of organisations involved, especially those of intended users.
- Evaluators shall exercise independence and impartiality. *Independence* means freedom from bias and not being unduly influenced by the views of any person or organisation. *Impartiality* means giving a comprehensive and balanced picture of what is being evaluated after careful consideration of evidence from various sources.
- Evaluators have several obligations to **evaluation participants**. In particular they shall ensure that they cause no harm, respect the *confidentiality* of participants as well as their *dignity and diversity*.
- The purpose and methodology must be communicated to **stakeholders** in advance and the evaluation process and product shall be shared with them to ensure *transparency*.
- Evaluations shall have a *developmental orientation* by being pro-poor, supporting service delivery and performance, learning, human resources development and revealing impact of work.

¹³ Drawn from: United Nations Evaluation Group. (2008). Ethical guidelines for evaluation. UNEG: Geneva? And The Presidency. (2007). Republic of South Africa. Policy framework for the government-wide monitoring and evaluation system. Government of South Africa: Pretoria

- Evaluations shall be *methodologically* sound through such mechanisms as clear and consistent indicators, evidence-based data, triangulation and appropriateness of methods.

6.11 M & E Strategies in the System

The M & E strategies in this document are derived from the systems that existed before this system, and draw on the GMWE and successful M & E experiences from other countries. The main strategies recommended in this system are:

- The Monitoring and Evaluation shall be coordinated by DEA national office, with all layers of the sector contributing to different aspects of the M & E system. Oversight within the sector shall rest with the National office of the Department, which in turn will feed into the Government Wide Monitoring and Evaluation System (GWME).
- An inventory and diagnosis of the existing monitoring and evaluation systems shall be conducted before a new comprehensive system is developed and introduced. Monitoring shall primarily be conducted in-house by the respective institutions in the Department while evaluations shall be conducted by external resource people.
- The implementation of the M & E system shall be phased, beginning with the development of the necessary systems and procedures; establishment of necessary structures; and training of M & E personnel. Capacity building in M & E may include recruiting new staff, on-the-job training and long-term training of staff, structured skills transfer and Departmental learning networks. Implementation of the monitoring system will take place before that of evaluation.
- Monitoring and evaluation shall be conducted using the stated principles and a manageable number of indicators. The selection of evaluators shall be guided by the nature of the assignment and care shall be exercised to ensure that there is a good and sufficient balance of skills and experience in the team.
- Sufficient resources and time shall be allocated to evaluations in order to get the most out of them. The time element should factor in evaluation review processes, which should bring together both critiques and promoters.
- Results of monitoring and evaluation shall be communicated to stakeholders and be used to improve delivery, impact, strategies and to contribute to

learning.

The environment sector M & E system will be largely based on sermons and carrots to encourage the institutionalisation of monitoring and evaluation because these approaches have worked elsewhere. In particular there will be public recognition and financial incentives for conducting monitoring and evaluation and utilising findings. Sermons will be used to raise awareness about the need and value of carrying out evaluations, which will be accompanied by the necessary training.

6.12 Instruments for M & E System

The methodological soundness of the M & E processes is underpinned by the GWME principles of consistent indicators; evidence based data; coherence of data collection strategies; and triangulation of information. Similarly, M & E interventions are pitched according to purpose and resources available and to ensure cost effectiveness.

The two main instruments that will be used in the M & E system are:

Performance indicators: These are collaboratively developed and derived from the Strategic Priorities. Some of the guidelines in developing good performance indicators are simplicity and clarity; participation of staff and management as well as service users; and regular review of indicators in view of emerging new information and changing circumstances. Good performance indicators should also be manageable, not a long list. Too many indicators can lead to too much data and very little useful information. The performance indicators are drawn from the goals and priorities of the environment sector which are organised around the following areas:

- The cross-cutting theme of climate change;
- The subsectors of biodiversity management; natural resources management; nature-based tourism; marine and coastal resources; waste management; air quality and pollution control; environmental impact assessment; and
- The service subsectors of environmental education and training; environmental law and enforcement.

¹³ "The primary emphasis will initially be on monitoring. Once institutional capacity has been built, the orientation will gradually place more emphasis on evaluation" (The Presidency, 2007, p. 10) ¹⁴

The Environment Sector M & E system shall use both qualitative and quantitative indicators because they complement each other and bring different kinds of evidence to the surface.

In-depth impact evaluations: These tend to be extensive, time consuming and expensive. As such, they shall be used periodically and directed at projects that have at least one of the following qualities: potential for replication; consume large amount of resources; serve a section of the community that is especially poor or marginalised; a priority of the sector or national development plan; is special or innovative; or is a problem programme. Impact evaluations help show how the activities of the sector are affecting the people and the environment and shall be conducted once every three to five years. More importantly, they reveal causal mechanisms because of their depth and rigour, and are better able to show whether government actions are producing intended outcomes. Impact evaluations shall also be tied to reform phases and processes in the country. These shall be ordinarily conducted by external people who may be consultants or academics.

Guidelines for the institutionalisation of the M & E system

The implementation Environment Sector M & E system seeks to bring about an institutionalisation of a monitoring, evaluation and learning culture in the sector through:

- Building a strong buy in from stakeholders by building ownership of the M & E processes and systems at all levels.
- Establishing clear processes and procedures by which monitoring and evaluation will be conducted at various levels.
- Ensuring that M & E is an integral activity and has a clear budgetary support at organizational, district, province and national level in each sub-sector;
- Building an adequate supply of skills for monitoring and evaluation for learning and improved performance at all levels where M and E is conducted (M and E capacity development) through such interventions as recruitment of appropriate specialists; training existing staff by putting them on courses; on-the-job training and mentoring, structured skills transfers from outsiders who are more skilled; and the creating and implementation of internal M and E forums for joint learning and sharing around the practice.

- Recognizing and highlighting good practice, as well as scaling it out.
- Disseminating M & E results in accessible and helpful forms.
- Developing or assisting in the development of the infrastructure that allows the effective and efficient sharing of M & E information across the sector.

6.13 Roles and Responsibilities in M & E in the Sector

The roles and responsibilities of the different stakeholders in connection with the monitoring and evaluation strategy are outlined in the table (Table 10) below:

Table 3: M & E roles and responsibilities in the environment sector

Actor	Roles and responsibilities
DEA National	The Department of Environment and Water Affairs national office shall have the overall responsibility to ensure that the M & E system is developed, implemented and improved. It shall also ensure that the M & E system is adequately aligned to the environment sector and national strategic priorities. The national office of the Department shall work with its branches and with national, provincial and local government departments in the design and implementation of the M & E system and ensure their participation and ownership of the system.
DEA Provincial	Monitor and Evaluate the implementation of core focus area and strategic priorities. Coordinate provincial M&E reports and submit to DEA. See to it the Municipalities have implemented and submit M&E report timely
Municipalities	Implement most of the core focus and strategic priorities. Provide feedbacks to province on progress made in reaching the intended goals

6.14 Terms and Methods of Evaluation

The stakeholders in the sector have agreed on what is to be evaluation, why, and how. They have also developed and agreed on non-financial environmental indicators. As a general principle, institutions involved will do their own monitoring, manage information systems and provide the necessary data to DEA. Evaluations will be conducted by both internal and external evaluators in a way that builds internal capacity without compromising the credibility of the findings and recommendations. Based on the guidelines of the GWME and lessons learnt from implementing national M & E in other parts of the world, the environment sector shall conduct the evaluation quarterly using the performance indicators and once in two years using impact evaluation instrument (see Appendix 8.3 on reporting format). Also the planning of evaluations should be done with the end in mind, in terms of who would use the results and towards what end. Consequently, knowledge generated from M & E should be appropriately packaged for the different audiences. Such packaging should be linked to the information management system, which may include newsletters, magazines and websites.

Conclusion

Conclusions and Emerging Implications of the Sector Plan

The contents of this plan, and in particular its development within the context of Sustainable Development, indicate the need to consciously consider the environment as an area of priority in ensuring that the overall development strategy for the country delivers on its goals and growth targets.

The plan presents a major opportunity to increase the capacity of the sector to achieve sustainable development through targeted interventions in many key areas. These include economic development; science and technology; information and communication technology; sustainability-oriented research and development; and support to the poorest in our country, through green Jobs and the growing of a green economy. However, the critical issue remains implementation of the outcomes, targets and indicators as well as its alignment with the MTSF and NFSD. Sustainable solutions are already available under the NEMA suite of legislation, currently being implemented.

Additionally this plan indicates that there are opportunities (and a necessity) to incorporate sustainability and a livelihoods approach into Local Economic Development in order to foster sustainable employment creation and to establish anti-poverty projects that focus on mobilising existing resources, social networks, local savings and skills, in line with the MTSF and NFSD. This can be achieved by developing job creation plans that are underpinned by the Green Jobs and Green Economy concepts (see separate documents), and which deliver tangible opportunities and outcomes. For example, while we have lost many manufacturing jobs, these are exactly the skills that are required in several sustainable green job sectors. Similarly, sustainable food production methods based on the multicultural organic and agro-ecological models will provide green jobs in a sector that has experienced massive job losses. These models have also been found to be the best suited for emerging farmers worldwide over a 20 research period.

Despite a strong and growing commitment from government and other sectors of society to more effectively manage and safeguard South Africa's natural resource base, there remains a need to ensure that this objective is married to planned

and appropriate large-scale sustainable infrastructure investments and social development strategies. Care must be taken to ensure that infrastructure genuinely benefits citizens, as outlined in the MTSF and NFSD, in order to build from the bottom up and not from the top down. The notion of infrastructure led development must be informed by developing sustainable infrastructure, which asks the right questions, instead of the more common "business as usual" scenario. The separate document on Growing a Green Economy elucidates.

To make sure that this plan becomes a practical reality in everyday life, new capacities and skills will be required across the sector and society. Building the capacity of local government is clearly a major priority, and must be based on a series of clearly enunciated and fully funded indicators and outcomes. The sector must also actively foster collaboration with society at large through multi-sectoral partnerships, community empowerment initiatives, creation of green jobs and participatory consultative engagement.

The sector plan will undoubtedly impose interim, short term additional fiscal burdens on the three tiers of government, yet if measures such as Life Cycle cost recovery, Polluter Pays, and EPR are implemented these need not be recurrent. The specific costs of effectively implementing the plan must therefore be assessed and various instruments for revenue generation and prioritisation developed. The Green Economy document indicates how this may be funded in future. Given Treasury has already allocated significant resources to the EPWP, as well as to the sector for capacity building, skills development and communication and awareness raising, it remains a matter of ensuring these allocated funds are correctly distributed and implemented in a targeted manner.

In order to generate reliable and adequate information to support decision-making, the sector will need to develop and implement a sector-wide Research and Development strategy in collaboration with the country's public and private research institutions. Increased investment in sustainability science and technologies that link directly to the sustainable infrastructure programme are required. Areas requiring more attention include: building materials, transportation, energy systems, sewage treatment, water efficiency systems, waste, food production, and how to use incentives and disincentives to dematerialise urban systems. Fortunately, most of these systems are already well researched and are already

suitable for local implementation. The key challenge is to implement these in efficient and productive manner in partnership with society at large.

Systems for integration lie at the heart of improving governance for Sustainable Development and environmental management. Sustainable resource use criteria need to be built into all levels of programme and development planning and implementation in order to provide these activities with a sustainable resource use perspective. Only in this way can development projects be designed to be ecosystem and resource enhancing rather than environmentally and socially destructive.

National policy and directives do not explicitly identify resource efficiency and security, or social sustainability, as a priority. These serious omissions provide significant opportunities to introduce sustainable resource use and socially positive criteria into the strategic funding of sustainable infrastructure across all sectors (municipal, bulk water storage, food production and security, resource management, energy conservation and production, roads, harbours, railways, buildings (especially sustainable settlements), materials efficiency, waste, chemicals, etc.).

The challenges and opportunities of Climate Change, poverty alleviation, and food, water and energy security are all closely linked with the environment - the Green Growth and Green Jobs appendices confirm the massive opportunities that the sector is able to offer the country at large.

A key requirement for the period of the strategy is for the Sector to make clear that all economic activity is inseparably linked to the environment, which provides the basis on which all services and economic delivery take place. As such, it is critical that all sections of the economy are required to take on board sustainability issues. It is essential that this sector clarifies and connects to these linkages between green jobs and quality of life issues. In order to develop a green economy in a rapidly expanding global market it is essential that the economy moves rapidly away from its complete reliance on a fossil fuel base, which has, and continues to erode and reduce the potential for government to carry out its social and economic mandates.

Finally this sector plan also needs to be more closely informative to Treasury

provisions, with agreed indicators, being met through transparent and measurable outcomes. The need and desirability for targets, timelines and impact measurement cannot be overstated.

8. Appendices and Supplementary Documents

Appendix 8.1: Background to the Sector

The White Paper on Environmental Management Policy for South Africa is an overarching framework policy which undertakes to give effect to the many rights in the Constitution that relate to the environment, as well as those relating to governance, such as the legal standing of parties, administrative justice, accountability and public participation.

Furthermore, the White Paper on Environmental Management Policy for South Africa defines the essential nature of sustainable development as a combination of social, economic and environmental factors. It takes ownership of sustainable development as the accepted approach to resource management and utilization, thus entrenching environmental sustainability in policy and practice.

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

In developing and implementing government's national policy on environmental management, the Department of Environmental Affairs and Tourism lead the pursuit of achieving environmental sustainability in the context of South Africa's current situation.

The sector's role is to focus and prioritise goals and objectives requiring action by government. They include a commitment to:

- Ensure the development and implementation of integrated environmental management systems in both public and private sectors. These systems will identify and control environmental impacts in order to secure environmental sustainability
- develop and implement effective education and information strategies to

increase public awareness and understanding of environmental issues

- develop structures, processes and procedures and implement programmes to ensure effective and appropriate participation in environmental governance
- Develop mechanisms to deal effectively with international cooperation on environmental governance.

In addition the sector undertakes to:

- promote better understanding of sustainable development in all spheres of our society and of what is required to achieve it
- take the lead in securing the implementation of integrated, holistic, equitable, participatory, effective and sustainable environmental management practices
- Pursue constant improvement in government's understanding of sustainable development. To this end it undertakes to:
 - monitor and report on the state of our environment
 - seek constant improvements in best practice to secure sustainable development
 - Deploy it to implement this policy effectively, efficiently and accountably.

Because the environment means different things to different people it is necessary to start by defining what it means. In this plan the word environment refers to the conditions and influences under which any individual or thing exists, lives or develops. These conditions and influences include:

- the natural environment including renewable and non-renewable natural resources such as air, water, land and all forms of life
- the social, political, cultural, economic, working and other factors that determine people's place in and influence on the environment
- Natural and constructed spatial surroundings, including urban and rural landscapes and places of cultural significance, ecosystems and the qualities that contribute to their value.

Within the framework of the overarching goal of sustainable development, government has identified seven strategic goals for achieving environmental sustainability and integrated environmental management. These goals are

interdependent and implementation must address all of them to be effective. It is vital to recognize that environmental concerns and issues cut across various sectors and functions.

Therefore sustainable and integrated management of the environment depends on cooperation and initiatives from all sectors of society. Many supporting objectives address functions of other government departments that impact on the environment and will require their cooperation and commitment for effective implementation.

The strategic goals and their supporting objectives address the major issues government faces in its drive to achieve sustainable development and ensure an integrated system of environmental management. The vision and policy principles have guided the choice of goals and objectives and have guided policy implementation in the last ten years

The legislative and institutional framework for the management and protection of the natural environment in South Africa is complex and has resulted in the fragmentation of responsibility across various national departments, public entities and the three spheres of government.

A number of national departments are responsible for implementing legislation which impacts on elements of the environment (see Box 1)

However, the environmental 'sector' is a term used in government to describe the group of government institutions led by DEAT (as the lead agent of the sector) to implement and deliver on the legislation overseen by DEAT i.e. Those which cover air quality, climate change, waste management, environmental impact management, biodiversity conservation, marine and coastal management and environmental law enforcement.

Government institutions involved include:

- National Department of Environmental Affairs and Tourism (DEAT)
- National Government entities: South African National Biodiversity Institute (SANBI); South African National Parks (SANParks); South African Weather Services (SAWS), Marine Living Resources Fund

- Provincial departments with a responsibility for the environment and its management, conservation and protection – including provincial conservation authorities. Not all the nine provinces have established statutory authorities
- Local government – and their specific departments dealing with environmental issues. The institutional arrangements for environmental management at this level are not consistent and differ from local to local with some convergence only at a level of the metros

South African National Biodiversity Institute (SANBI)

The South African National Biodiversity Institute (SANBI) is responsible for biodiversity management, education and research and promotes the wealth of indigenous floral and faunal life of southern Africa. SANBI has three systematic research and collection centers, four bioregional programmes, conservation and sustainable use centers, eight county-wide national botanical gardens and equally well distributed environmental outreach, education and ecosystem rehabilitation programmes.

SANBI's strategic focus for the medium term (2007/08-2009/10) will be on; leadership on biodiversity knowledge management and information dissemination highlighting the status and trends in South Africa; co-coordinated research on the composition, value, status, functioning and dynamics of South Africa's biodiversity; managing a national system of bioregional programmes implementing priority components of the NBSAP; continued support for SADC, NEPAD and multilateral environmental arrangements; further develop and manage national botanical gardens; monitor biodiversity in South Africa and provide guidelines and best practices relating to the identification and conservation of threatened species and ecosystems as well as sustainable use of biodiversity; implement rehabilitation programmes that systematically target threatened ecosystems and continue supporting the goals of the Expanded Public Works Programme.

South African National Parks (SANParks)

South African National Parks (SANParks) is a statutory organisation governed by the National Environmental Management: Protected Areas Act (2003). SANParks is primarily engaged in nature conservation as well as the tourism and hospitality

industry. The organisation manages a system of 21 national parks that are representative of the country's biodiversity, cultural heritage and unique national features.

Apart from the ongoing conservation scientific and research work, the strategic focus in the medium term will include amongst others, the strengthening of the programme management for the Transfrontier Conservation Areas as well as instituting of special plans and preparations for leveraging the opportunities availed by the 2010 World Cup™. The strategic programmes for the organization will be underpinned by the drive for broad-based organizational and industry transformation. Biodiversity conservation, cultural heritage management, ecotourism and commercial development (in excess of 3 million visitors per year), and constituency building and the involvement of local communities are regarded as the core indicators of performance.

South African Weather Service (SAWS)

The South African Weather Service was established in accordance with the South African Weather Service Act (2001). The objectives of the South African Weather Service (SAWS) are to: maintain, extend and improve the quality of meteorological services; ensure the ongoing collection of meteorological data over South Africa and surrounding southern oceans; and fulfill government's international obligations under the Convention of the World Meteorological Organisation and the Convention of the International Civil Aviation Organisation as South Africa's aviation meteorological authority.

For the future, a major strategy of the South African Weather Service is to modernize and recapitalize its observations network and infrastructure through the deployment of proven observational, information processing and communications technologies. The major part of this recapitalization plan is the replacement of the fairly old C Band weather radar network of the Weather Service with modern and sophisticated S-band Doppler weather radars. The implementation of a business strategy on improving commercial revenue from the weather using industries is also underway.

Marine Living Resources Fund (MLRF)

The Marine Living Resources Fund (MLRF) was established in terms of the Marine Living Resources Act (1998). The MLRF was established to create a mechanism that would allow for the costs incurred as a result of services rendered to the industry to be redeemed on the basis of a "user pays" principle. The main source of income for the MLRF is the revenue generated from levies on fish products; licence fees and permits; fines and confiscations; and harbour fees. This revenue constitutes the main source of funding the operations of the Branch: Marine and Coastal Management (MCM), whilst personnel expenditure is funded by the vote of the Department of Environmental Affairs and Tourism (DEAT). The Fund was listed as a Public Entity in 2001.

In addition to its ongoing strategic priorities and mandates, the important focus areas for the forthcoming financial year include the implementation of upgraded financial management systems; the development of cost recovery and revenue management policies, strategies for the effective monitoring and management of marine oil pollution; and the promotion and facilitation of advances in the Aquaculture industry.

iSimangaliso Greater Wetlands Park (IGWP)

The iSimangaliso Greater Wetlands Park, which manages South Africa's first world heritage site, is entering into its fifth year of operation. Its objectives include conservation of the Wetland Park's world heritage values, ensuring local economic development and transformation, and optimising tourism development.

¹ Sikdar, S.K., Glavic, P., Jain, R. 2004. Technological Choices for Sustainability, Springer-Verlag Berlin Heidelberg New York, 42- 43, pp. 305- 307

Appendix 8.2: Provincial Environment Budget Programme Structures, December 2007

Programme	Sub-programme
1. Administration	1. Office of the MEC 2. Senior Management (HOD) 3. Corporate Services 4. Financial Management
2. Environmental Policy Planning and Coordination	1. Intergovernmental Coordination, Spatial and Development Planning. 2. Legislative Development 3. Research and Development Support 4. Environmental Information Management. 5. Climate Change Management
3. Compliance and Enforcement	1. Environmental quality management, compliance and enforcement 2. Biodiversity management , compliance and enforcement
4 Environmental Quality Management	1. Impact Management 2. Air Quality Management 3. Pollution and Waste Management
5. Biodiversity Management	1. Biodiversity and Protected Area Planning and Management 2. Conservation Agencies & Services 3. Coastal Resource Use
6. Environmental Empowerment Services	1. Environmental Capacity Development and Support 2. Environmental Communication and Awareness Raising

Appendix 8.3: Outcomes and Indicators**8.3.1: Summary of Strategy for Delivering Outcomes for Air Quality**

Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Proposed Targets ¹⁵ (what by when)	Indicators
Effective air quality management plans and strategies in place	Publication of the National Framework for Air Quality Management	DEA	2009	National Framework for Air Quality Management Document
	Development of provincial Priority Area Air Quality Management Plans	DEA	2 plans in place by 2009/10	Air Quality Management Plans
	Development of provincial Priority Area Air Quality Management Plans	Provinces	2 plans (dependent on provincial requirements)	As above Measured against budgetary allocations Funded as per Policy coordination
	Development of municipal air quality management plans	Municipalities (DMs and Metros)	28 (23 identified DMs and all the Metros) by 2009/10	As above
Develop and maintain an effective governance framework for air quality management, as provided for in the AQA	Develop ambient air standards for priority pollutants	DEA (with SA Bureau of Standards)	8 by 2009/10	<ul style="list-style-type: none"> Transport emissions of air pollutants Excedence of air quality limit values in urban areas Emissions of primary particles and secondary particulate matter precursors Emissions of acidifying substances Energy-related particulate matter emissions Emissions (CO₂, SO₂ and NO_x) from public electricity and heat production - explanatory indicators Emissions (CO₂, SO₂ and NO_x) intensity of public conventional thermal power (electricity and heat) production Emission trends of non-methane volatile organic compounds NMVOC Emission trends of ammonia NH₃ Emission trends of nitrogen oxides NO_x Emission trends of sulphur dioxide SO₂ Excedence of air quality limit values in urban areas Emissions of ozone precursors Emissions of primary particles and secondary particulate matter precursors

Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Proposed Targets ¹⁵ (what by when)	Indicators
				<ul style="list-style-type: none"> ○ Emissions of acidifying substances ○ Energy-related emissions of ozone precursors ○ Energy-related emissions of acidifying substances ○ Transport emissions of air pollutants (CO, NH3, NOx, NMVOC, PM10, SOx) by mode ○ Transport contribution to air quality ○ Exposure of ecosystems to acidification, eutrophication and ozone <p>Number of green jobs created.</p> <p>Funded as per Policy co-ordination and environmental planning, compliance and enforcement.</p> <p>Measure quality and level as against historical statistics.</p> <p>Increased conviction rates measured against historical record.</p> <p>Funded as per compliance and enforcement.</p> <p>Funded under treasury EQM (pollution) and Policy co-ordination and planning (Legislative development).</p> <p>As per audits, data gathering and inventory keeping.</p>
	Initial set of listed activities identified with associated emission standards	DEA	Initial set of listed activities in place by 2009/10	Listed activities present in NEMA
	Declaration of priority controlled emitters and controlled fuels	DEA	2 controlled emitters and 2 controlled fuels declared by 2009/10	
	AQA licensing provisions are fully functional at local government level.	DEA, DMs and Metros	Establishment and operation of licensing systems in Metros and District Municipalities by 2010.	<p>License processing time and accuracy</p> <p>Increased conviction rates measured against historical record.</p> <p>Funded as per compliance and enforcement.</p> <p>Funded under treasury EQM (pollution) and Policy co-ordination and planning (Legislative development).</p>

Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Proposed Targets ¹⁵ (what by when)	Indicators
			100 APPA Registration Certificates reviewed and converted to Atmospheric Emission License format by 2008/9	
	Continued and escalated compliance and enforcement activity against APPA Registration Certificates during the transition period whilst the new provisions under AQA are introduced.	Led by DEA EQP Branch with input from relevant provinces and municipalities	1200 EMLs designated by 2011/12 200 EMLs trained in compliance monitoring by 2011/12 72 continuous stack emission reports submitted by 2011/12	
	License fee protocol and implementation manual published	DEA	Manual published by 2008/9	Number of published manuals distributed and training undertaken
Measurable improvement in ambient air quality in Priority Areas	Implementation of national Priority Area Air Quality Management Plans and monitoring of changes in ambient air quality	DEA with relevant provinces, municipalities and other stakeholders	2 plans in implementation by 2009/10	See above
Make comprehensive and reliable air quality information easily accessible to all stakeholders.	Development and Implementation of the South African Air Quality Management Information System (SAAQIS)	DEA and SA Weather Services	50 government ambient air quality monitoring stations in place by 2011/12 By 2012 core components of SAAQIS are operational as a public-	Use of and training in SA Air Quality Management Information System (SAAIS). System online and functioning. 95% Live time

Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Proposed Targets ¹⁵ (what by when)	Indicators
			access web-based system covering the whole country including: facility for local emission inventories; a national greenhouse gas emissions inventory; database of listed activities and norms and standards; library of scientific literature and air quality policy and legislation; available air quality management plans; other guidelines.	
	Publishing of air quality management and information publications	DEA	Ten core publications to be published as per details in the National Framework including an Atmospheric Emissions License Manual and 2 Cleaner Production Best Practice Guidelines by 2009/10	Publishing and distribution of air quality management and information publications
Create sufficient capacity in the public sector to effectively implement air quality planning, management and enforcement.	Training of municipal and provincial officials in atmospheric emissions licensing	DEA, Provinces, DMs and Metros	100 officials trained by 2008/9 via the APPA registration certificate review process	Number of control officers
	Designation of municipal air pollution control officers	DEA and DMs/ Metros	3 designated by 2009/10	Strategy developed and distributed with accompanied training

8.3.2: Summary of Strategy for Delivering Outcomes for Waste and Chemicals Management

Existing long-term commitments by the sector for waste prevention and minimisation (Polokwane Declaration, 2001):

To reduce the volume of waste generated by 50 per cent by 2012;

To reduce the volume of waste being disposed of by 25 per cent by 2012; and

To develop a plan for "Zero Waste by 2022".

International commitments also made under the Basel Convention (Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal) (although permits under this convention are administered by the Department of Trade and Industry) and the Stockholm Convention

Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Targets (what by when)	Indicators
Avoid and Reduce amount of waste being disposed of.	<ul style="list-style-type: none"> i. Develop waste avoidance capacity ii. promote and Implement the Precautionary Principle iii. Implement detailed Polluter Pays and Cost Recovery programmes based on the new Waste Act 	Environment Sector	<ul style="list-style-type: none"> i. Local government – ii. Analysis of all impacts to human health and environment, and economic opportunities, of key wastes – paper, plastics, metals, glass, organics iii. Analysis of total cost per waste stream, with a view to cost recovery from the various sector beneficiaries 	<ul style="list-style-type: none"> i. one third of all officials must have capacity in waste avoidance by 2011 through SETA ii. report exists and informs the sector iii. report exists and cost recovery system in place iv. meet treasury goals for EQM and Environmental Policy co-ordination and planning

Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Targets (what by when)	Indicators
	Develop industry agreements to promote waste avoidance, minimization, re-use, composting and recycling.	DEA	New industry agreements in place by 2012. Recycling targets for paper, glass and metals by 2009/10 Targets for plastics and tyres by 2010/11	Industry agreement indicates total volume and toxicity reduction in waste generated and commitments to targets; number of sustainable (longer than 5 years) decent jobs created; Meet treasury goals for EQM and E.E.S
	Implement the National Cleaner Production Strategy.	DEA	Award scheme for cleaner production by 2009/10	Reduction in overall pollution levels Meet treasury goals for E.E.S
	Establish local avoidance, minimisation, re-use, recycling and compost programmes	Municipalities programmes	100% of organics by 2012; 75% of paper, metals and glass by 2012;	Percentage of diversion per annum as percentage of total manufacture; import of material Meet treasury goals for Policy co-ordination and planning.
Waste services are delivered effectively	Identify capacity, resource and funding requirements, and implement Waste Act	DEA	Norms and standards developed as per DEA Strategic Plan Costs of Waste Bill and other key programmes identified by 2007/9, with a plan for full cost recovery from financial beneficiaries DEA Guidelines series on planning published as per DEA strategic plan	Percentage of total waste costs recovered from value chain Meet treasury goals for Policy co-ordination and planning

Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Targets (what by when)	Indicators
	Develop appropriate sector strategies	DEA with Provinces	Health care waste strategy and action plan by 2010 Hazardous waste management strategy by 2009/10 Waste minimisation strategy by 2009/10	Strategies developed and promulgated. Meet treasury goals for Policy co-ordination and planning
	Development of approved hazardous waste management plans by provinces and integrates waste management plans by municipalities, based on cost recovery through Polluter Pays.	DEA and Provinces and local government	DEA and Provinces and local government	Percentage of municipalities with plans. Meet treasury goals for Policy co-ordination and planning and environmental empowerment services.
Improve performance in waste services to show measurable progress towards universal access to adequate household refuse and materials services	Targeted strategy to achieve waste services backlog Develop appropriate norms and standards for refuse and materials services	DEA and local government	Strategy developed by 2007/8 20% reduction in national refuse removal backlog by 2009/10	Change in number of households receiving services. Meet treasury goals for Policy co-ordination and planning and environmental empowerment services.

Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Targets (what by when)	Indicators
Develop a monitoring and evaluation framework for waste management	Develop and implement waste management information system. Promote research and development on waste and pollution avoidance	DEA and Provinces	Waste management information system implemented by 2010 in all Provinces. Research needs and research programme and priorities developed by 2008/9	Framework implemented Meet treasury goals for Policy co-ordination and planning, EQM and environmental empowerment services.
Substantial improvement in management and permit compliance of waste disposal sites	Develop and implement Landfill permitting programme, with focus on rehabilitation and avoidance of future sites	DEA in partnership with provinces and local government.	50% reduction in number of un-permitted landfill sites by 2009/10	Percentage of total landfills in compliance. Meet treasury goals for Policy co-ordination and planning, EQM and environmental empowerment services.
Prioritise remediation activities to address contamination from poor past management of waste sites and other poor waste management practices	Develop national database of priority sites – in conjunction with landfill permitting process (see above) Establish targeted clean-up programme for priority sites and materials, funded by the relevant industries (Polluter pays) under Historic Pollution precedent	DEA in with Provinces and local government. Supported by Departments of Agriculture and DWAF	Resource requirements outlined and resources mobilised for remediation programme by 2010 Disposal of obsolete agricultural pesticides initiated by 2010 National database of contaminated sites developed by 2010 60 % progress in clean-up of sites	Total number of sites remediated of total requiring remediation. Meet treasury goals for Policy co-ordination and planning, EQM and environmental empowerment services.

Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Targets (what by when)	Indicators
Effective Chemicals Management in the Country	Instituting a review of chemicals life cycle management in South Africa.	DEA and other key national departments including Health, Labour, DTI, Agriculture and Transport.	2009 review completed	Percentage of total chemicals within system. Meet treasury goals for Policy co-ordination and planning, EQM and environmental empowerment services.
	Designing a comprehensive chemicals management system for the country, with an associated implementation plan, based on avoidance, reduction, re-use and re-integration into the economy.	DEA and other key national departments including Health, Labour, DTI, Agriculture and Transport	20010/11	Number of chemicals identified within the economy, with 50% having completed toxicity testing Developed and tested a chemical tracing system through the use of marker identification processes, implemented by 2012 Meet treasury goals for Policy co-ordination and planning, EQM and environmental empowerment services.
Effective management of multilateral environmental agreements addressing hazardous and potentially hazardous chemicals	Development of an implementation plan to address South Africa's obligations with regards to the Persistent Organic Pollutants and Prior Informed Consent agreements (Rotterdam and Stockholm Conventions)	DEA with key national departments, including Health, Agriculture, Trade and Industry, and Labour	2010	Volume and number of POP's sites (manufacturing / production; identified and measured by 2010; all POP's agricultural chemicals, as well as those currently under consideration for inclusion into the POP's convention, to be assessed and banned. Meet treasury goals for Policy co-ordination and planning, EQM and environmental empowerment services.
	JPOI Commitment: <i>Section 23 (in Chapter 3 Changing Unsustainable Patterns of Consumption and Production)</i>	DEA with key national departments – DTI	JPOI Targets: <i>Section 23 (in Chapter 3 Changing Unsustainable Patterns of Consumption and Production)</i>	Percentage of total chemicals in the market within the system Strategy for consumption and production exists. Meet treasury goals for Policy co-ordination and planning, EQM and environmental empowerment services.

Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Targets (what by when)	Indicators
	<p>(a) Promote the implementation of relevant international instruments on chemicals and hazardous waste, including the Rotterdam Convention on Prior Informed Consent Procedures for Certain Hazardous Chemicals; the Stockholm POP's Convention and Pesticides in International Trade</p> <p>(b) Implement a harmonized system for the testing and classification, labelling and tracing of chemicals as soon as possible with a view to having the system fully operational by 2011.</p> <p>(c) Develop a strategy to reduce unsustainable consumption and production practices</p>		<ul style="list-style-type: none"> • SCP Strategies 2010 • Chemical labelling and tracing system by 2010 	

8.3.3: Summary of Strategy for Delivering Outcomes for Pollution Incident Management

Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Proposed Targets (what by when)	Indicators
Effective and coordinated processes for pollution incident in place	Development of guidelines for management and response to pollution incidents	DEA EQP Branch (lead) , other relevant sectors, provinces and municipalities	Guidelines in place 2010	Guidelines implemented by set date by responsible parties. Allocated funding spent as per EQM
	Development and implementation of pollution incidents and response information management system	Development led by DEA EQP Implementation – DEA, provinces and municipalities	Information management system in place 2010	Track and report on incidents on annual basis as per EQM stipulations.
	Production of national annual reports on pollution incident management and response	DEA EQP branch to lead	Development of reporting format by 2010 Submission of annual reports by all national and provincial environment departments – from 2010 onwards Production of consolidated national annual report on pollution incidents – and their management and response – from 2010 onwards	Delivery of report outlining progress, dealing with events, participation of spheres of government as per EQM treasury stipulations.
	Review of legislative basis for pollution incident response	DEA	2010	Complete review

Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Proposed Targets (what by when)	Indicators
	Review of effectiveness of current funding arrangements for pollution incident management and intervention	DEA	2010-11	Check against Treasury funding stipulations and report delivered by set date.
	Coordinate timely and accurate reporting of emergency incidents by responsible persons	DEA EQP Branch	2010 target: review of and coordinated response to 90% of emergency incident reports received	Identify “responsible persons” throughout all spheres of government and complete reports as per timelines
Marine and coastal pollution incidents.	Implement ICMA and coastal and marine pollution incident obligations	DEA, MCM, Provinces, municipalities	Within 4 years from promulgation of ICMA – by 2013	Completion of obligations under ICMA as per treasury EQM stipulations and within stipulated timelines.
	Review of legislative basis for pollution incident response	DEA	2010	Complete review

8.3.4: Summary of Strategy for Delivering Outcomes for Environmental Impact Management

Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Proposed Targets (what by when)	Indicators
A refined regulatory framework for EIAs and other EIM tools	Amend and implement NEMA EIM provisions and the EIA regulations	DEA	2007-08: Amendments to NEMA promulgated	NEMA EIM amended
	Development and implementation of a strategy for Environmental Impact Management	DEA and Provinces (DEA to take the lead)	2008-09 onwards: implementation and monitoring of strategy	Number of provinces that developed and implemented strategy
Increased performance in the minimisation, mitigation and management of negative impacts - through effective and efficient regulation of activities	Process applications for the environmental authorisation of development projects within stipulated timeframes	DEA Provinces	DEA has set itself specific targets for its processing performance – which are set at the same percent as above for the same years.	Number of EIAs received finalised within legislated time frames
	Develop, implement and produce guidelines, protocols, manuals	DEA Provinces	2007-08 onwards: apply to all DEA authorizations	Number of Manuals distributed within the government and private sector
	Develop and present training courses for EIA administrators	DEA	Annual target: 3 courses executed per year All provinces involved in receiving training	Number of people attending course
	Complete a number of Environmental Management Frameworks and Sensitive Area Identification projects	Provinces	2009-2010: sensitive areas published in the gazette	Number of Project completed
	Develop and provide training course on new EIA regulations	DEA	Annual target: 3 modules rolled out (but subject to change dependent on assessment of training needs)	Number of workshops run Development of resource materials

Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Proposed Targets (what by when)	Indicators
	Develop and implement EIA specific compliance and enforcement strategies and annual compliance monitoring plans	DEA Provinces	Increased national, provincial and local EIM governance capacity	Number of green jobs.
	Develop and implement electronic web-based information management	DEA Provinces	NEAS by 2008	Number of permits issued through the system
Increased 'quality' of involvement in EIA processes by Stakeholders	Develop and implement a strategy and action plan for I&AP EIM capacity building	DEA Provinces	2007-08: Strategy and Action plan in place 2008-09: annual implementation	Number of stakeholders participating in EIA processes

8.3.5: Summary of Strategy for Delivering Outcomes for Conservation and Sustainable Use of Biodiversity

Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Proposed Targets (what by when)	Indicators
Optimal health and integrity of ecosystems achieved	Implementation and internal prioritisation of the NBF and prioritised action plan	Lead Agents DEA & SANBI	NBF published in 2009	Number of municipalities which have incorporated NBF in their plans
	Identification of resource and capacity implications of NBF	Lead Agents: DEA & SANBI	Fulfilment of the '2012' targets contained within the	Number of permits issued through the system

8.3.6: Summary of Strategy for Delivering Outcomes for Objectives, Priority Actions and Targets from the NBF (draft 2007)

Strategic Objective	Priority Actions for 2007-2012	Lead Agencies	2012 target	Indicators
SO1: An enabling policy and legislative framework integrates biodiversity management objectives into the economy	<ul style="list-style-type: none"> Make the case for the value of biodiversity as a cornerstone of sustainable development 	DEA, SANBI, bioregional programme coordination units	At least two fiscal instruments and/or market mechanisms for biodiversity conservation are developed and pilots are Ecosystem	All indicators as per 2012 targets as set out in NBF and as backed by Treasury.
SO2: Enhanced institutional effectiveness and efficiency ensures good governance in the biodiversity sector	<ul style="list-style-type: none"> Establish and implement a capacity building programme within the biodiversity sector to address transformation Improve biodiversity information management 	SANBI, DEA, SANParks, provincial conservation agencies, tertiary education institutions, relevant SETAs SANBI	National biodiversity research strategy is developed, recognised by all key stakeholders and is guiding allocation of research efforts (also need this for waste and ZW)	All indicators as per 2012 targets as set out in NBF and as backed by Treasury.
SO3: Integrated terrestrial and aquatic management minimises the impact of threatening processes on biodiversity, enhances ecosystem services and improved social	<ul style="list-style-type: none"> Develop provincial spatial biodiversity plans that identify geographic priorities for biodiversity conservation 	Provincial conservation authorities, SANBI	At least 6 provinces have spatial biodiversity plans in place, with the necessary in-house capacity to maintain and update them	Number of Provinces with spatial biodiversity plans.

Strategic Objective	Priority Actions for 2007-2012	Lead Agencies	2012 target	Indicators
and economic security				
SO4: Human development and well being is enhanced through sustainable use of biological resources and equitable sharing of benefits	<ul style="list-style-type: none"> Address illegal and unregulated fishing and seafood trade, especially of line fish and abalone Improve knowledge of sustainable extractive use of terrestrial resources 	DEA (MCM) just DEA no DEA MCM, South African Sustainable Seafood Initiative (SASSI), coastal provinces, WWF-SA	Linefish status reports are updated, recovery plans are implemented for 6 species and the ecosystem approach is implemented in all major commercial fisheries	Number of illegal fishing people arrested
SO5 A network of conservation areas conserves a sample of biodiversity and maintains key ecological processes across the landscape	<ul style="list-style-type: none"> Establish and strengthen provincial stewardship programmes Establish additional National Botanical Gardens 	DEA (including MCM), SANParks, provincial conservation authorities, SANBI DEA	Protected area expansion strategy finalised and supported by all key implementing agencies Complete, up-to-date map of protected areas widely available	Number of hectares proclaimed as protected areas
<i>Proposed additional objective & actions to supplement the contents of NBF</i> <i>A system of ecologically viable protected areas representative of South Africa's biological diversity, its natural landscapes and seascapes.</i>	<ul style="list-style-type: none"> Expansion strategy completed to ensure 10% of South Africa's terrestrial area is in formal protected areas. Completing the Register of Protected Areas Monitoring of the system Management of the protected areas in the system 	DEA, protected area management authorities (including SANParks, GSLWPA, provincial authorities)	Formal protected area estate at 8,5% of South Africa's terrestrial area Up to date, interactive register, with all layers complete Programme of monitoring developed and implementation initiated Management plans for all protected areas requiring them signed off by the Minister or MEC as the case may be	

Strategic Objective	Priority Actions for 2007-2012	Lead Agencies	2012 target	Indicators
Priorities for regional co-operation in the next five years	<ul style="list-style-type: none"> Strengthen and improve the development and implementation of management plans for the Transfrontier conservation areas 	DEA in cooperation with relevant implementing agencies of the neighbouring countries, SANParks	Six integrated management and tourism plans in place – and reviewed every five years	Number of integrated management and tourism plans in place

8.3.7: Summary of Strategy for Delivering Outcomes for Marine and Coastal Management

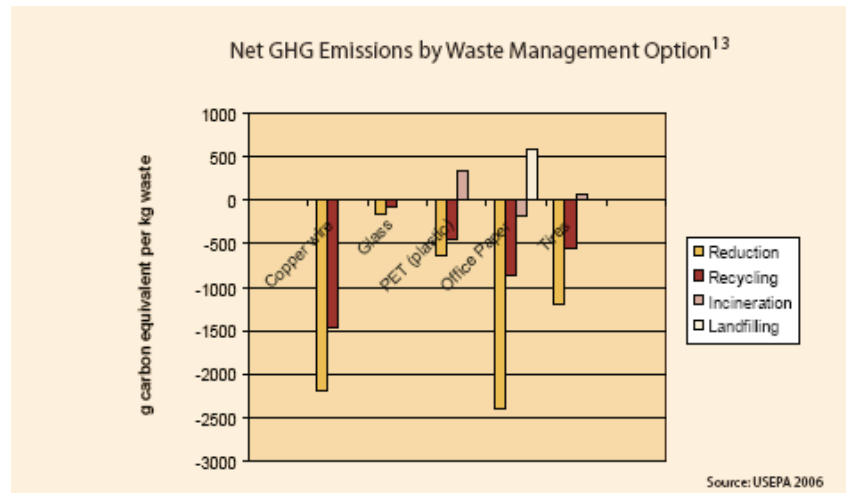
Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Proposed Targets (what by when)	Indicators
Equitable and sustainable access to marine natural resources	Distribution of long-term fishing rights and other concessions (equitably and sustainably)	DEA via MCM D of Agriculture Statistics SA.	Allocation of additional total allowable effort (TAE) in large pelagics (Tuna/swordfish)	Number of long-term fishing rights allocated
	Creation of additional commercial fishing opportunities	DEA via MCM Dept. of Agriculture Statistics SA.	2009-10: 1 Antarctic Krill	
	Distribution of fishing allocations to artisanal and sustenance fishers as per MTSF – green jobs, decent jobs and economic development.	DEA, MCM	Fulfil legal stipulations of court case within set time frame. Meaningful allocation of catch in relevant zones.	Number of Green jobs created
Effective regulation of marine and coastal resource use	Increase conviction rate for illegal fishing, along with cost recovery.	DEA, Provinces, Green Scorpions, SAPS, SANParks, Justice, SA Navy	Annual target: 75-80% conviction rate (baseline is 75%)	Number of successful conviction
Conserved integrity of marine and coastal ecosystems and biodiversity	Implementation of relevant sections of the National Biodiversity Framework i.e.	DEA, MCM, SANBI, EPWP (Coast Care, etc), Justice cluster, green scorpions, intelligence services.	See NBF for relevant targets	

Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Proposed Targets (what by when)	Indicators
Marine and coastal areas protected from unsustainable development	Promulgation of the Integrated Coastal Management Act	DEA, MCM, Provinces, Municipalities, Planning	Act promulgated in 2009.	
	Establish institutional structures for regulation under the Act	DEA – lead agent, MCM, SANBI	2010 :Structures established	
	Implementation of the Act	DEA A 7& Coastal Provinces, and Coastal Municipalities	2010-2014 Implementation started and continuing - regulations within two years, implementation within 4 years	
	Monitoring and implementation of coastal zone management initiatives	DEA MCM Coastal Provinces Coastal Municipalities Enforcement, Justice cluster	2009-10 – 2011-12: new coastal zone monitoring requirements identified and system implemented as per ICMA timeframes.	
	Development and implementation of effective planning and development mechanisms and incentives for effective coastal management (WP)	DEA, MCM, SANBI Coastal provinces and municipalities	2010-2011	
Enhanced livelihoods of coastal communities	Coordination and implementation of sustainable coastal livelihood programmes	DEA MCM as lead agents, supported by Coastal provinces	Allocation of rights by 2010, roll out by 2011.	Number of jobs, increased food security, health

Outcomes to be achieved in period of the sector plan	How (means/activities)	Who (Responsibilities)	Proposed Targets (what by when)	Indicators
	Implementation of national CoastCare EPWP programme.	DEA, MCM, Coastal Provinces & municipalities as per the EPWP programme	continuous	Number of green jobs created, short term and long term.
Increased information and early warning on climate and environment	Management of Research Bases	DEA, SANBI	Continuous	Number of warning received
	Management of Supply Vessel	DEA	Annual target: 1 successful voyage per year to each of the three bases (Antarctica, Marion Island, Gough Island)	
	Support and management of Research Programmes	DEA, SANBI	Target to be agreed	
Improved financial management of the MLRF	Develop improved financial system Implement system	DEA MCM, Treasury	System developed by 2008 System in use from 2008-09 onwards	

Appendix 8.4: Greenhouse Gases and Waste

Greenhouse Gases and Waste



The IPCC, the European Union, and others clearly indicate that source separation and recycling are the preferred waste management options. For example, the European Union's comprehensive analysis on the topic states: "Overall, the study finds that source-segregation of various waste components from MSW [municipal solid waste], followed by recycling or composting or anaerobic digestion of putrescibles offers the lowest net flux of greenhouse gases under assumed baseline conditions."

The Upstream Problem:

Waste Disposal and Manufacturing

Although incinerators and landfills are a significant contributor to climate change through their direct emissions, they play a far greater role by causing emissions in other related sectors. By destroying usable materials that are needed by industry and agriculture, waste disposal necessitates increased exploitation of virgin materials. Steel buried in a landfill deprives the steel industry of an easily recycled material, leading to increased mining and processing of iron ore. When

organics are incinerated or landfilled instead of composted, farmers who need soil enrichment turn to synthetic fertilizers. This increased extraction and processing of raw materials is not only wasteful of scarce natural resources, but is also a major contributor to climate change.

The IPCC recognizes that production from virgin materials releases far more greenhouse gases than production from recycled materials:

"Waste management policies can reduce industrial sector GHG emissions by reducing energy use through the re-use of products (e.g., of refillable bottles) and the use of recycled materials in industrial production processes. Recycled materials significantly reduce the specific energy consumption of the production of paper, glass, steel, aluminium and magnesium." This is because recycled materials require far less processing than virgin materials. In addition, since raw material sources often lie far from sites of manufacture and end-use, they require more transportation, another contributor to climate change. In the case of paper and wood products, there is an additional factor: felling trees and processing virgin lumber is more energy-intensive than using recycled stock; but it also contributes to deforestation and reduces the capacity of forests and forest soils to act as carbon sinks. The fate of organic matter is even more important, particularly at a time of concern about food supplies and soil fertility. When composted and returned to cultivation, organic matter provides multiple benefits. It locks carbon in soil; improves the structure and workability of soils (reducing the need for fossil fuels for ploughing and tilling); improves water retention (irrigation is a heavy consumer of energy); displaces energy-intensive synthetic fertilizers; and results in more rapid plant growth (which takes CO₂ out of the atmosphere). No industrial process can reproduce the complex composition of soil, which needs to be replenished with organic matter; yet incinerators and landfills interrupt this cycle, leading to long-term soil degradation.

Traditionally, soils contained about 20% organic matter, but this has dropped dramatically, until today, it is about 1%. Returning this percentage to only 5% for all soil globally, will sequester about 150 billion tons of CO₂. This is about 5 times the total global emissions in 2008.

A recent (October 2009) EPA Report reveals that 37 percent of United States total

¹⁶ Smith, Brown, et al., "Waste Management Options and Climate Change: Final report to the European Commission, DG Environment: Executive Summary," July 2001.

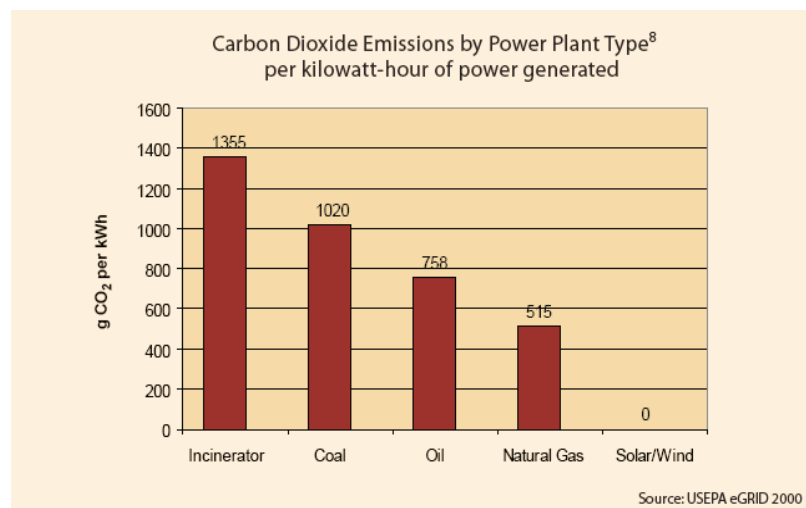
¹⁷ Bogner, et al., "Waste Management," In *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Chapter 7.9.9 p. 483.*

greenhouse gas emissions result from the provision and use of goods produced within the U.S. “Goods” includes all consumer products and packaging, including building components and passenger vehicles. “Provision and use” includes all activities from resource extraction, manufacturing, and transport to use and disposal.

A supplemental white paper, released by Product Policy Institute and written by the lead technical author of the EPA report, tells an even more surprising story. When emissions of products made abroad and consumed here are included, and exports are subtracted, products and packaging account for 44 percent of total U.S. greenhouse gas emissions. The PPI report adds the full global impact to the data published in the EPA report.

“Climate action has largely focused on transportation, heating and cooling, and food. **Now we know that reducing waste offers the largest opportunity to combat global warming,**” said Bill Sheehan, PPI executive director.

The potential for job creation in renewable energy is well known. However, less well known, are the Greenhouse Gas emissions from the various types of combustive energy generation. The table below speaks for itself.



The graph confirms the fact that incineration of waste with energy recovery, does not contribute to Sustainable Development, and worsens Climate Change impacts. Further, the Green job potential in waste become null and void if the materials on

¹⁸ Piccolo, Università degli Studi Napoli Federico II Italy (2003 – pers comm.)

which the jobs depend are incinerated – so policy should be changed to avoid incineration, and rather encourage more decent work, and fewer negative health and environmental impacts from waste destruction.

¹⁹ EPA Report, Opportunities to Reduce Greenhouse Gas Through Land and Materials Management: http://www.epa.gov/oswer/docs/ghg_land_and_materials_management.pdf
PPI White Paper, Products, Packaging and US Greenhouse Gas Emissions, <http://www.productpolicy.org/content/climate-change-epr>

Appendix 8.5: Glossary

AEL	Atmospheric Emission Licence
AQMPs	Air Quality Management Plans
APPA	Atmospheric Pollution Prevention Act
ASGI-South Africa	Accelerated and Shared Growth Initiative for South Africa
BBEE	Broad-based Black Economic Empowerment
BEE	Black Economic Empowerment
CBD	Convention on Biological diversity
CBD	Convention on Biological Diversity
CBO	Community Based Organisation
CC	Coast Care Programme
CDM	Clean Development Mechanism
CEC	Committee for Environmental Co-ordination
CERS	Certified Emission Reductions
CFC	Chlorofluorocarbon
CH ₄	Methane
CITES	Convention on International Trade in Endangered Species
CMA	Conservation Management Area
CO ₂	Carbon Dioxide
CO	Carbon Monoxide
CPI	Consumer Price Index
CSD	Commission for Sustainable Development (of the United Nations)
CSI	Corporate Social Investment
CSIR	Centre for Scientific and Industrial Research
DEA	Department of Environmental Affairs
DEAT	Department of Environmental Affairs and Tourism
DM	District Municipality
DME	Department of Minerals and Energy
DoH	Department of Housing
DPLG	Department of Provincial and Local Government
DPSA	Department of Public Service and Administration
DST	Department of Science and Technology

DTI	Department of Trade and Industry
DWAF	Department of Water Affairs and Forestry
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIM	Environmental Impact Management
EIP	Environmental Implementation Plan
EMI	Environmental Management Inspector
EMP	Environmental Management Plan
EPWP	Expanded Public Works Programme
EQ&P	Environmental Quality and Protection
ESI	Environmental Sustainability Index
ESP	Strategic Plan for the Environmental Sector (Environmental Sector Plan)
FDI	Foreign Direct Investment
FET	Further Education and Training
FOSAD	Forum of South African Directors General
GATS	The General Agreement in Trade and Services
GDP	Gross Domestic Product
GEAR	Growth, Employment and Reconstruction strategy
GEF	Global Environmental Facility
GEM	Gender Empowerment Measure
GHG	Greenhouse Gas
GISP	Global Invasive Species Programme
GMO	Genetically Modified Organism
GNI	Gross National Income
GNP	Gross National Product
GWM&ES	Government-wide Monitoring and Evaluation System
HDI	Human Development Index
HGI	Human Gender-related Development Index
HIV	Human Immunodeficiency Virus
HPI	Human Poverty Index
ICMA	Integrated Coastal Management Act
IDP	Integrated Development Plan
IEG	International Environmental Governance
IEM	Integrated Environmental Management
IGFR	Intergovernmental Fiscal Review

IMWP	Integrated Waste Management Plan	NOx	Nitrous Oxide
IPCC	Intergovernmental Panel on Climate Change	NSBA	National Spatial Biodiversity Assessment
ISRDP	Integrated Sustainable Rural Development Programme	NSDF	National Sustainable Development Framework
IWMS	Integrated Waste Management Strategy	NSDP	National Spatial Development Perspective
JIPSA	Joint Initiative on Priority Skills Acquisition	NSI	National System of Research and Innovation
JPOI	Johannesburg Plan of Implementation	NSSD	National Strategy for Sustainable Development
KPA	Key Performance Areas	NWA	National Water Act
KPI	Key Performance Indicators	NWMS	National Waste Management Strategy
KZN	KwaZulu-Natal	NWRS	National Water Resource Strategy
LA21	Local Agenda 21	ODA	Overseas Development Aid
LED	Local Economic Development	OECD	Organisation for Economic Co-operation and Development
M&E	Monitoring and Evaluation	PEAF	Provincial Environmental Advisory Forum
MAR	Mean Annual Runoff	PGDS	Provincial Growth and Development Strategy
MCM	Marine and Coastal Management	PM10	10 micron particulates – pollutants less than 10 microns.
MDG	Millennium Development Goals	POPs	Persistent Organic Pollutants
MEA	Multilateral Environmental Agreements	PSSD	Provincial Strategy for Sustainable Development
MLRA	Marine Living Resources Act	R&D	Research and Development
MPA	Marine Protected Area	RD&I	Research, Development and Innovation
MTEF	Medium Term Expenditure Framework	RDP	Reconstruction and Development Programme
MTSF	Medium Term Strategic Framework	RHP	River Health Programme
NAP	National Action Programme	SAAQIs	SA Air Quality Management Information System
NBF	National Biodiversity Framework	SABS	South African Bureau of Standards
NBSAP	National Biodiversity Sectoral Action Plan	SACN	South African Cities Network
NCCC	National Committee on Climate Change	SADC	Southern African Development Community
NDA	National Department of Agriculture	SAEO	South Africa Environment Outlook
NEAF	National Environmental Advisory Forum	SANBI	South African National Biodiversity Institute
NEDLAC	National Economic Development and Labour Council	SANParks	South African National Parks
NEMA	National Environmental Management Act	SAQA	South African Qualifications Authority
NEMAQA	National Environmental Management – Air Quality Act	SD	Sustainable Development
NEMBA	National Environmental Management Biodiversity Act	SDI	Spatial Development Initiative
NEMPA	National Environmental Management Protected Areas Act	SEA	Strategic Environmental Assessment
NEPAD	New Partnership for Africa's Development	SKEP	Succulent Karoo Ecosystem Programme
NFSD	National Framework for Sustainable Development	SO2	Sulphur Dioxide
NGO	Non Government Organisation	SoE	State of the Environment
NMVOC	Non Methane Volatile Organic Compounds	SOE	State-owned Enterprise



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