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INTRODUCTION

Government has agreed on 12 outcomes as a key focus of work between now and 2014. Each outcome has a limited number of measurable outputs with targets. Each output is linked to a set of activities that will help achieve the targets and contribute to the outcome. Each of the 12 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 governments delivery and implementation plans for its foremost priorities.

This delivery agreement is a negotiated charter which reflects the commitment of the key partners involved in the direct delivery process to working together to undertake activities effectively and on time to produce the mutually agreed-upon outputs which in turn will contribute to achieving outcome 10.

The delivery agreement provides detail to the outputs, targets, indicators and key activities to achieve outcome 10, identifies required inputs and clarifies the roles and responsibilities of the various delivery partners. It spells out who will do what, by when and with what resources. The outcomes apply to the whole of government and are long term. While the delivery agreement may contain longer term outputs and targets, it also includes outputs and associated targets that are realisable in the next 4 years.

It also considers other critical factors impacting on the achievement of outcome 10, such as the legislative and regulatory regime, the institutional environment and decision-making processes and rights, the resources needed and re-allocation of resources where appropriate.

The normal budgeting process will continue to determine the allocations to Departments. These Delivery Agreements will be an important input into the budgeting process for 2011/2012 and the final budget allocations will affect the order of priorities and phasing of the implementation of this Delivery Agreement. For 2012/13 and subsequently, the annual revisions to the Delivery Agreement will be timed to link with the budget process so that the revised Delivery Agreement is signed off after the budget is signed off.

This Delivery Agreement will be reviewed annually in the light of learning by doing and monitoring and evaluation (M&E) findings. Accordingly it will be refined over time and become more inclusive of the relevant delivery partners.

1. HIGH LEVEL PROBLEM STATEMENT

Section 24 of the Constitution stipulates that all South Africans have a right to an environment that is not harmful to their health or well-being and to have the environment protected for the benefit of present and future generations. The Constitution compels us to take reasonable steps to prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources. Given the Constitutional imperative the vision is: ***a South Africa where environmental assets and natural resources are valued, protected and continually enhanced***.

As with the rest of the world, South Africa is not immune to the global environmental crisis. The country faces a number of current and emerging issues related to climate change, requiring intensive mobilisation to effectively respond to these challenges. Sustainable development and efforts to mitigate climate change and/or adapt to its impacts, in general, have a mutually beneficial relationship. Efforts to address climate change have co-benefits that contribute to sustainable development goals, and development that is sustainable, creates conditions that facilitate and enhance efforts to address climate change. Due to the nature of its impacts on environmental, social and economic systems Climate Change can no longer be regarded as an environmental challenge but rather a sustainable development challenge.

South Africa needs to respond to declining groundwater reserves, water quality and the integrity of our ecosystems in the context of growing demand for water. The country has a rich diversity of natural assets and is considered one of the world's most bio-diverse countries. Although South Africa makes up just 2% of the global land area it is home to almost 10% of the world's plants and 7% of reptiles, birds and mammals. Sadly much of our terrestrial ecosystems and over 80 percent of our river systems are threatened. South Africa ranks among the world's 20 biggest greenhouse gas emitters and it is the highest emitter within the African Continent. Unaddressed, these issues could seriously undermine South Africa's ability to pursue a sustainable development path. Spatial planning and spatial development decisions are still fragmented and there is still a need to address competing land uses and ensure that industry and infrastructure development programmes ensures the long term sustainability of natural systems and the environment.

This summary suggests the need to address four critical problems:

1. Water is unsustainably used and the quality and quantity of water resources is in decline;
2. 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;
3. Proper and better management of our environment; and
4. Protection of our biodiversity.

In addressing the imperatives for sound environmental management and protection of natural assets, the following inter alia; pieces of legislation were enacted to give effect to the constitutional rights of South Africans:

ACTS OF PARLIAMENT

- **The National Environmental Management Act (NEMA),** 1998, (Act No. 107 of 1998), which establishes the concepts of participatory, cooperative and developmental governance in environmental management. It establishes principles for environmental management and provides for structures to facilitate these;
- **The National Environmental Management Amendment Act,** 2003 (Act No. 46 of 2003), which deals with compliance and enforcement and provides for environmental management inspectors (EMIs);
- **The National Environmental Management Amendment Act,** 2004 (Act No. 8 of 2004), which streamlines the process of regulating and administering the impact assessment process. Chapter 5 of the act lays down procedures with which the Minister or MEC, as the case may be, must comply before listing or delisting an activity;
- **The National Environmental Management: Protected Areas Amendment Act,** 2009 (Act 15 of 2009), which provides for the assignment of national parks, special parks and heritage sites to South African National Parks; makes provision for flight corridors and permission of the management authority to fly over a special national park, national park or heritage site; and provides for the winding up and dissolution of South African National Parks;
- **The National Environment Laws Amendment Act,** 2008 (Act No. 44 of 2008), which amends the National Environmental Management Act, 1998, so as to clarify an uncertainty in the act; authorises the Minister of Water Affairs and Forestry to designate persons as environmental management inspectors; provides for environmental management inspectors to be regarded as peace officers as contemplated in the Criminal Procedure Act, 1977; and amends the National Environmental Management: Air Quality Act, 2004, so as to substitute Schedule 1 to that Act;
- **The National Environmental Management Amendment Act,** 2008 (Act No. 62 of 2008), which empowers the Minister of Minerals and Energy to implement environmental matters in terms of the National Environmental Management Act, 1998, in so far as it relates to prospecting, mining, exploration or related activities; aligns environmental requirements in the Mineral and Petroleum Resources Development Act (MPRDA), Act 28 2002, with NEMA (1998), by providing for the use of one environmental system and by providing for environmental management programmes; and further regulates environmental authorisations;
- **The National Environment Laws Amendment Act,** 2009 (Act No. 14 of 2009), which amends the Atmospheric Pollution Prevention Act, 1965, so as to adjust the penalties provided for in the said act, the Environment Conservation Act, 1989, so as to adjust the penalties provided for in the said act, the National Environmental Management: Air Quality Act, 2004, so as to provide for a processing fee to review a license, and to include directors or senior managers in a juristic person for the criteria for a fit and proper person;

- **The World Heritage Convention Act,** 1999 (Act No. 49 of 1999), which provides for the cultural and environmental protection and sustainable development of, and related activities in a world heritage site;
- **The National Environmental Management: Biodiversity Act,** 2004 (Act No. 10 of 2004), which significantly reforms South Africa's laws regulating biodiversity. Its sets out the mechanisms for managing and conserving South Africa's biodiversity and its components; protecting species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bioprospecting, including indigenous biological resources; and the establishment of the South African National Biodiversity Institute;
- **National Environmental Management: Protected Areas Act,** 2003 (Act No. 57 of 2003), which provides for the protection and conservation of ecologically viable areas. It further provides for the establishment of a national register of protected areas and the proclamation and management of these areas;
- **The National Environmental Management: Protected Areas Amendment Act,** 2004 (Act No. 31 of 2004), which provides for a national system of protected areas in South Africa as part of a strategy to manage and conserve the country's biodiversity. A significant part of this act is that the state is appointed as the trustee of protected areas in the country;
- **The National Environmental Management: Air Quality Act,** 2004 (Act No. 39 of 2004), which reforms the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; and provides for national norms and standards regulating air quality monitoring;
- **The National Environmental Management: Integrated Coastal Management Act,** 2008 (Act No. 24 of 2008), which establishes a system of integrated coastal and estuarine management in the Republic; ensures that development and the use of natural resources within the coastal zone is socially and economically justifiable and ecologically sustainable; determines the responsibilities of organs of state in relation to coastal areas; controls dumping at sea and pollution in the coastal zone; and gives effect to South Africa's international obligations in relation to coastal matters;
- **The National Environmental Management: Waste Act,** 2008 (Act No. 59 of 2008), which reforms the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution; provides for national norms and standards for regulating the management of waste by all spheres of government; and provides for the licensing and control of waste management activities;
- **South African Weather Service Act,** 2001 (Act No. 8 of 2001), which established the South African Weather Service; determined its objects, functions and method of work, the manner in which it is to be managed; and governs and regulates its staff matters and financial affairs;
- **Sea Shores Act**, 1935, (Act No. 21 of 1935), which declares the President to be the owner of the sea-shore and the sea within South Africa's territorial water and regulate the granting of rights and alienation thereof.
- **Sea Birds and Seals Protection Act,** 1973 (Act No. 46 of 1973), which provides for control over certain islands and rocks for the protection and conservation of seabirds and seals;
- **Dumping at Sea Control Act,** 1980 (Act No. 73 of 1980), which regulates the control of dumping substances at sea;
- **Sea Fishery Act,** 1988 (Act No. 12 of 1988). Most of the powers in terms of this Act had been transferred to the Minister of Agriculture, Forestry and Fisheries. The Minister only retains powers in terms of section 38 of the Act;
- **Antarctic Treaties Act,** 1996 (Act No. 60 of 1996), which provides for the implementation of certain treaties relating to Antarctica. The treaty is primarily concerned with the regulation of activities in Antarctica, including territorial claims, research and strict environmental protection in general and the protection of certain identified species such as seals;
- **Marine Living Resources Act,** 1998 (Act No. 18 of 1998), which deal with the long-term sustainable utilisation of marine living resources. Most of the powers and functions in terms of this Act had been transferred to the Minister of Agriculture Forestry and Fisheries. The Minister of Water and Environmental Affairs only retained functions pertaining to the Marine Protected Areas, certain regulatory powers that relates to the protection of the marine environment;
- **Prince Edward Islands Act,** 1948 (Act No. 43 of 1948), which provide for the confirmation of the annexation to the Union of South Africa of the Prince Edward Islands, and for the administration, government and control of the said islands;
- **The Minerals and Petroleum Resources Development Act,** 2002 (Act 28 of 2002), which inter alia aims to ensure ecologically sustainable development of mineral and petroleum resources and to promote economic and social development;
- **National Water Act,** 1998 (Act No. 36 of 1998), which provides that the National Government is the public trustee of the National's water resources and acting through the Minister of Water & Environmental Affairs, has the power to regulate the use, flow and control of all water in the Republic; and
- **Water Services Act,** 1997 (Act No 108 of 1997) Section 156, read in conjunction with Part B of Schedule 4 of the Constitution of the Republic of South Africa (Act 108 of 1996) vests the executive authority and responsibility to support and strengthen the capacity of municipalities to manage their own affairs, to exercise their powers and to perform their functions.

REGULATIONS

ENVIRONMENT CONSERVATION ACT, 1989 (ACT NO. 73 OF 1989)

- Waste Tyre Regulations, 2008, which regulate the management of waste tyres by providing for the regulatory mechanisms.

NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998)

- Environment Impact Assessment (EIA) Regulations, which regulate procedures and criteria, as contemplated in Chapter 5 of NEMA, for the submission, processing, consideration and decision of applications for environmental authorisations of activities and for matters pertaining thereto. The Minister has just published draft revised EIA Regulations, under section 24(5) of the NEMA, 1998, for public comment;
- Regulations controlling the use of vehicles in the coastal zone: The original regulations were made in 2001 and were amended in 2004. The amended regulations centre on imposing a general duty of care on persons using 4x4 vehicles in the coastal zone, as well as a general prohibition on the use of 4x4 vehicles in the coastal zone unless it is a permissible use.

NATIONAL ENVIRONMENTAL MANAGEMENT: PROTECTED AREAS ACT, 2003 (ACT NO. 57 OF 2003)

- Regulations for the proper Administration of the Knysna Protected Environment.

NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT, 2004 (ACT NO. 10 OF 2004)

- Threatened or Protected Species (TOPS) Regulations, which further regulate the permit system set out in Chapter 7 of the Biodiversity Act. Previously South Africa used to have provincial ordinances for the different provinces, and these are the first national regulations. The aim is to make TOPS the only regulations in South Africa for indigenous species;
- Regulations for bioprospecting, access and benefit-sharing: While the Biodiversity Act was promulgated in 2004, the regulations relating to Chapter 6 (Bioprospecting, Access and Benefit-sharing) and Chapter 7 (Permit System) came into force on 1 April 2008. These regulations further regulate the permit system set out in Chapter 7 of the Biodiversity Act in so far as that system applies to bioprospecting involving any indigenous biological resources; set out the contents of, and the requirements and criteria for benefit-sharing and material transfer agreements; and protect the interest of stakeholders.

SEA SHORE ACT, 1935 (ACT NO. 21 OF 1935)

- General regulations for the management of the seashore including the removal of sand, rock etc from the seashore and the charging of fees.

DUMPING AT SEA CONTROL ACT, 1980 (ACT NO. 73 OF 1980)

- Provides for the process for permitting dumping activities at sea.

ANTARCTIC TREATIES ACT, 1996 (ACT NO. 60 OF 1996)

- Prohibits the catching of any Antarctic marine living resource protected by conventions without a permit. This is both an environmental and fisheries regulation.

MARINE LIVING RESOURCES ACT, 1998 (ACT NO. 18 OF 1998)

- Regulations for the management of the Table Mountain Marine Protected Area, which provides for zonation and control of activities in the marine protected area;
- Regulations for the management of the Aliwal Shoal Marine Protected Area, which provides for zonation and control of activities in the marine protected area;
- Regulations for the management of the Pondoland Marine Protected Area, which provides for zonation and control of activities in the marine protected area;
- Regulations for the management of the Bird Island Marine Protected Area, which provides for zonation and control of activities in the marine protected area;
- Regulations for the management of the Still Bay Marine Protected Area, which provides for zonation and control of activities in the marine protected area;
- Regulations to manage boat-based whale-watching and protection of turtles, which promotes the economic growth of the boat-based whale-watching industry and to redress past racial and gender discrimination in this industry; provides for control of the boat-based viewing of whales and dolphins, so that these activities may take place in a manner that does not threaten the safety of individuals or the wellbeing of the whales and dolphins; and provides for control over the viewing of turtles to protect and minimise any adverse impact on turtles;
- Regulations for the management of white shark cage diving, which promotes the economic growth of the white shark industry and redresses past racial and gender discrimination in this industry; provides for control over diving to view white sharks or the boat-based viewing of white sharks, so that these activities may take place in a manner that does not threaten the safety of divers or the wellbeing of the white sharks; and provides for control over the number of white shark cage diving operations in order to manage any adverse impact on white shark behaviour and to protect white sharks;
- **National Water Act,** 1998 (Act No. 36 of 1998), Regulation have been published to ensure that South Africa's water resources are protected used developed, conserved, management and controlled in a sustainable and equitable manner for the benefit of all persons; and
- **Water Services Act,** 1997 (Act No 108 of 1997), Regulations have been published which ensure that the rights of access to basic water supply and basic sanitation by setting national standards and norms.

2. IDENTIFICATION OF DELIVERY PARTNERS

The Management of the environment and protection of natural resources is a concurrent function. The monitoring and coordination of implementation of deliverables as outlined in the delivery agreement annexes is coordinated through the Intergovernmental Relations intergovernmental mechanism (MINTECH/MINMEC) extended to include key departments, public entities and other partners that contribute to the achievement of outputs. The executive Implementation Forum (extended MINMEC) and technical Implementation Forum (Headcom/extended MINTECH) are therefore used. The MINTECH working groups are aligned per output to coordinate the output activities and report to the technical Implementation Forum that makes recommendations to the executive Implementation Forum.

The key partners that contribute to the achievement of outcome 10 are identified per output. These partners are drawn from national, provincial departments, local government and public entities. The following tables reflects partners contributing to each of the outputs, and it should be noted that while care was taken to ensure that all key implementing partners are reflected, the; list should not be viewed as exhaustive.

OUTPUT 1: ENHANCED QUALITY AND QUANTITY OF WATER RESOURCES

Coordinating Departments: Departments of Water Affairs; Rural Development and Land Reform; Cooperative Governance and Traditional Affairs; Human Settlements.

Core Departments: Environmental Affairs (Conservation and pollution management); Energy (Industrial water quality and quantity); Agriculture, Forestry and Fisheries (Sector growth strategy); Mineral Resources (Mining and water quality & quantity); Science and Technology (Diversification of water resources technology and innovation); Trade and Industry (Industrial water quality and quantity); Public Works; Treasury; Economic Development (Water quantity to grow economy).

Public Entities: SALGA; Cities Network; SAWS; CSIR; WRC; ARC; SANBI.

OUTPUT 2: REDUCED GREENHOUSE GAS EMISSIONS, CLIMATE CHANGE IMPACTS AND IMPROVED AIR/ATMOSPHERIC QUALITY

Coordinating Departments: Departments of Environmental Affairs; Economic Development; Transport; Energy; Science and Technology; Trade and Industry; Treasury.

Core Departments: Water Affairs; 9 Provincial Environment Departments (including representation from Provincial Rural Development and Agriculture, Forestry and Fisheries); Rural Development and Land Reform; Agriculture, Forestry and Fisheries; Human Settlements (Health impacts); Cooperative Governance and Traditional Affairs (Coordination with local government on Air/atmospheric quality); Science and Technology (Climate change, green industries technology and innovation); Trade and Industry (Industrial Air/atmospheric quality, Green Industries); StatsSA; Health (Health impacts); Extended MINTECH Working Group 2; Air Quality Officer's Forum and extended Intergovernmental Committee on Climate Change (IGCCC).

Public Entities: SALGA; Cities Network; SANBI; Council of Geo-Science; SAWS; CSIR; WRC; ARC; SANERI; National Centre for Carbon Capture and Storage; National Energy Efficiency Agency (NEEA).

OUTPUT 3: SUSTAINABLE ENVIRONMENTAL MANAGEMENT

Coordinating Departments: Department of Environmental Affairs; Agriculture, Forestry and Fisheries; Mineral Resources; Cooperative Governance and Traditional Affairs; Public Works; Rural Development and Land Reform.

Core Departments: Water Affairs; 9 Provincial Environment Departments (including representation from Provincial Rural Development and Agriculture, Forestry and Fisheries); Energy; Rural Development and Land Reform; Human Settlements; Science and Technology; Trade and Industry; Economic Development; Treasury; Health; Transport; Social Development; Sport and Recreation (Environmental awareness) ; Arts and Culture (Environmental awareness); Basic Education and Higher Education (Environmental Education); Extended MINTECH Working Group 3.

Public Entities: SALGA; Cities Network; SANBI; SANPARKS; World Heritage Management authorities; Provincial conservation agencies; SAWS; CSIR; WRC; ARC.

OUTPUT 4: PROTECTED BIODIVERSITY

Coordinating Departments: Department of Environmental Affairs; Agriculture, Forestry and Fisheries; National Treasury.

Core Departments: Water Affairs; 9 Provincial Environment Departments (including representation from Provincial Rural Development and Agriculture, Forestry and Fisheries); Rural Development and Land Reform; Science and Technology (Biotechnology); Cooperative Governance and Traditional Affairs; Economic Development; Extended MINTECH Working Group 1; StatsSA.

Public Entities: SALGA; Cities Network; SANBI; SANPARKS; World Heritage Management authorities; Provincial conservation agencies; CSIR; ARC.

3. LINKING OUTPUTS TO OUTCOME 10

To ensure that Environmental assets and natural resources are well protected and continually enhanced, the key partners will focus on the following four key outputs and related sub-outputs:

OUTPUTS	SUB-OUTPUTS
1. Enhanced quality and quantity of water resources	• Water demand • Water resource protection • Regulation of water quality
2. Reduced greenhouse gas emissions, climate change & improved air/atmospheric quality	• Reduction of Emission of CO_2 • Reduction of Atmospheric pollutants • Renewable Energy Deployment • Adapting to the impacts of climate change • Energy Efficiency
3. Sustainable environmental	• Restoration & rehabilitation of management degraded ecosystems • Deforestation & forest management • Less and better managed waste • Management of environmental impacts from mining and related activities • Sustainable land use management
4. Protected biodiversity	• Expansion of the conservation estate • Reduced climate change impacts on biodiversity • Protected ecosystem & species • Valuing the ecosystem services • Protection of agricultural land

A NUMBER OF OUTCOME 10 SIGNATORIES WILL ALSO BE CONTRIBUTING TO THE REALISATION OF THE FOLLOWING OUTCOMES:

Outcome 8: Sustainable Human Settlements and Improved Quality of Household Life;

Outcome 9: Responsive, Accountable, Effective and Efficient Local Government System;

Outcome 4: Decent Employment through Inclusive Economic Growth;

Outcome 11: Create a better South Africa and contribute to a better and safer Africa and World; and

Outcome 7: Vibrant, equitable and sustainable rural communities with food security for all.

3.1 OUTPUT 1: ENHANCED QUALITY AND QUANTITY OF WATER RESOURCES

Water demand is expected to rise by 52% over the next 30 years while supply of water is likely to decline if current trends due to leakage from old and poorly maintained municipal infrastructure and the loss of wetlands persist. This would make the prospect of water shortage a frightening reality in the near future. To enable more efficient management of our water resources, the following sub-outputs are critical:

a) **Water demand:** Reduction of water loss from distribution networks from current levels of approximately 30% to 15% by 2014 coupled with encouraging users to save water;

b) **Water resource protection:** To preserve groundwater reserves and prevent further loss of wetlands, the number of wetlands rehabilitated should increase from 95 to 100 per year. Furthermore, action needs to be taken to increase the number of wetlands under formal protection from the current level of 19 as well ensuring that the number of rivers with healthy ecosystems increases significantly; and

c) **Regulation of water quality:** % of water works plants assessed and monitored from 94% to 100% by 2014 and % waste water treatment works (WWTW) assessed and monitored from 53% to 100% by 2014.

3.2 OUTPUT 2: REDUCED GREENHOUSE GAS EMISSIONS, CLIMATE CHANGE IMPACTS AND IMPROVED AIR/ATMOSPHERIC QUALITY

Climate change is considered to be amongst, if not the, most serious threat to humanity and sustainable development with adverse impacts expected on food and water security, economic activity, human health, physical infrastructure and natural resources. These impacts will seriously undermine efforts to achieve sustainable development and the attainment of Millennium Development Goals particularly in developing countries which are both the most vulnerable, and the least equipped to deal with climate change. Conversely, addressing climate change by mitigating greenhouse gas emissions and building resilient communities will make a major contribution towards achieving a sustainable society.

The following sub-outputs are critical:

a) **Reduction of Emission of CO_2:** To mitigate the catastrophic impacts of climate change it is imperative that through the necessary financial support and capacity building from the international climate change regime; we reduce total CO_2 emissions by 34% from the "Business As Usual" scenario by 2020 and 42% by 2025;

b) **Reduction of Atmospheric pollutants:** In order to ensure the progressive realisation of everyone's Right to air that is not harmful to health and well-being, it is imperative that there is a progressive reduction in atmospheric pollutants to levels that result in full compliance with Ambient Air Quality Standards;

c) **Renewable Energy Deployment:** To begin reducing South Africa's footprint with regard to greenhouse gas emission, the percentage of power generation from renewable sources should increase from 2 000GW/hours to 10 000GW/hours by 2014;

d) **Adapting to the impacts of climate change:** To better cope with the unpredictable and severe impacts of climate change, adaptation plans for key sectors of the economy must be developed (Water, Forestry, Biodiversity, Tourism, Agriculture, Human Settlements, Land & Social Development, Fisheries development, Rural livelihoods); and

e) **Energy Efficiency:** Mobilise the public, business and other players to act responsibly and save energy both as collectives and in their individual capacity, including through a mandatory national energy efficiency programme. Industrial and commercial buildings have particular potential for efficiency improvements. The Energy Efficiency will improve from current baseline to 12% by 2014.

3.3 OUTPUT 3: SUSTAINABLE ENVIRONMENTAL MANAGEMENT

The environment plays an essential role in determining future opportunities and constraints for growth and development. The past development has emphasised exploitation and optimisation of South Africa's mineral and natural resources with little concern for long-term environmental impacts and sustainability. It has largely ignored constraints arising from the finite character of non-renewable natural resources and the ecological cycles that sustain renewable natural resources.

The following sub-outputs are critical:

a) **Restoration & Rehabilitation of degraded ecosystems:** The hectares of land rehabilitated per year should increase from 800 000ha to 3 200mha by 2014 and 160 rural development sites by 2014 in order to contribute to ecosystem resilience;

b) **Deforestation & forest management:** Net deforestation to be maintained at not more than 5% woodlands by 2020 and protection of indigenous forest assets be transferred to appropriate conservation and relevant agencies by 2014;

c) **Less and better managed waste:** Solid waste management and minimisation through improved collection and disposal and recycling by ensuring that the percentage of households with basic waste collection should increase from 64% to 75% by 2014; percentage of landfill sites with permits increased to 80% by 2015 and that 25% percent of municipal waste gets diverted from landfill sites for recycling by 2012;

d) **Management of environmental impacts from mining and related activities:** Whilst the Mine Rehabilitation Fund and the current regime around rehabilitation and closure should ensure rehabilitation and environmentally responsible closure of mining operations, a specific challenge relates to such rehabilitation and closure when it comes to abandoned, derelict and ownerless mines, accordingly the target for the sector to ensure the rehabilitation and closure in accordance with an approved EMP of mines classified as abandoned, derelict and ownerless per annum. In addition, the sector will ensure that new mining operations are limited in agreed areas of high environmental importance and that environmental impacts of mining operations (new and current) are assessed, mitigated and managed through an aligned, integrated and coordinated regulatory system.

New and existing mining operations are required to consider South Africa's comprehensive range of legislation applying the social and economic sustainability of the operation including: the conservation of agricultural resources; the interim protection and restitution of land rights to those dispossessed of their land; informal as well as communal land rights; the preferential procurement framework; employment equity and skills development as well as legislation applying to competition.

A total of nine derelict and ownerless mine sites were rehabilitated during the 6 year period of the implementation of the MPRDA. The 2014 target includes finalising the strategy for rehabilitation of derelict and ownerless mines, continuing research to accurately delineate the quantum of the environmental challenge and its inherent liability and design the permanent solutions that are adequately responsive to the challenge, while at the same time the DMR synchronously prioritises and implements, where possible (with a limited budget) rehabilitation measure aimed at stabilising these mining operations to present continuing pollution of air, water and soil; and

e) **Sustainable land use management:** Integration of environmental considerations with spatial planning remains a major challenge to achieving sustainable development. Ensure greater alignment of sustainability criteria in all levels of integrated and spatial planning, as well as in project formulation.

3.4 OUTPUT 4: PROTECTED BIODIVERSITY

Keeping our biodiversity intact is vital for sustainable economic growth and development. This ensures ongoing provision of ecosystem services such as the production of clean air, clean water through good catchment management and prevention of erosion and carbon storage to counteract global warming. Consideration should be given to limit further loss of natural habitat in threatened ecosystems by more deliberate preservation and conservation of protected areas. In this regard the following sub-outputs are critical:

a) **Expansion of the conservation estate:** Land protection and rehabilitation by increasing the percentage of land mass under conservation from 6% to 9% and the percentage of coastline with partial protection to increase from 12% to14%;

b) **Reduced climate change impacts on biodiversity:** To develop climate change adaptation frameworks for major biomes & aquatic ecosystems (desert, succulent karoo, fynbos, nama karoo, grassland, savanna, forest and Albany thicket) & aquatic (freshwater, estuaries, marine and coastal ecosystems);

c) **Protected ecosystem & species:** Consistent with the draft National Biodiversity Framework, the percentage of coastline prohibiting fishing and any form of harvesting that are detrimental to the benthic environment are prohibited should be maintained at 9%, and clear targets set for the number of kilometres of coast, rivers and lakes to be cleaned and rehabilitated.

   To preserve our biodiversity and protect ecosystems and species the number of species under formal protection should increase and the proportion of species threatened with extinction should decline from current levels of 6,5%;

d) **Valuing the ecosystem services:** Inadequate understanding of the value for ecosystem and biodiversity services means that the benefits we derive from these goods (often public in nature) are usually neglected or undervalued in decision-making. This in turn leads to actions that not only result in biodiversity loss, but also impact on human well-being; and

e) **Protection of agricultural land:** To protect 81% of high potential agricultural land.

4. ACTIONS NEEDED TO ACHIEVE EACH OUTPUT

4.1 OUTPUT 1: ENHANCED QUALITY AND QUANTITY OF WATER RESOURCES

Historically, investment by the Department of Water Affairs (DWA) in securing water supplies took the form of dams, reservoirs and accompanying infrastructure. Most of the best dam sites have been developed and there is currently very little potential in this regard apart from some parts of KwaZulu-Natal and the Eastern Cape. With the emerging findings of the reconciliation strategies and potential water shortages in South Africa's largest urban centre's, the Department must consider other viable water supplies to serve the varying needs of each water-reliant sector. Apart from traditional augmentation schemes, other water supply options include effluent re-use, desalination and inter-basin transfers. Demand-supply options include water loss control and water use efficiency.

The deterioration in water quality threatens to undermine water for growth and development in South Africa. The cause of this is not the lack of appropriate tools for measurement and intervention, but rather a systematic eroding of management through poor institutional arrangements, insufficient capacity, convoluted decision-making requirements, lack of delegated authority and accountability, and poor access to the use of incentives, disincentives and regulation to address water quality problems. Water quality is highly variable in rivers, wetlands, estuaries and groundwater reserves, and with uneven focus and measurement on these different systems (the strongest focus being on dams). The major threats to water quality in aquatic environments are:

(a) mine drainage;
(b) eutrophication;
(c) municipal sewage effluent;
(d) salinisation;
(e) agrichemicals;
(f) toxic organic pollutants (including Persistent Organic Pollutants, endocrine disruptors and cyan bacterial toxins);
(g) climate change;
(h) water abstraction; and
(i) invasive alien plants.

Impact on aquatic ecosystems and loss of wetlands raised public concerns about the status of the quality of the country's water resources. Steps have been undertaken to strengthen its compliance enforcement and monitoring as a way of clamping down on water use behaviour that have a detrimental impact on our water resources. It has also identified that a key challenge to sustained and healthy water supplies is the poor maintenance of waste water treatment works (WWTW) and the Department will work closely with core departments to ensure that adequate funding is provided for the purposes of WWTW rehabilitation and construction. Lastly, the Department will take rapid and effective action to address the threat the mine drainage (including AMD) poses to the immediate and long-term integrity of our water quality.

4.1.1 OUTPUT 1: SUB-OUTPUT 1: WATER DEMAND

What will need to be done differently?

South Africa can no longer afford water losses and therefore it is imperative that the focus on water conservation and water demand management must be strengthened, especially as there is a greater return on investment through water loss control and water use efficiency. The Department of Water Affairs will prioritise the establishment of the water demand funding facilitation unit to provide support to municipalities in their effort to introduce water conservation and demand management. WC/WDM measures must be implemented and properly maintained on a sustainable basis. The cost of implementing WC/WDM measures is often less than maintenance costs. The use of the latest technologies for different sectors including retrofitting (agriculture, mining, industry, energy and domestic) is critical. For example, providing incentives to irrigators must also be emphasised in order to implement more efficient irrigation systems through: linking water tariffs to assurance of supply; balancing weirs; removal of alien vegetation; irrigation pipelining and volumetric scheduling and pricing. Improve efficiency of effluent treatment plants (reverse osmosis). In order to augment water supply, the following will be considered: further impoundments; desalination of sea water and ground water; water distribution networks will have to be improved; water purification and re-use must be intensified; and, leakages from existing systems will be a major focus.

4.1.2 OUTPUT 1: SUB-OUTPUT 2: WATER RESOURCE PROTECTION

What will need to be done differently?

Human societies rely on numerous services from inland water courses, in particular wetlands. Biodiversity underpins those services and the protection of these ecosystem services has relevance to human health, sustainable development, climate change, poverty reduction and the attainment of various Millennium Development Goals. The overall continuing loss of wetlands and the biodiversity of inland water ecosystems and the rapid increasing pressures from the drivers of change in these ecosystems have serious implications on the associated critical water related services. Such implications have significant bearing on water quality and supply for both ecosystems and the people. Furthermore, are impacts on the capacity of these systems in the mitigation of hydrological extremes, resulting in significant escalation in economic, social and environmental costs.

The formal protection, restoration and rehabilitation of wetlands need to be strengthened through improvements in land-use planning, land and development management policies as well as operational and regulatory means at various scales (National, Provincial and local levels). The adoption of ecosystem based approaches and aggressive implementation of the open space planning and management programmes will add impetus in the protection of these systems and associated services, especially at a local government level. Such implementation will require

integrated approaches and the involvement of multiple sectors particularly those dealing with human settlements, development and planning.

The River Health Reports will be used for assessing the pattern of water quality. Generally water quality is good in the upland regions and deteriorates downstream, particularly in areas affected by mining and urban development. Because of the longitudinal nature of rivers, poor water quality may extend far downstream of the source of pollutants.

The implementation of resource directed measures (i.e. ecological water requirements/Reserve, the classification of water resources and the setting of resource quality objectives as part of water use authorisations) also indicated a need for the massification of natural resource management programmes such as *Working for Water, Working for Wetlands, Working on Fire, Working for Woodlands and Working for Energy* as these are key components of the management of water quantity and quality in South Africa. Compliance monitoring and enforcement should be improved through the use of legislation, incentives, disincentives, advocacy and research. Other specific interventions include:

- Commit to implementing the Ecological Water Requirements/ Reserve;
- Empower water managers to understand the water balance, for water use license applications;
- Streamline and synchronise procedures for Reserve determinations, to facilitate the provision of Ecological Water Requirements and RHP information at numerous nodes within a catchment;
- Invest in capacity and data that will enable sufficiently considered decisions to be taken; and
- As a specific target, it is recommended that the necessary investments are made in at least two catchments/ sub-catchments, where resource directed measures, environmental planning and implementation are undertaken, to demonstrate the value to water for growth and development of securing these across the country.

4.1.3 OUTPUT 1: SUB-OUTPUT 3: REGULATION OF WATER QUALITY

What will need to be done differently?

The Department of Water Affairs, as the regulator of the water sector, will strengthen the enforcement of its regulations. From an institutional perspective, it will enhance and capacitate its compliance, monitoring and enforcement unit, which will ensure enforcement of its regulations and take action against non-compliance and infringements such as illegal abstractions from water resources. It also undertakes to improve the monitoring of both raw and drinking water quality and build on public awareness campaigns such as the Blue Drop and Green Drop initiatives. It will address the current threats to water service and water quality standards by ensuring overall refurbishment and maintenance of water infrastructure in general. The Department also requires the development of co-operative institutional capacity across the water sector to implement a regulatory framework for reducing unlawful water use and levels of pollution in South African rivers, groundwater and estuaries.

A primary thrust is to emphasise the life-sustaining importance of water as a scarce resource and to focus attention on the fact that, unless the continuous judicious use and effective management of our water resources is taken on board by every stakeholder, water availability threatens to become a constraint on growth and development. Our water management policies and legislation provide for participative water governance and a spectrum of water management and water services institutions is envisaged for the delegation of powers and responsibilities to relevant levels. Although many of these institutions have already been established, the processes for establishing these institutions and instigating shared water management in conjunction with them are complex. DWA has embarked on a process of institutional and organisational re-alignment as well as review of its existing water legislation. Effective water management largely depends on the establishment and commissioning of a resolute institutional framework for water management, with clear roles and responsibilities, both in terms of water resource management and water services. The DWA has already initiated a programme that will create the required regulatory framework. It will be essential that institutions enhance their co-operation to affect redress, minimise duplications, and maximize efficiencies. The water sector will have to work together to ensure that these institutions have the required capacity to deliver upon their mandates.

Co-operative planning in the water sector: Within the water sector, the DWA is aiming to ensure better interaction between planning initiatives around water resource management and water services, thereby progressing South African water management towards integrated water resource management.

The roles and responsibilities for the spectrum of role-players in water resource management and water services need to be more clearly defined. An example is the development of firm roles and responsibilities for water services authorities with regard to water sources within their areas of jurisdiction.

Co-operative planning in other sectors/departments: There is a distinct need for institutions beyond the water sector to take due cognisance of constraints originating from the country's scarce water resources in planning and development decisions. To make this possible, the Department strives to re-package the concepts and information regarding water management in a more user-friendly way to simplify its use and understanding.

Acid Mine drainage: The establishment of a Public Private Partnership has been proposed by the Department of Water Affairs and in principle been accepted by representatives from the Mining Houses as well as from the other Departments represented in the Government Task Team (GTT). Although other options have been considered, this option is the most preferred, bringing both the government and mining operators together towards managing the AMD challenge. The option will enable both the current and new mining operators to continue with mining, and to contribute to the processing of effluent. Both government and the mine owners will

contribute to the capital infrastructure requirements for both processing and pumping.

The PPP model should involve the identification of a State Agency (in existence or to be established) which will oversee the pumping and treating of acid mine drainage (AMD). This model will also ensure collaboration and joint operation among all the stakeholders, including current and new mines and government. All stakeholders will have specific roles and responsibilities towards ensuring environmental protection, sustainability and effective management of AMD. The end use of the treated AMD will be determined by the mentioned studies. It is necessary to explore scientific innovations for the optimal re-use and recycling of polluted waste water.

Output 1 Evaluation of the legislative environment

The second National Water Resources Strategy (NWRS) is being developed and will be published:

- Reviewing the National Water Act and Water Services Act; and
- Development of Integrated Water Resource Plan.

Output 1 Evaluation of the existing regulatory framework

Reviewing the existing regulatory environment and investigating options for the establishment of an economic regulator for the water sector.

Output 1 Evaluation of the existing institutional arrangements

DWA has embarked on a process of institutional and organisational re-alignment as well as review of its existing water legislation.

Output 1 Evaluation of the management systems, processes and skills

There is a need to strengthen and support the Water learning academy in terms of learnerships, internships, internal and external training and continuous professional development for engineering and science professionals. In order to respond to the skills challenge DWA has also coordinated a multi-stakeholder initiative aimed at the development and implementation of a funded, co-ordinated, resourced skills development and training programme for the water sector through the Water Sector Leadership Group's Skills Task Team. Through this Task Team the Department has developed a draft framework for a Coordinated Response to Skills and Human Resource Development needs in the water sector which identifies the need for a water sector skills intelligence facility that will not only be able track the nature, scope and location of the skills needs across the entire water cycle chain, but to also have the capacity to analyse these patterns and provide for the necessary intelligence to influence the education, training and skills development responses of the Department and the water sector as a whole in the future.

Output 1 Funding framework

The current water pricing strategy and the funding model for the development of infrastructure is underway.

4.2 OUTPUT 2: REDUCED GREENHOUSE GAS EMISSIONS, CLIMATE CHANGE IMPACTS AND IMPROVED AIR/ATMOSPHERIC QUALITY

4.2.1 OUTPUT 2: SUB-OUTPUT 1: REDUCTION OF EMISSION OF CO_2

What will need to be done differently?

On the eve of the UN climate negotiations in Copenhagen (December 2009), South Africa announced that it will undertake mitigation actions which will result in a deviation below the current emissions baseline of around 34% by 2020 and by around 42% by 2025, on provision that the necessary finance, technology and capacity building support is received. This call for an accelerated pace in implementing the listed Nationally Appropriate Mitigation Actions, these are:

Energy use and supply

- **Improved efficiency in industry:** Mandatory improvements in aggressive industrial energy efficiency, meeting the existing goal of final energy demand reduction of 15% by 2015 and sustained efficiency beyond. This includes the current planned Eskom DSM programme, but meeting the 15% target requires further action, given current levels of ambition as expressed in the IEP;
- **Efficient commercial building and public buildings:** Mandatory improvements in aggressive efficiency measures in new commercial and public buildings, with new build to higher standards and retro-fitting existing buildings, meeting the existing goal of final energy demand reduction of 15% by 2015 and sustained efficiency beyond;
- **A switch from electricity to gas for domestic use:** LPG gas for cooking and space heating;
- **Sustainable housing development:** Development of housing in more efficient, comfortable and cleaner way, meeting the existing goal of final energy demand reduction of 10% by 2015 and sustained efficiency beyond;
- **Initial lower CO_2 electricity supply:** Renewable energy technologies and nuclear power; and
- **Enhanced lower CO_2 electricity supply:** Earlier renewable and nuclear technologies.

Transport and liquid fuels

- **Sustainable transport development:** Passengers shift from private car to public transport, freight from road to rail, and from domestic air to intercity rail/bus. Accelerate the improvement in efficiency of the vehicle fleet;
- **Advanced transport options:** Use of hybrid vehicles to replace petrol cars; development and greater penetration of electric vehicles, encourage use of smaller vehicles; and
- **Liquid fuel supply options:** Incentives for biofuels and carbon tax including on synfuel production, which results in no further coal-to-liquid plants.

Non-energy emissions

- **Reducing industrial process emissions:** CCS on new synfuel plants, PFC capture in existing aluminium plant, methane capture at existing synfuel plants and coal mines, clinker reduction in cement;
- **Waste minimisation:** Waste minimisation and composting;

- **Improved agriculture:** Reduced tillage, manure management and improved enteric fermentation; and
- **Emission reductions in LULUCF:** Reduction in fire episodes in savannah and afforestation of commercial forests.

4.2.2 OUTPUT 2: SUB-OUTPUT 2: REDUCTION OF ATMOSPHERIC POLLUTANTS

What will need to be done differently?

The partners aim to significantly reduce the number of municipalities with poor ambient air quality over the medium term period. Guidelines on air quality management planning are in place.

On 1 April 2010, the National Environmental Management: Air Quality Act (Act No. 39 of 2004, "the AQA") came into full effect and, at the same time, the Atmospheric Pollution Prevention Act (Act No. 45 of 1965, "The APPA") was repealed. This event marked the final APPA-AQA transition — a transition from an outdated "emissions control" approach to an "outcomes" or "objectives-orientated" approach. In this regard, the AQA and its implementation plan, the 2007 National Framework for Air Quality Management in South Africa, heralds a very different approach to air quality management in that all air quality management interventions are aimed at achieving the same desired outcome or objective, namely, ambient air quality that is not harmful to health and well being (i.e. the "air quality" component of the Constitution's S.24 Environmental Right).

Furthermore, another extremely important difference is that progress in respect of achieving this desired outcome is measurable, reportable and verifiable as: (i) Ambient air that is not harmful to health and well-being is defined by National Ambient Air Quality Standards set in terms of the AQA; (ii) A National Ambient Air Quality Monitoring Network (NAAQMN) consisting of over 90 air quality monitoring stations has been established and this network is measuring and reporting quality controlled and quality assured ambient air quality data; and (iii) Data from the NAAQMN is being reported to the South African Air Quality Information System (SAAQIS) where it is compared to air quality standards and is reported publicly via the internet.

The final significant way in which air quality is being managed differently is that local authorities are now fully empowered to implement their Constitutional "air pollution" control function. As an example of this, the AQA makes the Metropolitan and District Municipalities the Licensing Authorities in respect of Atmospheric Emission Licenses for all significant industrial sources of air pollution.

The mine health and safety summit of 2003 committed all stakeholder to achieve a zero levels of silica exposure by 2013. To this effect, the DMR developed legislative provisions as follow:

Regulation 9.2 (1) of the Mine Health and Safety Act (MHSA) state that the employer must ensure the occupational exposure to health hazards of employees is maintained below the limit of which the limit for particulates (dust) less or equal 1/10 of the OEL (Occupational Exposure Limit) which is 0,1 mg/m^3;

Regulations 9.2.(7) of the Mine Health and Safety Act, the employer must submit reports containing information on airborne pollutants (dust etc) which is one of the aspect of Occupational Hygiene measurements to the Regional Principal Inspector of Mines on forms prescribed by Chapter 21 of the MHSA. This report must be submitted within 60 days from the end of the relevant reporting period; and

Regulations 9.2.3 of the MHSA The employer must engage a competent person to report on Occupational Hygiene risk assessment and Occupational hazards that may cause illness or adverse health effects to persons.

The health impacts of mining tailing dumps on communities proximal to mine operations are being quantified through a research project approved during the 2010/11 financial. This project is currently focused on at data collection (stage 1) with the intention of completing the research by 2013 and implementing recommendations immediately thereafter.

Output 2 — Sub-output 2: Evaluation of the legislative environment

As described above, the legislative environment for air quality management has changed dramatically over the last few years. However, in order to exploit the full potential of the AQA, various regulations are still envisaged over the next few years. Most important of these are likely to be regulations in respect of cost recovery for Atmospheric Emission Licensing services. Furthermore, it is also expected that there are likely to be substantial changes to municipal air quality management by-laws over the next few years as municipalities take on their full air quality management responsibilities.

Finally, there remains one very significant source of air pollution that is not effectively covered by the new approach to air quality management, namely, air pollution from mines and mining operations. Law reform in this area must be investigated over the next few years especially as air pollution from mines and mining operations is significant in all of the National Air Pollution Control Priority Areas identified under the AQA.

Output 2 — Sub-output 2: Evaluation of the existing regulatory framework

Given that the devolution of regulatory air quality management authority to the local spheres of government is a relatively recent event, it is still too early to do a meaningful evaluation of this new regulatory framework. However, anecdotal evidence appears to confirm that many municipalities are effectively rising to the challenge and many, especially Metros, are already delivering a better quality service than the national department has rendered since 1965.

Output 2 — Sub-output 2: Evaluation of the existing institutional arrangements

One of the most significant air quality governance changes that has come about with the APPA-AQA transition are the intergovernmental

coordination and cooperation institutional arrangements. In contrast to the APPA era that was marked by intergovernmental and jurisdictional conflict, jealousies and turf-battles, the AQA has brought in a new era of efficient and effective air quality cooperative governance through: (i) The Quarterly National-Provincial Air Quality Officer's Forum (the air quality component of the MINTECH: Environment Working Group II — now also considered to be the "delivery forum" for this, and all other air quality related, sub-outputs); (ii) The Quarterly Provincial-Municipal Air Quality Officer's Forums; and (iii) The Annual National Air Quality Governance Lekgotla — the premier intergovernmental air quality governance coordination and cooperation event.

This notwithstanding, as mentioned above, given that the devolution of regulatory air quality management authority to the local spheres of government is a relatively recent event, it is still too early to do a meaningful evaluation of, for example, institutional arrangements within municipalities. However, although anecdotal evidence appears to indicate that, at least in some cases, new municipal air quality management institutional arrangements are effective or, at least, adequate, this is not the case nation-wide. However, as provided for in the AQA, provinces have taken on the air quality management responsibilities of municipalities with little, if any, capacity. In terms of the department's strategic plan, this situation will be reviewed in the form of an air quality governance capacity audit over the next few years.

Output 2 — Sub-output 2: Evaluation of the management systems, processes and skills

The Further Education and Training (FET) Colleges play a key role in fulfilling artisanal skills for environmental management. There is a need to implement agreement with education institutions in respect of formal post-graduate training as well as informal skills enhancement of the priority areas including:

- air quality managers
- artisans and renewable energy technicians
- Atmospheric scientists, forecasters
- Landscape architectures and GIS specialists
- Engineers and conservation scientists
- Planners and data managers

It is still too early to assess the air quality management systems, processes and skills of the new Licensing Authorities at this stage. However, the national department has been very proactive over the APPA-AQA transition period in providing manuals, templates, standard formats and training in respect of air quality management systems and processes with a view to building air quality governance skills and expertise. The department also has an ongoing dialogue with tertiary education institutions in respect of formal post-graduate air quality management training.

However, air quality management is a relatively new discipline and, as a result, well-qualified and experienced air quality managers are currently scarce. However, this scarcity should be considered with the understanding that, from 1965 to 2010, only 6 — 10 officials were involved, full-time, in air quality management in South Africa. Thus, although there may be a current scarcity of skilled air quality managers now, it is likely that with the interventions already in place or planned for air quality management training, this scarcity will be addressed over the next few years.

Output 2 — Sub-output 2: Funding framework

There are indications from all spheres of government that there is never enough budget for air quality management. However, in the absence of any meaningful calculation of "what is enough", the department is working on 'cost recovery' mechanisms for, for example, Atmospheric Emission Licensing services. However, the department is also involved in the development of various 'cost-benefit' analyses around the concept of "an investment in air quality management is an investment in public health" that may be used by Licensing Authorities in their bids for funding. Finally, the department is also exploring new and novel ways of implementing the "polluter-pays" principle to ensure adequate funding in respect of air quality governance.

4.2.3 OUTPUT 2: SUB-OUTPUT 3: RENEWABLE ENERGY DEPLOYMENT

What will need to be done differently?

Energy security has become a huge challenge in South Africa since approval of the existing policy with very slim reserve margin in the electricity sector. Electricity price has increased dramatically making renewable energy more and more competitive. The 2012 Government's commitment to universal access to electricity has become more and more challenging and therefore innovative approaches for widening access to modern energy including renewable energy become imperative.

The World Summit on Sustainable Development held in Johannesburg in 2002 placed the spotlight on renewable energy.

Renewable energy resources are naturally occurring, non-depletable sources of energy such as solar, wind, biomass and hydro. Less than 1% of the 200 000 GWh of electricity generated annually in South Africa originates from renewable energy sources. Renewable energy is becoming a readily tradable commodity worldwide. Electricity produced by renewable energy Independent Power Producers will be fed into the national electricity grid or to specific users through stand-alone power plants connected to localised or mini-grids. Growing numbers of South African industries and exporters, like counterparts elsewhere in the world, need to align themselves with green practices in order to make their products and services more acceptable in many international markets.

Output 2 — Sub-output 2: Evaluation of the legislative environment

The Integrated Resource Plan 2 is being developed under the Department of Energy's Electricity Regulation Act which plans the future energy mix for South Africa including a greater capacity for energy from renewable energy sources. The Energy Act 2008 provides the overall framework for the deployment of various forms of energy including renewable energy. The New Generation Capacity Regulations of 2009 provides the regulatory, institutional and funding framework for the implementation of renewable energy through the Renewable Energy feed-in Tariff (REFIT).

Output 2 — Sub-output 2: Evaluation of the existing regulatory framework

The Department of Energy's Renewable Energy White Paper of 2003 sets a target of 10 000 GigaWatt hour (GWh) by 2013 to be produced from renewable energy source. The Renewable Energy Summit of 2009 resolved to review the Renewable Energy White Paper Policy to assess if the target, objectives and deliverables are being achieved, and also to determine whether the policy direction remains appropriate. The review of Renewable Energy White Paper Policy will set targets for the medium term and the long term, for renewable contribution into the energy mix. The policy will be reviewed and revised in the context of energy security, climate change, energy poverty, approved South African Integrated Resource Plan, Electricity Regulations on New Generation Capacity, Renewable Energy Feed-In-Tariff and the Standard Power Purchase Agreement for IPPs.

Output 2 — Sub-output 2: Evaluation of the existing institutional arrangements

The New Generation Capacity Regulations provides for new institutions for the procurement and purchase of renewable energy including a new Independent Systems and Market Operator (ISMO) that will approve grid connections and power purchase agreements from renewable energy power producers which has been the major blockage preventing the deployment of renewable energy to date.

Output 2 — Sub-output 2: Evaluation of the management systems, processes and skills

The deployment of government's one million solar heater programme will seek to improve the skills shortage in this sector. Skills shortage is also being addressed by SANERI and various universities and institutions in the country which provides expert training in the field of renewable energy.

Output 2, sub-output 2: Funding framework

The REFIT will be funded through the fiscus via Eskom which will effect a pass-through to consumers. Eskom currently provides a subsidy for SWHs.

The Clean Technology Fund provides funding for SA's first commercial wind farm, CSP, industrial energy efficiency, SWH and efficient transport systems. Other incentives and funding on a smaller scale is provided by the DoE and DTI.

4.2.4 OUTPUT 2: SUB-OUTPUT 4: ADAPTING TO THE IMPACTS OF CLIMATE CHANGE

What will need to be done differently?

The impacts of climate change to a number of sectors of the economy are not well documented, evidence being in the coverage of the sectors in the baseline work for the Long Term Mitigation Scenarios (LTMS). For example, the impacts of climate change on human health are understood in terms of (i) physical aspects such as heat and cold stress; (ii) disease and vector spread such as malaria, schistosomiasis, haemorrhagic fevers; (iii) social and nutrition related diseases, such as TB, AIDS, etc are not well understood.

In addition to that, the impacts of climate change on Human Settlements in South Africa have not been comprehensively documented to cover all dimensions to include infrastructure, local economic development, and land use planning implications including disaster preparedness. An understanding of infrastructure deficit and future infrastructure needs; climate change impact on local economy of municipalities; and spatial planning adjustments emanating from climate change need to be understood.

The impacts of climate change on Tourism, the South African economy and Financial Services with particular reference to insurance services has not received as much attention as the biophysical aspects of climate change.

Understanding of vulnerability and adaptive capacity of selected sectors in the South African economy, and the ability of the country achieve its growth targets to meet social and economic targets and development.

4.2.5 OUTPUT 2: SUB-OUTPUT 5: ENERGY EFFICIENCY

Output 2 Evaluation of the legislative environment

The 2007 National Framework for Air Quality Management in South Africa was updated and amended. Focus will continue to be on raising awareness regarding air quality in densely populated peri-urban settlements i.e. cleaner fires campaign.

Output 2 Evaluation of the existing regulatory framework

Although the National Climate Change Response Strategy for South Africa published in September 2004 was government's first formal provision of policy direction for national climate change responses, this strategy was developed in the context of the policies in place at the time and not within the context of a specific climate change policy.

The initiation of a dedicated climate change response policy development process took place at the National Climate Change Conference held in Midrand, Johannesburg, in October 2005. This conference resulted in a detailed conference statement that, importantly, rejected climate change denialism and, among others, provided a detailed list of climate change interventions to be implemented by government, business and industry, scientists and non-governmental organisations. In terms of the government commitments, two of these set the scene for the development of a dedicated climate change policy for South Africa.

The first was the acknowledgment that climate change's causes and impacts are cross-cutting and have implications for all elements of South Africa's society, economy and environment and, hence, government committed itself to the participatory development of a comprehensive, integrated, coherent and cohesive National Climate Change Response Policy.

The second was the acknowledgement of the importance of a continued science-policy dialogue in the policy development process and, with this, a decision to "initiate a detailed scenario building process to map out how South Africa can meet its Article 2 commitment to greenhouse gas stabilisation whilst ensuring its focus on poverty alleviation and job creation."

In response to this latter decision, in March 2006 Cabinet mandated a national process of building scenarios of possible greenhouse gas emission futures, informed by the best available research and information, to define not only South Africa's position on future commitments under international treaties, but also to shape the nation's climate change policy for the longer-term future. In line with the Cabinet mandate, the Long-Term Mitigation Scenario (LTMS) process was launched in mid-2006.

The focus of the LTMS process, as the name suggests, was mitigation (i.e. reducing emissions of greenhouse gases). The then Department of Environmental Affairs and Tourism (DEAT), as the focal point for climate change in South Africa, convened and managed the process, which was overseen by the Inter-Ministerial Committee on Climate Change. DEAT appointed the Energy Research Centre at the University of Cape Town to project manage the entire process and they, in turn, convened and contracted the process specialists and set up the personnel for four focussed Research Support Units. The LTMS Scenario Building Team was established in late 2006 to carry out the technical aspects of the process. The Scenario Building Team was made up of individual stakeholders from government, industry, labour, civil society, as well as other relevant players. The products of the LTMS were signed-off by the Scenario Building Team in November 2007.

The LTMS process and its products were well received by all stakeholders and are regarded as being robust and broadly supported. It was also clear that there was consensus that the results had been achieved through a sound technical methodology and extensive stakeholder involvement.

In July 2008, following a discussion around various developments in the climate change field, including the LTMS findings, Cabinet approved a climate change policy development process and associated development timeframes and also provided 6 broad policy themes to focus the development of the policy. In summary, the policy development plan required a high-profile launch of the process, the production and publication of a Green Paper by April 2010 and a final draft policy to be submitted by the end of 2010.

Output 2 Evaluation of the existing institutional arrangements

For Climate change, the current mechanisms include:

The Inter-Ministerial Committee on Climate Change

The strategic, multi-faceted and cross-cutting nature of climate change response activities necessitate the formation of a coordination committee at Executive (Cabinet) level, which will ensure coordination of actions and alignment of all actions with national policies and legislation. To this end, an Inter-Ministerial Committee on Climate Change shall exercise oversight over all aspects of the implementation of this policy;

FOSAD Clusters

The national climate change response actions shall be guided by the relevant FOSAD clusters based on the different elements of their mandate. The Economic Sectors and Employment Cluster shall continue to provide strategic leadership on all climate change issues that have a strong bearing of economic growth and employment creation, the Infrastructure cluster shall continue to provide strategic leadership on all infrastructure related aspects of this policy and the International Cooperation Cluster shall continue to provide strategic leadership on international engagements as they relate to climate change;

Intergovernmental Committee on Climate Change (IGCCC)

Chapter 3 of the Constitution enjoins government agencies to operate in accordance with the principles of cooperative government and intergovernmental relations that it sets out.

These include that: *"All spheres of government and all organs of state within each sphere must... co operate with one another in mutual trust and good faith by: (i) fostering friendly relations; (ii) assisting and supporting one another; (iii) informing one another of, and consulting one another on, matters of common interest; (iv) co ordinating their actions and legislation with one another; (v) adhering to agreed procedures; and (vi) avoiding legal proceedings against one another.* Thus, the exchange of information, consultation, agreement, assistance and support are key features of cooperative government. In order to operationalise cooperative governance in the area of climate change, the Intergovernmental Committee on Climate Change (IGCCC) has been established to foster the exchange of information, consultation, agreement, assistance and support among the spheres of government with respect to climate change and government's response to climate change;

Provincial and Local Government cooperation

Climate Change impacts on all levels of Government, and a vertical cooperation mechanism is required to ensure enhanced government coordination and policy alignment. The Ministerial political (MINMEC) and technical (MINTECH) structures as set up through the Intergovernmental Relations Act (IGR) facilitate a high level of policy and strategy coherence between the three spheres of government, and should be used to guide Climate Change work across the 3 spheres. Several technical working groups meet regularly to discuss and advise on issues of biodiversity and heritage, impact management, pollution and waste management, and planning and reporting and a working group that deals with cross-cutting issues (i.e. Working Group 3) would coordinate climate change response. These working groups feed into the MINTECH and ultimately to MINMEC. South African Local Government Association (SALGA) as a body mandated to coordinate local government action will continue to coordinate vulnerability and risk assessments in key municipalities and ensure the integration of climate adaptation and mitigation actions into Integrated Development Plans as well as massively up-scaled public education, awareness, media and information on climate change; and

Partnering with Stakeholders

The National Committee on Climate Change (NCCC) has been set up to ensure consultation with stakeholders from key sectors impacted by and/or impacting on climate change. The Committee advises on matters relating to national

responsibilities with respect to climate change, and in particular in relation to the United Nations Framework Convention on Climate Change and the Kyoto protocol and the implementation of climate change related activities.

The following institutional arrangements are considered necessary for the implementation of the national climate change policy:

- Executive national coordination;
- An organisation for Research, Development and Innovation coordination;
- An organisation for coordinating national adaptation actions;
- An organisation for low-carbon power generation coordination;
- An organisation for measuring, reporting and verifying climate change responses;
- An organisation for facilitating and promoting the use of the clean development mechanism or similar carbon trading and off-set schemes; and
- An organisation for auditing Government policies, strategies and legislation to ensure alignment.

However, with the implementation of the policy, and as the transition to a climate resilient and low-carbon economy and society evolves, it may be appropriate to adjust these institutional arrangements accordingly.

4.3 OUTPUT 3: SUSTAINABLE ENVIRONMENTAL MANAGEMENT

4.3.1 OUTPUT 3: SUB-OUTPUT 1: RESTORATION & REHABILITATION OF DEGRADED ECOSYSTEMS

What will need to be done differently?

South Africa is dominated by very shallow sandy soils with severe inherent limitations from an agricultural point of view. Only 3% of our land is considered high potential land. If we use the international norm of 0.4 hectares of arable land to feed a person, then South Africa's 14 million hectares would feed at most 35 million people.

The new emphasis on agriculture as an employment generator and the re-prioritisation of land reform is directly threatened by soil degradation and the negative impact of the over-use of oil-derived chemical inputs, erosion and inappropriate irrigation policies.

As soil degradation becomes an increasing obstacle to growth in the agricultural sector, there is an opportunity to develop a national capacity in soils analysis coupled to investment in know-how (e.g. organic farming, bio-dynamic farming and bio-mimicry) that could result in reduced dependency on oil-based and expensive chemical inputs. Restoring and rehabilitating our natural resources can stimulate rural economies, create rural and urban jobs, support carbon sinks and help maintain critical ecosystem services vital to the economy.

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 land rehabilitation programmes. Mitigation options such as restoring degraded biomes need to be considered, to prevent desertification, soil degradation, and loss of food security while improving water retention. Sustainable land use management is required to reduce the country's overall carbon balance.

Soil degradation causes increased incidence of desertification. Over 0,7 million hectares of land is degraded and left bare by soil erosion, however over 91% of South Africa comprises of dry lands making it susceptible to desertification. This reduces the land's ability to withstand climate variations, which in turn impacts on a community's and ecosystems' ability to adapt to climate change. A sustainable approach will need to include the following key elements:

- *Community-Based Natural Resource Management* in which stakeholders from different backgrounds share common problems and devise solutions. It is this grass roots approach that is driving the Landcare programme and has been a major reason for its success;
- *Partnerships* between the public, community and private sector;
- *Local Action* through local economic development and employment creation in which local Landcare groups have access to technical information and advice;
- *Food Security* including greater productivity and poverty relief;
- *Integrated & Innovative Approaches* to natural resource management in which the causes of environmental and resource degradation are addressed rather than the symptoms; and
- *Redress* through assisting resource-poor communities from rural areas and addressing the needs of former disadvantaged groups.

4.3.2 OUTPUT 3: SUB-OUTPUT 2: DEFORESTATION & FOREST MANAGEMENT

What will need to be done differently?

Forestry has a marked impact on the natural environment and affects biodiversity, water and soil resources and air quality. Apart from the obvious transformation of the natural landscape and resultant loss of biodiversity (such as in biodiversity rich grassland habitats), the exotic tree species planted commercially for forestry are known to consume vast volumes of water. This has a severe impact on available surface and groundwater resources. Programmes such as Forest and Forest Products Certification, development and implementation of systems, procedures, and tools such as Principles, Criteria, Indicators and Standards for Sustainable Forest Management, and conducting Strategic Environmental Impact Assessments before developing new plantations should be implemented

4.3.3 OUTPUT 3: SUB-OUTPUT 3: LESS AND BETTER MANAGED WASTE

What will need to be done differently?

In terms of Pollution and Waste Management, the sector aims to protect the environment so that all the people of South Africa can

live and work in a safe and healthy environment. The key issues include fiscal mechanisms, permitting of landfill sites, support to local government interventions and implementing the new Waste Management Act.

The efficacy and sustainability of delivery of solid waste services is constrained by severe fiscal challenges. Municipal capital and operating expenditures are much lower than the required levels, and operating deficits continue to expand. The structure of capital financing for waste services is not optimal, with reliance on grant financing, subsidy leakage to non-poor consumers, and user charge revenues that are too low. The municipal solid waste sector is in general facing a serious fiscal situation, with operating deficits ballooning to the point at which the sustainability of service delivery will be threatened. In this context, the need to expand delivery solid waste services sector requires greater efficiency of fiscal mechanisms and a clear strategy to improve operating efficiencies, secure financial sustainability of waste services delivery, and boost municipal revenues. As a first step, municipalities will need to undertake full cost accounting for waste services, in order to understand the long term capital and operating costs of the service, and to be able to properly evaluate different options for levels of service and extension of services to unserviced areas. Secondly municipalities will need to develop and implement cost reflective tariffs in order to correctly price waste service provision. Once financial sustainability and operational efficiency have been achieved in waste service provision, further amendments to tariff structuring to promote waste minimisation can be considered.

To support the requirement for increased capital investment in the waste sector a Solid Waste Project Development Fund will need to be established, to ensure that capital expenditures in the sector increase, that a robust pipeline of municipal projects is created, and that an appropriate capital financing mix is developed.

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

The situation with unpermitted waste disposal sites is dire and needs to be corrected. All waste disposal sites must be permitted in order to improve operations on the sites as well as protect communities. Financial resources as indicated above must be made available in order to undertake the necessary authorisation processes for the licensing of waste disposal sites. The capacity of Municipalities for integrated waste management planning and operating landfill sites must be improved. DEA will train landfill managers across the country every year in order to deal with the capacity challenge. Furthermore, DEA will assist municipalities in the preparation of Integrated Waste Management Plans.

South Africa has historically utilised land filling as the main option for dealing with waste. This approach must change and the focus now must be on waste minimisation. Realistic and defendable targets and measures for recovery reuse and recycling of waste will be included in Industry Waste Management Plans.

Targets for recovery, reuse and recycling of waste for all the main waste categories will be developed progressively over five years, in line with the development and implementation of IndWMPs as per section 30(2) of the Waste Act. The IndWMP for the paper and packaging industry will set clear targets for the recovery, reuse and recycling of metal beverage cans, paper, plastic and glass, for which there are accurate baseline statistics. In relation to other waste streams, the initial focus of IndWMPs for these sectors will be to establish accurate baseline data. Furthermore, as already indicated, the current pricing of waste disposal must be reviewed in order to build in incentives for waste minimisation by consumers. Further economic instruments to promote waste minimisation will be considered by government once the pricing of waste services and disposal has been addressed.

The partnerships to promote the development of the recycling industry, particularly for the recycling of plastic bags, by supporting Buyisa-e-bag, though ensuring compliance with and enforcement of the plastic bag regulations and promoting awareness about the need to recycle.

4.3.4 OUTPUT 3: SUB-OUTPUT 4: MANAGEMENT OF ENVIRONMENTAL IMPACTS FROM MINING AND RELATED ACTIVITIES:

What will need to be done differently?

The Minerals Petroleum Resources development Act is progressive in its provisions for rehabilitation and especially in establishing the Mine Rehabilitation Fund through contributions of holders of mining related permissions, permits and rights. The effectiveness however of dealing with old order rights (mine closure related to these) and rehabilitation and closure of derelict (abandoned) and ownerless mines can be questioned. A strategy to address rehabilitation and closure of historic mines that have caused and continue to cause environmental degradation accordingly needs to be developed and its implementation expedited.

The inability of the current spatial planning and land use management system to integrate mineral development has resulted in the latter occurring in areas where it permanently sterilised areas of high agricultural potential or impacted severely on sensitive and prioritised ecosystems. Mineral development priority areas should with equal standing “compete” in a spatial planning and land use management system with other policy imperatives such as biodiversity protection, food security, water security, etc. The inclusion of mineral development in the spatial planning and land use management system and identification of agreed “mining restriction areas” is accordingly an important step in doing things differently towards achieving the desired outcome.

Lastly, regulation of environmental management of mining is largely fragmented and takes place in an uncoordinated manner not conducive to cooperative governance resulting in duplication in regulatory requirements and sometimes conflicting decisions. There is a need to correct firstly through alignment and integration of regulatory processes and secondly through implementation of intergovernmental forums at and between the appropriate levels of government. Such integrated and coordinated approach to the assessment of impacts, the desirability of the activity within the specific context and the appropriate mitigation/management measures to be

implemented will enable informed decisions on cumulative impacts and would ensure joint enforcement again resulting in minimising impacts.

The sector will ensure the optimisation of social and economic benefits from mining, the effective long-term management of environmental, social and health impacts (including dealing with the legacy of old mining sites), the extension of participation in mining, the strengthening of governance and institutions, effective beneficiation and ongoing research and technological innovation.

4.3.5 SUB-OUTPUT 5: SUSTAINABLE LAND USE MANAGEMENT

What will need to be done differently?

Regulation and management of land use and land use patterns are largely fragmented and uncoordinated. Competing and often conflicting mandates of government departments at all spheres result in decisions made on land use at site level that is neither informed by cumulative impact or benefit, nor promoting ecological, social or economic sustainability. The Highveld region of Mpumalanga where endangered grasslands and wetlands also constitute high potential agricultural land and are underpaid by rich, shallow coal fields serves as an excellent example of the need to follow an integrated, sustainability focused approach when regulating and managing all land uses and land use patterns. Given climate change imperatives, food and water security and energy demands of the country, it is impossible to at site level decide which of these land uses should be given preference and therefore a different, far more strategic approach is required. Spatial and develop planning must be:

(a) Integrated and coordinated (governance system);

(b) Informed by environmental considerations (geology, geomorphology, hydrology, ecology, meteorology, etc) both in terms of opportunities, constraints and levels of acceptable/desired change; and

(c) Binding on all land use activities including conservation, recreation, urbanisation, energy development, infrastructure development, forestry, agriculture and mining. It cannot only serve as a guide but must determine appropriate and sustainable land use and land use patterns.

Whilst (a) and (c) above are assumed to be addressed through the presidency's work to revitalise the development of Land Use Management legislation, this sub-output concentrate on ensuring that legally binding integrated Spatial Development Plans are environmentally informed and implemented to ensure sustainable use of undeveloped land.

Output 3 Evaluation of the legislative environment

The legislative environment is one of the key challenges to overcome. A recent audit of legislation regulating natural resources and environmental management conducted by the Department of Environmental Affairs established that no less than 80 National or Provincial Acts or Regulations regulates natural resources and by implication land use. The work done by the presidency in revitalising the development of a Spatial Planning and Land Use Management Act identified similar constraints. This legislative review process should be optimised to derive at a legislative framework where spatial and integrated development plans are agreed to by sector departments and sector based regulatory functions related to any form of land use implemented within this framework.

The development of environmental management frameworks (EMF) in terms of Section 24 of the National Environmental Management Act and the integration of these EMFs into SDFs through the Land Use Management Bill could form a good basis for ensuring that environmental considerations inform spatial plans which in turn inform land use patterns. The DFA and Municipal Systems Act currently require that an SEA be conducted to inform SDFs but very little guidance is provided on what this required and to the satisfaction of whom.

Availability and accessibility of data to inform EMFs and SDFs and the trade-offs to be made on land use is also a challenge that would need to be overcome through an enabling legislative environment. The protection of data on mineral deposits through the Mineral petroleum Resources development and the Council of Geo Sciences Act for example restricts the ability to develop spatial plans also cognisant of mineral development imperatives the unfortunate consequence is that the presence of a priority mineral often overrides other land use options. An equally difficult obstacle is the often crude nature of biodiversity data resulting in what could be viewed as unjustified sterilisation of land for uses other than biodiversity protection.

The necessary legislative changes should however be made to expand the use of NEMA's EMFs or SEAs to also address the spatial information requirements stemming from other acts such as Bio-regional plans, Conservation Plans, Catchment Management Plans, Integrated Coastal Management Plans, Priority Area Management Plans, Mineral development priority areas, etc. If not possible to integrate these into EMFs there must be an agreement on the hierarchy of the plans — for example should an EMF inform a bio-regional plan or the other way around. How can the information obtained through these processes be integrated to inform decision-making on sustainable land use and land use patterns.

Output 3 Evaluation of the existing regulatory framework

Regulation of land use is sector based and not executed within a strategic framework with clear sustainability targets. As is the case for the legislative environment, regulatory functions associated with sustainable land use and land use patterns are fragmented, uncoordinated and unable to address sustainability. It is essential that regulatory requirements be as far as possible aligned and implemented in a coordinated manner.

Output 3 Evaluation of the existing institutional arrangements

Spatial and integrated development planning is the responsibility of local government and to an extent, provincial — demands placed on these plans and accordingly on municipalities do not only stem from the Development Facilitation Act, the Municipal Systems Act and in the Western Cape the Land Use Planning Ordinances but also from sector legislation such as the Water Act, the NEM Waste Act, the NEM Air Quality Act, the NEM Integrated Coastal Management Act, etc. Apart from the substantial financial burden on municipalities, satisfying all these masters through different processes (only integration through stapling

different plans together) of approval, monitoring and reporting is counterproductive both in terms of service delivery and in terms of integrated environmental management towards sustainable land use. Currently IDPs and SDFs are developed by municipalities with very little involvement of the relevant provincial and national departments and a "mass consideration and approval" process is followed at the end of the development process where relevant national and provincial departments convene for a week or two to consider all SDFs and IDPs. In order to optimise the instrument, these arrangements would need to be fundamentally reassessed. National and provincial sector departments should share the responsibility of developing sector elements of SDFs and the integration thereof. The institutional arrangement currently followed for some environmental management frameworks could be considered. These EMFs are developed at the cost of the national or provincial environmental department but in partnership (through an MOU) with the relevant municipality. The municipality then superimpose its development/growth plans on this environmental information and trade-offs are negotiated. The result is a SDF that is agreed to between the environmental authority and the municipality and the "approval" process thus facilitated.

Institutional arrangements on monitoring implementation of and compliance with SDFs are either non-existing or totally ineffective. This will need to be addressed if the environmentally informed SDF non-existing or totally ineffective. This will need to be addressed if the environmentally informed SDF.

Output 3 Evaluation of the management systems, processes and skills

There is a need for educational institutions to align curriculum with the current conservation imperatives. To integrate the required skills for implementation, we need to enhance collaboration with accreditation institutions and relevant SETAs. The Further Education and Training (FET) Colleges play a key role in fulfilling artisanal skills for waste management, large scale greening of open spaces- horticulturists, nurseries, opens space planning engineers and planners.

Environmental Management Frameworks are relatively new and a strategy to in time role it out to all areas of the country is currently being developed.

The process for developing an EMF is prescribed in regulations and its success in terms of informing SDFs and land use patterns dependent on cooperative governance processes, negotiating memoranda of agreement and conflict resolution. Although growing, the skills base for developing EMFs and especially negotiating with the different role players is limited.

Monitoring and evaluation systems on the implementation and updating of EMFs still need to be developed.

Of great importance is the development of a GIS management system for the different layers of data and the integration thereof to form an EMF/SDF and to monitor transformation of land against. The State of Environment Reporting instrument could be considered.

Output 3 Funding framework

The national department currently has an allocation of R5 000 000 per annum for the development of EMFs whilst some provinces and even municipalities also have money set aside for either EMFs or SEAs. In addition funds have been allocated elsewhere the development of for example bio-regional plans, conservation plans, catchment management plans, etc. It would be important for all authorities that do some form of "environmental" mapping/spatial planning to get together to ensure that funds are consolidated to develop integrated environmental spatial plans (such as EMFs) that meet all their requirements but optimise funds, skills and other resources.

A substantial financial consideration in terms of Output 3 is the cost of rehabilitation and closure of abandoned, derelict and ownerless mines. The Department of Mineral Resources is estimate the cost.

4.4 OUTPUT 4: PROTECTED BIODIVERSITY

4.4.1 SUB-OUTPUT 1: EXPANSION OF THE CONSERVATION ESTATE

What will need to be done differently?

- Rationalisation of governance processes, reporting and institutions nationally and provincially for management effectiveness.
- Create alternative financing mechanisms for expanding the conservation estate including stewardship, co-management and contractual park arrangements.
- Introduce monetary and fiscal incentives for conservation.
- Create new strategic partnerships to support technological and appropriate skills.

4.4.2 SUB-OUTPUT 2: REDUCED CLIMATE CHANGE IMPACTS ON BIODIVERSITY

What will need to be done differently?

Integrate climate change considerations into existing biodiversity management plans/programmes for climate change adaptation.

4.4.3 SUB-OUTPUT 3: PROTECTED ECOSYSTEM & SPECIES

What will need to be done differently?

- Enhance management of threatened species through strengthened partnerships with stakeholders, particularly landowners and conservation agencies, engaged in species and ecosystem management. This will ensure the development of a much greater number of species and ecosystem management plans.
- Facilitate the development of the biodiversity sector research strategy to better understand and monitor status and trends of ecosystems and species requiring protection.
- Establish a national mechanism to improve the science policy interface in order to facilitate improved decision making and policy support
- Increase public awareness on environmental particularly on threatened species and ecosystems.
- Developing innovative financial mechanisms for protection of threatened ecosystems and species.

4.4.4 SUB-OUTPUT 4: VALUING THE ECOSYSTEM SERVICES

What will need to be done differently?

- Include quantification of the value of ecosystem goods and services in environmental decision making.
- Establish mechanism to reflect the value of biodiversity in South Africa's national resource accounts.

4.4.5 SUB-OUTPUT 5: PROTECTION OF AGRICULTURAL LAND

What will need to be done differently?

Protection of high potential agricultural land: Start measuring and ensure protection of 81% by 2014.

Output 4 Evaluation of the legislative environment

The partners will ensure the effective implementation of the National Environmental Management Biodiversity Act (NEMBA) of 2004, National Environmental Management: Protected Areas Act of 2003 as well as key conventions such as the Convention on International Trade in Endangered Species (CITES) and the United Nations Convention on Biodiversity.

It is further important that the sector focus on setting up institutional capacity and systems for Implementation of integrated Coastal Management Act. The partners will continue to maintain South Africa's research presence in Antarctica, Prince Edward and Marion Islands. In this regard we are going to commence with the re-capitalisation of the vessel for these research programmes:

- National Forest Act needs to be integrated into biodiversity planning with respect to declaration of controlled areas;
- Alignment of National Biodiversity Act with relevant national environmental Legislation i.e. National Water Act;
- National guidelines for by-laws;
- National guidelines for biodiversity offsets;
- Guidelines for fiscal incentives;
- Guidelines for land use planning; and
- Policy science interface with society (evidence based science to inform policy).

Legislative changes required to achieve the output

- Implementation frameworks overlap – cross-sectoral and harmonising approach in minimising duplication.
- National Fire Act to be cross referenced to the Disaster Management Act.
- Review of Public Entities mandates to consider broader natural resource management.

Output 4 Evaluation of the existing regulatory framework

Regulations exist for the proper Administration of the Knysna Protected Environment.

Regulations controlling the use of vehicles in the coastal zone: The original regulations were made in 2001 and were amended in 2004. The amended regulations centre on imposing a general duty of care on persons using 4X4 vehicles in the coastal zone as well as a general prohibition on the use of 4X4 vehicles in the coastal zone unless it is a permissible use.

Threatened or Protected Species (TOPS) Regulations, which further regulate the permit system set out in Chapter 7 of the Biodiversity Act. Previously South Africa use to have provincial ordinance for the different provinces, and these are the first national regulations. The aim is to make TOPS the only regulations in South Africa for indigenous species.

Regulations for bioprospecting, access and benefit sharing: While the Biodiversity Act was promulgated in 2004, the regulations relating to Chapter 6 and Chapter 7 came into force on 1 April 2008.

General regulations for the management of the seashore including the removal of sand, rock etc from the seashore and the charging fees.

- Strengthen law reform process and law enforcement.
- Coordination at national level and other departments especially DAFF and DMR.
- Monitoring enforcement.
- Integrated permitting system developed.
- Prosecution of transgressors.
- Detection of illegal trade of species.

Output 4 Evaluation of the existing institutional arrangements

- National guidelines to establish bylaws to support provinces.
- Harmonise activities given human capacity, financial resource and focal on goals delivery vehicle like (WfW), PFMA. Treasury for funding.
- Planning instruments i.e. IDPs.
- Elevate issues to Political forums.
- Participate as critical sector into national planning processes i.e. spatial.

Output 4 Evaluation of the management systems, processes and skills

- Effective management of protected areas.
- Accountability.
- Synergies at high level.
- Educational institutions to align curriculum with current conservation imperatives.
- Research agenda.
- Retention of scarce skills by attractive incentives.
- OSD to cover forest ecologists and other technical expertise.

Output 4 Funding framework

- Creative funding mechanisms established.
- Sponsorships/Donor funds.
- Roll over of unutilised funds to other projects.

5. INDICATORS, BASELINES AND TARGETS FOR OUTCOME

Appendix A provide more detail on the indicators, baselines and targets for outcome 10 outputs/sub-outputs.

6. SYNOPSIS OF KEY ACTIVITIES

Appendix A provide more detail on each outcome 10 partner's contribution and commitments to outputs and sub outputs (i.e. roles and responsibilities are described).

7. RISKS, CONSTRAINTS AND MITIGATION STRATEGIES

Appendix A provides more detail on risks, constraints and mitigation strategies for each output.

8. GOVERNANCE AND REPORTING ARRANGEMENTS

Outcome 10 implementation is coordinated using the existing intergovernmental mechanism (MINTECH/MINMEC) extended to include key departments and public entities and other partners that contribute to the achievement of outputs.

MEETINGS SCHEDULE

Output 2	Output 3	Output 4
Extended MINTECH Working Group 2, Air Quality Officer's Forum and extended Intergovernmental Committee on Climate Change (IGCCC)	Extended MINTECH Working Group 3	Extended MINTECH Working Group 1
09 &10 Sep 10	23 July 2010 16 Sep 2010	07 September 2010

Technical Implementation Forum (Headcom and Extended MINTECH):

09 July 2010

10 September 2010

05 November 2010

Executive Implementation Forum (Extended MINMEC):

08 July 2010

30 September 2010

02 December 2010

9. SIGNATORIES & IMPLEMENTING PARTNERS

MINISTERS	MEC'S	PARTNERS
Minister of Cooperative Governance and Traditional Affairs	MEC for Agriculture, Rural development and Land Administration (Mpumalanga Province)	Council of Geo-Science
Minister of Agriculture, Forestry and Fisheries	MEC for Economic Development, Environment and Tourism (Limpopo Province)	South African Cities Network
Minister of Higher Education	MEC for Environmental Affairs and Nature Conservation (Northern Cape)	South African Local Government Association
Minister of Human Settlements	MEC for Agriculture, Land Reform and Rural Development (Northern Cape)	Cape Nature
Minister of Arts and Culture	MEC for Agriculture, Conservation, Environment and Rural Development (North West)	Agricultural Research Council
Minister of Trade and Industry	MEC for Agriculture and Rural Development (Gauteng Province)	Centre for Science and Industrial Research
Minister of Economic Development	MEC for Department of Agriculture (Limpopo)	Eastern Cape Parks Board
Minister of Energy	MEC for Finance, Economic Development and Environmental Affairs (Eastern Cape)	Indalo Yethu
Minister of Finance	MEC for Economic Development, Tourism and Environmental Affairs (Limpopo)	iSimangaliso Wetlands Park Authority
Minister of Mineral Resources	MEC for Department of Agriculture (Western Cape)	KwaZulu-Natal Wildlife
Minister of Rural Development and Land Reform	MEC for Department of Environmental Affairs & Development Planning (Western Cape)	Mpumalanga Tourism and Parks Agency

MINISTERS	MEC'S	PARTNERS
Minister of Public Enterprises	MEC for Agriculture and Rural Development (Eastern Cape)	North West Parks and Tourism Board
Minister of Science and Technology	MEC for Agriculture, Environmental Affairs and Rural Development (Kwazulu Natal)	Limpopo Tourism and Parks Board
Minister of Transport		South African Energy Research Institution
Minister of Public Works		South African National Parks
		South African Weather Service
		Water Research Commission
		South African Weather services
		South African National Biodiversity Institute

APPENDIX A: RESULTS CHAIN

Results chain	Indicator	Baseline	Target	Monitoring Mechanisms (Means of verification, sources of information)	Assumptions/Risks	Responsibility	Key Activities
OUTCOME 10: ENVIRONMENTAL ASSETS & NATURAL RESOURCES PROTECTED & CONTINUALLY ENHANCED **OUTPUT 1: QUALITY AND QUANTITY OF WATER RESOURCES ENHANCED**							
							• Rehabilitation and refurbishment of water resources infrastructure • Consultation and negotiation with key sectors • Implementation of technology transfer • Development of strategies • Provision of technical support to municipalities • Audit of state of rivers and dams • Monitoring and enforcement of standards in Waste Water Treatment Works/Water Treatment Works • Monitoring and enforcement of standards on waste discharge • Develop and implement integrated water conservation strategy that addresses wetlands, estuary and river ecosystem health • Water resources protection and conservation through inter alia clearing of alien invasive vegetation, waste discharge charges, water authorisation licenses • To improve waste water treatment capacity, it is critical to ensure significant upgrading of treatment plants • Water pricing • Water for Growth implementation to facilitate water supply
Sub-output 1.1 Water demand							
	1.1.1 Curtail water losses at water distribution systems to an average % reduction (saving) and demand as determined for 7 large water supply systems.	30%	15% by 2014	Assessments in accordance with water loss control policy	Assumption: Water resource level includes transfer/storage infrastructure and operating rules	DWA	Assess water losses in 14 big irrigation schemes/water user associations (WUAs)
	1.1.2 Achieve water use efficiency through setting water consumption targets for all the sectors.	Nil	Agriculture, mining, industry, energy, domestic	Assessments in accordance with water conservation and demand management strategy sectors by 2014	Assumption: Setting of these consumption targets for the different sectors will be done through average of representative samples.	DWA	Verify and validate unlawful water use and reduce the volume by 15 %
	1.1.3 Diversification (a) Increase ground water use (b) Desalination and recycling strategies developed (c) # of town/cities supported on desalination projects	(a) 25% (b) Nil (c) 9	(a) 30% by 2014 (b) Developed by 2011 (c) 12 towns by 2014	a) Establish groundwater potential as per national groundwater strategy b) Desalination strategy developed and approved c) Assessment report on desalination requirements from different towns and cities	Groundwater potential exist, desalination as alternative source of supply viable linked to coastal cities and towns and inland to limited extend	DWA, DST	Development of a science and technology plan to support the output

APPENDIX A: RESULTS CHAIN (continued)

Results chain	Indicator	Baseline	Target	Monitoring Mechanisms (Means of verification, sources of information)	Assumptions/Risks	Responsibility	Key Activities
Sub-output 1.2 Water resource protection							
	1.2.1 # number of wetlands rehabilitated per year	75	100 per year	NEMBA, Working for Water and Working for Wetlands Programmes, Wetlands rehabilitated, National Water Act	Resources (Human and financial)	DWA, DEA, DAFF, MTPA	Implementation of working for wetlands and working for water programmes.
	1.2.2 # wetlands under formal protection	20 designated RAMSAR sites	4 by 2014	Register and declaration notices; compliance to water and environmental authorisations	Resources (Human and financial)	DWA, DEA, MTPA	Identification and categorisation of priority wetlands of national importance; Declaration process for formal protection.
	1.2.3 # of major rivers with healthy eco-system meeting resource quality objectives	8	16 by 2014	Resource directed compliance and auditing	Resources (Human and financial)	DWA, MTPA	Eco-classification of water resource systems
Sub-output 1.3 Regulation of water quality							
	1.3.1 # of water treatment works assessed.	787	810 by 2014			DWA	
	1.3.2 % of water treatment works complying with enforcement measures. To meet drinking water quality standards	97%	99% by 2014	On line Blue Drop System (BDS) allows water service institutions to access their regulatory performance reviews and provides credible drinking water quality information to the public	Resources (Human and financial)	DWA	• Subject all water service authorities (WSAs) to Blue & Green Drop Assessments and consultative audits • Facilitate the implementation of World Health Organisation (WHO) best practices such as Water Safety plan at municipal level • Implement the electronic Green Drop System (GDS) • Implement Waste Risk Abatement programme • Raise the profile and awareness of drinking water quality and waste water services through the Blue and Green Drop programmes
	1.3.3 # of waste water treatment works (WWTW) assessed	449 systems assessed	700 systems assessed by 2014			DWA	
	1.3.4 % of waste water treatment works (WWTW) complying with enforcement measures to meet effluent standards	40%	80% by 2014	Assessments in accordance with green drop program	Resources (Human and financial)	DWA	Subject Water Services Authorities to consultative Green Drop audits. • Advice on required improvements • Raise the profile of Wastewater services through Green Drop Awareness. • Implement the electronic Green Drop System (GDS). • Implement Wastewater Risk Abatement programme
	1.3.5 Estuarine water quality assessment	30	60 by 2014	Estuary monitoring program	Resources (Human and financial)	DWA	Estuarine management plans, design of monitoring programs
	1.3.6 # of mines monitored for non-compliance in accordance with water license conditions.	52	125 by 2014	Set resource quality objectives as part of water use authorisation	Resources (Human and financial)	DWA, DMR	Compliance monitoring as per water use license conditions
	1.3.7 % of mines complying with enforcement measures.	14%	80% by 2014	Compulsory compliance audits	Resources (Human and financial)	DWA, DMR	Compliance auditing conducted for all mines in accordance with water license conditions

APPENDIX A: RESULTS CHAIN (continued)

Results chain	Indicator	Baseline	Target	Monitoring Mechanisms (Means of verification, sources of information)	Assumptions/Risks	Responsibility	Key Activities
OUTPUT 2: GREENHOUSE GAS EMISSIONS REDUCED, CLIMATE CHANGE IMPACTS MITIGATED & AIR/ATMOSPHERIC QUALITY IMPROVED							
Sub-output 2.1 Reduced CO_2 emission							
	2.1.1 Reduced Total emission of CO_2	(a) 435.240 m tons 3 (Latest Greenhouse Gas Inventory reflects annual emissions in 2000, Initial 2010 estimates are ~540Mt) (b) SAAQIS operational	(a) 34% reduction of "Business as Usual" by 2020 and 42% by 2025 (b) 80% of government owned monitoring stations reporting to SAAQIS	Detailed GHG emission monitoring, reporting and verification information will be available by mid-2012 when the national greenhouse gas inventory component of the National Atmospheric Emissions Inventory project becomes fully operational (i.e. once the South African Air Quality Information System (SAAQIS) Phase II project is completed)	Although the target is based on the President's "undertaking" during the Copenhagen Climate Change COP in December 2009, and this, in turn, is informed by the research undertaken. as part of the Long-term Mitigation Scenarios (LTMS) project, as an energy-intensive, energy-inefficient and fossil-fuel-reliant country these targets are regarded as being very ambitious. As such, it is assumed that the country will be able to radically transform itself in a relatively short period of time and this is, of course, a very high risk assumption.	DoE-energy industry emissions (e.g. coal-fired electricity) (48% of total); The dti — industrial processes & product use emissions (~15%); DMR - fugitive emissions from fossil fuels (e.g. CH4 released during coal mining (~9%); DoT - emissions from transport (e.g. the use of petrol or diesel in cars and trucks) (~9%); DoE — energy production in manufacturing and construction industries (~9%) and other energy-related emissions (~3%) DAFF — agriculture, forestry and land use emissions (~6%); and DEA emissions from waste (~2%).	• Agreement on GHG mitigation targets for key sectors in line with Climate Change Policy; • Implementation of Industrial Policy Action Plan (IPAP) and green economy plan and strategy development; • Development of a science, technology and innovation plan to support the transition; • Finalise White paper on Climate Change by the end of 2010, with related fiscal, legislative and regulatory package to be implemented by 2012, including GHG deviation from baseline numbers • The South African Air Quality Information System (SAAQIS) phase II completed by mid-2012; • GHGs identified as "Priority Pollutants" in terms of the Air Quality Act and mitigation plans submitted by end 2013; • Integrated Resource Plan (IRP) for electricity production that supports a peak, plateau and decline emission trajectory by end 2010.
Sub-output 2.2 Atmospheric pollutants reduced							
	2.2.1 Ambient SO2 and particulate (PM10) concentrations	Non-compliance with national ambient SO2 and PM10 standards in various air pollution hotspots (refer to list of specific municipalities)	100% country-wide compliance with national Ambient Air Quality Standards by 2020	Country-wide compliance with National Ambient Air Quality Standards is monitored by over 90 air quality monitoring stations and data is reported . to-, and accessible through-, the South African Air Quality Information System (SAAQIS — saaqis.org.za). The "National Air Quality Indicator" is also under development for rollout in 2011. This indicator will provide an annual measure of overall air quality management progress towards the stated target	The most significant assumption is that air pollution caused by poverty, namely the use of dirty fuels by poor people who have no fuel choices, can be resolved through, for example, electrification programmes, free basic electricity supply and other poverty alleviation interventions. As residential dirty fuel burning is one of the most significant contributors to air quality non-compliance, but its resolution is not through air quality interventions per se, this is a relatively high risk assumption	DEA; Provinces and, most importantly, municipalities ("Air Pollution" is a municipal function in terms of the Constitution) SAWS	• The efficient and effective identification, development and implementation of Air Quality Management Plans for National Priority Areas (Vaal Triangle Airshed, Highveld and Waterberg); • The development and rollout of a strategy to address air pollution in dense, low-income communities, especially air pollution from the burning of solid fuels (e.g. coal and wood); • The review, revision and implementation of the National Vehicle Emission Control Strategy; • The efficient and effective implementation of the new Atmospheric Emission Licensing system by the new Licensing Authorities (Provinces; Metros and District Municipalities); • Growing and developing the National Ambient Air Quality Monitoring Network and the South African Air Quality Information System (SAAQIS); • The development and rollout of strategies and action plans to address air pollution from non-industrial and/or non-point sources (e.g. veld fires, construction activities, un-surfaced haul roads, etc.) Global atmospheric watch-monitoring of trace gases

APPENDIX A: RESULTS CHAIN (continued)

Results chain	Indicator	Baseline	Target	Monitoring Mechanisms (Means of verification, sources of information)	Assumptions/Risks	Responsibility	Key Activities
Sub-output 2.2 Atmospheric pollutants reduced							
	2.2.2 Mine Dust	Not determined	Zero exposure to silica occupational level at all mines by 2014			DMR	Implement the minimum frequency of monitoring; Health impacts of mining tailing dumps on communities proximal to mine operations are being quantified through a research project approved; Finalising the strategy for rehabilitation of derelict and ownerless mines, continuing research to accurately delineate the quantum of the environmental challenge and its inherent liability
Sub-output 2.3 Renewable energy deployed							
	2.3.1 % of power generation that is renewable	2 000 GW/hour (1% of current consumption rate)	10 000 Gw/hours by 2014			DoE, DPE, DEA, DTI, DST	• Alignment and Implementation of Integrated Resource Plan • Implementation of Industrial Policy Action Plan and green economy plan and strategy development • Implementation of Renewable Energy Feed-In Tariff (REFIT) • Finalisation of Renewable Energy White Paper Review
Sub-output 2.4 Identified climate impacts and adaptation framework							
	2.4.1 Climate change impacts identified and adaptation frameworks integrated into national sectoral plans	1 Sector	12 Sectors by 2012 (Biodiversity, Forestry, Water, Coastal Management, Agriculture, Health, Tourism, Land & Rural development, Local government, Fisheries, Human settlements, Business/Insurance)			DEA, DWA,DAFF,Human Settlements, Tourism, DST, RDLR	• Climate adaptation sectors plans in place by 2012; • Climate change adaptation plans rolled out to provincial and municipal sphere of government;
Sub-output 2.5 Efficient energy use							
	2.5.1 % Energy Efficiency improvement	Current Baseline	12% by 2015			DoEnergy, DTI,	
OUTPUT 3: SUSTAINABLE ENVIRONMENT MANAGEMENT **Sub-output 3.1 Degraded ecosystems rehabilitated & restored**							
	3.1.1 Rehabilitation of land affected by degradation	(a) 800 000 ha per year (b) Rehabilitation at all Comprehensive Rural Development Sites	(a) 3.2 mha by 2014 (b) 160 rural development sites by 2014	NEMBA, UNCCD	Climate Change, Over utilisation, Farming Practices, Pollution, Resources	DAFF; Provinces; DWA; DEA	• Implement land care and habitat rehabilitation programmes Woodlands conservation programme • Reforestation • Rehabilitation of ecosystems to address increasing rates of deforestation, land degradation and dry land expansion and soil erosion

APPENDIX A: RESULTS CHAIN (continued)

Results chain	Indicator	Baseline	Target	Monitoring Mechanisms (Means of verification, sources of information)	Assumptions/Risks	Responsibility	Key Activities
Sub-output 3.2 Deforestation & improved forest management							
	3.2.1 Net deforestation	1.2m ha	Not more than 5% woodlands by 2020			DAFF, SANBI, Provinces	• Alien plants elimination and use as energy source (working for energy) and water preservation • Deforestation – Enhance energy services in rural areas and thereby reduce rate of deforestation • Reforestation (trees for carbon storage) – connect with climate change area • Community based natural resource management
	3.2.2 Indigenous forest assets transferred from DAFF to appropriate government conservation agencies	Nil	50%			DAFF, Provinces	Indigenous forest as nature reserves
Sub-output 3.3 Less waste that is better managed							
	3.3.1 % of households with basic waste collection	64% of households	75% hh by 2014			DEA, COGTA, SALGA, Municipalities	• Full cost accounting by municipalities; • Development of waste services standards • Financing mechanism: Review of fiscal mechanism for the the funding of waste services • Analysis of institutional within local governments
	3.3.2 % of permitted landfill sites	20%	80% by 2015			DEA, COGTA, SALGA, Municipalities	• Financing mechanism: Review of fiscal mechanism for the the funding of waste services. Capacity building for municipalities.
	3.3.3 % of municipal waste diverted from landfills for recycling	Not monitored	25% by 2012			DEA, COGTA, SALGA, Municipalities	• Targets for waste minimisation and standards set by end 2010 • Enhance energy potential of waste by harnessing gasses from landfill sites for energy generation
Sub-output 3.4 Management of environmental impacts from mining and related activities							
	3.4.1 # of derelict and ownerless mines rehabilitated and closed in line with environmental best practice	9 derelict and ownerless mine sites rehabilitated during the 6 year period of the implementation of the MPRDA	1 per financial year pending availability of resources			DMR, DEA, Provinces,	• Rehabilitation and remediation of land • Management of health impacts of radio active waste material • Vegetation restoration
	3.4.2 Areas identified for restricted mineral development	Proclaimed protected areas in terms of NEMPAA	National areas negotiated and published by 2015			DMR, DWA, DEA, Provinces	
	3.4.3 Integrated and coordinated regulatory system for environmental management of mining	Not in place	System in place by 2012			DMR, DEA, Provinces,	• Monitoring and enforcement of mining activities

APPENDIX A: RESULTS CHAIN (continued)

Results chain	Indicator	Baseline	Target	Monitoring Mechanisms (Means of verification, sources of information)	Assumptions/Risks	Responsibility	Key Activities
Sub-output 3.5 Sustainable land use management							
	3.5.1 # of Rural Municipalities with credible SDFs; # of District Municipalities/Metro's where Spatial Development Frameworks (SDF) are informed by approved strategic environmental assessments (SEA) or similar instruments	Not measured. Environmental Management Frameworks for 2 District Municipalities approved by Minister	4 Municipalities per annum; 25 Rural Municipalities per annum	Approval/Concurrence granted for EMFs/SEAs by Minister of Environmental Affairs for which MOUs also been signed by the relevant Mayor; Land use plans, IDPs, Bioregional Plans	Assumptions: Data on all relevant environmental issues integrated in EMF. Outcome can be agreed to (negotiated). Mechanisms for conflict management succeed. Risks: (a) Inability to obtain access to geological and mineral deposit data (legally protected). (b) EMFs not integrated into SDFs/ Integrated into SDFs but not enforced through Land Use regulatory processes; Local government buy-in, Resources	DEA, provincial environmental authorities, municipalities, DRDLR, Human Settlements, COGTA	• Strengthen sustainability principles in land-use planning and growth as well as development plans at all levels • Develop, integrate and enforce spatial plans • Develop 3 Integrated open space management plans per year • New Land Use Management Act finalised and aligned with environmental planning
	3.5.2 % of greenfield land in above municipalities transformed through land uses supported by an approved SEA/EMF	Not measured.	90% of land transformed/ developed in 5 years following approval of EMF	GIS (EMF) and satellite imagery (EMF monitoring system under development)	Assumptions: Monitoring system developed in time to measure 1st five year cycle. Risk: Sector regulators not adhering to EMF/SEA/ SDF (mineral development, infrastructure development, energy industries, agriculture). (b) Inability to control illegal land uses	DEA, provincial environmental authorities, municipalities	
OUTPUT 4: BIODIVERSITY PROTECTED							
					• Skills (capacity): people with right skills (specialists), outsourced other duties (consider more salaries and attract specialists and include forest in the OSD list, Train more people • Capacity constraints (threat of running out of specialist) • Funding aspects • Effective management aspects • Fence and protect land without fencing • Accountability responsibility for Implementation – Synergy • Establishment of coordinated Governance and reporting arrangements		

APPENDIX A: RESULTS CHAIN (continued)

Results chain	Indicator	Baseline	Target	Monitoring Mechanisms (Means of verification, sources of information)	Assumptions/Risks	Responsibility	Key Activities
Sub-output 4.1 Expansion of the conservation estate							
	4.1.1 % Land mass under conservation Formal: - Number of WHS nominated/proclaimed - Number national botanical gardens declared - Conservation estate (incl. indigenous forests) Informal: - Number of interventions on the Biodiversity Stewardship programme mainstreamed and implemented - Number of biosphere reserves nominated/ proclaimed	6.1% 7 WHS 9 Botanical gardens 18 stewardship sites 6 Biosphere reserves	• 9% • 3 additional WHS sites plus 5 WHS proclamations • 2 additional national botanical gardens • 7 additional stewardship sites including 10 land reform sites • 4 Biosphere reserves nominated/proclaimed	NEMPAA,Register, Gazette Notice, Stewardship Contracts	Receive funding from National Treasury, funds for land acquisition maintained annually, corporation from landowners, competing land uses e.g mining	DEA, MTPA, DAC	• Proceed with the declaration of priority areas for expansion of protected areas – already identified total area of 122 782 km2 (12 278 200 ha – 20 years target) and 42 priority areas • Establish and strengthen provincial stewardship programmes • Strengthen programmes that support the informal conservation are system • Develop and implement a national botanical gardens expansion strategy
	4.1.2 % of coastline with partial protection	12%	14%	Marine Living Resources Act (MLRA), NEMPAA and NEMBA	Climate Change, Over utilisation of marine resources, Pollution, Poaching	DEA	Proceed with the declaration of priority areas for expansion of protected areas – already identified total area of 122 782 km2 (12 278 200 ha- 20 years target) and 42 priority areas; *Marine Living Resources (MLR) Act compliance and enforcement
Sub-output 4.2 Reduced climate change impacts on biodiversity							
	# of climate change adaptation frameworks for major biomes & aquatic ecosystems (desert, succulent karoo, fynbos, nama karoo, grassland, savanna, forest and Albany thicket) & aquatic (freshwater, estuaries, marine and coastal ecosystems)	0	9 biomes	Adaptation frameworks, Long Term Mitigation Strategy(LTMS) ,Climate Change Response Strategy	Cooperation from major stakeholders,	DEA, MTPA, DAFF, DWA, Provincial conservation authorities, Local government DST; WRC, SANBI, SANPARKS, SAAIB, IUCN, EWT, Natural history museums, WWF, Universities, SATS-SA, SAEON	• Identification of climate change impacts on marine and terrestrial biodiversity and development of adaptation plans • Development of a science, technology and innovation plan to support the output
Sub-output 4.3 Protected ecosystem& species							
	4.3.1 % of coastline prohibiting fishing or any form of harvesting or extraction	9%	Maintained	Inspection Registers; Vessel Monitoring System (VMS)	Cooperation from major stakeholders; Adequate compliance & enforcement	DAFF and DEA	• Marine Living Resources (MLR) Act compliance and enforcement; • Provision of scientific information and data in the identification of protection areas; Fisheries Patrol Vehicles (FPV) patrols in protected areas; Oil spill preparedness & mobilisation; Fisheries catch and effort data provided to spatial conservation planning processes; • Research survey data provided to spatial conservation planning processes

APPENDIX A: RESULTS CHAIN (continued)

Results chain	Indicator	Baseline	Target	Monitoring Mechanisms (Means of verification, sources of information)	Assumptions/Risks	Responsibility	Key Activities
Sub-output 4.3 Protected ecosystem & species							
	4.3.2 % increase of total area (about 1 million km²) of the Exclusive Economic Zone (EEZ) in which fishing and any form of harvesting that are detrimental to the benthic environment are prohibited	Less than 1% offshore	Less than 3% offshore	Inspection Registers; Vessel Monitoring System (VMS)	Cooperation from major stakeholders	DAFF and DEA	• Marine Living Resources (MLR) Act compliance and enforcement; • Provision of scientific information and data in the identification of protection areas
	4.3.3 # of species under formal protection - IUCN Red Data Lists - TOPS lists	Not determined	Increasing	NEMBA, Norms & Standards for management of species, management plans, Regulations	Cooperation from major stakeholders, Resources	DEA, Provinces	• Restore, maintain, or reduce the decline of populations of species of selected taxonomic groups. Development and implementation of Biodiversity Management plans. Areas of particular importance to biodiversity protected.
	4.3.4 Proportion of species threatened with extinction	6.5%	Reduced number of species included in the red data list	NEMBA, IUCN Red List and Regulations	Climate Change, Land use change , AIS, Pollution,	DEA, DAC ,DAFF, DWA, SANBI and MTPA	• Consideration of protection of species through Land use planning, • Development and implementation of interventions to manage overexploitation of species. • Targeted protection of priority habitats • Development of research base on species and biological control agents. • Pathways for major potential alien invasive species controlled. • Management plans in place for major alien species that threaten ecosystems habitats or species.
	4.3.5 Recovery of key fisheries (hake, abalone & rock lobster stocks)	Current stock estimates per resource	10% increase on 2010 levels by 2014	Stock assessment surveys; State of the Resources Reports; Annual TAC/TAE recommendations.	Reduction in poaching levels; Inherent ability of the resources to recover; High levels of resource variability; current levels of abalone poaching can be reduced by 15% and 15% reduction levels maintained.	DAFF	• Expansion of fresh water and marine aquaculture (link to outcome 4) • Implementation of resource specific recovery plans (link to outcome 4) • Implementation of the Abalone Recovery Strategy • Implementation of the Integrated National Fisheries Development Plans; • Finalisation and implementation of Integrated Fisheries Security Strategy; • Conduct surveys and stock assessment; • Marine Living Resources (MLR) Act compliance and enforcement; • Development of a science and technology plan to support the output
	4.3.6 # number of wetlands of national and international importance with management plans in place	20 designated Ramsar sites	5 per year	NEMBA, RAMSAR Convention	Cooperation from stakeholders, Management plans not implemented, Resources	DEA, Provinces	
	4.3.7 No of estuaries with full protection/ partial protection	0	Minimum 20% by 2015	Marine Living Resources Act (MLRA), NEMPAA and NEMBA	Cooperation from stakeholders, Management plans not implemented, Resources	SANBI, DEA, DAFF, DWA, Provincial conservation authorities and Local Government	• CapeNature WC plans to develop 5 estuary management plans per year subject to funding from Oceans and Coast. • These will identify areas of conservation potential and management interventions will be developed accordingly in partnership with all government role-players. • Structures will be set up to formally protect these areas where appropriate.

APPENDIX A: RESULTS CHAIN (continued)

Results chain	Indicator	Baseline	Target	Monitoring Mechanisms (Means of verification, sources of information)	Assumptions/Risks	Responsibility	Key Activities
Sub-output 4.4 Valuing the ecosystem services							
	4.4.1 Environmental costs related to the provision of resource-based services (a)Number of tools developed for the economic valuing of biodiversity and ecosystem services	Environmental cost not determined (a) 2	Determine Environmental cost by 2014 (a)	NBF, TEEB Report	Resources, Technical Expertise	Treasury, DEA,SANBI,SANParks, Provincial conservation authorities, Local government, Indalo Yethu & Stats SA	• Encourage investment on ecological infrastructure. • Improve investment in Protected Areas. • Implement programmes for rehabilitation and restoration of degraded ecosystems. • Improve investment in ecological infrastructure support jobs. • Quantify the economic value of biodiversity and ecosystem services. Promote incentives for conservation and improved ecosystem protection.
Sub-output 4.5 Protection of agricultural land							
	4.5.1 Protection of high potential agricultural land	3% of our land considered high potential	Start measuring and ensure protection of 81% by 2014			DAFF	
OUTCOME 10 CROSS-CUTTING SUB-OUTPUTS **Sub-output 1: Environmental legislation compliance and enforcement**							
	# of dedicated Environmental Courts	No dedicated time for environmental crimes in mainstream courts	Environmental crimes allocated dedicated time in 4 mainstream courts by May 2011			DEA, DWA, DOJ&CD, DAFF,NDPP	Launch of the dedicated time for environmental crimes
	Roll out of the Environmental Management Inspectorate to Local Authority	No designated Environmental Management Inspectors	150 Environmental Management Inspectorate designated by 2011			DEA, 9 Provincial Environmental Departments, COGTA, SALGA	Conduct training of Environmental Management Inspectors
Sub-output 2: Environmental Sustainability							
	Implementation of National Strategy for Sustainable Development and Action plan	NFSD Approved by Cabinet, NSSD gazetted for comment	NSSD strategy approved by 2011			DEA	Finalisation and implementation of NSSD and Action Plan
	Scaling up environmental education, awareness and voluntary activism	Environment Sector Skills Plan (ESSP) in place	ESSP fully implemented by 2014			DEA, DHD, DBE, DST	Implement Human Capital Development Strategy; Environmental Sector Skills Plan (ESSP) finalised and implemented – Engage with NSDS III and SETA systems change, Address scarce and critical skills gap;
	Scaling up expansion and implementation of environmental sector EPWP (Land Care; Working for Water; Working for Wetlands; Working on Fire; Working on Waste; Working on Energy; Working for Fisheries; Working for Woodlands);	156 000 EPWP work opportunities and 41 739 FTEs (Full Time Equivalents) in 2010/11	1 156 00 EPWP work opportunities and 325 652 FTEs (Full Time Equivalents) by 2014			DEA, DPW, DRDLR, DWA, DAFF, DAC, Tourism, provincial and local government	
	Greening of municipalities or Ecotowns programme in ten municipalities		2830 decent jobs by June 2012			Indalo Yethu	Ensure greening of municipalities or Ecotowns

APPENDIX A: RESULTS CHAIN (continued)

Results chain	Indicator	Baseline	Target	Monitoring Mechanisms (Means of verification, sources of information)	Assumptions/Risks	Responsibility	Key Activities
Contribution to Outcome 4 (Decent Employment through Inclusive Economic Growth)-Output 2, Suboutput 5 : Green Economy							
	Green growth contribution to economic growth and employment, while preventing environmental degradation & pollution, biodiversity loss and unsustainable natural resource use (A just transition towards a resource efficient, low carbon and pro-employment growth path)	Draft Green Economy plan; May 2010 Green Economy Summit Statement of Conclusion	Green economy plan approved by 2011	National Green Economy implementation report	Financial Resources	DEA,DTI,DST,EDD, DPW, Treasury, DRDLR, COGTA, SALGA, Cities Network	– Market based instruments (MBIs) to complement regulatory measures and incentivise the use and production of cost effective cleaner and low carbon products – Mobilise financial resources, domestic and international, from both private and development finance institutions – Information and awareness raising initiatives including recognition of the national eco-labelling system which could play a supplementary role to MBIs and regulatory policy measures – Greater localisation of job-intensive green industries and those in which South Africa has a comparative advantage – Increase new knowledge and skills towards development, deployment and commercialisation of innovative science and technology solutions aimed at advancing a green economy – Integration of the different work streams and programmes to maximise benefits from investment and finance opportunities arising from the shared efforts between the public and private sectors – Define the job creation and job protection potential of a green economy growth path per sector and small business development and participation – Direct the implementation of the Industrial Policy Action Plan towards supporting and growing green industries – Scale up and expand the implementation of environmental sector of the Expanded Public Works Programme
Sector-specific Elements							
	Sustainable consumption and production					DTI, DEA, DST,EDD, DRDLR, INDALO YETHUI	Formulate and adopt sustainable development performance monitoring to guide the integration of economic growth, social equity, and environmental protection including measures for institutional triple bottom line accounting, Finalisation of the National Eco-label.
	Green Buildings and the Built Environment		% reduction in water use in commercial and public building sector			DEA,DTI,DST,EDD, DRDLR, COGTA	Develop and implement Green building regulatory, enforcement program, awareness and capacity building programmes at local level of governance
	Sustainable Transport		9% reduction by 2015 of energy used for transport			DOT,DEA,DTI,DST, EDD, COGTA,	Reduce transport sector carbon footprint through cost effective interventions, including shifting freight from road to rail as well as passengers towards public and non-motorised transport, shifting from inefficient and internal combustion engine vehicles to efficient, hybrid and electric vehicles.

APPENDIX A: RESULTS CHAIN (continued)

Results chain	Indicator	Baseline	Target	Monitoring Mechanisms (Means of verification, sources of information)	Assumptions/Risks	Responsibility	Key Activities
Sector-specific Elements (continued)							
	Clean energy and energy efficiency		Reduction of energy demand by 15% in 2015 Carbon Tax by 2011			DOE, DPE, DEA, DTI, DST,EDD	• Diversify energy sources and implement energy efficiency programmes that are crucial for ensuring green growth, as contained in the Integrated Resource Plan (IRP). • Encourage investment in renewable energy on a scale sufficiently large to justify localisation of competitive technologies, along with active support for local renewable technology manufacturing presents an opportunity for sustainable economic development and has significant job creation potential.
	Green Cities and Towns					DEA, DHS, COGTA,EDD	Implementation of the green economy interventions by the local government and these include communication, education and regulation that will be necessary to ensure local green growth and job creation. Intervention to further include urban infrastructure, sustainable land use management, spatial planning and the efficient use of natural resources.
	Resource Conservation and management					DEA, DOE, DAFF, Provinces, Conservation Agencies (national & provincial)	Implement programs to ensure the conservation, sustainable management and rehabilitation of natural and ecosystem services and assets (such as fresh water, marine environments, grasslands, landscapes) as well as work to improve reductions in energy and water use
	Sustainable Waste Management Practices					DEA,DST, DOE, COGTA	Implement the waste hierarchy and the ambition to minimise waste and where unavoidable, recycle and reuse waste or turn it into energy.
	Agriculture, Food Production					DAFF,DWA,DEA, DRDLR, ARC, WRC	• Integrated Water and Land Resources Management should be adopted as a model framework for the sound and equitable allocation of water as a public good among all users to be implemented in a sustainable way at all levels, including catchments. • Support programmes to ensure protection of agricultural land, sustained food security and local economic development.
	Water Management					DWA	Implement activities defined in output 1

APPENDIX B: HIGH LEVEL IMPLEMENTATION PLAN BY SUB-OUTPUT

OUTCOME 10: PROTECTED AND ENHANCED ENVIRONMENTAL ASSETS AND NATURAL RESOURCES

OUTPUT 1: QUALITY AND QUANTITY OF WATER RESOURCES ENHANCED

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Sub-output 1.1: Water demand									
Curtail water losses at water resource level to an average % reduction (saving) and demands determined for 7 large water supply systems (water services) (15% in 2014)	Assess water losses in 14 big irrigation schemes/water user associations (WUAs)	1 irrigation scheme	3 irrigation schemes	5 irrigation schemes	5 irrigation schemes	Mar-14		Funded	DWA
Set selected water efficiency targets for different sectors	Verify and validate unlawful water use and reduce the volume by 15 %	Initiate verification and =validation process	Water use reduced by 5%	Water use reduced by 5%	Water use reduced by 5%	Mar-14		Funded	DWA
Reduction (saving) of demand as determined in the Reconciliation Strategies for 7 large water supply systems by 15% in 2014	Assessment of water requirements and water monitoring systems implemented	2 water resource management systems assessed and monitored	3 water resource management system assessed and monitored	1 resource management and systems assessed and monitored	1 resource management system assessed and monitored	Mar-14		Funded	DWA
Diversification (a) Increase ground water use (from 25% to 30% by 2014)	Re-use strategy developed	Commence development of re-use strategy	¤e-use strategy completed	Potential increase of ground water use by 2%	Potential increase of ground water use by 3%	3/31/14	TBD	Funded	DWA
(b) Desalination and recycling strategies developed (Strategies developed in 2011	Desalination strategy developed	Desalination strategy complete	feasibility studies completed in support of 5 desalination projects	TBD	TBD				DWA, DST (Technology/Innovation)
(c) # of town/cities supported on desalination projects (from 9 to 12 towns by 2014)	12 towns supported on desalination projects by 2014	support 9 towns on desalination projects	support 10 towns on desalination projects	support 11 towns on desalination projects	support 12 towns on desalination projects	Mar-14			DWA, Local government
Sub-output 1.2 Water resource protection									
# number of wetlands rehabilitated per year (100 per year)	Implementation of working for wetlands programme through the rehabilitation of priority wetlands, development of rehabilitation plans	95 wetlands rehabilitated	100 wetlands rehabilitated	110 wetlands rehabilitated	120 wetlands rehabilitated	Mar-14	Rehabilitation teams in provinces, scientists and Project Managers	SANBI additional operating R15 million pa	SANBI – implementation

APPENDIX B: HIGH LEVEL IMPLEMENTATION PLAN BY SUB-OUTPUT (continued)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
# wetlands under formal protection (4 by 2014)	Identify wetlands of national importance and develop management plan	Criteria for listing of wetlands developed	Assessment of priority wetlands against criteria developed	Assessment of priority wetlands against criteria developed	Develop and implement management plans	3/1/14	Scientists, planners, conservation manager	Funded	Conservation Authorities – implement plans, SANBI -scientific criteria
	Management plans for wetlands of international importance developed	Management plans for five RAMSAR sites developed	Management plans for five RAMSAR sites develop	Assessment of priority wetlands against criteria developed	Develop and implement management plans	3/1/14		Funded	Management authorities – develop & implement plans, DEA – oversight
	Construction of gabions to control water flow flow and soil erosion and collection and delivery of waste to the buyback centres	2 Wetlands rehabilitated, 2 dongas prevented from expanding, domestic waste collected at two, local municipalities, 5 835 Work Opportunities and 2 918 Full Time Equivalents created	2 Wetlands rehabilitated. 2 dongas prevented from expanding, domestic waste collected at two local municipalities, 6 279 Work Opportunities created and 3 139 FTEs created	1 wetland rehabilitated, domestic waste collected at two local municipalities, 6 181 work Opportunities and 3 090 Full Time Equivalents created	2 wetlands rehabilitated, domestic waste collected at three local municipalities, 4 888 work opportunities and 2 444 Full time Equivalents created	9/1/13	No additional human resources required	Additional financial resources required	DEA to appoint project implementers and monitor their performance, SANBI to implement
16 major rivers with healthy ecosystem by 2014	Eco-classification of water resource systems	1 major river system meeting resource quality objectives	1 major river system meeting resource quality objectives	1 major river system meeting resource quality objectives	1 major river system meeting resource quality objectives	3/1/14			DWA, DEA
		Establish assessment plan for riverhealth ecosystem monitoring	Assessment of priority river ecosystems against riverhealth criteria	Assessment of priority river ecosystems against riverhealth criteria	Develop and implement management plans	3/1/14	Scientists, planners, land users/ owners	R500 000/a	Conservation Authorities – implement plans
Estuarine water quality assessment (30 by 2014)	Development and implementation of estuarine monitoring programme	Inception report and implementation plan completed	Implementation in 10 selected estuaries	Implementation in 10 selected estuaries	Implementation in 10 selected estuaries	3/1/14			DEA, DWA, SANBI to implement wetland rehabilitation projects
Sub-output 1.3 Regulation of water quality									
# of water treatment works complying with enforcement measures to meet drinking water quality standards	99% of water treatment works complying with enforcement measures to meet drinking water quality standards by 2014	97%	98%	99%	99%	Mar-14		Funded	
# of water treatment works assessed	810 water water treatment works to be assessed by 2014 in order to meet effluent standards	792 plants assessed	797 plants assessed	803 plants assessed	810 plants assessed	3/1/14		Funded	DWA and Local government
% of waste water treatment works complying with enforcement measures to meet effluent standards	80% of waste water treatment works to comply with enforcement measures to meet effluent standards	40%	55%	75%	80%	3/1/14			

APPENDIX B: HIGH LEVEL IMPLEMENTATION PLAN BY SUB-OUTPUT (continued)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
# of mines monitored for non-compliance in accordance with water license conditions	125 mines monitored for non-compliance by 2014.	62	90	110	125			Additional financial resources required	
% of mines complying with enforcement measures	80% of mines to comply with enforcement measures by 2014	14%	39%	64%	80%	3/1/14		Funded	DWA, DEA, DMR
OUTPUT 2: REDUCED GREENHOUSE GAS EMISSIONS, CLIMATE CHANGE & IMPROVED AIR/ATMOSPHERIC QUALITY **Sub-output 2.1: Reduced CO2 emission**									
Reduced total emissions of CO_2 by 34% reduction; of "Business As Usual" by 2020 and 42% by 2025 80% of government owned monitoring stations reporting to SAAQIS	Agreement on GHG mitigation targets for key sectors in line with Climate Change Policy	Finalise White paper on Climate Change	Integrated Energy Plan and Integrated Resource Plan (IRP) for electricity production that supports a peak, plateau and decline emission trajectory by end 2010	Related fiscal, legislative and regulatory package to be implemented by 2012, including GHG deviation from baseline numbers; The South African Air Quality Information System (SAAQIS) phase II completed by mid-2012	GHGs identified as "Priority Pollutants" in terms of the Air Quality Act and mitigation plans; submitted by end 2013	Mar-14			DEA, DTI, DST (science, technology & innovation), Provinces, local government, Energy
Sub-output 2.2: Atmospheric pollutants									
100% country-wide compliance with national Ambient Air Quality Standards by 2020	The efficient and effective identification, development and implementation of Air Quality Management Plans for National Priority Areas (Vaal Triangle Air-shed, Highveld and Waterberg)	(i) Vaal Triangle Air-shed Priority Area Air Quality Management Plan under full implementation, (ii) draft plan for the Highveld Priority Area developed and published for public comment and (iii) Minister's intention to declare the Waterberg Priority Area published	(i) Progress and review report compiled and published for the Vaal Triangle Air-shed Priority Area, (ii) Highveld Priority Area Air Quality Management Plan under Plan promulgated and (iii) Waterberg Priority Area problem analysis completed	(i) Vaal Triangle Air-shed Priority Area Air Quality management Plan updated, (ii) Highveld Priority Area Air Quality full implementation and (iii) Waterberg Priority Area Air Quality Management Plan published for public comment		On-going		Provinces	DEA Local government
	Global atmospheric watch-monitoring of trace gases								SAWS

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
	The development and rollout of a strategy to address air pollution in dense, low-income communities, including air pollution from the burning of dirty fuels (e.g. coal, paraffin and wood)	Integrated residential air pollution control strategy that coordinates and consolidates all Relevant national department, provincial and municipal interventions submitted to Cabinet for approval	Interdepartmental pilot project/s launched within a key problem area within one of the National air pollution Priority Areas	Residential air pollution control case studies and associated municipal implementation guidelines published	Interdepartmental pilot project/s progress and review report compiled and published	12/1/2012 The impact of coordinated and integrated interdepartmental efforts fully analysed and reported by October 2013	Use of existing human resources air pollution offset project	Use of current budget and the mobilisation of funds through appropriate industrial offset projects;	DEA — overall coordination, ambient air quality monitoring and reporting and negotiation of industrial air pollution DoH — Indoor air quality improvement interventions and air quality monitoring; DOE-Coordination of electrication interventions and the implementation of cleaner fuels and/or basic energy interventions; DHS — Energy and/or thermal efficiency improvement interventions & DMR — Cleaner fuels (e.g. anthracite) interventions; DMR-Cleaner fuels (e.g Anthracite) interventions; Pilot municipalities — prioritisation of appropriate service supply interventions (e.g. electrification, road-surfacing, tree planting)
	The review, revision and implementation of the National Vehicle Emission Control Strategy					Mar-14			DEA, Provinces, Local Government
	The efficient and effective implementation of the new Atmospheric Emission Licensing system by the new Licensing Authorities (Provinces; Metros and District Municipalities)					Mar-14			DEA, Provinces, Local Government
	Growing and developing the National Ambient Air Quality Monitoring Network and the South African Air Quality Information System (SAAQIS)					Mar-14			DEA, Provinces, Local Government
	The development and rollout of strategies and action plans to address air pollution from non-industrial and/or non-point sources (e.g. veld fires, construction activities, un-surfaced haul roads, etc.)					Mar-14			DEA, Provinces, Local Government

APPENDIX B: HIGH LEVEL IMPLEMENTATION PLAN BY SUB-OUTPUT (continued)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Mine Dust: Zero exposure to silicon at all mine occupational level by 2014	Implement the minimum frequency of monitoring					On-going		Additional financial resources required	DMR, DEA
	Health impacts of mining tailing dumps on communities proximal to mine operations are being quantified through a research project approved					On-going		Additional financial resources required	DMR, DEA
	Finalising the strategy for rehabilitation of derelict and ownerless mines, continuing research to accurately delineate the quantum of the environmental challenge and its inherent liability					On-going		Additional financial resources required	DMR, DEA
Sub-output 2.3 Renewable energy deployed									
10 000 Gw/hours renewable energy production by 2014 Policy Adjusted Plan	Alignment and implementation of Integrated Resource Plan	Approval of IRP2; Promulgate the IRP to indicate the emissions trajectory attributed to electricity sector investments	Implement the investments, including renewable energy, energy efficiency projects in line with the IRP			Mar-14			Department of Energy
	Implementation of Industrial Policy Action Plan and green economy plan and strategy development	Adoption of the green economy strategy	Feasibility to be completed			Mar-14			Department of Trade and Industry
	Implementation of Renewable Energy Feed-In Tariff (REFIT)	Finalise the establishment of the independent systems market operator for the procurement of RE under the REFIT incentive scheme	Procure RE in line with the targets set under IRP2010	Procure RE in line with the targets set under RP2010	Procure RE in line with the targets set under IRP2010	Mar-14			Department of Energy
	Finalisation of Renewable Energy White Paper Review	Review completed by closing of financial year				Mar-14			Department of Energy

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Sub-output 2.4 Identified climate change and adaptation framework									
Climate change impacts identified and adaptation frameworks integrated into 12 national sectoral plans by 2012	Climate adaptation sectors plans in place by 2012	4 (Biodiversity, Forestry, Water, Coastal Management)	4 (Agriculture, Health, Tourism, Land & Rural development)	4 (Local government, Fisheries, Human settlements, Business/ Insurance)		Mar-14	Socio-economists, natural resource scientists	Additional financial resources required	DEA and DWA,DAFF,Human Settlements, Tourism, DST, RDLR
	Climate change adaptation plans rolled out to provincial and municipal sphere of government					Mar-14			Provinces, Local Government
Sub-output 2.5 Efficient energy use									
12% Energy Efficiency improvement by 2015	Promulgate IRP2010 to indicate the energy efficiency target set over a 20-year window	Implement the energy efficiency interventions for commercial buildings, households, industry etc. in line with the promulgated IRP; Introduce the incentive schemes to support the interventions	Implement the energy efficiency interventions for commercial buildings, households, industry etc. in line with the promulgated IRP			Mar-14			Department of Energy
OUTPUT 3: SUSTAINABLE ENVIRONMENTAL MANAGEMENT **Sub-output 3.1 Degraded ecosystems rehabilitated & restored**									
3.2 mha by 2014 of and rehabilitated land 160 rural development sites by 2014	Implement land care and habitat rehabilitation programmes	800 000ha	800 000ha	800 000ha	800 000ha			R60m/yr (EPWP)	DAFF
		Ensure land rehabilitation through enforcement of CARA (89963Ha)	Ensure land rehabilitation through enforcement of CARA (118186Ha)	Ensure land rehabilitation through enforcement of CARA (125793Ha)	Ensure land rehabilitation through enforcement of CARA (132083Ha)	Mar-14			
		Control of weeds and Invader plants (18501Ha) of land where weeds and invader plants are under control	(25650Ha) of land where weeds and invader plants are under control	(32700Ha) of land where weeds and invader plants are under control	(46200Ha) of land where weeds and invader plants are under control	Mar-14			
		(18501Ha) of land where weeds and invader plants are under control	(25650Ha) of land where weeds and invader plants are under control	(32700Ha) of land where weeds and invader plants are under control	(46200Ha) of land where weeds and invader plants are under control	Mar-14			

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
		Conservation Agriculture (120Ha) Implementation of no till projects and demos	(550Ha) Implementation of no till projects and demos	(852Ha)Implementation of no till projects and demos	(1300Ha) Implementation of no till projects and demos				
		Rangeland Management (79154 Ha) of natural rangeland rehabilitated or protected	(85700 Ha) of natural rangeland rehabilitated or protected	(91400 Ha) of natural rangeland rehabilitated or protected	(135235Ha) of natural rangeland rehabilitated or protected	Mar-14			
		x number of ha including rehabilitation on 25 CRDP Sites (wards)	x number including rehabilitation on 37 CRDP Sites (wards)	x number Including rehabilitation on 44 CRDP Sites (wards)	x number Including rehabilitation on 33 CRDP Sites (wards)	31/03/2014	HR Capacity already exist	All member departments of the CRDP Council of Stake-holders to commit funds towards the rehabilitation of land in rural areas	DRDLR,Relevant Provincial Government
		800 000ha	800 000ha	800 000ha	4 yrs	31/03/2014	320 million required (R80 million required/annum)	DAFF: DLUSM, LandCare & Land and Monitoring	DAFF, DEA
	Woodlands conservation programme	Woodlands conservation programme	Conservation targets for woodlands determined at type level (Floristic studies)	Conservation targets for woodlands determined at type level (Floristic studies)	Irreplacibility and gap analyses for selected woodlands at type level	High conservation value for selected woodlands identified	1x Assistant Director; 2X Forestry Scientists; 2X Forestry Technicians	Required but not available: R8 000 000 per annum calculated at R10 000/ha	DAFF
	Woodlands and indigenous forests rehabilitation programme	800ha	800ha	800ha	800ha	Annual targets (this is long term work – restoration requires follow-up)	As above plus casual labor (±250 person days per year)	Required but not available: R8 000 000 per annum calculated at R10 000/ha	DAFF
		Identify woodlands types with unique features in Northern Cape (1 woodland type) and Limpopo (1 woodland type)	Declare the identified woodlands type as controlled area as per Section 17 of NFA	Stakeholder consultation to declare the identified woodland types as protected woodlands	Gazette the woodlands types as protected woodlands as Section 3 of NFA		Mar-14	3 million required but not available	DAFF
	Rehabilitation of ecosystems to address increasing rates of deforestation, land degradation and dry land expansion and soil erosion	**Soil erosion control** (1576 Ha) of cultivated land rehabilitated and or protected	(35000 Ha) of cultivated land rehabilitated and or protected	(415000Ha) of cultivated land rehabilitated and or protected	(45200 Ha)of cultivated land rehabilitated and or protected	Mar-14			DAFF, DEA

APPENDIX B: HIGH LEVEL IMPLEMENTATION PLAN BY SUB-OUTPUT (continued)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Sub-output 3.2 Deforestation & improved forest management									
Net deforestation not by more than 5 woodlands by 2020	Alien plants elimination and use as energy source (working for energy) and water preservation					Mar-14			DEA, Energy, DPW, DWA
	Deforestation – Enhance energy services in rural areas and thereby reduce rate of deforestation	Project planning and assessment	Undertake Forest Assessment in Mpumalanga and Limpopo and finalise conservation planning	Undertake forest assessment in Western Cape and Northern Cape and finalise conservation planning	Undertake forests assessment in KZN and finalise conservation	Mar-15	10 000 sample plots will need about 4000 people.	R84 million	DAFF, DEA, SANBI, NGO, DEFENCE, ESKOM
	Develop plan to ensure environmental issues are integrated into land use planning and incorporated into national, provincial and municipal plans	Implement integrated fire management activities						R17 Million	DEA, DRLR, SANBI & Provincial government
	Community based natural resource management	Ensure the development of Natural Resource Management (NRM) strategies by all provinces.	Ensure Implementation of NRM strategies by all provinces.	Implementation of NRM strategies by all provinces	Implementation of NRM strategies by all provinces	Mar-14			DAFF
50% of indigenous forest assets transferred from DAFF to appropriate government conservation agencies	Transfer of indigenous forest as nature reserves	1 Province Indigenous forest as nature reserves	2 Provinces Project planning	Conservation targets for selected forests determined at type level (Floristic studies)	Irreplacibility and gap analyses for selected natural forests at type level Conservation targets for selected forests; Further floristic studies for other selected forests	Mar-14 3/31/14	1x Assistant Director; 2X Forestry Scientists; 2X Forestry Technicians	Salaries: R1 000 000 Operational: R450 000 Total R1 450 000 required but not available	DAFF
Conduct National Forest Resources Assessment	Project planning and Institutional preparation	assessment done in 2 Provinces	Assessment done in 3 Provinces	Assessment done in 4 Provinces	Year 5		1x Project Manager 3X Assistant Directors; 9X Forestry Scientists; 18X Forestry Technicians; 2X Data Typers; 1X Data Analyst; 1X Admin Officer; plus Casual) labour (1 200 person days/year	R20m/yr required but not available	DAFF
Reforestation (trees for carbon storage)-connect with climate change area	Plant 1 million trees	Plant 1 million trees	Plant 1 million trees	Plant 1 million trees		Mar-14	R1m/yr available		DEA, DPW, DWA, Provincial government

APPENDIX B: HIGH LEVEL IMPLEMENTATION PLAN BY SUB-OUTPUT (continued)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Sub-output 3.3 Less waste that is better managed									
75% house holds with basic waste collection by 2014 80% by 2015 of permitted landfill sites 25% by 2012 municipal waste diverted from landfills for recycling	Analysis of institutional within local governments; Full cost accounting by municipalities	Targets for waste minimisation and standards set by end 2010	Financing mechanism: Review of fiscal mechanism for the funding of waste services; Capacity building for municipalities	Enhance energy potential of waste by harnessing gasses from landfill sites for energy generation		Mar-14		Additional financial resources required	COGTA, National Treasury, Local government, DEA, Provinces, Local government, Provinces, Department of Energy
Sub-output 3.4 Management of environmental impacts from mining and related activities									
# of derelict and ownerless mines rehabilitated and closed in line with environmental best practice	Rehabilitation and remediation of land; vegetation restoration	25 wards	37 wards	44 Wards	33 Wards	Mar-14		All member departments of the CRDP Council of Stake-holders to commit funds towards the rehabilitation of land	DRDLR, Relevant Provincial Government, DMR
	Management of health impacts of radio active waste material					On-going			DMR, Health
National areas negotiated and published by 2015 identified for restricted mineral development	Monitoring and enforcement of mining activities					On-going			DMR, DEA
	Comparison of “environmentally sensitive areas” and “mineral development priority areas	Mapping of environmentally sensitive areas	Mapping of “mineral development priority areas”	Negotiation between DMR and DEA to agree on “restriction areas” completed		Dec-12			DEA & Provinces map environmental sensitive areas. Planning Commission manage negotiation process
	Public & stakeholder consultation			Public consultation process	Public consultation process	Jun-13			DMR
	Gazette restricted mineral development areas in terms of section 49 of the MPRDA				Gazette	Apr-14			DMR
	Joint proposal on coordination and integration approved by both Ministers	Joint DEA, DWA and DMR task team develop proposal	Proposal approved by Ministers		Jun-11				DEA & DMR task team negotiate and draft joint proposal

APPENDIX B: HIGH LEVEL IMPLEMENTATION PLAN BY SUB-OUTPUT (continued)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
	Law reform process		Drafting amendment Bills and table in Parliament	Bills enacted.		Jan-12			DEA amend NEMA & SEMAs, DMR amend MPRDA & MHSA, DMR-DEA task team manage development of implementation plan.
Integrated and coordinated regulatory system for environmental management of mining in place by 2012	Implementation of integrated system		Implementation plan developed	Implementation of new system	Jun-12				DMR, DEA and provinces as per implementation plan
Sub-output 3.5 Sustainable land use management									
Rural Municipalities with credible SDFs that are informed by approved strategic environmental assessments (SEA) or similar instruments: 4 Municipalities per annum; 25 Rural Municipalities per annum AND 90% of greenfield land in these municipalities transformed through land uses supported by an approved SEA/EMF	Development of SDF for Rural Municipalities	25	25	25	25	Mar-14	HR capacity exist	Funded	DRDLR and Relevant Provinces
	Environmental Planning integrated into NEW Spatial Planning and Land Use Management Act	Participation in law reform process	Participation in law reform process/effect agreed amendments to environmental legislation			1/1/12			DRDLR, COGTA and Planning commission develop legislation
		Land Use management Bill presented to Parliament General Assembly	Land Use management Bill presented to Parliament National Council of Provinces	Bill passed in to an Act	Implementation	Mar-13	HR capacity exist	Funded	DRDLR, COGTA and Planning commission develop legislation
	Environmental Management Framework/Strategic Environmental Assessment/ other strategic environmental planning projects initiated	(1) Finalise EMF/SEA strategy to prioritise municipalities for which EMF/SEA would be funded by environmental authority. (2) Initiate EMFs/SEAs for 4 municipalities	(1) Initiate EMFs/SEAs for 4 municipalities in accordance with strategy	(1) Initiate EMFs/SEAs for 4 municipalities in accordance with strategy	(1) Initiate EMFs/SEAs for 4 municipalities in accordance with strategy	Annually		R4 000 000 per annum	(1) DEA & provinces – manage EMF/SEA process & manage MOUs with Municipalities. (2) Municipalities: Participate in EMF/SEA process
	Environmental Management Framework/Strategic Environmental Assessment/ other strategic environmental planning projects finalised/ approved by MEC/Minister and relevant Mayor(s)	Finalise EMFs initiated for 4 municipalities	Finalise EMFs initiated for 4 municipalities	Finalise EMFs initiated for 4 municipalities	Finalise EMFs initiated for 4 municipalities	Annually		R4 000 000 per annum	(1) DEA & provinces – initiate EMFs & enter into MOUs with Municipalities. (2) Municipalities: Participate in EMF/SEA process

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
	EMF/SEA/Other integrated into Municipal SDF and SDF adopted by Minister/MEC	Integration of the following EMFs in municipal SDFs (Rustenburg, Tlokwe City Council (Potchefstroom), Siyanda, Emakhazeni, Nelson Mandela Bay) development of SDF guidelines	Finalise 4 SDF integration	Finalise 4 SDF integration	Finalise 4 SDF integration		Annually		COGTA/DRDLR facilitate integration process; municipalities adopt EMFs, Minister/MEC environment adopt SDF as "environmentally informed spatial instrument"
	Participate in SDF, IDP and EMF formulation processes i.t.o. Municipal systems Act and Environmental Acts (NEMBA & NEMBA) in protection of agricultural land	Participate in SDF, IDP and EMF formulation processes i.t.o. Municipal systems Act and Environmental Acts (NEMBA & NEMBA) in protection of agricultural land	Participate in SDF, IDP and EMF formulation processes i.t.o. Municipal systems Act and Environmental Acts (NEMBA & NEMBA) in protection of agricultural land	Participate in SDF, IDP And EMF formulation processes i.t.o. Municipal systems Act and Environmental Acts (NEMBA & NEMBA) in protection of agricultural land					DRDLR, COGTA
	SDF Guidelines with relevant sector consideration developed (MoU Signed by DGs)	Alignment of the DRDLR draft SDF guidelines and COGTA's SDF Toolkit for adoption	Draft Consolidated SDF Guidelines submitted to relevant IGR structures	SDF Guidelines implemented	SDF Guidelines implemented	Mar-12	HR capacity exist	Funded	DRDLR, COGTA
	Develop monitoring system		Development of system	Development of system		Dec-12			Joint task team to develop monitoring system (DEA, Outcome 10 MINTECH, COGTA, DRDLR and Planning Commission)
	Pilot test of monitoring system				Pilot test for Waterberg District Municipality	Apr-14			Local government

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES YEAR 1	YEAR 2	YEAR 3	YEAR 4	TIME (COMPLETED BY)	RESOURCE REQUIREMENTS HUMAN RESOURCES	FINANCIAL RESOURCES	ROLES AND RESPONSIBILITIES
OUTPUT 4: BIODIVERSITY PROTECTED Sub-output 4.1 % Land mass under conservation									
9% Land mass under conservation by 2014	Nomination and proclamation of World Heritage Sites (WHS)	1 WHS (proclaimed) – 30 000ha	1 WHS (listed and proclaimed)	1 WHS (nominated)	1 WHS (listed and proclaimed)	Mar-14	Cultural heritage experts, negotiators, planners	R2m/a	DAC-Assist with the identification of priority Heritage sites. DEA-Identify, nominate, proclaim and ensure effective management
	Declaration of priority areas for expansion of protected areas network (National)	13 465 ha	13 000 ha	13 000 ha	13 000 ha	Mar-14	Scientists, scenario planning and modelling experts, contract managers, GIS experts SANBI 1 x conservation planner (Level 11) 1 x junior planner (level 9)	2010/11 – R 22 261 000 2011/12 – R31 269 000 2012/13 – R39 912 000	SANParks – identify, acquire and declare sites, DEA-Coordination SANBI technical planning support and monitoring and review of expansion plans against national targets.
		Eastern Cape – 98 000, Free State – 99 000, Gauteng – 9 500, KZN – 52 800, Limpopo – 43 000, Mpumalanga – 40 000, North West – 62 000, Northen Cape 208 000, Western Cape 63 000	Eastern Cape – 98 000, Free State – 99 000, Gauteng – 9 500, KZN – 52 800, Limpopo – 43 000, Mpumalanga – 40 000, North West – 62 000, Northen Cape 208 000, Western Cape 63 000	Eastern Cape – 98 000, Free State – 99 000, Gauteng – 9 500, KZN – 52 800, Limpopo – 43 000, Mpumalanga – 40 000, North West – 62 000, Northen Cape 208 000, Western Cape 63 000	Eastern Cape – 98 000, Free State – 99 000, Gauteng – 9 500, KZN – 52 800, Limpopo – 43 000, Mpumalanga – 40 000, North West – 62 000, Northen Cape 208 000, Western Cape 63 000	Mar-14	Scientists, scenario planning and modelling experts, contract managers, GIS experts SANBI 1 x conservation planner (Level 11) x junior planner (level 9)	Significantly underfunded	Provincial environmental departments and agencies to identify, acquire and declare priority areas for expansion SANBI technical planning support and monitoring and review of expansion plans against national targets.
	Declaration of priority areas for expansion of protected areas network (Provincial) – Including biodiversity stewardship	10 000 ha per province	10 000 ha per province	10 000 ha per province	10 000 ha per province	Mar-14	Scientists, scenario planning and modelling experts, contract managers, GIS experts (Human resources current within Mpu comprises 2 posts and requires six posts over four years (therefore only 33% of HR resources met)	Provincial Environmental Departments and agencies to determine budgetary allocations (Partly funded. Additional finances required over Years 1 to 4: R40 000 000 (for land purchase 20% of four year target and biodiversity stewardship 80% of four year target)	SANBI-Identication and acquisition of the land. SANBI management of the gardens. *DEA Proclamation of the land

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
	Declaration of two botanical gardens	Potential site in Eastern Cape identified	Acquisition and proclamation	Potential site in Limpopo identified	Acquisition and proclamation	Mar-14	SANBI Staff for operating the gardens: total personel budget of R3,5 million (includes eg 1 x Curator (level 11), horticulturalists (2 x level 9), admin (2x level 7); foreman (2 x level 5) groundsmen (10 x level 3)) GIS Specialists, Scientists, horticulturalists.	SANBI Personnel R3,5 million Operating R2 million pa	SANBI-Identication and acquisition of the land. *DEA Proclamation of the land
	Improvement in management effectiveness for protected areas	50% of protected areas with 68% management effectiveness	60% of protected areas with 68% management effectiveness	70% of protected areas with 68% management effectiveness	80% of protected areas with 68% management effectiveness	Mar-14	Managers, scientists, social ecologists, planners	Partially funded	Management authories – develop management plans, manage, assess effectiveness. DEA monitor
	Implement the Biodiversity Stewardship Programme to contribute to the land mass under conservation in the form of Nature reserves and Protected Environment						SANBI land reform stewardship coordinator (level 11)	SANBI operating budget for the land reform stewardship initiative R800 000 pa)	SANBI: support pilot projects; host the Land reform and Biodiversity Stewardship learning network.
14 % of coastline with partial protection	Proceed with the declaration of priority areas for expansion of protected areas – already identified total area of 122 782 km2 (12 278 200 ha- 20 years target) and 42 priority areas								DEA,DAFF
	Marine Living Resources (MLR) Act compliance and enforcement								DEA, DAFF, DWA, DOJ&CD
Sub-output 4.2 Reduced climate change impacts on biodiversity									
9 major biomes climate change adaptation frameworks developed	Identification of climate change impacts on marine and terrestrial biodiversity and development of adaptation plans	Framework document for biodiversity and climate change completed	Vulnerability assessment for the nine biomes completed	Response measures for the nine biomes identified.	Climate change adaptation plans for nine biomes completed (Marine biodoversity adaptation planning initiated)	March 2014	Scientists, scenario planning and modelling SANBI 2 x spatial modelling (level 11) 1 x GIS planner (level 11) 1 x project manager (level 12) 2 x technician (level 8)	SANBI Operating R1 million pa	DEA SANBI Spatial modelling and vulnerability assessments and technical input into development of adaptation frameworks

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
	Framework for biodiversity and climate change response completed	Vulnerability assessment for the 9 biomes completed	Response measures for 9 biomes identified	Climate change adaptation plans for 9 biomes completed	14-Mar	Scientist, scenario planners & modelling and conservation experts	Unfunded	SANBI – scientific inputs, Provinces – implementation, DEA – co-ordination	DEA,RDLR, SANBI
Sub-output 4.3 Protected ecosystems and species									
Maintain % of coastline prohibiting fishing or any form of harvesting or extraction	Marine Living Resources (MLR) Act compliance and enforcement; * Provision of scientific information and data in the identification of protection areas; Fisheries Patrol Vehicles (FPV) patrols in protected areas; Oil spill preparedness & mobilisation; Fisheries catch and effort data provided to spatial conservation planning processes; • Research survey data provided to spatial conservation planning processes	Marine spatial biodiversity plan completed and published as part of National Biodiversity Assessment.	Data collection and fine scale coastal planning initiated				SANBI 1 x marine conservation planner (Level 11); 2 x marine researchers (level 9); 1 x marine species monitoring officer (level 10)	SANBI Operating R550 000pa	DAFF, DEA SANBI technical planning support and monitoring and review of expansion plans against national targets; species monitoring and marine biodiversity research.
Increase from less than 1% to less that 3% offshore total area (about 1 million km2) of the Exclusive Economic Zone (EEZ) in which fishing and any form of harvesting that are detrimental to the benthic environment are prohibited	Marine Living Resources (MLR) Act compliance and enforcement; * Provision of scientific information and data in the identification of protection areas	Intensification and monitoring compliance patrols in MPA (9% of 3 000 km coastline	Intensification and monitoring compliance patrols in MPA (9% of 3000 km coastline	Intensification and monitoring compliance patrols in MPA (9% of 3 000 km coastline	Increase from 9% to 11%	2014	DAFF SANBI 1 x offshore protected area planner (level 11)	R1 million	SANBI Provision of scientific information and data in the identification of protection areas
Increasing number of species under formal protection	Developing Biodiversity management plans for species	2 species management plans developed	2 species management plans developed	2 species management plans developed	2 species management plans developed	Mar-14	Species specialists SANBI 2 x threatened animal species specialists (level 10)	Funded SANBI operating R250 000 pa	DEA – evaluation & approval, SANBI – scientific authority SANBI technical support for development of management plans

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
	Amending TOPS lists based on specific criteria	Criteria for listing developed Non-detriment findings for trade General operations of the scientific Authority Compliance with CITES processes Improved implementation of TOPS Improved animal taxomony for threatened species	"Draft list compiled and published for public comment Non-detriment findings for trade General operations of the Scientific Authority Compliance with CITES processes Improved implementation of TOPS. Improved animal taxomony for threatened species	List finalised and published Non-detriment findings for trade General operations of the Scientific Authority Compliance with CITES processes Improved implementation of TOPS Improved animal taxomony for threatened species	Amend Regulations to ensure protection of listed species Non-detriment findings for trade General operations of the Scientific Authority Compliance with CITES processes Improved implementation of TOPS Improved animal taxomony for threatened species	Mar-14	Species specialists; Scientists; Taxonomists; Conservation specialists; ecologist SANBI 4 x animal taxonomists (level 8) 1 x conservation biologists (level 9) 1 x Administrator (secretariat) (level 8, requires BSc) 1 x Scientist - animals (level 9) 1 x Population biologist (level 10)	Funded SANBI operating R450 000pa	DEA — Development of lists & regulations, SANBI — taxonomy, scientific criteria & listing, Provinces — implementation
	Develop and implement regulations and tools to prevent, control or eradicate Alien and Invasive Species	Alien and Invasive Species regulations finalised	Alien and Invasive Species Risk Assessment Framework finalised; Draft Guidelines for the preparation of monitoring and control plan for alien and invasive species	"Draft national Strategy and Action Plan for alien and invasive species published for public participation; Guidelines for the preparation of monitoring and control plans implemented SANBI: Database of invasives and risk assessments Risk assessments of invasives (plants & animals) Scientific support for listing Monitoring system	National Strategy and Action Plan for alien and invasive species finalised and approved; Development of monitoring and control plans by organs of state initiated; Development of species management programmes initiated SANBI: Database of invasives and risk assessments Risk assessments of invasives (plants & animals) Scientific support for listing Monitoring system	Mar-14	AIS specialists; Risk assessment specialists; EMIs SANBI requirement Risk analysis specialist (level 10) Data manager (level 9) Invasive species scientist (level 10) Monitoring co-ordinator (level 12)	Current funding for implementation inadequate SANBI operating requirement R700 000 p.a. (risk assessment and targeted research) R1 500 000 p.a. (monitoring)	DEA — Development of strategy & regulations, SANBI — scientific criteria & support for listing, data management, risk assessments, monitoring; DWA DAFF & Provinces — implementation
	Habitat loss reduced through protection of threatened or protected ecosystems	Criteria for listing of aquatic ecosystems developed Draft threatened river ecosystems identified draft threatened estuary ecosystems identified	List of threatened or protected ecosystems Draft threatened marine ecosystems identified	Threatening processes/activities in ecosystems identified and regulated in terms of NEMA Identification of terrestrial ecosystems under criterion B Threatened river, estuary and marine ecosystems gazetted for public comment	Enforcement of NEMA Threatened river, estuary and marine ecosystems gazetted	3/1/14	Ecosystem specialists — especially in terms of the functioning of ecosystems (dynamics of ecosystems) and threatening processes affecting ecosystems Enforcement resources SANBI 1 x threatened ecosystems ecologist (level 10) 1 x marine threatened ecosystem ecologist (level 11)	Funded SANBI operating R250 000pa	SANBI — scientific authority, development of criteria and draft lists, monitoring DEA & Provinces — implementation & NEMA enforcement"

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Reduced number of species included in the red data list: Proportion of species threatened with extinction	Consideration of protection of species through Land use planning	Establish programme to promote integration of biodiversity and ecosystem-based approaches to climate change adaptation into land use planning Distribute biodiversity information to all municipalities	Provide capacity development opportunities for municipalities	Provide capacity development opportunities for municipalities	Provide capacity development opportunities for municipalities	2014	SANBI 10 x Biodiversity advisors (level 10); 1 x programme coordinator (level 11)	SANBI operating R1 million pa	DEA, SANBI distribute biodiversity information and provide capacity development support
	Development and implementation of interventions to manage overexploitation of species	Management plans for species requiring interventions developed	Management plans for species requiring interventions developed	Management plans for species requiring interventions developed	Management plans for species requiring interventions developed	2014	SANBI requirement 2 X population ecologists (level 10)	SANBI operating requirement R700,000 p.a.	DEA, SANBI technical support on development of management plans
	Targeted protection of priority habitats	4 draft bioregional plans (NM moss; Gert Sibande; Gauteng metros; Namakwa)	2 additional bioregional & 2 additional biodiversity sector plans	2 additional bioregional & 2 additional biodiversity sector plans	2 additional bioregional & 2 additional biodiversity sector plans	2014	SANBI 1 x bioregional planner (level 11)	SANBI operating R300 000pa	DEA, SANBI support development of bioregional and biodiversity sector plans; convening of bioregional review panel
	Development of research base on species and biological control agents	Implement research programmes	Implement research programmes	Implement research programmes	Implement research programmes	2014			DEA, DST, ARC
	Management plans in place for major alien species that threaten ecosystems habitats or species AND Pathways for major potential alien invasive species controlled			Draft framework for management plans developed	Framework for management plans finalised	2014	SANBI Monitoring co-ordinator (level 12); Invasive species scientist (level 10)	SANBI operating requirement R700,000 p.a.	DEA, SANBI research and drafting of management plans
10% increase on 2010 levels for recovery of key fisheries (hake, abalone & rock lobster stocks) by 2014	Expansion of fresh water and marine aquaculture (link to outcome 4)	Implementation of the Aquaculture Development Plan	Implementation of the Aquaculture Development Plan	Implementation of the Aquaculture Development Plan	10% increase on 2010 stock levels for hake, abalone and rock lobster	2014			DAFF, DTI
	Implementation of resource specific recovery plans (link to outcome 4)	Conduct annual surveys stocks in 3 fisheries (hake, abalone and rock lobsters	Conduct annual surveys stocks in 3 fisheries (hake, abalone and rock lobsters	Conduct annual surveys stocks in 3 fisheries (hake, abalone and rock lobsters	10% increase on 2010 stock levels for hake, abalone and rock lobster	2014			DAFF, DTI
	Implementation of the Abalone Recovery Strategy	Reduction of poaching by 15%	Reduction of poaching by 15%	Reduction of poaching by 15%	Reduction of poaching by 15%	2025			DAFF

APPENDIX B: HIGH LEVEL IMPLEMENTATION PLAN BY SUB-OUTPUT (continued)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
	Implementation of the Integrated National Fisheries Development Plans	Implement and monitor progress	Implement and monitor progress	Implement and monitor progress	Implement and monitor progress	2014			DAFF
	Finalisation and implementation of Integrated Fisheries Security Strategy	Enhancement of partnership with law enforcement agencies, 40% of all landings monitored; 10% of rights holders investigated; 15% of vessels inspected in these fisheries sectors	Enhancement of partnership with law enforcement agencies, 40% of all landings monitored; 10% of rights holders investigated; 15% of vessels inspected in these fisheries sectors	Enhancement of partnership with law enforcement agencies, 40% of all landings monitored; 10% of rights holders investigated; 15% of vessels inspected in these fisheries sectors	Enhancement of partnership with law enforcement agencies, 40% of all landings monitored; 10% of rights holders investigated; 15% of vessels inspected in these fisheries sectors	2014		R100 Million p/a	DAFF
	Conduct surveys and stock assessment	Implement and monitor progress	Implement and monitor progress	Implement and monitor progress	Implement and monitor progress	On-going			DAFF, DEA, DST
	Provision of scientific information and data in identification and monitoring of protection areas	Conduct annual stocks surveys catch monitoring, data collection in 22 fishing sectors	Conduct annual stocks surveys catch monitoring, data collection in 22 fishing sectors	Conduct annual stocks surveys catch monitoring, data collection in 22 fishing sectors	Less than 3% offshore	2014		R16 million per annum (excluding ship costs	DAFF, DEA, DST
	Marine Living Resources (MLR) Act compliance and enforcement	Implement and monitor progress	Implement and monitor progress	Implement and monitor progress	Implement and monitor progress	2014			DAFF, DEA, DOJ&CD
	Development of a science and technology plan to support the recovery of key fisheries	Plan completed	Implement research programmes	Implement research programmes	Implement research programmes	2014			DST
5 wetlands per year of national and international importance with management plans in place	Criteria for listing of wetlands developed	Assessment of priority wetlands against criteria developed	Assessment of priority wetlands against criteria developed	Develop and implement management plans	3/1/14	Scientists, planners, conservation manager	Funded SANBI 1 x wetlands planner (level 10)	Conservation Authorities – implement plans	DEA, SANBI development of criteria and draft lists, Working for Wetlands
	Management plans for wetlands of international importance developed	Management plans for five (5) RAMSAR sites developed	Management plans for five (5) RAMSAR sites developed	Management plans for five (5) RAMSAR sites developed	Management plans for five (5) RAMSAR sites developed	Mar-14	Wetlands Specialists	R400 000 per annum	DEA, Conservation Authorities
	Management plans for five RAMSAR sites developed	Management plans for five RAMSAR sites developed	Management plans for five RAMSAR sites develop	Assessment of priority wetlands against criteria developed	Develop and implement management plans	3/1/14		Funded	Management authorities – develop & implement plans, DEA – oversight
Minimum 20% of estuaries with full protection/partial protection by 2015	Priority estuaries identified and declared in terms of NEMPA	Priority estuaries identified through the National Biodiversity Assessment						Priority setting funded	SANBI identification of priorities, DEA, DAFF, DWA, Provincial conservation authorities and Local Government

APPENDIX B: HIGH LEVEL IMPLEMENTATION PLAN BY SUB-OUTPUT (continued)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Sub-output 4.4 Valuing the ecosystem services									
Environmental benefits related to the provision of resource-based services better understood, communicated and incentivised	Baseline for biodiversity & ecosystem services determined	Baseline for biodiversity & ecosystem services determined	Feasibility study conducted Develop ecosystem services monitoring and research strategy	Stakeholder consultation Implement monitoring and research strategy to determine baseline	Valuation completed Monitor ecosystem services	3/1/14	Scientists, resource economists, project manager SANBI 1 x resource economist (level 12); 2 x ecosystem services researchers (Level 10)	Funded SANBI operating R1 million	DEA, SANBI monitoring and research, Conservation authorities, National Treasury
	Promote incentives for conservation and improved ecosystem protection.	Initiate process Review effectiveness of existing fiscal incentives	Finalise making the case for the value of biodiversity Develop proposals for modifications to fiscal incentives based on review	Roll out Implement modifications to fiscal incentives in tax legislation	Roll out Promote implementation of incentives through biodiversity stewardship programme	3/1/14	Resource economist; Ecologists; Scientists; Economists; Media & marketing SANBI 1 x Incentives specialist (level 11) already funded	R250 000 per annum SANBI R300 000 for tax consultants	DEA, SANBI review of effectiveness of existing fiscal incentives and drafting of proposals for modification to tax legislation, Conservation authorities, National Treasury
	Establish a national payment for ecosystem services programme to improve ecosystem protection and human wellbeing	Initiate 3 pilot projects demonstrating benefits and institutional options	Continue with 3 pilot projects Develop institutional and financial mechanisms for the national PES programme	Initiate additional 3 pilot projects Establish institutional arrangements for national PES	Implement PES programme	2014	SANBI 1 x PES specialist (level 12); 1 x PES project officer (1 x level 10)	2 pilot projects already funded additional operating R2 million pa	DEA, SANBI catalyse 2 pilot projects, technical input on institutional and financial options, DWA, DBSA, conservation authorities
	Make a business case for biodiversity	Development of communication strategy and messages initiated	Business case for biodiversity finalised Rollout implementation of communications strategy	Rollout implementation of communications strategy	Rollout implementation of communications strategy	14-Mar	Resource economists, scientists, media, communications & marketing professionals	Rollout implementation unfunded R2 million pa	DEA & SANBI – development, Provinces – implementation
Start measuring and ensure protection of 81% by 2014		Preserve high potential and suitable land for agricultural production by developing land capability zoning maps for 2 provinces.	"Develop capability maps and zoning of agricultural land for 2 provinces	Develop capability maps and zoning of agricultural land for 2 provinces	Develop capability maps and zoning of agricultural land for the remained and finalise the national maps and zones	3/31/14		R12 000 000	DAFF
		Develop policy and review legislations to ensure protection of agricultural land	Develop policy and review legislations to ensure protection of agricultural land.	Provide green and white discussion document.	Facilitate stakeholders workshop for review of national norms and standards	3/31/14		R35 000 000	DAFF
		200 000 ha to be protected through administration of Act 70 of 1970	200 000 ha to be protected through administration of Act 70 of 1970	200 000 ha to be protected through administration of Act 70 of 1970	200 000 ha to be protected through administration of Act 70 of 1970	3/31/14		R40 000 000	DAFF

APPENDIX B: HIGH LEVEL IMPLEMENTATION PLAN BY SUB-OUTPUT (continued)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
OUTCOME 10 CROSS-CUTTING SUB-OUTPUTS									
Sub-output 1: Environmental legislation compliance and enforcement									
Environmental crimes allocated dedicated time in 4 mainstream courts by May 2011	Launch of the dedicated time for environmental crimes	Launch in Mpumalanga in September 2010 as a pilot project. The project to be reviewed after a year.	Assessment of the pilot project and possible extension to the remaining regional courts/ district courts in other provinces	Environmental crimes allocated time and handled in all mainstream regional/districts courts in the country		Mar-14	Trained criminal investigators; Dedicated prosecutors		DWA;DEA AND DOJ&CD
150 Environmental Management Inspectorate designated by 2011	Conduct training of Environmental Management Inspectors	Designation of 150 trained Local government officials as EMI by MEC	NEMA to be amended to provide for Designation of EMIs by local authorities	Designation of EMIs functions carried out at local government level		Mar-14			DEA; COGTA;SALGA; local government; provinces
Sub-output 2: Environmental Sustainability									
NSSD strategy approved by 2011	Finalisation and implementation of NSSD and Action Plan	Cabinet approved NSSD and Action plan	Develop sustainable development indicators	Monitoring and evaluation on the implementation	Monitoring	Mar-14		Funded	DEA
Scaling up environmental education, awareness and voluntary activism: Environmental Sector Skills Plan(ESSP) fully implemented by 2014	Implement Human Capital Development Strategy; Environmental Sector Skills Plan (ESSP) finalised and implemented- Engage with NSDS III and SETA systems change, Address scarce and critical skills gap;	Environmental driver integrated into the National Skills Development Strategy (NSDS III) and the SETA Skills Plans	Increased access to occupationally directed Programmes in scarce and critical areas	A comprehensive career guidance, vocational information dissemination and collection system in place	A standardised framework developed for the assessment of skills shortages (projected supply and demand) for environmental skills	Mar-14			DEA, DST, Higher Education, Indalo Yethu
1 156 00 EPWP work opportunities and 325 652 FTEs (Full Time Equivalents) by 2014	Scale-up environment and culture EPWP	Implement and monitor progress	Implement and monitor progress	Implement and monitor progress	Implement and monitor progress	3/1/14		Additional financial resources required	Department of Public Works, Department of Environmental Affairs; Department of Tourism; Department of Agriculture Forestry and Fisheries; Department of Water Affairs; Department of Arts and Culture; Provinces
	Implement coast care programme at all South African beaches – Litter picking and scrubbing of beacH facilities	19 beaches cleaned on a daily basis, 830 km of coast line and 27 beach facilities cleaned everyday, 7 747 work opportunities and 3 874 Full Time Equivalents created	19 beaches cleaned on a daily basis, 830 km of coast line and 27 beach facilities cleaned everyday, 6 872 work opportunities and 3 436 Full Time Equivalents created	19 beaches cleaned on a daily basis, 830 km of coast line and 27 beach facilities cleaned everyday, 5 916 work opportunities and 2 958 Full Time Equivalents created	19 beaches cleaned on a daily basis, 830 km of coast line and 27 beach facilities cleaned everyday, 6 916 work opportunities and 3 458 Full Time Equivalents created	3/1/13	No additional human resources required	Additional financial resources required	DEA

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
	Implement greening projects (planting indigenous trees) and street cleaning in the 10 selected municipalities	18 276 indigenous trees planted, 10 cities' streets cleaned everyday, 3 650 Work opportunities and 1 825 Full Time Equivalents created.	23 055 indigenous trees planted, 10 cities' streets cleaned everyday, 3 285 Work Opportunities and 1 642 Full Time Equivalents created	24 407 indigenous trees; 10 cities' streets cleaned everyday, 3 249 Work Opportunities and 1 124 Full Time Equivalents created	25 220 indigenous trees planted; 10 cites' streets cleaned everyday, 3 690 work opportunities created and 1 845 Full Time Equivalents created	3/1/13	No additional human resources required	Additional financial resources required	DEA, Indalo Yethu
OUTCOME 4: Decent Employment through Inclusive Economic Growth **OUTPUT 2: MORE LABOUR ABSORBING GROWTH** **Sub-output 5: Green Economy**									
Regulatory framework: New Growth Path, National Green Economy Strategy & National Climate Change Policy by January 2011	Developmental growth path approved by Cabinet	Implementation and assess impact	Implementation and assess impact	Implementation and assess impact	Implementation and assess impact	Jan-11	Existing capacity within EDD, DTI and NT	Policy options will define the required resources.	EDD, DTI, National Treasury
	Finalisation and implementation of the National Green Economy Strategy	Strategy completed and Cabinet Approved	Implementation and roll-out programmes to support growth of green jobs and industries over short-term	Commence with policy interversions to support medium to long term actions	Implementation and assess impact	Mar-14	Existing capacity within EDD, DEA, DST, DTI and NT will be utilised to implement the project	Funding required to support key flagship projects that contributes to green economy	DEA will finalise the coordination of national green economy strategy with support from EDD, NT, DTI, DST, DPW
	Finalisation of the national Climate Change Policy	Policy consulted and Cabinet Approved	Implementation and assess impact	Implementation and assess impact	Implementation and assess impact	Jan-11	Existing capacity within DEA	Policy options will define the required resources.	DEA
Market-based instruments: Carbon Tax by 2011	Finalisation of Carbon Tax	Instrument consulted and Cabinet Approved	Implementation and assess impact	Implementation and assess impact	Implementation and assess impact	3/1/14	Existing capacity within National Treasury	Policy options will define the required resources.	National Treasury
Greater localisation of manufacturing: 10% solar, nuclear and wind by 2014; 60% of installed Solar Water Heaters by 2014	Finalise the Integrated Resource Plan	Complete IRP and cabinet approved	Implement and monitor progress	Implement and monitor progress approved	Implement and monitor progress	3/1/14	Existing capacity within Department of Energy	Policy options will define the required resources.	Department of Energy
	Implement regulatory instruments to stimulate the EGS sector (for example, requirement for all new geysers to be SWH)	Develop regulations to enhance green industries to support industrial policy objectives and developmental growth path, Develop targets to measure effectiveness of the regulations	Implement regulations and monitor impact on targets	Implement regulations and monitor impact on targets	Implement regulations and monitor impact on targets	3/1/14	Existing capacity within Department of Energy, DTI, DPW	Policy options will define the required resources.	Department of Energy, DTI, DPW
	Review import duties structure to ensure highest level of local component manufacturing whilst maintaining competitive pricing	Review and assessment completed	Programme to support the growth of local green industries sectors developed and approved	Implement and monitor progress	Implement and monitor progress	3/1/14	Existing capacity with DTI	Policy options will define the required resources	DTI

APPENDIX B: HIGH LEVEL IMPLEMENTATION PLAN BY SUB-OUTPUT (continued)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Innovation, science and technology: Calculate % spent on Research, Development & Innovation for green industries development by May 2011; Human Capital Development: Increase number of Master and PHDs in green industries related sectors from current baseline to 20% by 2014; Increase percentage of patents registered in the green industries sectors (waste, water, energy, environmental monitoring & management) from current baseline to 5 % by 2014	Increase green industries support to stimulate R&D expenditure	Centre of Competence introduced to support green industries, identification and development of plans to address barriers for increased private sector R&D funding, mechanisms to assess progress on R&D expenditure on the annual basis	Centres of Competence fully operational to support green industries, enhanced R&D incentives introduced to particularly support innovation in small enterprises	Implement and monitor progress	Implement and monitor progress	3/1/14	Existing capacity within DST	Funded	DST, TIA, NRF
Investment, finance opportunities and financing instruments: 4 programmes supported by the clean technology fund to meet renewable energy targets by 2014; R11,7 billion provided by IDC for investment over the next five years in green industries; Assessment of the potential of a green development bond by 2014	Implement Clean Technology Fund business plan	Finalise support mechanism for 2 projects	Implement projects						DEA
	Green industries investment	Screening and decision on project support	Implement and monitor progress	Implement and monitor progress	Implement and monitor progress	3/1/14	Existing capacity within IDC	Funded	EDD, IDC
		Initiate the study on green development bond potential		Approved green development bond	Implement and monitor progress	3/1/14	Existing capacity within EDD and National Treasury	Policy options will define the required resources.	EDD, National Treasury
Job creation and job protection: 5% share of non-public works employment as a percentage of total employment	Engagement with private sector and social partners on green jobs creation and protection potential on the Developmental Path policy package	Identify policy intervention and secure contributions by social partners to green jobs	Implement and monitor progress	Implement and monitor progress	Implement and monitor progress	3/1/14	Existing capacity within DTI,EDD, DBSA and IDC	Policy options will define The required resources.	DTI, EDD, DBSA, IDC
Industrial Policy Action Plan: 3% share of GDP of the Environmental Goods and Services (EGS) industry by 2014; A higher growth rate in the waste recycling industry to R6,500 million industry in 2014	Support intervention to stimulate growth		Implement and monitor progress	Implement and monitor progress	Implement and monitor progress	3/1/14	Existing capacity within DTI	Policy options will define the required resources	DTI
Expanded Public Works Programme: scale up and expansion of Green Jobs opportunities through EPWP II to 1 156 00 EPWP work opportunities and 325 652 FTEs (Full Time Equivalents) by 2014	Scale-up environment and culture EPWP	Implement and monitor progress	Implement and monitor progress	Implement and monitor progress	Implement and monitor progress	3/1/14	Existing capacity within departments	Additional financial resources required	Department of Public Works, Department of Environmental Affairs; Department of Tourism; Department of Agriculture Forestry and Fisheries; Department of Water Affairs; Department of Arts and Culture; Provinces

APPENDIX C: PROVINCIAL DELIVERABLES

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
OUTCOME 10: PROTECTED AND ENHANCED ENVIRONMENTAL ASSETS AND NATURAL RESOURCES - KWAZULU-NATAL DEA RD **OUTPUT 1: QUALITY AND QUANTITY OF WATER RESOURCES ENHANCED** Sub-output 1.1: Water demand Sub-output 1.2: Water resource protection									
# wetlands under formal protection (4 by 2014)	Identify wetlands of national Importance and develop management plan	50	50	50	50	3/1/14			KZN DAERD, water affairs, COGTA, DEA and EKZNW Conservation Authorities — implement plans
	Management plans for wetlands of international importance developed	Management plans for five RAMSAR sites develop	Management plans for five RAMSAR sites developed	Assessment of priority wetlands against criteria developed	Develop and implement management plans	3/1/14	Managers, Field Rangers and General assistants	R400 000/plan	DEA, Provinces
OUTPUT 2: REDUCED GREENHOUSE GAS EMISSIONS, CLIMATE CHANGE & IMPROVED AIR/ATMOSPHERIC QUALITY Sub-output 2.1: Reduced CO2 emmission									
Reduced total emmissions of CO2 by 34% reduction of "Business As Usual" by 2020 and 42% by 2025; 80% of government owned monitoring stations reporting to SAAQIS	GHGs identified as "Priority Pollutants" in terms of the Air Quality Act and mitigation plans submitted by end 2013;					Mar-14			KZN DEARD, DEA,Provinces, Local Government, Water Affairs, National centre for carbon capture, National Energy Efficiency Agency
Sub-output 2.2: Atmospheric pollutants									
100% country-wide compliance with national Ambient Air Quality Standards by 2020	Atmospheric pollutants reduced	100% compliance with ambient air quality standards	100% compliance with ambient air quality standards	100% compliance with ambient air quality standards	100% compliance with ambient air quality standards	Mar-14			KZN DEARD, DEA,Provinces, Local Government, Mineral resources, COGTA, Public Works, DST, SALGA
Sub-output 2.4 Identified climate change and adaptation framework									
Climate change impacts identified and adaptation frameworks integrated into 12 national sectoral plans by 2012	Climate change adaptation plans rolled out to provincial and municipal sphere of government;		10 sectors by 2012			Mar-14			DEA, KZN DEARD, Provinces, Local Government, Water Affairs, National centre for carbon capture, National Energy Efficiency Agency
OUTPUT 3: SUSTAINABLE ENVIRONMENTAL MANAGEMENT Sub-output 3.1 Degraded ecosystems rehabilitated & restored									
3.2 mha by 2014 of land rehabilitated and 160 rural development sites by 2014	Degraded ecosystems rehabilitated & restored	100 000 ha	100 000 ha	100 000 ha	100 000 ha	Mar-14			DAERD

APPENDIX C: PROVINCIAL DELIVERABLES (continued)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Sub-output 3.3 Less waste that is better managed									
80% by 2015 of permitted landfill sites	Financing mechanism: Review of fiscal mechanism for the funding of waste services				80%	Mar-14			National Treasury, COGTA, Provinces, Local Government, DEA
% of municipal waste diverted from landfills for recycling	Capacity building for municipalities		25%			Mar-14			DEARD, COGTA, SALGA, Municipalities
Sub-output 3.5 Sustainable land use management									
Environmental Management Framework/Strategic Environmental Assessment/other strategic environmental planning tools	Environmental Management Framework/Strategic Environmental Assessment/ other strategic environmental planning projects initiated	(1) Finalise EMF/SEA strategy to prioritise municipalities for which EMF/SEA would be under by environmental authority. (2) Initiate EMFs/ SEAs for 4 municipalities	(1) Initiate EMFs/SEAs for 4 municipalities in accordance with strategy	(1) Initiate EMFs/SEAs for 4 municipalities in accordance with strategy	(1) Initiate EMFs/SEAs for 4 municipalities in accordance with strategy	Annually		R4 000 000 per annum	(1) DEA & provinces – manage EMF/SEA process & manage MOUs with Municipalities. (2) Municipalities: Participate in EMF/SEA process
	Environmental Management Framework/Strategic Environmental Assessment/ other strategic environmental planning projects finalised/ approved by MEC/Minister and relevant Mayor(s)	Finalise EMFs initiated for 4 municipalities	Finalise EMFs initiated for 4 municipalities	Finalise EMFs initiated for 4 municipalities	Finalise EMFs initiated for 4 municipalities	Annually		R4 000 000 per annum	(1) DEA & provinces – initiate EMFs & enter into MOUs with Municipalities. (2) Municipalities: Participate in EMF/ SEA process
OUTPUT 4: BIODIVERSITY PROTECTED **Sub-output 4.1 % Land mass under conservation**									
9% Land mass under conservation by 2014	Declaration of priority areas for expansion of protected areas network (Provincial) – Including biodiversity stewardship	10 000 ha per province	10 000ha per province	10 000 ha per province	10 000ha per province	Mar-14	Scientists, scenario planning and modeling experts, contract managers, GIS experts	Provincial Environmental Departments and agencies to determine budgetary allocations	Provincial environmental departments and agencies to identify, acquire and declare priority areas for expansion
	Declaration of two botanical gardens	Potential site in Eastern Cape identified	Acquisition and proclamation	Potential site in Limpopo identified	Acquisition and proclamation	Mar-14	GIS Specialists, Scientists	Provincial Environmental Departments and agencies to determine budgetary allocations	SANBI-Identification and acquisition of the land. *DEA Proclamation of the land

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Minimum 20% of estuaries with full protection/partial protection by 2015									SANBI, DEA, DAFF, DWA, Provincial conservation authorities and Local Government
Sub-output 4.4 Valuing the ecosystem services									
Environmental costs related to the provision of resource-based services (a) Number of tools developed for the economic valuing of biodiversity and ecosystem services	Quantify the economic value of biodiversity and ecosystem services.		Initiate process to develop system	Develop and consult	Consultation and finalisation of system	3/1/14	Resource economist; Ecologists; Scientists; Economists	R500 000 per annum	DEA, SANBI, Conservation authorities, National Treasury
	Promote incentives for conservation and improved ecosystem protection.	Initiate process	Finalise making the case for The value of biodiversity	Roll out	Roll out	3/1/14	Resource economist; Ecologists; Scientists; Economists;	R250 000 per annum	DEA, SANBI, Conservation authorities, National Treasury
OUTCOME 10: PROTECTED AND ENHANCED ENVIRONMENTAL ASSETS AND NATURAL RESOURCES - FREE STATE DETEEA **OUTPUT 4: BIODIVERSITY** **Sub-output 4.1 % Land mass under conservation**									
9% Land mass under conservation by 2014	Nomination and proclamation of World Heritage Sites (WHS)	Proclamation of the Vredefort Dome WHS			Development of a management Plan	Mar-14			FS DETEEA, DEA
		99 000	99 000	Free State — 99 000	Free State — 99 000	Mar-14	Scientists, scenario planning and modeling experts, contract managers, GIS experts		Provincial environmental departments and agencies to identify, acquire and declare priority areas for expansion
	Declaration of priority areas for expansion of protected areas network (Provincial) — Including biodiversity stewardship	10 000 ha per province	10 000ha per province	10 000 ha per province	10 000ha per province	Mar-14	Scientists, scenario planning and modeling experts, contract managers, GIS experts	Provincial Environmental Departments and agencies to determine budgetary allocations	Provincial environmental departments and agencies to identify, acquire and declare priority areas for expansion
	Declaration of two botanical gardens	Potential site in Eastern Cape identified	Acquisition and proclamation	Potential site in Limpopo identified	Acquisition and proclamation	Mar-14	GIS Specialists, Scientists	Provincial Environmental Departments and agencies to determine budgetary allocations	FS DETEEA SANBI-Identification and acquisition of the land. *DEA Proclamation of the land
	Improvement in management effectiveness for protected areas	50% of protected areas with 68% management effectiveness	60% of protected areas with 68% management effectiveness	70% of protected areas with 68% management effectiveness	80% of protected areas with 68% management effectiveness	Mar-14	Managers, scientists, social ecologists, planners	Partially funded	Management authories — develop management plans, manage, assess effectiveness. DEA monitor. FS DETEEA

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
	Implement the Biodiversity Stewardship Programme to contribute to the land mass under conservation in the form of Nature reserves and Protected Environment								
Sub-output 4.2 Reduced climate change impacts on biodiversity									
9 major biomes climate change adaptation frameworks developed	Identification of climate change impacts on marine and terrestrial biodiversity and development of adaptation plans	Framework document for biodiversity and climate change completed	Vulnerability assessment for the nine biomes completed	Response measures for the nine biomes identified.	Climate change adaptation plans for nine biomes completed	March 2014	Scientists, scenario planning and modeling		DEA
	Framework for biodiversity and climate change response completed	Vulnerability assessment for the 9 biomes completed	Response measures for 9 biomes identified	Climate change adaptation plans for 9 biomes completed	14-Mar		Scientist, scenario planners & modelling and conservation experts	Unfunded	SANBI – scientific inputs, Provinces – implementation, DEA – co-ordination
Sub-output 4.3 Protected ecosystems and species									
Increasing number of species under formal protection	Developing Biodiversity management plans for species	2 species management plans developed	2 species management plans developed	2 species management plans developed	2 species management plans developed	Mar-14	Species specialists	Funded	DEA – evaluation & approval, SANBI – scientific authority
	Amending TOPS lists based on specific criteria	Criteria for listing developed	Draft list compiled and published for public comment	List finalised and published	Amend Regulations to ensure protection of listed species	Mar-14	Species specialists; Scientists; Taxonomists; Conservation specialists; ecologist	Funded	DEA – Development of lists & regulations, SANBI – scientific criteria & listing, Provinces – implementation
	Develop and implement regulations and tools to prevent, control or eradicate Alien and Invasive Species	Alien and Invasive Species regulations finalised	Alien and Invasive Species Risk Assessment Framework finalised; Draft Guidelines for the preparation of monitoring and control plan for alien and invasive species	Draft national Strategy and Action Plan for alien and invasive species published for public participation; Guidelines for the preparation of monitoring and control plans implemented	National Strategy and Action Plan for alien and invasive species finalised and approved; Development of monitoring and control plans by organs of state initiated; Development of species management programmes initiated	Mar-14	AIS specialists; Risk assessment specialists; EMIs	Current funding for implementation inadequate	DEA – Development of strategy & regulations, SANBI – scientific criteria & listing, DWA DAFF & Provinces – implementation
	Habitat loss reduced through protection of threatened or protected ecosystems	Criteria for listing of aquatic ecosystems developed	List of threatened or protected ecosystems	Threatening processes/ activities in ecosystems identified and regulated in terms of NEMA	Enforcement of NEMA	3/1/14	Ecosystem specialists – especially in terms of the functioning of ecosystems (dynamics of ecosystems) and threatening processes	Funded	SANBI – scientific authority, DEA& Provinces – implementation & NEMA enforcement

APPENDIX C: PROVINCIAL DELIVERABLES (continued)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
5 wetlands per year of national and international importance with management plans in place	Criteria for listing of wetlands developed	Assessment of priority wetlands against criteria developed	Assessment of priority wetlands against criteria developed	Develop and implement management plans		3/1/14	Scientists, planners, conservation manager	Funded	DEA, SANBI, Working for Wetlands, FS DETEEA, Conservation Authorities – implement plans
	Management plans for wetlands of international importance developed	Management plans for five (5) RAMSAR sites developed	Management plans for five (5) RAMSAR sites developed	Management plans for five (5) RAMSAR sites developed	Management plans for five (5) RAMSAR sites developed	Mar-14	Wetlands Specialists	R400 000 per annum	DEA, Conservation Authorities
	Management plans for five RAMSAR sites developed	Management plans for five RAMSAR sites developed	Management plans for five RAMSAR sites develop	Assessment of priority wetlands against criteria developed	Develop and implement management plans	3/1/14		Funded	Management authorities – develop & implement plans, DEA – oversight
Minimum 20% of estuaries with full protection/partial protection by 2015									SANBI, DEA, DAFF, DWA, Provincial conservation authorities and Local Government
Sub-output 4.4 Valuing the ecosystem services									
Environmental costs related to the provision of resource-based services (a)Number of tools developed for the economic valuing of biodiversity and ecosystem services	Baseline for biodiversity & ecosystem services determined	Feasibility study conducted	Stakeholder consultation	Valuation completed	3/1/14	Scientists, resource economists, project manager	Funded	DEA & SANBI – conduct valuation	DEA, SANBI, Conservation authorities, National Treasury
	Promote incentives for conservation and improved ecosystem protection	Initiate process	Finalise making the case for the value of biodiversity	Roll out	Roll out	3/1/14	Resource economist; Ecologists; Scientists; Economists; Media & marketing	R250 000 per annum	DEA, SANBI, Conservation authorities, National Treasury
	Make a business case for biodiversity	Development of communication strategy and messages initiated	Business case for biodiversity finalised	Rollout implementation	Rollout implementation	14-Mar	Resource economists, scientists, media & marketing professionals	Rollout Implementation unfunded	DEA & SANBI – development, Provinces – implementation
OUTCOME 10: PROTECTED AND ENHANCED ENVIRONMENTAL ASSETS AND NATURAL RESOURCES - WESTERN CAPE DEADP **OUTPUT 1.:QUALITY AND QUANTITY OF WATER RESOURCES ENHANCED** **Sub-output 1.2 Water resource protection**									
# wetlands under formal protection	Management plans for wetlands of international importance developed	Management plans for one RAMSAR sites developed.	Management plans for one RAMSAR sites developed.	Management plans for one RAMSAR sites developed.		3/31/14	Funded	Funded	CapeNature (Western Cape); Sanbi to implement wetland rehabilitation projects

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
OUTPUT 2: REDUCED GREENHOUSE GAS EMISSIONS, CLIMATE CHANGE & IMPROVED AIR/ATMOSPHERIC QUALITY									
Sub-output 2.1: Reduced CO2 emmission									
Reduced total emmissions of CO2 by 34% reduction of "Business As Usual by 2020 and 42% by 2025; 80% of government owned monitoring stations reporting to SAAQIS	The South African Air Quality Information System (SAAQIS) phase II completed by mid-2012;	Report all ambient air quality data to SAAQIS	Report all ambient air quality data to SAAQIS	Report all ambient air quality data to SAAQIS	Report all ambient air quality data to SAAQIS	Monday, March 31, 2014	CEO Grade B x 1 Admin Officer x 1	No cost	DEA&DP Western Cape (Dir. Pollution Management)
	GHGs identified as "Priority Pollutants" in terms of the Air Quality Act and mitigation plans submitted by end 2013;	Initiate development of GHG inventory	Complete the development of GHG inventory	Maintain GHG inventory	Maintain GHG inventory	Monday, March 31, 2014	CEO Grade B x 1 CEO Grade A x 3 CEO Grade A-C x 3	750 000	DEA&DP Western Cape (Dir. Pollution Management)
Sub-output 2.2: Atmospheric pollutants									
100% country-wide compliance with national Ambient Air Quality Standards by 2020		Develop publish and distribute report on State of Air Quality in the Western Cape	Develop publish and distribute report on State of Air Quality in the Western Cape	Develop publish and distribute report on State of Air Quality in the Western Cape Investigate, identify and implement alternative forms of heating and cooking for informal areas, pending donor funding arrangements	Develop publish and distribute report on State of Air Quality in the Western Cape investigate, identify and implement alternative forms of heating and cooking for informal areas, pending donor funding arrangements.	Monday, March 31, 2014	Director X1 CEO Grade B x 1 CEO Grade A x 3 CEO Grade A-C x 3 Service provider	1 850 000	DEA&DP Western Cape (Dir. Pollution Management)
	The development and rollout of a strategy to address air pollution in dense, low-income communities, including air pollution from the burning of dirty fuels (eg coal, paraffin and wood)	Investigate and report on a strategy to facilitate mass role-out of solar geysers in the Western Cape.	Publicise and facilitate strategy on mass roll-out of solar water heater systems.	Implement Strategy		2012/2013	Internal staff	Budgeted funding per year	DEA&DP Western Cape (Dir. Climate Change)
	The review, revision and implementation of the National Vehicle Emission Control Strategy			develop a methodology vehicle emission testing at roadsides and weighbridges initiate the process of setting standards and developing regulations and methodologies for emissions testing of all other modes of transport	develop a metholody on vehicle emission testing at roadsides and weighbridge continue with the process of setting standards and developing regulations and methodologies for emissions testing of all other modes of transport	Monday, March 31, 2014	CEO Grade B x 2 CEO Grade A x 2 EO Grade A-C x 3 Service provider	620 000	DEA&DP Western Cape (Dir. Pollution Management)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES YEAR 1	YEAR 2	YEAR 3	YEAR 4	TIME (COMPLETED BY)	RESOURCE REQUIREMENTS HUMAN RESOURCES	FINANCIAL RESOURCES	ROLES AND RESPONSIBILITIES
	The efficient and effective implementation of the new Atmospheric Emission Licensing system by the new Licensing Authorities (Provinces; Metros and District Municipalities)	conduct 1 capacity building workshop with municipalities with regards to Atmospheric Emission licensing	conduct 1 capacity building workshop with municipalities with regards to Atmospheric Emission licensing	conduct 1 capacity building workshop with municipalities with regards to Atmospheric Emission licensing	conduct 1 capacity building workshop with municipalities with regards to Atmospheric Emission licensing	Monday, March 31, 2014	CEO Grade B x 4 Admin Officer x1	70 000	DEA&DP Western Cape (Dir. Pollution Management)
	Growing and developing the National Ambient Air Quality Monitoring Network and the South African Air Quality Information System (SAAQIS)	Monitor ambient air quality at 6 locations within the province	monitor ambient air quality at 7 locations within the province	monitor ambient air quality at 9 locations within the province	monitor ambient air quality at 11 locations within the province	31 March 2010	CEO Grade B x 2 CEO Grade A x 2 EO Grade A-C x 3	21 100 000	DEA&DP Western Cape (Dir. Pollution Management)
			initiate the development of an air quality laboratory	establish an air quality laboratory	operate and maintain an air quality laboratory				
			monitor ambient air quality at 7 locations within the province	monitor ambient air quality at 9 locations within the province	monitor ambient air quality at 11 locations within the province				
			initiate the development of an air quality laboratory	establish an air quality laboratory	operate and maintain an air quality laboratory				
			monitor ambient air quality at 7 locations within the province	monitor ambient air quality at 9 locations within the province	monitor ambient air quality at 11 locations within the province				
			initiate the development of an air quality laboratory	establish an air quality laboratory	operate and maintain an air quality laboratory				
			monitor ambient air quality at 7 locations within the province	monitor ambient air quality at 9 locations within the province	monitor ambient air quality at 11 locations within the province				
			initiate the development of an air quality laboratory	establish an air quality laboratory	operate and maintain an air quality laboratory				
			monitor ambient air quality at 7 locations within the province	monitor ambient air quality at 9 locations within the province	monitor ambient air quality at 11 locations within the province				
			initiate the development of an air quality laboratory	establish an air quality laboratory	operate and maintain an air quality laboratory				

APPENDIX C: PROVINCIAL DELIVERABLES (continued)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
	Growing and developing the National Ambient Air Quality Monitoring Network and the South African Air Quality Information System (SAAQIS)	Monitor ambient air quality at 6 locations within the province	monitor ambient air quality at 7 locations within the province	monitor ambient air quality at 9 locations within the province	monitor ambient air quality at 11 locations within the province	31 March 2010	CEO Grade B x 2 CEO Grade A x 2 EO Grade A-C x 3	21 100 000	DEA&DP Western Cape (Dir. Pollution Management)
			initiate the development of an air quality laboratory	establish an air quality laboratory	operate and maintain an air quality laboratory				
	The development and rollout of strategies and action plans to address air pollution from non-industrial and/or non-point sources (eg veld fires, construction activities, un-surfaced haul roads, etc.)		develop, publish and distribute education and awareness material with regards to the management of air pollution from non industrial sources	develop, publish and distribute education and awareness material with regards to the management of air pollution from non industrial sources	develop, publish and distribute education and awareness material with regards to the management of air pollution from non industrial sources	Monday, March 31, 2014	CEO Grade B x 1 CEO Grade A x 3 EO Grade A-C x 3	150 000	DEA&DP Western Cape (Dir. Pollution Management)
2.4 Identified climate change and adapation framework									
Climate change impacts identified and adaptation frameworks integrated into 12 national sectoral plans by 2012	Climate change adaptation plans rolled out to provincial and municipal sphere of government;		Further roll out of "2Precious2Pollute" programme: Reduce ozone depleting substances, greenhouse gases and its associated impacts	Explore climate change co-benefits in Air Quality Management Further roll out of "2Precious2Pollute" programme: Reduce ozone depleting substances, greenhouse gases and its associated impacts	Explore climate change co-benefits in Air Quality Management Further roll out of "2Precious2Pollute" programme: Reduce ozone depleting substances, greenhouse gases and its associated impacts	Monday, March 31, 2014	Director x 1 CEO Grade B x 2 CEO Grade A x 3 EO Grade A-C x 3	4 800 000	DEA&DP Western Cape (Dir. Pollution Management)
		Undertake annual monitoring of climate change response and refine climate change M&E systems.	Undertake annual monitoring of climate change response				Internal staff	Budgeted funding per year	DEA&DP Western Cape (Dir. Climate Change)
		Sea level rise scenario project for West Coast District Coast	Sea level rise scenario project for Agulhas Coast	Sea level rise scenario project for West Coast District Coast	Sea level rise scenario project for Agulhas Coast				
		Climate change awareness and education		Climate change awareness and education					

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
OUTPUT 3: SUSTAINABLE ENVIRONMENTAL MANAGEMENT									
Sub-output 3.1 Degraded ecosystems rehabilitated & restored									
3.2 mha by 2014 of land rehabilitated and 160 rural development sites by 2014	Number of hectares cleared of invasive alien vegetation according to approved Working for Water Annual Plan of Operations.	Initial cleared: 40 000 hectares Follow-up cleared: 98 000 hectares	Initial cleared: 40 000 hectares Follow-up cleared: 98 000 hectares	Initial cleared: 40 000 hectares Follow-up cleared: 98 000 hectares	Initial cleared: 40 000 hectares Follow-up cleared: 98 000 hectares	31/03/2014	Programme Manager, Small Business Development, Manager Project Managers and Quality Controllers.	DWA – Working for Water funds R20M annually.	DWA – Working for Water – CapeNature (Western Cape) implementing Agent
Sub-output 3.2 Deforestation & improved forest management									
Net deforestation not by more than 5 woodlands by 2020	Develop plan to ensure environmental issues are integrated into land use planning and incorporated into national, provincial and municipal plans.	Develop credible Spatial Development Frameworks (SDFs).	Develop credible Spatial Development Frameworks (SDFs).	Develop credible Spatial Development Frameworks (SDFs).	Develop credible Spatial Development Frameworks (SDFs).	Continuous	Internal staff	Budgeted funding per year	DEA&DP WC – Dir. Spatial Development
		Evaluation of IDP's of municipalities.	Evaluation of IDP's of municipalities.	Evaluation of IDP's of municipalities	Evaluation of IDP's of municipalities	Evaluation of IDP's of municipalities.			DEA&DP Western Cape (Dir. Climate Change)
Sub-output 3.3 Less waste that is better managed									
75% house holds with basic waste collection by 2014	Full cost accounting by municipalities		Facilitate Municipal IWMPs	Assess 2nd generation municipal IWMPs that includes Solid Waste Management budgets		Assessment reports – March 2013	3 staff members in Waste Management Planning component of D: Waste Management	Compensation of 3 staff members	COGTA, Local government & DEA&DP Western Cape (Dir. Waste Management)
80% by 2015 of permitted landfill sites	Financing mechanism: Review of fiscal mechanism for the funding of waste services		Licensing Plan developed for Waste Management Sites						DEA&DP Western Cape (Dir. Waste Management)
25% by 2012 municipal waste diverted from landfills for recycling	Analysis of institutional within local governments		Assess and draft assessment report on 2nd generation municipal IWMPs	Assess and draft assessment report on 2nd generation municipal IWMPs	Compile Monitoring & Evaluation (M&E)/Annual Performance report on implementation of 2nd generation IWMPs	Assessment reports – March 2013; M&E (Annual Performance) Report – June 2013	3 staff members in Waste Management Planning component in D: Waste Management	Compensation of 3 staff members	COGTA, Local government & DEA&DP Cape (Dir. Waste Management)
	Capacity building for municipalities	Capacity building sessions: 4 x Integrated Waste Management Forums (IWMF) with municipalities; 3 x Landfill Operators Training Workshops; 3 x Monitoring & Evaluation Training; 1 x Waste	Capacity building sessions: 2 IWMP Workshops; 4 x I WMFs; 1 x Landfill Airspace Assessment Training; 1 x Health Care Waste Management (HCWM) Training	Capacity Building sessions: 4 x IWMF; 1 x Licensing		Annually	W. Cape DEA&DP Directorate Waste Management	As per MTEF	DEA&DP Western Cape (Dir. Waste Management)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
	Targets for waste minimisation and standards set by end 2010	Capacity building sessions: 4 x Integrated Waste Management Forums (IWMF) with municipalities; 3 x Landfill Operators Training Workshops; 3 x Monitoring & Evaluation Training; 1 x Waste Information Training; 4 x Waste Act Training	Capacity building sessions: 2 IWMP Workshops; 4 x IWMFs; 1 x Landfill Airspace Assessment Training; 1 x Health Care Waste Management (HCWM) Training	Capacity Building sessions: 4 x IWMF; 1 x Licensing		Annually	W. Cape DEA&DP Directorate Waste Management	As per MTEF	DEA DEA&DP Western Cape (Dir. Waste Management)
	Enhance energy potential of waste by harnessing gasses from landfill sites for energy generation	Without the necessary funding to conduct feasibility studies, DEA&DP cannot contribute towards this indicator. DEA&DP can however report on the total license applications received							DEA&DP Western Cape (Dir. Waste Management)
OUTPUT 4: BIODIVERSITY PROTECTED Sub-output 4.1 % Land mass under conservation									
9% Land mass under conservation by 2014	Declaration of priority areas for expansion of protected areas network (Provincial) – Including biodiversity stewardship	The maintenance of current 57 conservation stewardship sites (Contract Nature Reserves and Biodiversity Agreements) and 14 new stewardship sites.	The maintenance of current 71 conservation stewardship sites and 14 new stewardship sites.	The maintenance of current 85 conservation stewardship sites.	The maintenance of current 85 conservation stewardship sites.	3/31/14	The Biodiversity Stewardship Programme Manager and part. time secretary and the a portion of the time of the Corridor Programme manager contribute towards the Human Resources. Operational staff involved in Biodiverity – Stewardship in CapeNature (excluding the law and scientific support staff) amount to four staff members as full-time Stewardship negotiators, two contractual negotiators and another ten working on Stewardship in varying percentages of their full-time positions	These are the Salaries and Operational funding of the Biodiveristy Stewardship and partly the Corridor Programmes. To continue negotiating new Stewardship sites beyond 2012 CapeNature needs R16 000 000 for additional negotiating and maintenance staff. All of this is outlined in the CapeNature Protected Area Expansion Strategy.	CapeNature (Western Cape)

APPENDIX C: PROVINCIAL DELIVERABLES (continued)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
5 wetlands per year of national and international importance with management plans in place	Management plans for wetlands of international importance developed.	Management plans for one RAMSAR sites developed.	Management plans for one RAMSAR sites developed.	Management plans for one RAMSAR sites developed.		3/31/14	Funded	Funded	CapeNature (Western Cape)
CROSS-CUTTING SUB-OUTPUTS **Sub-output 1: Environmental legislation compliance and enforcement**									
	150 Environmental Management Inspectorate designated by 2011	Conduct training of Environmental Management Inspectors	Ten registered Environmental Management Inspectors in CapeNature.	Ten registered Environmental Management Inspectors in CapeNature.	Ten registered Environmental Management Inspectors in CapeNature.	Ten registered Environmental Management Inspectors in CapeNature.	3/31/14		R20 000 per participant CapeNature does not currently have funding available.
Sub-output 2: Environmental Sustainability									
	1 156 00 EPWP work opportunities and 325 652 FTEs (Full Time Equivalents) by 2014	Number of person days work created through a range of projects (n)	A total of 262 500 person days work created per year.	A total of 200 000 person days work created per year.	A total of 200 000 person days work created per year.	A total of 200 000 person days work created per year.	3/31/14	Internal Staff	DWA, SANBI, DEADP
OUTCOME 4: DECENT EMPLOYMENT THROUGH INCLUSIVE ECONOMIC GROWTH **OUTPUT 2 : MORE LABOUR ABSORBING GROWTH** **Sub-output 5: GREEN ECONOMY**									
Expanded Public Works Programme: scale up and expansion of Green Jobs opportunities through EPWP II to 1 156 00 EPWP work opportunities and 325 652 FTEs (Full Time Equivalents) by 2014	Implement environment sector programmes in Outcome 10: output 1, output 2, output 3, output 4 and cross-cutting	Participate in National programmes to implement EPWP.							DEA&DP (WC)
OUTCOME 10: PROTECTED AND ENHANCED ENVIRONMENTAL ASSETS AND NATURAL RESOURCES - MPUMALANGA ARD&LA **OUTPUT 1: QUALITY AND QUANTITY OF WATER RESOURCES ENHANCED** **Sub-output 1.2 Water resource protection**									
# number of wetlands rehabilitated per year (100 per year)	Implementation of working for wetlands programme through the rehabilitation of priority wetlands, development of rehabilitation plans	75 wetlands rehabilitated	85 wetlands rehabilitated	100 wetlands rehabilitated	120 wetlands rehabilitated	Mar-14	Rehabilitation teams in provinces, scientists and Project Managers	Estimated R70million per annum	SANBI, DEA AND LOCAL MUNICIPALITIES
# wetlands under formal protection (4 by 2014)	Identify wetlands of national importance and develop management plan	Criteria for listing of wetlands developed	Assessment of priority wetlands against criteria developed	Assessment of priority wetlands against criteria developed	Develop and implement management plans	3/1/14	Scientists, planners, conservation manager	R500 000/a	Conservation Authorities – implement plans

APPENDIX C: PROVINCIAL DELIVERABLES (continued)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
	Management plans for wetlands of international importance developed	Management plans for five RAMSAR sites developed	Management plans for five RAMSAR sites develop	Assessment of priority wetlands against criteria developed	Develop and implement management plans	3/1/14		R400 000/plan	DEA, Provinces
	Construction of gabions to control water flow flow and soil erosion	2 Wetlands rehabilitated, 2 dongas prevented from expanding,	2 Wetlands rehabilitated. 2 dongas prevented from expanding,	1 wetland rehabilitated	2 wetlands rehabilitated,	9/1/13	No additional human resources required	Additional financial resources required	DEA to appoint project implementers and monitor their performance
16 major rivers with healthy ecosysytem by 2014	Eco-classification of water resource systems	1 major river system meeting resource quality objectives	1 major river system meeting resource quality objectives	1 major river system meeting resource quality objectives	1 major river system meeting resource quality objectives	3/1/14			DWA, DEA
OUTPUT 2: REDUCED GREENHOUSE GAS EMISSIONS, CLIMATE CHANGE & IMPROVED AIR/ATMOSPHERIC QUALITY									
Sub-output 2.1: Reduced CO2 emmission									
Reduction of pollutants	The South African Air Quality Information System (SAAQIS) phase II completed by mid-2012;	20%of government owned monitoring stations reporting to SAAQIS by 2014	`	60% of government owned monitoring stations reporting to SAAQIS by 2014	80% of government owned monitoring stations reporting to SAAQIS by 2014	Mar-14	As per proposed structure (MPDEDET: Environmental Services)	Funding of proposed structure	DEA, MPDEDET
	The efficient and effective identification, development and implementation of Air Quality Management Plans for National Priority Areas (Highveld).	1 Highveld Priority AQMP developed	Highveld Priority AQMP's implemented	Provincial AQMP Developed	1 Provincial AQMP Implemented	3/1/14	As per proposed structure (MPDEDET: Environmental Services)	Funding of proposed structure	DEA, MPDEDET
Sub-output 2.4 Identified climate change and adaptation framework									
Climate change impacts identified and adaptation frameworks integrated into 12 national sectoral plans by 2012	*Climate adaptation sectors plans in place by 2012; Climate change adaptation plans rolled out to municipal sphere of government;	Draft Discussion document on Climate Change Response Strategy compiled	climate change mitigation strategy	Climate Change Response Strategy developed	Climate Change Response Strategy Implemented	Mar-14	As per proposed structure (MPDEDET: Environmental Services)	Additional financial resources required	DEA, MPDEDET
Sub-output 3.3 Less waste that is better managed									
80% by 2014 of permitted landfill sites	Capacity building for municipalities.	20% by 2011 of permitted landfill sites	40% by 2011 of permitted landfill sites	60% by 2011 of permitted landfill sites	80% by 2011 of permitted landfill sites	Mar-14	As per proposed structure (MPDEDET: Environmental Services)	Funding of proposed structure	National Treasury, COGTA, Provinces, Local Government, DEA

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
25% by 2012 municipal waste diverted from landfills for recycling	Targets for waste minimisation and standards set by end 2012 Enhance energy potential of waste by harnessing gasses from landfill sites for energy generation	5%	5%	5%	5%	Mar-14	As per proposed structure (MPDEDET: Environmental Services)	Funding of proposed structure	COGTA, Local government
Sub-output 3.5 Sustainable land use management									
Land use management is guided by EIAs, EMFs and SDF	Strengthen sustainability principles In land-use planning and growth as well as development plans at all levels	300 EIAs Evaluated and Authorised	600 EIAs Evaluated and Authorised	900 EIAs Evaluated and Authorised	1200 EIAs Evaluated and Authorised	Mar-14	As per proposed structure (MPDEDET: Environmental Services)	Funding of proposed structure	DRDLR and Relevant Provinces
	Environmental Management Framework/Strategic Environmental Assessment/ other strategic environmental planning projects initiated	2 EMFs Developed:	4 EMFs Developed:	6 EMFs Developed:	8 EMFs Developed:	Mar-14	As per proposed structure (MPDEDET: Environmental Services)	Funding of proposed structure	(1) DEA & provinces — manage EMF/SEA process & manage MOUs with Municipalities. (2) Municipalities: Participate in EMF/SEA process
Sub-output 4.1 % Land mass under conservation									
9% Land mass under conservation by 2014	Declaration of priority areas for expansion of protected areas network (Provincial) — Including biodiversity stewardship	10 000 ha per province	10 000ha per province	10 000 ha per province	10 000ha per province	Mar-14	Scientists, scenario planning and modeling experts, contract managers, GIS experts (Human resources current within Mpu comprises 2 posts and requires six posts over four years (therefore only 33% of HR resources met))	Provincial Environmental Departments and agencies to determine budgetary allocations (Partly funded. Additional finances required over Years 1 to 4: R 40 000 000 (for land purchase 20% of four year target and biodiversity stewardship 80% of four year target)	Provincial environmental departments and agencies to identify, acquire and declare priority areas for expansion
	Declaration of two botanical gardens	Potential site in Eastern Cape identified	Acquisition and proclamation	Potential site in Limpopo identified	Acquisition and proclamation	Mar-14	GIS Specialists, Scientists	Provincial Environmental Departments and agencies to determine budgetary allocations	SANBI-Identification and acquisition of the land. *DEA Proclamation of the land

APPENDIX C: PROVINCIAL DELIVERABLES (continued)

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
5 wetlands per year of national and international importance with management plans in place	Identify wetlands of national importance and develop management plans	Criteria for listing of wetlands developed	Assessment of priority wetlands against criteria developed	Assessment of priority wetlands against criteria developed	Develop and implement management plans	Mar-14	Scientists; planners; conservation managers	R500 000 per annum	DEA, SANBI, Working for Wetlands
	Management plans for wetlands of international importance developed	Management plans for five (5) RAMSAR sites developed	Management plans for five (5) RAMSAR sites developed	Management plans for five (5) RAMSAR sites developed	Management plans for five (5) RAMSAR sites developed	Mar-14	Wetlands Specialists	R400 000 per annum	DEA, Conservation Authorities
Sub-output 4.4 Valuing the ecosystem services									
Environmental costs related to the provision of resource-based services (a)Number of tools developed for the economic valuing of biodiversity and ecosystem services	Quantify the economic value of biodiversity and ecosystem services.		Initiate process to develop system	Develop and consult	Consultation and finalisation of system	3/1/14	Resource economist; Ecologists; Scientists; Economists	R500 000 per annum	DEA, SANBI, Conservation authorities, National Treasury
	Promote incentives for conservation and improved ecosystem protection	Initiate process	Finalise making the case for the value of biodiversity	Roll out	Roll out	3/1/14	Resource economist; Ecologists; Scientists;	R250 000 per annum Economists; Media & marketing	DEA, SANBI, Conservation authorities, National Treasury
Sub-output 1: Environmental legislation compliance and enforcement									
1 of dedicated Environmental Courts	Launch of the dedicated time for environmental crimes	Launch in Mpumalanga in September 2010 as a pilot project. The project to be reviewed after a year.	4 Environment cases attended to	8 Environment cases attended to	12 Environment cases attended to	Mar-14	As per proposed structure (MPDEDET: Environmental Services)	Funding of proposed structure	DEA, MPDEDET,DWA, DOJ&CD, DAFF,NDPP
22 designated Environmental Management Inspectors	Conduct training of Environmental Management Inspectors	16 designated Environmental Management Inspectors	22 designated Environmental Management Inspectors	22 designated Environmental Management Inspectors	22 designated Environmental Management Inspectors	Mar-14	As per proposed structure (MPDEDET: Environmental Services)	Funding of proposed structure	DEA, MPDEDET

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Sub-output 2: Environmental Sustainability									
Scaling up environmental education, awareness and voluntary activism	Climate change Awareness programme, Tree planting Programme, Greenest Municipality, Pre school water programme, environmental commemorative programme, Adopt a school yard programme, Adopt a Spot programme	7 Environmental awareness and education programmes and projects annually	7 Environmental awareness and education programmes and projects annually	7 Environmental awareness and education programmes and projects annually	7 Environmental awareness and education programmes and projects annually	Mar-14	As per proposed structure (MPDEDET: Environmental Services)	Funding of proposed structure	DEA, DST, Higher education,
	Implement and review annual Provincial targets	Implement Waste, Water, and Greening targets annually: Decade of Education for Sustainable Development (DESD) Provincial forum	Implement and review Waste, Water, and Greening targets annually: Decade of Education for Sustainable Development DESD) Provincial forum	Implement and review Waste, Water, and Greening targets annually: Decade of Education for Sustainable Development (DESD) Provincial forum	Implement and review Waste, Water, and Greening targets annually: Decade of Education for Sustainable Development (DESD) Provincial forum	Mar-14	As per proposed structure (MPDEDET: Environmental Services)	Funding of proposed structure	DEA
OUTCOME 10: PROTECTED AND ENHANCED ENVIRONMENTAL ASSETS AND NATURAL RESOURCES - NORTHERN CAPE DE&NC **OUTPUT 1: QUALITY AND QUANTITY OF WATER RESOURCES ENHANCED** **Sub-output 1.1: Water demand**									
									DWA
Sub-output 1.2 Water resource protection									
# wetlands under formal protection (4 by 2014)	Identify wetlands of national importance and develop management plan	Criteria for listing of wetlands developed	Assessment of priority wetlands against criteria developed	Assessment of priority wetlands against criteria developed	Develop and implement management plans	3/1/14	Scientists, planners, conservation manager	R500 000/a	Conservation Authorities – implement plans
	Management plans for wetlands of international importance developed	Management plans for five RAMSAR sites developed	Management plans for five RAMSAR sites develop	Assessment of priority wetlands against criteria developed	Develop and implement management plans	3/1/14	Managers, Field Rangers and General assistants	R400 000/plan	DEA, Provinces
OUTPUT 2: REDUCED GREENHOUSE GAS EMISSIONS, CLIMATE CHANGE & IMPROVED AIR/ATMOSPHERIC QUALITY									
Reduced total emmissions of CO2 by 34% reduction of "Business As Usual" by 2020 and 42% by 2025; 80% of government owned monitoring stations reporting to SAAQIS	GHGs identified as "Priority Pollutants" in terms of the Air Quality Act and mitigation plans submitted by end 2013;					Mar-14		R800 000 – R900 000 per annum from year 4 (Northern Cape)	DEA, Provinces, Local Government

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Sub-output 2.2: Atmospheric pollutants									
100% country-wide compliance with national Ambient Air Quality Standards by 2020	The efficient and effective identification, development and implementation of Air Quality Management Plans for National Priority Areas (Vaal Triangle Air-shed, Highveld and Waterberg)	(i) Vaal Triangle Air-shed Priority Area Air Quality Management Plan under full implementation, (ii) draft plan for the Highveld Priority Area developed and published for public comment and (iii) Minister's intention to declare the Waterberg Priority Area published	(i) Progress and review report compiled and published for the Vaal Triangle Air-shed Priority Area, (ii) Highveld Priority Area Air Quality Management Plan promulgated and (iii) Waterberg Priority Area problem analysis completed	(i) Vaal Triangle Air-shed Priority Area Air Quality management Plan updated, (ii) Highveld Priority Area Air Quality Management Plan under full implementation and (iii) Waterberg Priority Area Air Quality Management Plan published for public comment			Environmental officers	R800 000 – R900 000 per annum from year 4 (Northern Cape)	Provinces
The review, revision and implementation of the National Vehicle Emission Control Strategy								Environmental officers	DEA, Provinces, Local Government
Growing and developing the National Ambient Air Quality Monitoring Network and the South African Air Quality Information System (SAAQIS)								Environmental officers	DEA, Provinces, Local Government
Sub-output 2.3 Renewable energy deployed									
10 000 Gw/hours renewable energy production by 2014	Implementation of Industrial Policy Action Plan and green economy plan and strategy development	Adoption of the green economy strategy	Feasibility to be completed					Additional financial resources required (DENC Northern Cape)	Provinces
Sub-output 2.4 Identified climate change and adaptation framework									
Climate change impacts identified and adaptation frameworks integrated into 12 national sectoral plans by 2012	Climate change adaptation plans rolled out to provincial and municipal sphere of government;						Socio-economists, natural resource scientists	Additional financial resources required	Provinces, Local Government
OUTPUT 3: SUSTAINABLE ENVIRONMENTAL MANAGEMENT **Sub-output 3.1 Degraded ecosystems rehabilitated & restored**									
3.2 mha by 2014 of land rehabilitated and 160 rural development sites by 2014	x number of ha including rehabilitation on 25 CRDP Sites (wards)	x number including rehabilitation on 37 CRDP Sites (wards)	x number Including rehabilitation on 44 CRDP Sites (wards)	x number Including rehabilitation on 33 CRDP Sites (wards)	31/03/2010	HR Capacity already exist	All member departments of the CRDP Council of Stakeholders to commit funds towards the rehabilitation of land in rural areas	DRDLR, Relevant Provincial Government	

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Sub-output 3.3 Less waste that is better managed									
80% by 2015 of permitted landfill sites	Financing mechanism: Review of fiscal mechanism for the funding of waste services								National Treasury, COGTA, Provinces, Local Government, DEA
25% by 2012 municipal waste diverted from landfills for recycling	Capacity building for municipalities							Additional funds required – R500 000 per annum	DEA, Provinces, Local government
Sub-output 3.4 Management of environmental impacts from mining and related activities									
# of derelict and ownerless mines rehabilitated and closed in line with environmental best practice	Rehabilitation and remediation of land	25 wards	37 wards	44 Wards	33 Wards	Mar-14		All member departments of the CRDP Council of Stakeholders to commit funds towards the rehabilitation of land.	DRDLR, Relevant Provincial Government
National areas negotiated and published by 2015 identified for restricted mineral development	Comparison of "environmentally sensitive areas" and "mineral development priority areas	Mapping of environmentally sensitive areas	Mapping of "mineral development priority areas"	Negotiation between DMR and DEA to agree on "restriction areas" completed		Dec-12			DEA & Provinces map environmental sensitive areas
Integrated and coordinated regulatory system for environmental management of mining in place by 2012	Implementation of integrated system		Implementation plan developed	Implementation of new system		Jun-12			DMR, DEA and provinces as per implementation plan
Sub-output 3.5 Sustainable land use management									
Rural Municipalities with credible SDFs that are informed by approved strategic environmental assessments (SEA) or similar instruments: 4 Municipalities per annum; 25 Rural Municipalities per annum	25	25	25	25	Mar-14	HR capacity exist	Funded	DRDLR and Relevant Provinces	
	Environmental Management Framework/Strategic Environmental Assessment/ other strategic environmental planning projects initiated	(1) Finalise EMF/SEA strategy to prioritise municipalities for which EMF/SEA would be funded by environmental authority. (2) Initiate EMFs/SEAs for 4 municipalities	(1) Initiate EMFs/SEAs for 4 municipalities in accordance with strategy	(1) Initiate EMFs/SEAs for 4 municipalities in accordance with strategy	(1) Initiate EMFs/SEAs for 4 municipalities in accordance with strategy	Annually		R4 000 000 per annum	(1) DEA & provinces – manage EMF/SEA process & manage MOUs with Municipalities. (2) Municipalities: Participate in EMF/SEA process

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
	Environmental Management Framework/Strategic Environmental Assessment/other strategic environmental planning projects finalised/approved by MEC/Minister and relevant Mayor(s)	Finalise EMFs initiated for 4 municipalities	Finalise EMFs initiated for 4 municipalities	Finalise EMFs initiated for 4 municipalities	Finalise EMFs initiated for 4 municipalities	Annually		R4,000,000 per annum	(1) DEA & provinces – initiate EMFs & enter into MOUs with Municipalities. (2) Municipalities: Participate in EMF/SEA process
OUTPUT 4: BIODIVERSITY PROTECTED									
Sub-output 4.1 % Land mass under conservation									
9% Land mass under conservation by 2014	Declaration of priority areas for expansion of protected areas network (Provincial) – Including biodiversity stewardship	10 000 ha per province	10 000ha per province	10 000 ha per province	10 000ha per province	Mar-14	Scientists, scenario planning and modeling experts, contract managers, GIS experts (Human resources current within Mpu comprises 2 posts and requires six posts over four years (therefore only 33% of HR resources met)	Provincial Environmental Departments and agencies to determine budgetary allocations (Partly funded. Additional finances required over Years 1 to 4: R 40 000 000 (for land purchase 20% of four year target and biodiversity stewardship 80% of four year target)	Provincial environmental departments and agencies to identify, acquire and declare priority areas for expansion
	Declaration of two botanical gardens	Potential site in Eastern Cape identified	Acquisition and proclamation	Potential site in Limpopo identified	Acquisition and proclamation	Mar-14	GIS Specialists, Scientists	Provincial Environmental Departments and agencies to determine budgetary allocations	SANBI-Identification and acquisition of the land. *DEA Proclamation of the land
Minimum 20% of estuaries with full protection/partial protection by 2015									SANBI, DEA, DAFF, DWA, Provincial conservation authorities and Local Government
Sub-output 4.4 Valuing the ecosystem services									
Environmental costs related to the provision of resource-based services (a)Number of tools developed for the economic valuing of biodiversity and ecosystem services	Quantify the economic value of biodiversity and ecosystem services.		Initiate process to develop system	Develop and consult	Consultation and finalisation of system	3/1/14	Resource economist; Ecologists; Scientists; Economists	R500 000 per annum	DEA, SANBI, Conservation authorities, National Treasury

TARGET/INDICATOR	ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
		YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
	Promote incentives for conservation and improved ecosystem protection	Initiate process	Finalise making the case for the value of biodiversity	Roll out	Roll out	3/1/14	Resource economist; Ecologists; Scientists; Economists; Media & marketing	R250 000 per annum	DEA, SANBI, Conservation authorities, National Treasury
OUTCOME 10 CROSS-CUTTING SUB-OUTPUTS **Sub-output 1: Environmental legislation compliance and enforcement**									
150 Environmental Management Inspectorate designated by 2011	Conduct training of Environmental Management Inspectors	Designation of 150 trained Local government officials as EMI by MEC	NEMA to be amended to provide for Designation of EMIs by local authorities	Designation of EMIs functions carried out at local government level					DEA; COGTA;SALGA; local government; provinces
Sub-output 2: Environmental Sustainability									
1,156,00 EPWP work opportunities and 325 652 FTEs (Full Time Equivalents) by 2014									Provinces
OUTCOME 4: Decent Employment through Inclusive Economic Growth **OUTPUT:2 : MORE LABOUR ABSORBING GROWTH- SUBOUTPUT 5: GREEN ECONOMY**									
Expanded Public Works Programme: scale up and expansion of Green Jobs opportunities through EPWP II to 1 156 00 EPWP work opportunities and 325 652 FTEs (Full Time Equivalents) by 2014								Financial resources required (R1 000 000 – DENC Northern Cape	Provinces

ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
	YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
OUTCOME 10: PROTECTED AND ENHANCED ENVIRONMENTAL ASSETS AND NATURAL RESOURCES - LIMPOPO LEDET **OUTPUT 1: QUALITY AND QUANTITY OF WATER RESOURCES ENHANCED** **Sub-output 1.1: Water demand**								
Millbank Groundwater assessment	20%	40%	70%	100%	01/02/2014	Geohydrologists, Hydrologists,	Funded	DWA-Limpopo
Matlala Recharge project	30%	30%	90%	100%	01/02/2014	Geohydrologists, Hydrologists, Scientists	Funded	DWA-Limpopo
N'wamitwa and Muyexe groundwater studies	30%	60%	100%				Funded	DWA-Limpopo
Groundwater resource assessment of the Melinda fault region	25%	50%	70%	100%			Funded	DWA-Limpopo
Groundwater resource assessment of the Klein Tshipise fault	40%	60%	80%	100%			Funded	DWA-Limpopo
Groundwater monitoring network for Kruger National Park	50%	50%			2012		Funded at R1 500 000	DWA-Limpopo
Sub-output 1.2 Water resource protection								
River Health Programme	.	Sand, Mogalakwena and Nzhelele Rivers	Groot-Letaba, Middle Letaba Rivers	Luvhuvhu, Xingwedzi and Mutale Rivers	01/02/2010	Scientific and support staff	R1 500 000	DWA-Limpopo, LEDET
Sub-output 1.3 Regulation of water quality								
*Subject all water service authorities (WSAs) to Blue & Green Drop Assessments and consultative audits • Facilitate the implementation of World Health Organisation (WHO) best practices such as Water Safety plan at municipal level • Implement the electronic Green Drop System (GDS) • Implement Waste Risk Abatement programme • Raise the profile and awareness of drinking water quality and waste water services through the Blue and Green Drop programmes	4 water service authorities	8 water service authorities	16 water service authorities	20 water service authorities	01/02/2014	Hydrologists, Scientists, engineers, planners	Funded	DWA Limpopo, Water Service Authorities
• Subject Water Services Authorities to consultative Green Drop audits. • Advice on required improvements • Raise the profile of Wastewater services through Green Drop Awareness. • Implement the electronic Green Drop System (GDS) • Implement Wastewater Risk Abatement programme"	100%	100%	100%	100%	Annually	Hydrologists, Scientists, engineers, planners	Funded	DWA Limpopo, Water Service Authorities
Compliance monitoring as per water use license conditions	100% compliance monitoring	100% compliance monitoring	100% compliance monitoring	100% compliance monitoring	Annually	Law enforcement officers	Funded	DWA Limpopo, Water Service Authorities

ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
	YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
OUTPUT 2: REDUCED GREENHOUSE GAS EMISSIONS, CLIMATE CHANGE & IMPROVED AIR/ATMOSPHERIC QUALITY								
Sub-output 2.1: Reduced CO_2 emission								
Agreement on GHG mitigation targets for key sectors in line with Climate Change Policy;	Mitigation targets in the Limpopo Climate change response strategy being developed aligned with National Climate Change Policy.	Develop mitigation action plans against targets in the Agreement	Monitoring against mitigation targets in the Limpopo Climate Response Strategy being developed.	Monitoring against mitigation targets in the Limpopo Climate Response Strategy being developed	01/02/2013	Inadequate human resources	Funded	LEDET, District municipalities
Finalise White paper on Climate Change by the end of 2010, with related fiscal, legislative and regulatory package to be implemented by 2012, including GHG deviation from baseline numbers;	Participate in the DEA process	Participate in the DEA process	Implement Limpopo Climate Response Strategy developed in line with National Climate Change Policy	Implement Limpopo Climate Response Strategy developed in line with National Climate Change Policy	Strategy developed and completed by 2012	Inadequate human resources	Funded	DEA, LEDET, Transport, Health
The South African Air Quality Information System (SAAQIS) phase II completed by mid-2012;			Report on the SAAQIS system	Report on the SAAQIS system	Annually	Environmental officers, Scientists	Funded	LEDET, District municipalities
GHGs identified as "Priority Pollutants" in terms of the Air Quality Act and mitigation plans submitted by end 2013;		Priority pollutants identified in the air quality management plan of Limpopo	Implementation of the Limpopo Air Quality Management Plan	Implementation of the Limpopo Air Quality Management Plan	Air Quality plan finalised by 01/03/2013	Service providers, environmental officers	Funded	DEA, LEDET, District municipalities
Sub-output 2.2: Atmospheric pollutants								
The efficient and effective identification, development and implementation of Air Quality Management Plans for National Priority Areas (Vaal Triangle Air-shed, Highveld and Waterberg)	Minister and MEC's intention to declare the Waterberg Priority Area published	Waterberg Priority Area problem analysis completed	Waterberg Priority Area Air Quality Management Plan published for public comment	Implementation of the Waterberg Priority Area Air Quality Management Plan	Waterberg Priority Area Air Quality Management Plan COMPLETED BY 2013	Environmental officers, Scientists	Funded by DEA and LEDET	DEA, LEDET, Relevant Municipalities
The development and roll-out of a strategy to address air pollution in dense, low-income communities, including air pollution from the burning of dirty fuels (e.g. coal, paraffin and wood)	Integrated residential air pollution control strategy that coordinates and consolidates all relevant national department, provincial and municipal interventions submitted to Cabinet for approval	Interdepartmental pilot project/s launched within a key problem area within one of the National air pollution Priority Areas	Residential air pollution control case studies and associated municipal implementation guidelines published	Interdepartmental pilot project/s progress and review report compiled and published	12/1/2012 The impact of coordinated and integrated interdepartmental efforts fully analysed and reported by October 2013	Use of existing human resources	Use of current budget and the mobilisation of funds through appropriate industrial air pollution offset projects	DEA - overall coordination, ambient air quality monitoring and reporting and negotiation of industrial air pollution offset projects , provinces
The efficient and effective implementation of the new Atmospheric Emission Licensing system by the new Licensing Authorities (Provinces; and District Municipalities)	100% atmospheric emission licenses processed .	100% atmospheric emission licenses processed.	100% atmospheric emission licenses processed.	100% atmospheric emission licenses processed.	Annually	Inadequate human resources	Funded	LEDET, District municipalities
Growing and developing the National Ambient Air Quality Monitoring Network and the South African Air Quality Information System (SAAQIS)	Participate in the DEA process and report on SAAQIS	Participate in the DEA process and report on SAAQIS	Participate in the DEA process and report on SAAQIS	Participate in the DEA process and report on SAAQIS	Annually	Inadequate human resources	Funded	LEDET, District municipalities

ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
	YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
The development and roll-out of strategies and action plans to address air pollution from non-industrial and/or non-point sources (e.g. veld fires, construction activities, un-surfaced haul roads, etc.)	Develop an Air Quality management plan for Limpopo	Identify localities for ambient monitoring stations	Monitoring of ambient air quality	Monitoring of ambient air quality	Annually	Inadequate, to get service providers		Inadequate funding LEDET, District Municipalities
Sub-output 2.3 Renewable energy deployed								
Alignment and Implementation of Integrated Resource Plan	Approval of IRP2							LEDET
Sub-output 2.4 Identified climate change and adaptation framework								
Determine the ecological footprint on activities that impact on the natural environment	Analysis of ecological footprint of various activities.	Awareness raising on ecological footprint	Awareness raising on ecological footprint	Awareness raising on ecological footprint	1-Mar	Scientists, scenario planning and modelling experts, contract managers.	R1m/pa	Provincial environmental departments and agencies.
Development and implementation of the climate change strategy	Development of first Climate Change Response Strategy	Implementation of Climate Change Response Strategy	Implementation of Climate Change Response Strategy	Implementation of Climate Change Response Strategy	14-Mar	Scientists, scenario planning and modelling experts, contract managers, GIS experts	R1m/pa	Provincial environmental departments and agencies.
Sub-output 2.5 Efficient energy use								
Development of solar panels as a project funded through the LEGDP and green economy strategy	Procurement of services	Environmental Impact assessment s and feasibility studies undertaken	30% Implementation of the project	50% implementation of the project	01/02/2016	Service providers	Funded through the growth fund allocated to LEDET	LEDET, Premier's office, DTI, Department of Science and Technology, LIMDEV
OUTPUT 3: SUSTAINABLE ENVIRONMENTAL MANAGEMENT **Sub-output 3.1 Deforestation & improved forest management**								
Alien plants elimination and use as energy source (working for energy) and water preservation	Working for water projects implemented in 1 Nature Reserves	Working for water projects implemented in 2 Nature Reserves	Working for water projects implemented in 3 Nature Reserves	Working for water projects implemented in 4 Nature Reserves	Annually	Working for Water personnel	Inadequate funds	DEA, LEDET
Deforestation – Enhance energy services in rural areas and thereby reduce rate of deforestation	Project planning and assessment	assessment	Assessment	Implementation	Annually	Botanists, environmentalists	Funded	Department of Agriculture, LEDET
Reforestation (trees for carbon storage)-connect with climate change area	Launch of the Million Tress planting programme	Planting of a million trees per annum	Planting of a million trees per annum	Planting of a million trees per annum	Annually	Botanists, environmentalists	Not Indicated	Department of Agriculture, LEDET
Community based natural resource management	Implementation of the harvesting projects in communal Nature Reserves	Implementation of the harvesting projects in communal Nature Reserves	Implementation of the harvesting projects in communal Nature Reserves	Implementation of the harvesting projects in communal Nature Reserves	Annually	Environmental officers	Inadequate funding	LEDET, Kruger National Park

APPENDIX C: PROVINCIAL DELIVERABLES (continued)

ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
	YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Sub-output 3.2 Less waste that is better managed								
Quantification and characterisation of waste from cradle to grave to initiate the implementation of the waste information system.	Development of terms of reference and initiation of procurement for service providers.	Data collection from all districts in Limpopo	Completion of the quantisation, characterisation and modelling		1/03/2013	Waste management specialists, scientists, planners	Funded	LEDET, Local municipalities
Implementation of the Waste Information System	Capacity building on population of the waste information system	Establishment of a pilot project in Capricon on the population of the waste information system	Full implementation and population of the waste information system in all districts.	Full implementation and population of the waste information system in all districts.	Annually	Municipality environmental health officers	Inadequate funds	LEDET, Local municipalities
Capacity building for municipalities on waste minimisation and recycling	Development of a database on recycling facilities in Limpopo	Awareness workshops and supporting municipality with recycling.	Development of Resource materials on recycling and distribution.	50% entrenched of recycling in the municipalities	01/03/2015	Municipality environmental health officers	Funded	DTI, Indalo Yethu. Local Government, Municipalities, LEDET
Support of municipalities through targeted waste projects.	Implementation of the Makhuduthamaga waste collection projects	Implementation of the Makhado waste collection project.	Facilitate municipal waste quantification.		Annually	Scientists, Municipality environmental health officers	Inadequate funds	LEDET, Municipalities, service providers.
Development of a government consumption strategy	First Draft of the consumption strategy developed	Public participation and gazetting of the strategy and action plan.	Implementation of the strategy and action plan.	Implementation of the strategy and action plan.	Annual implementation of the strategy and action plan	Waste management specialists, scientists, planners	Funded Works, Agriculture	LEDET, Local municipalities, Health, Public
Sub-output 3.3 Management of environmental impacts from mining and related activities								
Environmental Management Programmes (EMPs) approved	100% of the received EMPs approved	100% of the received EMPs approved	100% of the received EMPs approved	100% of the received EMPs approved	Annually	Scientists, planners, environmental officers, GIS specialists	Funded	DMR and LEDET
Mining inspections conducted	200 mining inspection conducted	200 mining inspection conducted	200 mining inspection conducted	200 mining inspection conducted	Annually	Scientists, planners, environmental officers, GIS specialists	Funded	DMR and LEDET
Sub-output 3.4 Sustainable land use management								
Development of SDF for Rural Municipalities	25	25	25	25			Funded	DRDLR, COGTA and Planning commission develop legislation, LEDET
Environmental Planning integrated into NEW Spatial Planning and Land Use Management Act	Participation in law reform process	Participation in law reform process/effect agreed amendments to environmental legislation	Participation in law reform process/effect agreed amendments to environmental legislation	Participation in law reform process/effect agreed amendments to environmental legislation	1/1/12		Not funded by LEDET	DRDLR, COGTA and Planning commission develop legislation, LEDET

ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
	YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Environmental Management Framework/Strategic Environmental Assessment/ other strategic environmental planning projects initiated	EMF for Waterberg District finalises	EMF for Soutpansberg area initiated	EMF for Soutpansberg area completed & EMF for Vhembe District initiated	EMF for Vhembe District completed	Annually	Scientists, planners, environmental officers, GIS specialists	Funds not adequate. Relying on DEA for cofunding. R2 million per annum required.	LEDET, DEA and affected local authorities
EMF/SEA/Other integrated into Municipal SDF and SDF adopted by Minister/MEC	EMF for Olifants Letaba Rivers distributed to relevant local authorities	Integration of Olifants Letaba Rivers EMF into municipal SDFs	Integration of Waterberg EMF into municipal SDFs	Integration of Soutpansberg into municipal SDFs	30/02.2013	Scientists, planners, environmental officers, GIS specialists	Not indicated	LEDET and local authorities
Applications for environmental impact assessment (EIA) processed.	100% of EIA applications processed.	100% of EIA applications processed.	100% of EIA applications processed.	100% of EIA applications processed.	Annually	50% vacancy rate currently. 54 officials of Scientists and planners	R8,7 million per annum	LEDET, DEA and affected local authorities
OUTPUT 4. BIODIVERSITY PROTECTED								
Sub-output 4.1 % Land mass under conservation								
Evaluate management effectiveness of nature reserves in the province	Evaluate management effectiveness of 12 nature reserves per year	of 12 nature reserves per year	Evaluate management effectiveness of 12 nature reserves per year	Evaluate management effectiveness of 12 nature reserves per year	Evaluate management effectiveness	3/1/14 and modelling experts, contract managers, GIS experts	Scientists, scenario planning	Funded - R300 000.00 LEDET
Implementation of stewardship programme and expansion in order to increase the protected areas network	Secure two stewardship sites per year and implement projects in areas identified for expansion	Secure two stewardship sites per year and implement projects in areas identified for expansion	Secure two stewardship sites per year and implement projects in areas identified for expansion	Secure two stewardship sites per year and implement projects in areas identified for expansion	3/1/14	Scientist, lawyers, negotiators, scenario planning, development economists	Current funding us inadequate The following funds are required 2010 – 11: R1 554; 2011 – R12,2 mil; 2012 – R2,5 mil; 2013: R3 mil; 2014: R4 mil for master plans and basic infrastructure.	LEDET
Declaration of priority areas for expansion of protected areas network (Provincial)	Declare three protected areas	Declare three protected area	Declare three protected area	Declare three protected area	3/1/14	Scientists, scenario planning and modelling experts, contract managers, GIS experts	2010 – 11: 250 000; 2011 – 300 000; 2012 – 400 000; 2013 – 500 000; 2014 for survey of protected areas and gazetting	LEDET
Update the register by adding information of 20 privately owned protected areas	Update the register by adding information of 20 privately owned protected areas	Update the register by adding information of 20 privately owned protected areas	Update the register by adding information of 20 privately owned protected areas	Update the register by adding information of 20 privately owned protected areas	3/1/14	GIS Specialists, Scientists	R200 000 per year for transport	LEDET
Secure funding for expansion projects	Secure funding for one expansion project	Secure funding for one expansion project	Secure funding for one expansion project	Secure funding for one expansion project	3/1/14	Project Manager, negotiators, extension staff, scientists, planners	R250 000 per year for meetings, transport and accommodation of officials	LEDET

APPENDIX C: PROVINCIAL DELIVERABLES (continued)

ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
	YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Sub-output 4.2 Reduced Climate Change impacts on biodiversity								
Determine the ecological footprint on activities that impact on the natural environment	Analysis of ecological footprint of various activities.	Awareness raising on ecological footprint	Awareness raising on ecological footprint	Awareness raising on ecological footprint	1-Mar	Scientists, scenario planning and modelling experts, contract managers.	R1 million per annum	Provincial environmental departments and agencies.
Development and implementation of the climate change strategy	Development of first Climate Change Response Strategy	Implementation of Climate Change Response Strategy	Implementation of Climate Change Response Strategy	Implementation of Climate Change Response Strategy	14-Mar	Scientists, scenario planning and modelling experts, contract managers, GIS experts	R1 million per annum	Provincial environmental departments and agencies.
Sub-output 4.3 Protected ecosystems and species								
Developing Biodiversity management plans for species	2 species biodiversity management plans developed and implemented	2 species biodiversity management plans developed and implemented	2 species biodiversity management plans developed and implemented	2 species biodiversity management plans developed and implemented	Mar-14	Species specialists	R200 000 per species plan	DEA, SANBI, LEDET
Amending TOPS lists based on specific criteria	Alien and Invasive Species (AIS) Regulations finalised	National strategy and action plan for AIS developed AIS Risk assessment Framework finalise	National strategy for AIS implemented	National strategy for AIS implemented	3/1/14	AIS specialists & Risk assessment specialists EMIs	Current funding inadequate Estimated costs to be confirmed through costing of National Strategy	DEA, DAFF, DWA, SANBI, LEDET
Develop and implement regulations and tools to prevent, control or eradicate Alien and Invasive Species	Alien and Invasive Species (AIS) Regulations finalised	National strategy and action plan for AIS developed AIS Risk assessment Framework finalised	National strategy for AIS implemented	National strategy for AIS implemented	3/1/14	AIS specialists & Risk assessment specialists EMIs	Current funding inadequate Estimated costs to be confirmed through costing of National Strategy	DEA, DAFF, DWA, SANBI,LEDET
Habitat loss reduced through protection of threatened or protected ecosystems	Criteria for listing of ecosystems developed	List of threatened or protected ecosystems	Threatening processes/activities in ecosystems identified and regulated in terms of NEMA	Enforcement of NEMA	3/1/14	Ecosystem specialists - especially in terms of the functioning of ecosystems (dynamics of ecosystems) and threatening processes affecting ecosystems Enforcement resources		DEA, Provinces, SANBI
Identify wetlands of national importance and develop management plans	Criteria for listing of wetlands developed	Assessment of priority wetlands against criteria developed	Assessment of priority wetlands against criteria developed	Develop and implement management plans	3/1/14	Scientists, planners, conservation manager	R500 000/a	Conservation Authorities - implement plans
Management plans for wetlands of international importance developed	Management plans for five RAMSAR sites developed	Management plans for five RAMSAR sites develop	Assessment of priority wetlands against criteria developed	Develop and implement management plans	3/1/14	Scientists, planners, conservation manager	R400 000/plan	Conservation Authorities - implement plans

APPENDIX C: PROVINCIAL DELIVERABLES (continued)

ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
	YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Regulate restricted activities pertaining to wildlife flora and fauna export, imports, hunting and research.	Authorise possession,translocation, hunting and research on listed species of wildlife flora and fauna	Authorise possession,translocation, hunting and research on listed species of wildlife flora and fauna	Authorise possession,translocation, hunting and research on listed species of wildlife flora and fauna	Authorise possession,translocation, hunting and research on listed species of wildlife flora and fauna	Annually	Scientists, planners, conservation manager	Funded	LEDET, DEA
Sub-output 4.4 Valuing the ecosystem services								
Quantify the economic value of biodiversity and ecosystem services.	Identify scope of project, ToR and tools	Appoint service provider for development	Develop and consult	Consult and finalise	3/1/14	Scientists, resource economists, project manager	R500 000/a	Conservation Authorities - implement plans
CROSS-CUTTING SUB-OUTPUTS								
Sub-output x1: Environmental legislation compliance and enforcement								
Environmental crimes reduced	100% of investigations of all reported complains and cases finalised	100% of investigations of all reported complains and cases finalised	100% of investigations of all reported complains and cases finalised	100% of investigations of all reported complains and cases finalised	Annually	70% vacancy for environmental management inspector.	Funded	LEDET
Environmental Management Inspectors training conducted	50 Environmental Management Inspectors (EMIs) trained	50 Environmental Management Inspectors (EMIs) trained	50 Environmental Management Inspectors (EMIs) trained	50 Environmental Management Inspectors (EMIs) trained	Annually	Existing personnel trained	Funded	LEDET
Construction of a Holding Facility for confiscated animals	Environmental Authorisation granted	Phase 1 of the facility completed	Phase 2 of the facility completed	Phase 3 of the facility completed	31/03/2014	Service providers in the construction industry to be Contractors to be appointed.	Estimated R40 000 000 required.Funds not available for this project.	LEDET
Sub-output x2: Environmental Sustainability								
Development of the Green economy strategy	Research done on appropriate terms of reference and initiation of procurement processed for service providers.	Development of the Green economy strategy.	Development of an action plan and Sourcing of funds for the initiation of projects in the green economy strategy	Implementation of the Green Economy strategy	31/03/2014	Personnel in the Office of the premier	Funded by Office of the Premier	Office of the Premier, LEDET, Transport, Local Government and Housing, Agriculture
LISSOER competition and eco-schools implemented in 400 schools.	80	160	260	400	31/03/2014	Environmental empowerment officers, Scientists	Funded	LEDET
Municipalities registered for the Greening competition	All local municipalities participating in the Greening competition	All local municipalities participating in the Greening competition	All local municipalities participating in the Greening competition	All local municipalities participating in the Greening competition	Annually	Environmental empowerment officers, Scientists	Funded	LEDET
Implementation of the Unesco MaB programme registered Biosphere reserves facilitated	Implementation of the Kruger to Canyon and Waterberg Biosphere reserve management plans implemented and monitored for compliance	Implementation of the Kruger to Canyon and Waterberg Biosphere reserve management plans implemented and monitored for compliance	Implementation of the Kruger to Canyon and Waterberg Biosphere reserve management plans implemented and monitored for compliance	Identification and registration of a third Biosphere reserve in Limpopo.	2014 March	Environmental empowerment officers, Scientists	Funded	LEDET, Kruger to Canyon Biosphere reserve, Waterberg Reserve, DEA

APPENDIX C: PROVINCIAL DELIVERABLES (continued)

ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
	YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
Environmental Calender Days implemented	5 Environmental calender days implemented.	5 Environmental calender days implemented.	5 Environmental calender days implemented.	5 Environmental calender days implemented.	Annually	Environmental empowerment officers, Scientists	Funded	LEDET, Kruger to Canyon Biosphere reserve, Waterberg Reserve, DEA
OUTCOME 10: PROTECTED AND ENHANCED ENVIRONMENTAL ASSETS AND NATURAL RESOURCES - NORTH WEST DACERD **OUTPUT 3: SUSTAINABLE ENVIRONMENTAL MANAGEMENT** Sub-output 3.5 Sustainable land use management								
EMF/SEA/Other integrated into Municipal SDF and SDF adopted by Minister/MEC	Integration of the following EMFs in municipal SDFs (Rustenburg, Tlokwe, Siyanda, Emakhazeni, Nelson Mandela Bay) development of SDF guidelines.	Finalise 4 SDF integration	Finalise 4 SDF integration	Finalise 4 SDF integration	Annually			COGTA/DRDLR facilitate integration process; municipalities adopt EMFs, Minister/MEC environment adopt SDF as "environmentally informed spatial instrument"
OUTCOME 4: DECENT EMPLOYMENT THROUGH INCLUSIVE ECONOMIC GROWTH **OUTPUT:2 : MORE LABOUR ABSORBING GROWTH- SUB-OUTPUT 5: GREEN ECONOMY** Sub-output X 2 Environmental sustainability								
Scaling up expansion and implementation of environmental sector EPWP (land care, working for water, working for wetlands, working on fire, working on waste, working on energy, working for fisheries, working for woodlands)	Kwarriekraal	Kwarriekraal	Kwarriekraal				R 500 000 (30 Jobs)	NW DACERD
	Kaakdoringlaagte	Kaakdoringlaagte	Kaakdoringlaagte				R200 000 (30 Jobs)	NW DACERD
	Uitlanderskraal Chemical Bush Control	Uitlanderskraal Chemical Bush Control	Uitlanderskraal Chemical Bush Control				R800 000 (11 Jobs)	NW DACERD
	Tseoge Morafe Range Bush Control	Tseoge Morafe Range Bush Control	Tseoge Morafe Range Bush Control				R1 250 000 (50 Jobs)	
	Tshidilamolomo-Logageng Weeds and Alien Invasive Plants Control Project	Tshidilamolomo-Logageng Weeds and Alien Invasive Plants Control Project	Tshidilamolomo-Logageng Weeds and Alien Invasive Plants Control Project				R650 000 (61 Jobs)	
	Driehoek Landcare Project	Driehoek Landcare Project	Driehoek Landcare Project				R600 000 (20 Jobs)	NW DACERD
	Barokologadi CPA	Barokologadi CPA	Barokologadi CPA				R1 282 750 (30 Jobs)	NW DACERD
	Seleke Vegetables	Seleke Vegetables	Seleke Vegetables				R450 000 (20 Jobs)	NW DACERD
	Bojanala Mechanisation	Bojanala Mechanisation	Bojanala Mechanisation				R500 000 (120 Jobs)	NW DACERD
	Cokonyane Veld Improvement	Cokonyane Veld Improvement	Cokonyane Veld Improvement				R1 959 048(30 Jobs)	NW DACERD

APPENDIX C: PROVINCIAL DELIVERABLES (continued)

ACTIVITIES	MILESTONES/DELIVERABLES				TIME (COMPLETED BY)	RESOURCE REQUIREMENTS		ROLES AND RESPONSIBILITIES
	YEAR 1	YEAR 2	YEAR 3	YEAR 4		HUMAN RESOURCES	FINANCIAL RESOURCES	
	Kgomotso Veld Improvement	Kgomotso Veld Improvement	Kgomotso Veld Improvement				R850 000 (15 Jobs)	NW DACERD
	Morokweng Veld Improvement	Morokweng Veld Improvement	Morokweng Veld Improvement				R1 959 048 (25 Jobs)	NW DACERD
	Ghaapseberg South Veld Improvement	Ghaapseberg South Veld Improvement	Ghaapseberg South Veld Improvement				R1 183 706 (20 Jobs)	NW DACERD
	Lower Majeakgoro Veld Improvement	Lower Majeakgoro Veld	Lower Majeakgoro Veld Improvement	Improvement			R850 000 (15 Jobs)	NW DACERD
	Rosenhof	Rosenhof	Rosenhof				R1 500 000 (10 Jobs)	NW DACERD
	Stoffelshoek	Stoffelshoek	Stoffelshoek				R1 500 000 (10 Jobs)	NW DACERD
	Livestock Water Program	Livestock Water Program	Livestock Water Program				R5 000 000 (30 Jobs)	NW DACERD
	Seven Season CPA	Seven Season CPA	Seven Season CPA				R800 000 (2 Jobs)	NW DACERD
	Oblate CPA Layers	Oblate CPA Layers	Oblate CPA Layers				R550 000 (2 Jobs)	NW DACERD
	Boikhutso Water Reticulation	Boikhutso Water Reticulation	Boikhutso Water Reticulation				R389 100 (10 Jobs)	NW DACERD
	Boikhutsong Water Reticulation	Boikhutsong Water Reticulation	Boikhutsong Water Reticulation				R389 100	NW DACERD
	Masibi Agricultural Cooperative	Masibi Agricultural Cooperative	Masibi Agricultural Cooperative				R500 000 (10 Jobs)	NW DACERD
	Nkotswe Family	Nkotswe Family	Nkotswe Family				R550 000 (9 Jobs)	NW DACERD
	Cokonyane Sekai Farm	Cokonyane Sekai Farm	Cokonyane Sekai Farm				R700 000 (6 Jobs)	NW DACERD
	Open Area Development cc.	Open Area Development cc.	Open Area Development cc.				R700 000 (12 jobs)	NW DACERD