GENERAL NOTICE

NOTICE 435 OF 2001

DEPARTMENT: MINERALS AND ENERGY

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

PUBLICATION OF ENVIRONMENTAL MANAGEMENT PLAN UNDER SECTION 15(2)(b) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998)

I, Sandile Nogxina, hereby publish in terms of section 15(2)(b) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), the First Edition Environmental Management Plan of the Department: Minerals and Energy for adoption with effect from this date of publication.

S. NOGXINA
Director-General, Department: Minerals and Energy

Department: Minerals and Energy

First Edition

Environmental Management Plan

Compiled in terms of section 11(2) of the National Environmental Management Act, 1998 (Act No. 107 of 1998)

REPUBLIC OF SOUTH AFRICA
February 2001

TABLE OF CONTENTS

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- Mrs Elize Swart, Deputy Director: Mine Rehabilitation, who was responsible for gathering the baseline information, research and compilation of the EMP.
- Messrs A Clark and HD Naudé, Director and Deputy Director: Mine Rehabilitation, who was responsible for the co-ordination and finalisation of the EMP.
- Mr Sandile Tyatya, Director: Integrated Energy Planning, who was responsible for the co-ordination of the input received from the Energy Branch of the D: ME.
- Mr A Eagar, Chief Directorate: Communication of the D: ME, who assisted with the final editing of the EMP.

ACRONYMS AND GLOSSARY

CEC	Committee for Environmental Co-ordination in terms of NEMA
Constitution	Constitution of the Republic of South Africa, 1996 (Act No 108 of 1996)
UN CSD	United Nations Commission for Sustainable Development
D: EAT	Department: Environmental Affairs and Tourism
Director-General	Director-General of the Department: Minerals and Energy
D: ME	Department: Minerals and Energy
D: WAF	Department: Water Affairs and Forestry
EIP/EMP (NEMA)	Environmental Implementation and Management Plans as required in terms of NEMA, 1998
EMP	Environmental Management Programme as required in terms of section 39 of the Minerals Act, 1991
EMPRs	Environmental Management Programme Reports
EMEM Awards	Excellence in Mining Environmental Management Award System
IEM	Integrated Environmental Management as prescribed in terms of NEMA, 1998 and guidelines as published by the D: EAT from time to time.
MEM Series	Mining Environmental Management Series of Guidelines
NEMA	National Environmental Management Act, 1998 (Act No 107 of 1998)
NER	National Electricity Regulator
NECSA	South African Nuclear Energy Corporation
NCCC	National Committee on Climate Change
NNR	National Nuclear Regulator
UNFCCC	United Nations Framework Convention on Climate Change

CHAPTER 1

PURPOSE AND OBJECTIVES OF THE ENVIRONMENTAL MANAGEMENT PLAN (EMP)

1.1 CO-OPERATIVE GOVERNANCE AND INTEGRATION

With the promulgation of the National Environmental Management Act (NEMA), 1998 (Act No 107 of 1998), national and provincial departments which are listed in Schedules 1 and 2 of NEMA, 1998, are required to prepare Environmental Implementation Plans (EIPs) and/or Environmental Management Plans (EMPs) within one year of the promulgation of NEMA and at least every four years thereafter. NEMA, 1998 divides national Government departments into Schedule 1 or Schedule 2 departments. Schedule 1 departments are required to prepare EIPs as these departments exercise functions, which may affect the environment. Schedule 2 departments are required to prepare EMPs as these departments exercise functions that involve the management of the environment.

The Department: Minerals and Energy (D: ME) falls within the ambit of the Schedule 2 departments hence a First Edition EMP must be submitted by the D: ME to the Committee for Environmental Co-ordination (CEC).

The purpose of an EMP, as contemplated in section 12 of the NEMA, 1998 is to:

- Give effect to the principles of co-operative governance as contemplated in Chapter 3 of the Constitution.
- Co-ordinate and harmonize the environmental policies, plans, programmes and decisions of the various national departments that exercise functions that may affect the environment, or are entrusted with powers and duties aimed at the achievement, promotion and protection of a sustainable environment in order to minimize the duplication of procedures and functions and to promote consistency in exercising of functions that may affect the environment.
- Secure the protection of the environment.
- Enable the Minister of Environmental Affairs and Tourism to, as the lead agent for the environment, monitor the achievement, promotion and protection of a sustainable environment.

1.2 IMPLEMENTATION OF THE RIGHTS IN THE CONSTITUTION, WHICH RELATE TO THE ENVIRONMENT

Apart from complying with the requirements for co-operative governance in terms of the NEMA, 1998, it is also the D: ME's responsibility to give effect to the many rights in the Constitution that relate to the environment. These include rights relating specifically to the environment, as well as

those relating to governance, including the legal standing of parties, administrative justice, accountability and public participation. Specifically relating to the environment, section 24 of the Constitution provides that:

"Everyone has the right:

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

(b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that –

(i) prevent pollution and ecological degradation;

(ii) promote conservation; and

(iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development".

Section 8 of the Bill of Rights binds Government to give effect to the environmental rights described in section 24. In this regard, Government must make laws that prevent pollution and damage to the environment, promote conservation and balance economic, social and environmental development.

A National Consultative Forum on Human Rights has been convened by the Minister of Justice to develop a strategy for the implementation, monitoring and reporting of progress made with regard to the application and implementation of the Bill of Rights. Government departments, commissions and offices responsible for the implementation of these human rights must report periodically on progress made.

1.3 RELATIONSHIP WITH THE ANNUAL NATIONAL REPORT ON SUSTAINABLE DEVELOPMENT TO THE UNITED NATIONS COMMISSION FOR SUSTAINABLE DEVELOPMENT

One of the objectives of the United Nations Commission for Sustainable Development (UN CSD) is to develop tools to measure progress towards sustainable development for all countries. A sustainable development indicator programme has been established by the UN CSD to create a viable and flexible system for monitoring progress on sustainable development, strategies, policies and activities. Regular reporting is, however, required from countries to assist the UN CSD in their assessment and evaluation of the usefulness of the indicator programme in this regard.

The Department: Environmental Affairs and Tourism (D: EAT), as the lead agent for the environment in South Africa, is responsible for providing the UN CSD with an annual report on sustainable development. Many countries in the world have already developed strategies for the implementation of Agenda 21, mainly through structures such as national councils for

sustainable development. Information is, however, lacking for the development of a South African National Strategy for Sustainable Development (NSSD). D: EAT has therefore, requested Government departments represented on the CEC, to provide additional information on sustainable indicators within their EIPs and EMPs, that will assist in the annual reporting process (refer to Figure 1) to the UN CSD on progress made with the implementation of Agenda 21. An assessment of the compliance and performance of D: ME's policies, plans and programmes to the NEMA principles and objectives of sustainable development are therefore provided in Chapter 8 and Appendix A.

With regard to the development of a South African National Strategy for Sustainable Development (NSSD), D: EAT has indicated how it intends to link the information obtained in the EIPs and EMPs to the annual report to the UN CSD and the development of an NSSD for South Africa.

According to Figure 1:

1. Information obtained in the EIPs and EMPs will be used as baseline documents for the compilation of an annual report to the UN CSD.
2. Information obtained from the EIPs, EMPs and the annual reports will be consolidated to develop an NSSD Discussion Document.
3. The NSSD Discussion Document will be subject to a public consultation process where a framework document and Table of Contents will be finalized for the NSSD.

4 and 5. A first draft NSSD Document will be produced which will go through another consultation process with authorities and other stakeholders.

6. National environmental priorities and sustainable development indicators will then be refined.

7 and 8. A final version of the NSSD will be produced which must be implemented. Through the submission of EIPs and EMPs, D: ME will also be monitored for compliance with the NSSD and its performance in this regard.

FIGURE 1: PROPOSED ANNUAL REPORTING PROCESS TO UNITED NATIONS COMMISSION FOR SUSTAINABLE DEVELOPMENT

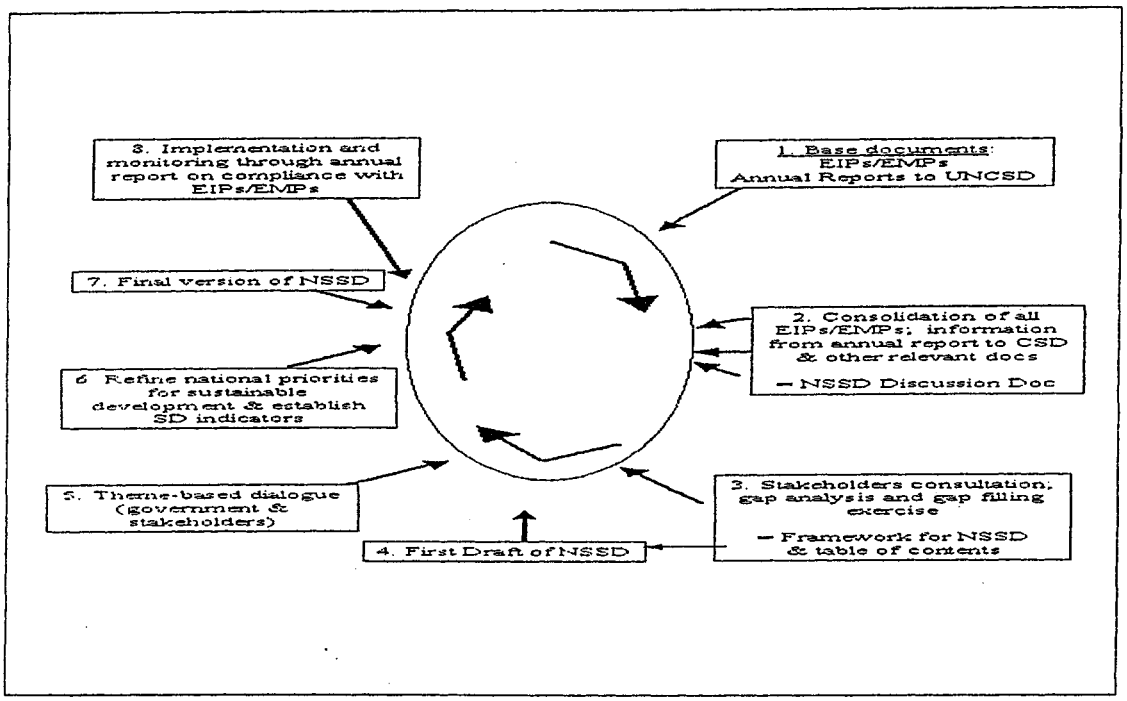
Abbreviations:

EIPs/EMPs = Environmental Implementation and Management Plans in terms of NEMA, 1998

UN CSD = United Nations Commission on Sustainable Development

NSSD = National Strategy for Sustainable Development

SD indicators = Sustainable development indicators



1.4 EVALUATION CRITERIA FOR EMPs

The D: ME's EMP has been drafted to provide the applicable information required in the evaluation criteria for EMPs (refer to Appendix B).

- The D: ME's mandate, policies, functions, laws and standards are described in Chapters 3, 4, 5 and 6 of this document. The mechanisms/actions measuring compliance are also provided.
- Structures for co-operation with Government departments and other role players are described in Chapter 7.
- Chapter 9 describes the extent of integration and alignment with the objectives of Integrated Environmental Management, other requirements in NEMA, 1998, and other applicable national norms and standards.

- The extent of the D: ME's compliance and performance with the NEMA principles have been described in Chapter 8 and a comprehensive assessment thereof is provided in Appendix A of this document.
- Item 1.3 in Chapter 1 also describes the linkage to the annual National Report on Sustainable Development to the UN CSD and the applicable information with regard to compliance and performance indicators is provided in Chapter 8 and Appendix A of this document.

CHAPTER 2

GOVERNMENT'S PRIORITIES RELEVANT TO MINERAL AND ENERGY DEVELOPMENT

2.1 MINERALS AND MINING

With regard to minerals and mining, Government's priorities, as contained in the *White Paper for a Minerals and Mining Policy for South Africa,* published in October 1998, should be seen within the context of the past mining history of South Africa, where previously disadvantaged individuals were not allowed to participate fully, except as labourers, in the mining industry. This adopted policy on minerals and mining is, *inter alia,* focused and committed to redress the results of past discrimination and to ensure that the following priorities be implemented:

2.1.1 That South Africa's mineral resources be seen as the common heritage of all South Africans and are part of our patrimony where the State will act as the custodian of mineral resources, having the right to exercise full and permanent sovereignty over these resources.

2.1.2 That Government creates a stable macro-environment that supports economic development at national, provincial and local level and in which business, subject to appropriate regulation, can operate profitably, be internationally competitive and satisfy shareholder's and employees' expectations. In addition, Government will facilitate access to business opportunities and resources to those previously excluded, including helping equip such individuals/groups with the necessary skills to enable them to compete effectively in the market place.

2.1.3 That Government ensures that the essential development of the country's mineral resources will take place within a framework of sustainable development and in accordance with national environmental policy, norms and standards and that the following principles are adhered to:

- Compliance with a single national environmental policy and governance within a framework of co-operative governance.
- During decision-making, a risk-averse and cautious approach will be followed which includes the consideration of the "no go" option.
- The polluter-pays principle will be applied in the regulation and enforcement of environmental management.
- A consistent standard of environmental impact management will be applied and maintained irrespective of the scale of the mining operation.

- Equitable and effective consultation with interested and affected parties will be undertaken pro-actively to ensure public participation in the decision-making process. The *audi alteram partem* (hear the other side) rule shall apply to all decision-making.
- Mining companies will be required to comply with local development objectives, spatial development framework and integrated development planning of the local authorities.
- The principles of Integrated Environmental Management (IEM) will be applied.
- Capacity building will be undertaken to effectively implement environmental management measures and monitor compliance.
- Multiple land use will be adhered to in planning decisions, and contending options will be assessed and prioritized on economic, social and environmental grounds.
- A culture of waste minimization, recycling and re-use will be promoted.
- Problem areas in environmental management will be identified with a view to co-ordinate research.

2.1.4 That Government addresses past racial inequities by ensuring that those previously excluded from participating in the mining industry, gain access to mineral resources or benefit from the exploitation thereof.

2.1.5 That Government takes reasonable legislative and other measures to foster conditions conducive to mining, which will enable entrepreneurs to gain access to mineral resources on an equitable basis.

2.1.6 That Government encourages and facilitates the sustainable development of small-scale mining in order to ensure the optimal exploitation of small mineral deposits and to enable this sector to make positive contributions to the national, provincial and local economy. In this regard, a National Small-scale Mining Development Framework has been developed to assist first-time small-scale mining entrepreneurs to overcome constraints facing initial development. A National Steering Committee of Service Providers to the small-scale mining sector was established. The D: ME made funds available for use in terms and on conditions determined by the Steering Committee in order to implement small-scale mining pilot projects. The Steering Committee works together with the Regional Regulatory Committees of local role-players, in order to stimulate the development of sustainable small-scale miners in the respective provinces. The Steering Committee and the Regional Regulatory Committees together form the National Small-scale Mining Development Framework. The Steering Committee has received seven (7) applications from the Regional Regulatory

Committees. The Steering Committee has commissioned the production of video lectures in order to educate small-scale miners in various aspects of small-scale mining such as environmental management, health and safety precautions, mining methods etc.

2.1.6 That Government undertakes and promotes research, technology development and technology transfer that will stimulate the optimal development of the country's resources and ensure that the industry remains competitive.

2.1.7 That Government encourages changes leading to equity of opportunity in respect of access to ownership and management of the mining industry.

2.1.8 That Government promotes healthy and safe working conditions at all mines and, in accordance with national health policies, ensure that mines deal humanely with the health consequences of work in the mining industry.

2.1.9 That Government encourages, supports and facilitates resource development in the mining and mineral industry.

2.1.10 That Government creates a framework to facilitate a productive and non-adversarial approach to industrial relations and ensure that minimum standards apply to work in mining.

2.1.11 That Government endeavours to ameliorate the social consequences of sizable downscaling and mine closure.

2.1.12 That Government encourages co-operation on mineral and mining matters among the countries of the southern African region and base that co-operation on the principle of mutual benefit.

2.1.13 That regulatory and promotional activities of Government be conducted in a transparent and efficient manner in carrying out its brief to manage the development of South Africa's mineral resources, and to regulate the mineral industry to meet national objectives and bring optimum benefit to the nation.

2.2 ENERGY

With regard to energy, Government's priorities are contained in the *White Paper on the Energy Policy of the Republic of South Africa* as published on 17 December 1998, and include the following:

2.2.1 To ensure secure access to a balanced mix of alternative energy resources for all people over the long term.

2.2.2 To promote increased access to affordable electricity services and to satisfy the basic needs of our people with regard to security of supply, affordability by domestic and commercial users, efficiency and equitable access in support of the principles in the White Paper.

2.2.3 To improve energy governance and the effectiveness of the energy industry by consolidating fragmentation and facilitating increased competition. In this regard, the following pertain:

- Transition from an industry-lead grid electrification programme to a new Integrated National Electrification programme laying the foundation for future electrification projects, will take place.
- The rationalization of the Electricity Distribution Industry (EDI) into a maximum number of financially viable independent Regional Electricity Distributors.
- With regard to liquid fuels, the priority challenges will be to promote an efficient and internationally competitive liquid fuels industry, the stable and continued availability of quality products throughout the country at competitive and fair prices with the maintenance of appropriate health, safety and environmental standards, an equitable balance between the interests of industry participants and consumers, an industry supportive of Government's broader social and economic goals and the inclusion of historically disadvantaged groups.

2.2.4 Improve Government's capacity to govern energy.

2.2.5 Improve energy policy formulation.

2.3 STRUCTURE OF THE DEPARTMENT

A rationalization and restructuring process has been undertaken by the D: ME to effectively fulfill its mission i.e. *"To provide services for effectual governance of the minerals and energy*

industries for economic growth and development thereby improving the quality of life of the people of South Africa." The system of restructuring is also linked with the new strategic planning of the D: ME. The D: ME consists of three Branches and a supporting Management Services Chief Directorate. The three Branches include:

- The Mineral Development Branch.
- The Energy Branch.
- The Mine Health and Safety Inspectorate.

Each of the above branches has its own Deputy Director-General and sub-structure as indicated in Figure 2.

2.3.1 Mineral Development Branch

The purpose of the Mineral Development Branch is to regulate mineral development and promote the orderly utilization of mineral resources within the Republic of South Africa. Since the promulgation of the Minerals Act, 1991, (Act 50 of 1991), strategies have been undertaken by this Branch to implement various environmental management initiatives which include *inter alia*:

- The development and implementation of a cradle-to-grave environmental management system for the mining industry in terms of the Minerals Act, 1991, and the establishment of a budget, infrastructure and capacity in the Head Office and the regional offices within each of the nine Provinces.
- A process was initiated in 1997 to assess and revise all existing policies, strategies, legislation and guidelines relating to environmental management. A *White Paper for a Minerals and Mining Policy* was published in October 1998 and new controlling legislation is being developed. An updated series of guidelines on environmental management is being developed in support thereof.

Figure 2, highlights the positioning of the Directorate Mine Rehabilitation and the Mineral Development Regional Directorates within the Mineral Development Branch. The Mineral Development Regional Directorates, which administrate the regulation of mining in terms of the Minerals Act, 1991, report directly to the Deputy Director-General: Mineral Development and consist of the following Regional Offices:

- Western Cape (Rogge Bay, Cape Town)
- Northern Cape (Kimberley and Springbok)
- Free State (Welkom)
- Eastern Cape (Port Elizabeth)
- KwaZulu-Natal (Dundee)

- Mpumalanga (Witbank)
- Gauteng (Braamfontein, Johannesburg)
- North-West (Klerksdorp)
- Northern Province (Pietersburg)

2.3.2 Mine Health and Safety Inspectorate

Although safety, health and environmental (SHE) matters are inter-linked, the Leon Commission of Inquiry recommended that mine health and safety matters be separated from mining related environmental matters. The purpose of the Mine Health and Safety Inspectorate is therefore to ensure the safe mining of minerals under healthy working conditions. The main responsibility of the Inspectorate is the administration of the Mine Health and Safety Act, 1996 (Act No. 29 of 1996). Environmental matters within the mining area as well as those impacts which migrate outside the mining area, such as dust, noise and water pollution, are dealt with by the Mineral Development Branch in terms of the Minerals Act, 1991, through the Environmental Management Programme process.

2.3.3 Energy Branch

The functions of the Energy Branch include the following:

- Liquid Fuels -To develop policy and strategy regarding the acquisition, production, distribution and utilization of liquid fuels.
- Demand and non-grid Electrification – To develop and implement policies on the demand for energy, renewable energy development and the implementation of non-grid electricity programmes.
- Energy Supply – To develop and implement policies on the supply of electricity and to develop and implement strategies for coal, gas and on the efficient use of energy.
- Nuclear Energy - To develop nuclear energy policy and the implementation thereof.
- Database and Research - To develop, maintain and analyze national energy data and administer the Branch Energy's projects and programmes.

2.3.4 International Co-ordination Directorate

For the purposes of the EMP, the functions and activities of the International Co-ordination Directorate, which falls within the Management Services Chief Directorate, are also linked to that of the Mineral Development and Energy Branches. The purpose of this Directorate is to handle and co-ordinate international liaison in the field of mining and energy. This includes:

- Monitoring and evaluating the international opinion on the Department's technical contribution in the field of mining and energy affairs.
- Compile strategies to promote technical liaison with countries with which agreements were/are made.
- Promote international co-ordination by *inter alia* co-ordinating the relevant technical actions, the rendering of a visitor's service and the arrangement of conversational forums.
- Ensure co-ordinated international action by maintaining close technical liaison with public and associated institutions and the private sector.
- Maintain records.

2.3.5 Parastatals

The policies, functions and actions of the following parastatal organizations have not been included in the Departmental EMP as they do not function under the control of the Director-General:

- South African Nuclear Energy Corporation (NECSA).
- National Nuclear Regulator.
- MINTEK.
- CEF (Pty) Ltd
- SA Diamond Board.
- Council for Geoscience.
- National Electricity Regulator.

The D: ME will, however, encourage the relevant parastatals to development their own EIPs/EMPs in terms of NEMA, 1998.

MINISTRY OF MINERALS AND ENERGY
MINISTER: MS P MLAMBO-NGCUKA
DEPUTY MINISTER: MS S SHABANGU

Minerals and Energy for Development and Prosperity

DEPARTMENT OF MINERALS AND ENERGY: Director-General: Adv S Nogxina

MANAGEMENT SERVICES CHIEF DIRECTORATE
PURPOSE: To render a management support services
ADMINISTRATION DIRECTORATE
HUMAN RESOURCES MANAGEMENT AND ORGANISATIONAL DEVELOPMENT DIRECTORATE
INTERNATIONAL CO-ORDINATION DIRECTORATE
LEGAL SERVICES DIRECTORATE

MINERAL PROMOTION CHIEF DIRECTORATE
PURPOSE: To promote mineral development and advise on tendencies in the mining industry
MINE ECONOMICS DIRECTORATE
MINERAL ECONOMICS DIRECTORATE

COMMUNICATION DIRECTORATE
PURPOSE: To render a corporate Communication, media and liaison service

INTERNAL AUDIT DIRECTORATE

INFORMATION MANAGEMENT DIRECTORATE

MINERAL DEVELOPMENT BRANCH
PURPOSE: To promote the orderly and continuous mining and utilisation of mineral resources
MINERAL DEVELOPMENT REGIONAL DIRECTORATE
Western Cape,
Northern Cape,
Free State,
Eastern Cape,
Kwazulu-Natal,
Mpumalanga:
Northern Province,
Gauteng:
North-West:

MINERAL REGULATION CHIEF DIRECTOPATE
PURPOSE: To regulate mineral development
MINE REHABILITATION DIRECTORATE
MINING RIGHTS DIRECTORATE

NUCLEAR AND RENEWABLE ENERGY CHIEF DIRECTORATE
PURPOSE: To develop and implement policies with regard to renewable energy and nuclear energy
RENEWABLE ENERGY DIRECTORATE
NUCLEAR ENERGY DIRECTORATE

ENERGY BRANCH
PURPOSE: To promote the optimum development and utilisation of energy resources

ELECTRICITY CHIEF DIRECTORATE
PURPOSE: To develop and implement policies with regard to EDI restructuring and Policy, and Electrification
ELECTRICITY DISTRIBUTION INDUSTRY RESTRUCTURING & POLICY DIRECTORATE (EDI RESTRUCTURING & POLICY)
ELECTRIFICATION DIRECTORATE:

HYDRO CARBONS CHIEF DIRECTORATE
PURPOSE: To develop and implement policies with regard to the Liquid Fuels and Coal and Gas
LIQUID FUELS DIRECTORATE
COAL AND GAS DIRECTORATE

MINE HEALTH, SAFETY AND SURVEYING
PURPOSE: To provide policy inputs for the establishment and application of mine safety standards at the mining operations and to promote the application thereof
MINE SAFETY DIRECTORATE
Principal Inspector
MINE SURVEYING DIRECTORATE
Principal Inspector
MINE HEALTH AND SAFETY PRINCIPAL INSPECTORATES
Gauteng: Principal Inspector
Mpumalanga: Principal Inspector
Kwazulu-Natal: Principal Inspector

MINE HEALTH AND SAFETY INSPECTORATE
PURPOSE: To ensure the safe mining of minerals under healthy working conditions
MANAGEMENT SUPPORT AND INTERNAL CONTROL DIRECTORATE

MINE HEALTH, SAFETY AND EQUIPMENT
PURPOSE: To provide policy inputs for the establishment and application of mine equipment safety standards at mining operations and to promote the operations thereof
MINE EQUIPMENT DIRECTORATE
MINE HEALTH AND SAFETY PRINCIPAL INSPECTORATES
Free State: Principal Inspector,
Western Cape: Principal Inspector
Eastern Cape: Principal Inspector

MINE HEALTH AND SAFETY
PURPOSE: To provide policy inputs for the establishment and application of mine health standards at mining operations and to promote the application thereof
OCCUPATIONAL HYGIENE DIRECTORATE
OCCUPATIONAL MEDICINE DIRECTORATE
MINE HEALTH AND SAFETY PRINCIPAL INSPECTORATES
North-West: Principal Inspector
Northern Cape: Principal Inspector
Northern Province: Principal Inspector,

CHAPTER 3

MANDATE AND LEGISLATIVE FRAMEWORK WITHIN WHICH D: ME FUNCTIONS

3.1 Mandate in respect of the Constitution of the Republic of South Africa, 1996 (Section 146 and Schedules 4 and 5)

In terms of the Constitution, mining is a functional area of exclusive national legislative competence. As far as the environmental competence is concerned, the note relevant to Schedule 4 of the Constitution stipulates that a provincial executive is responsible for implementing national legislation unless the Constitution or an Act of Parliament provides otherwise. The Act of Parliament currently regulating environmental issues in the mining industry is the Minerals Act, 1991. The Act specifically requires that rehabilitation and environmental management shall be done during and as an integral part of the prospecting and/or mining operation and be regulated by the D: ME. The Act, furthermore, requires procedures and effective arrangements for environmental management to be an integral part of the licensing/authorization procedure, which is vested by law in the Minister of Minerals and Energy, and certain officials of the D: ME.

During October 1998, Government developed and approved a White Paper on a Policy for Minerals and Mining in South Africa. In the White Paper, Government indicated that the arrangements referred to in the previous paragraph have practical merit and that they should be proceeded with. The requirement of Government is that the D: EAT is the appointed lead agent for the environment and that the D: ME must, in support of the lead agent and in accordance with national principles, norms and standards, develop and apply the necessary dedicated policies and measures to ensure the mining industry's compliance with national environmental policies.

In reaching this decision, Government took cognisance of the following:

- Geological structures, ore bodies and, hence mines, transcend provincial boundaries.
- It is in the interest of foreign investors and the industry as a whole that norms and standards be applied uniformly and through a one-window approach.
- Safety, health and environmental (SHE) issues at mines are often intertwined and interdependent. Safety and health related issues are being regulated in terms of legislation administered by the Department of Minerals and Energy.
- The procedure that is followed during the process of finalising an environmental management programme (EMP) required in terms of the Minerals Act, 1991, provides for consultation with all national and provincial departments that administrate legislation dealing with the environment. The EMP can thus be seen as an "omnibus vehicle" that

caters for the requirements of the various authorities and of interested and affected parties (I&APs). It provides good opportunity for co-operative governance.

3.2 International law, conventions and agreements

In recent years, signature to a number of environmental conventions has increased significantly. Conventions deal with a wider range of issues on which global action is required. (Conventions cover issues like sustainable development, biodiversity, migratory species, wetland conservation, the transportation, handling and disposal of pollution and waste, the release of greenhouse gases and ozone depleting substances.)

Offshore prospecting and mining activities (marine diamond mining and oil and gas exploration) relate to the implementation of international conventions, such as the following:

Convention	Administered by:	Status	Description
MARINE AND/OR INTERNATIONAL SEAS:			
Geneva Convention on the Continental Shelf	Department: Foreign Affairs.		The Convention recognises the right of coastal states to exercise sovereignty over the continental shelf for purposes of exploring and exploiting its natural resources, the seabed and subsoil.
UN convention on law of the sea	D: EAT	The ratification of the convention is currently under consideration.	Comprehensive codification of the law of the sea.
Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter, 1972 and its protocol of 1996 (London guidelines).	D: EAT is responsible for legislation. Sea Fisheries is responsible for issuing of permits at sea and general administration.	• South Africa was signatory to the 1972 Convention, but only ratified it in September 1978. • The Convention is brought into force locally in terms of the Dumping at Sea Control Act, 1980 (Act 73 of 1980) which came into force on 23 April 1982. • South Africa was also a signatory to the 1996 Protocol, which will eventually replace the current convention. The protocol was opened for ratification in April 1997 and D: EAT is in the process of obtaining Parliamentary approval for ratification.	Effective control of all sources of marine pollution obliging parties to take practical steps to prevent pollution of the sea by dumping. The convention provides a regulatory framework for the prevention and control of dumping of waste into the sea, where dumping is defined as: • Any deliberate disposal at sea of wastes or other matter from vessels, aircraft, platforms or other man-made structures. • Any deliberate disposal at sea of vessels, aircraft, platforms or other man-made structures.

Convention for the Prevention of Pollution from Ships (1973) (Marpol) including 1978 Protocol	D: EAT (Sub directorate: Marine Pollution).		Marine
The Convention on Wetlands of International Importance especially as Waterfowl Habitat (RAMSAR Convention).	D: EAT	South Africa ratified the convention in March 1975.	The broad aims of this convention are to stem the loss and to promote wise use of all wetlands. The convention addresses one of the most important issues in South Africa, namely the conservation of the country's water supplies, for both the use of the natural and the human environments. South Africa has designated 15 sites to the List of Wetlands of International Importance. A number of others are under consideration.

On-shore prospecting and mining activities also relate to the implementation of international conventions and/or agreements. The environmentally related conventions, agreements or protocols are administered by the D: EAT, the Department: Foreign Affairs or the Department: Labour and are being incorporated into their policies, programmes and legislation. The D: ME must, in support of the D: EAT as the lead agent for the environment, apply the necessary requirements in this regard. South Africa became a signatory to the following international conventions/agreements/protocols, which bind the Government to pass legislation and regulations to implement their commitment to the requirements specified in the convention.

Convention	Administered by:	Status	Description
SUSTAINABLE DEVELOPMENT:			
The Rio Declaration and Principles, Agenda 21 and Local Agenda 21	D: EAT		The main objective of this declaration and agreement is to promote sustainable development.
HUMAN RIGHTS AND RELATED ASPECTS:			
UN Convention on Human Settlements (HABITAT) including the Habitat Agenda: The Global Plan of Action	Department: Land Affairs		Human settlements / habitat disturbance.
International Labour Organisation Human rights convention	Department: Labour		Human rights/public participation.
International Labour Organisation indigenous peoples convention			Human settlement/demography.
Draft UN declaration on indigenous peoples			*Human settlement / demography.*

The ECE Convention on Access to Information, Public participation in Decision-making and Access to Justice in Environmental Matters	D: EAT		Public participation.
BIODIVERSITY AND ENDANGERED SPECIES:			
Convention on Biological Diversity (CBD)	D: EAT	The convention was signed by South Africa in June 1993 and ratified on 2 November 1995.	The aim of the CBD is to effect international co-operation in the conservation of biological diversity and to promote sustainable use of living natural resources worldwide. It also aims to bring about the sharing of the benefits arising from the utilisation of natural resources.
BIODIVERSITY AND ENDANGERED SPECIES:			
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITIES)	D: EAT	South Africa ratified the convention in 1975.	The main objectives of this convention are the protection of endangered species prominent in international trade through appropriate control measures and monitoring the status of such species.
Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention).	D: EAT	South Africa acceded to the convention in December 1991.	The convention was a response to the need for nations to co-operate in the conservation of animals that migrate across their borders. These include terrestrial mammals, reptiles, marine species and birds. Special attention is paid to endangered species.
SENSITIVE AREAS:			
The Convention on Wetlands of International Importance especially as Waterfowl Habitat (RAMSAR Convention).	D: EAT	South Africa ratified the convention in March 1975.	The broad aims of this convention are to stem the loss and to promote wise use of all wetlands. The convention addresses one of the most important issues in South Africa, namely the conservation of the country's water supplies, for both the use of the natural and the human environments. South Africa has designated 15 sites to the List of Wetlands of International Importance. A number of others are under consideration.
TRANSBOUNDARY IMPACTS:			
UNECE Convention on Environmental Impact Assessments in a Transboundary Context	D: EAT		Transboundary impacts.
UNECE Convention on Long Range Transboundary Air Pollution (The LRTAP convention)	D: EAT		Air pollution / Transboundary
Convention on Prior Informed Consent (PIC)	D: EAT		Convention on Prior Informed Consent for certain hazardous chemicals and pesticides in international trade.

UNECE Heavy Metals Protocol to the Long-Range Transboundary Pollution Convention.	D: EAT		Convention on Transboundary Pollution Prevention
Protocol to the LRTAP Convention on Persistent Organic Pollutants (POPS)	D: EAT		Air pollution / Transboundary
Protocol for the Protection of the Ozone Layer (Montreal Protocol).	D: EAT	South Africa became a signatory to the protocol in January 1990.	• The protocol is aimed at ensuring measures to protect the ozone layer. South Africa also ratified the subsequent London Amendments to the protocol designed to restrict the use of chlorofluoro-carbons (CFCs) and halons. • Even though the Copenhagen Amendments to the Protocol have not yet been ratified, South Africa has acted in full compliance with these amendments and is in the process of ratifying them.
The Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention).	D: EAT	South Africa has ratified the convention in May 1994.	The main objectives of the convention are the reduction of the production of hazardous waste and the restriction of transboundary movement and disposal of such waste. It also aims to ensure that any transboundary movement and disposal of hazardous waste takes place in an environmentally sound and responsible way.
CLIMATE:			
Framework Convention on Climatic Change (FCCC)	D: EAT	South Africa ratified the convention on 29 August 1997.	The convention addresses the threat of global climate change by urging governments to reduce the sources of greenhouse gases. The ultimate objective of the convention is to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous interference with the climate system of the world.
CULTURAL HERITAGE:			
Convention concerning the protection of the world cultural and natural heritage (World Heritage Convention).	D: EAT	South Africa ratified the convention on 10 July 1997.	The convention aims to promote co-operation amongst nations to protect natural and cultural heritage, which is of such outstanding universal value that its conservation is of concern to all people.

With regard to energy, the following international agreements/protocols apply:

- United Nations Framework Agreement for Climate Change: Ratified 1997.
- Kyoto Protocol: Not yet ratified.
- Statement of Intent Concerning Co-operation in Sustainable Energy Development and the Mitigation of Greenhouse gases between the USA and RSA: c1995 Botha/O'Leary.

- Joint Statement on Clean Energy Co-operation in Support of the Environment: Signed February 1999 Maduna (RSA)/Richardson (USA).
- Implementing Agreement between the Department of Energy of the USA and the Government of the RSA through its Department of Minerals and Energy on Collaboration in Energy Policy, Science, Technology and Development.
- The Petroleum Directorate within D: ME interacts with SADC-member countries in the Petroleum Downstream Committee of the Technical Unit of the Energy Commission to harmonize fuel specifications from both an environmental and technical perspective.

With regard to nuclear energy, the Convention on Nuclear Safety (IAEA Legal Series No 16, 1994) places a number of obligations on operational aspects of radioactive waste management (including effluent discharges) associated with civilian nuclear reactors. As a contracting party to this convention South Africa must comply with internationally endorsed standards and must report on these aspects. Furthermore, South Africa is not yet a signatory to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, Vienna, 1999. The objectives of this convention are already incorporated in the National Nuclear Regulator Act, 1999. It is Government's intention to consider this convention, once the Status, Policy and Strategy have been established.

3.3 National Environmental Management Act, 1998

NEMA, 1998 was promulgated within the framework of the Constitution and therefore reinforces the constitutional requirement for a clean and healthy environment and the basis for co-operative governance in the field of environmental management. The requirements and mandate for co-operative governance is highlighted as follows:

- In Chapter 1 of NEMA, national environmental management principles are set out and provide a framework for environmental management in South Africa. These principles apply throughout the RSA to the actions of all organs of state that may significantly affect the environment.
- In Chapter 2, provision is made for the establishment of the CEC to ensure and promote the integration and co-ordination in the implementation of all Government environment related policies. The CEC brings together all the relevant departments with an environmental mandate and functions to co-ordinate and integrate policy formulation and regulatory developments.
- Chapter 3 provides for extensive procedures for co-operative governance as well as mechanisms for co-ordination and alignment of these functions in the form of EIPs and EMPs. The purpose of these plans is to detail how the various departments will ensure that their policies, plans and programmes and the exercising of their powers relating to the

environment, will comply with the principles and national norms and standards for sustainable development and the protection of the environment.

- Through Integrated Environmental Management (IEM), Chapter 5 provides that national and provincial departments involved in the environment, are empowered to conduct an assessment system in their areas of responsibility and to co-operate where appropriate. Chapter 5 also provides for assistance and training of other organs of state to achieve the objectives of IEM.

3.4 Acts administered by the Minister of Minerals and Energy

3.4.1 Minerals Act, 1991

Statutory requirements enforcing environmental protection and the management of the impacts of prospecting and mining in South Africa are contained in the Minerals Act, 1991 (Act 50 of 1991), and are administered by the D: ME. Other legislation such as the National Environmental Management Act, 1998, the National Water Act, 1998, the Atmospheric Pollution Prevention Act, 1965, the Environmental Conservation Act, 1989 and the National Nuclear Regulator Act, 1999 provide, *inter alia,* further controlling measures.

The current legislation confirms the common law principle that the holder of the mineral rights, or his or her nominee has the exclusive right to enter the land involved and to exploit the minerals owned. The Act, however, tempers this common law right by -

- prohibiting prospecting or mining operations until the necessary "licence" has been granted (in the form of a prospecting permit or mining authorization) which must be issued in accordance with the requirements of the Act; and
- requiring the Department as issuing authority, to be satisfied, prior to the granting of a permit or an authorization, of the applicant's ability to mine the mineral optimally, safely and that the applicant will be able to rehabilitate the land involved effectively.

3.4.1.1 Environmental Management Programme based on EIA

The Minerals Act, 1991, requires the Department to be satisfied that an applicant will be able to rehabilitate the land involved before a prospecting permit or a mining authorization will be granted. The Act requires further important checks and balances to be in place before mining operations may actually commence. The most important requirement concerning the

environment is that an EMP, (based on an environmental impact assessment) in which a mine's impacts on the environment are identified and in which a clear programme is provided of how these impacts will be managed, must be submitted and officially approved. The Minerals Act, 1991, requires in section 38, that the rehabilitation of the surface of land concerned in any prospecting or mining shall be carried out by the holder of the prospecting permit or mining authorization concerned -

- in accordance with the environmental management programme approved in terms of section 39;
- as an integral part of the prospecting or mining operations concerned;
- simultaneously with such operations, unless determined otherwise in writing by the director: mineral development; and
- to the satisfaction of the director: mineral development concerned.

3.4.1.2 Consultation with other departments

To ensure that all aspects of the environment are brought into consideration, section 39 of the Act stipulates that consultation shall take place with each department charged with the administration of any law that relates to any matter affecting the environment before an EMP may be approved. It is the policy to also consult with all persons who will be affected by the prospecting or mining operations.

3.4.1.3 Financial guarantees for rehabilitation

Government and the mining industry have accepted the principle that the polluter must pay for pollution or the damage that prospecting or mining actions incur on the environment. Regulations have been promulgated in terms of the Minerals Act, 1991, to ensure that financial provision is made by a mine in the form of guarantees for the execution of its EMP.

3.4.1.4 Monitoring and EMP Performance Assessment and Remediation

Regulations for EMP performance assessment and monitoring have been promulgated in *Government Gazette* No 20219 of 25 June 1999, Notice No. R801. The inclusion of monitoring and performance assessment into the mining environmental management process completes the last link of an integrated, cradle-to-grave environmental management process adopted by the D:ME. The monitoring and EMP performance assessment process will also assist Government as well as the mining industry in determining compliance

with the requirements of the EMP, the appropriateness of the EMP and to guide mines to effective and acceptable closure.

In terms of these regulations, the holder of a prospecting permit or mining authorization is required to:

- Conduct environmental monitoring on an ongoing basis.
- Conduct performance assessments on the appropriateness of the EMP and compliance with the EMP and to submit reports in this regard as specified in the approved EMP or as agreed to in writing with the director: mineral development.

3.4.1.5 Mine closure

In terms of section 12 of the Minerals Act, 1991, the responsibility to comply with the relevant provisions of the Act remains with the holder of a prospecting permit or mining authorization until the Department : Minerals and Energy issues a certificate to the effect that the said provisions have been complied with. In support of this requirement, the authorities and industry have agreed on policy guidelines acceptable to all the role-players. If the above objectives have been met and all the provisions of the Act, including the EMP, have been complied with, a "closure" certificate will be issued to a mine. A proviso is, however, that if residual impacts have been identified, these must be described in the mine's EMP and adequate and irrefutable arrangements put in place to ensure that these impacts will be adequately dealt with. Such arrangements may include the need for a mine to make financial provision for the financing of post-closure environmental management or for the maintenance of pollution control measures. An acceptable competent third party may be identified to assume responsibility for such management or maintenance and will utilise the funds that the mine has made available for this purpose. It is of the utmost importance that effective planning for closure should take place as early as possible in the life of a mine and, preferably, even before mining operations commence. Equally important is to identify the post-mining land use (or land use options if there is yet no certainty) so that mining methods, the placing of structures and interim rehabilitation actions may be adapted to meet identified goals cost effectively.

3.4.1.6 Suspension and cancellation of prospecting/mining authorisations

In terms of section 14 of the Minerals Act, 1991, the Minister may suspend or cancel any prospecting or mining authorization if the holder thereof

contravenes or fails to comply with any relevant provision of the Act. If such holder contravenes or fails to comply with any provision of section 38, (which concerns environmental protection) the Minister shall suspend or cancel the permit or authorization concerned. The Act stipulates, however, that before any authorization is suspended or cancelled, the director: mineral development concerned shall serve a written notice on the holder thereof ordering him to comply with the relevant provisions or to take such rectifying steps as the Minister may require, within a period specified in the notice.

3.4.1.7 Offences

In terms of section 60 of the Minerals Act, 1991, a person who has been convicted of an offence concerning the environmental management requirements of the Act, is liable to a fine or imprisonment for a period not exceeding one year or to both a fine and such imprisonment. Such a person is also liable to a further fine not exceeding R1 000 or imprisonment not exceeding five days for every day that the contravention continues: Provided that the period of such further imprisonment shall not exceed six months.

3.4.1.8 Illegal mining

Illegal mining in South Africa is of great concern to Government. The Department endeavours to legalise such operations. In cases where there is resistance from an illegal mining operator to legalise the operation, the Department does not hesitate to take legal action against such person.

3.4.2 Directives issued in terms of the Minerals Act, 1991

Section 2 of the Minerals Act, 1991, provides that the Act must be administered under the control of the Minister in accordance with the instructions and directives of the Director-General by the directors: mineral development and forms part of the legislative requirements in terms of the Minerals Act, 1991. Specific Directives covering the following subject matters have been issued by the Director-General for implementation:

- Various aspects on the implementation of the policy on financial provision to fund rehabilitation if the mine should be unable or fail to do so.
- Appeals on specific cases.
- SABS ISO 14000 Environmental standard.
- Conditions regarding the granting of temporary authorizations.
- National Water Act.

- Strategy and regulations on EMP Performance Assessment and monitoring.
- Various Standard EMPs.
- Strategy for mines operating without EMPs.
- Use of consultants for compiling EMPRs.
- I&APs consultation: Consideration of prospecting / mining authorizations and approval of EMPs.

3.4.3 Mine Health and Safety Act, 1996 (Act 29 of 1996)

The Mine Health and Safety Act is administered by the Mine Health and Safety Inspectorate of the D: ME (refer to Figure 2). The objects of the Act are:

- To protect the health and safety of persons at mines.
- To require employers and employees to identify hazards and eliminate, control and minimise the risks relating to health and safety at mines.
- To give effect to the public international law obligations of the Republic that concern health and safety at mines.
- To provide for employee participation in matters of health and safety through health and safety representatives and committees at mines.
- To provide for effective monitoring of health and safety conditions at mines.
- To provide for enforcement of health and safety measures at mines.
- To provide for investigations and inquiries to improve health and safety at mines.
- To promote a culture of and training in health and safety in the mining industry and co-operation and consultation on health and safety between the State, employers, employees and their representatives.

The Act also establishes tripartite institutions where co-operation and consultation on health and safety between the State, employers and employees, are given official status.

3.4.4 Energy-related Acts pertaining to health, safety and environmental matters

The Energy Branch has no legislative mandate with respect to the environmental responsibilities and functions pertaining to impact assessment and management of energy development. The former is being regulated in terms of the Environment Conservation Act, 1989, sections 21, 22 and 26 of the Act. In terms of section 21, the following activities have been listed which have a detrimental effect on the environment:

- The construction or upgrading of facilities for commercial electricity generation and supply.

- The construction and upgrading of nuclear reactors and installations for the production, enrichment, reprocessing and disposal of nuclear fuels and wastes.
- Scheduled processes listed in the Second Schedule to the Atmospheric Pollution Prevention Act, 1965 (Act No 45 of 1965).

For these activities, an environmental impact assessment must be undertaken and submitted to the D: EAT or the relevant provincial authority for authorization. The responsibility to regulate and control the energy sector's environmental impacts is fragmented. The D: EAT need to increase its interaction and co-operation with the D: ME, other Government authorities and energy related parastatals on the wide-ranging nature of the energy sector's environmental impact which may include providing environmental inputs into the licensing of electricity generation facilities, the regulation of air pollution from low-income households, power stations, vehicles and other sources.

Other legislation such as the Atmospheric Pollution Prevention Act, 1965, the National Water Act, 1998, and the Hazardous Substances Act, 1973, also apply in this regard.

Following the important milestone of formulating a nuclear energy policy, as part of the White Paper on Energy Policy for South Africa, the next step was to improve the governance of the nuclear energy production sector in South Africa and to clarify the functions of bodies associated with the industry. Two Acts were promulgated to separate the legislation that governs the Atomic Energy Corporation (AEC) and the Council for Nuclear Safety (CNS). The new legislation ensures the reformulation and restructuring of the governance regimes of then AEC and CNS. In this regard, the mandate and representation of the Boards of Directors of the afore-mentioned parastatals were transformed to ensure representation of the people of the country. This was successfully achieved by the development of the following two Acts, which relate to the regulation of nuclear energy:

3.4.4.1 Nuclear Energy Act, 1999 (Act No 46 of 1999)

The Nuclear Energy Act, 1999, empowers the Minister of Minerals and Energy to restructure the then AEC and provides for the establishment of the South African Nuclear Energy Corporation Ltd. (SANEC). SANEC is a public company. The State holds all the shares and the Minister exercises all member rights on behalf of State. The Act:

- Promotes research, processing and enrichment of source material.

- Provides for Safeguards Agreement administration (Agreement between RSA and International Atomic Energy Agency (IAEA) in relation to the Nuclear Non-Proliferation Treaty, 1991).
- Control of all source material and management and discarding of radioactive waste vests in the Minister.
- Provides that the Minister of Minerals and Energy, in consultation with the Minister of Environmental Affairs and Tourism (D: EAT) and of Water Affairs and Forestry (D: WAF), may make regulations in terms of management, storage and discarding of radio-active waste and irradiated nuclear fuel.
- Provides that no person may discard or store radioactive waste without permission granted by the Minister in consultation with D: EAT and D: WAF Ministers.

3.4.4.2 National Nuclear Regulator Act, 1999, (Act No 47 of 1999)

The National Nuclear Regulator Act, 1999, provides for the establishment of National Nuclear Regulator (NNR) in place of the Council for Nuclear Safety and clearly defines the mandate of the NNR. The objects of NNR are to provide protection for persons, property and environment through safety standards and regulatory practices at nuclear installations (nuclear installations do not include mines or processing plants). The NNR must, in the spirit of co-operative governance enter into co-operative agreements with organs of State. The Act also provides that no person may site, construct, operate, decontaminate or decommission a nuclear installation without a nuclear installation licence.

Requirements in terms of this legislation are aligned with that required by the International Atomic Energy Agency (IAEA). Other legislation that are relevant to the management of radio-active waste are the Hazardous Substances Act, 1973, the Mine Health and Safety Act, 1996, the Minerals Act, 1991, the National Environmental Management Act, 1998, the National Water Act, 1998, and the Dumping at Sea Act, 1980.

The following Acts are also administered by parastatals reporting to the Minister of Minerals and Energy:

- Central Energy Fund Act, 1977.
- The Petroleum Products Act, 1977.

- Electricity Act, 1987.
- Mineral Technology Act, 1989.
- Geoscience Act, 1991.

3.5 Other national legislation, provincial ordinances and local bylaws that may be applicable mining and/or energy related matters

Depending on specific circumstances, the following national legislation, provincial ordinances or local bylaws may be applicable with regard to prospecting/mining operations and/or energy related matters:

Act/Regulation/ Ordinance	Administered by:	Notes
Atmospheric Pollution Prevention Act, 1965	• D: EAT • Local authorities	Control of all forms of air pollution at mines. * *Administered by D: ME.*
Regulations in terms of section 33(1)(d), GN R1599 of 1977-08-19, GG 5716.	D: EAT	Regulations to prevent dispersion into the atmosphere of matter, which may cause a nuisance.
Conservation of Agricultural Resources Act, 1983	• Department: Agriculture • Provincial Departments: Agriculture	Act provides for the conservation of the natural agricultural resources of the Republic by the maintenance of the production potential of land, by the combating and prevention of erosion and weakening or destruction of water sources, and by the protection of vegetation and the combating of weeds and invader plants.
Regulations in terms of section 29, GN R1048 of 1984-05-25, GG9238.	• Department: Agriculture • Provincial Departments: Agriculture	Regulations in order to achieve the objects of the Act by means of prescribed control measures to practice sustainable agricultural resource use. These may relate to the cultivation of lands (virgin, dry and wetlands) to ensure soil conservation and to control alien invasive plants.
Development Facilitation Act, 1995	• Department: Land Affairs • Local authorities	To introduce extraordinary measures to facilitate the implementation of reconstruction and development programmes and projects in relation to land; and in doing so to lay down general principles governing land development.
Regulations in terms of sections 27 and 28. PN 89 of 1997-05-16.	• Department: Land Affairs • Local authorities	Regulations relating to land development objectives in the Free State Province.

Draft regulations, GN 72 of 1999-01-22, GG 19708.	• Department: Land Affairs • Local authorities	Draft regulations and rules.
Regulations in terms of Chapter IV on 24 of 1998 – 07-24, Provincial Gazette 329.	• Department: Land Affairs • Local authorities	Northern Cape Land Development Objectives.
Regulations in terms of section 27, PN 246 of 1997-11-14.	• Department: Land Affairs • Local authorities	Land development objectives for the Free State Province.
Dumping at Sea Control Act, 1980		Control of the disposal of various chemical substances and other waste material into RSA territorial water from any vessel, aircraft, platform or man-made structure.
Regulations in terms of section 8, GN R1135 of 1988-06-17, GG11348.		Regulations regarding permit applications.
Environment Conservation Act, 1989	D: EAT	*(Those sections not repealed by the National Environmental Management Act, 1998).*
Regulations in terms of section 25, GN R154 of 1992-01-10, GG13717.	• D: EAT • Local authorities	Noise control regulations.
Regulations, PN 627 of 20 Nov 1998.	Provincial Environmental Department	Western Cape noise regulations.
Provincial (Gauteng) noise regulations, PN 75 of 20 August 1999.	Gauteng Provincial Environmental Department	Noise control regulations.
Regulations in terms of section 25, Government Notice R242 of 7 Nov 1997.	Provincial Environmental Department	Noise control regulations for the Free State Province.
Regulations in terms of section 2, GN 858 of 1994-04-29, GG15655.	D: EAT	General policy on control of vehicles in coastal zones.
Regulations in terms of section 2, GN 449 of 1994-05-09, GG15726.	D: EAT	General policy on classification of terrestrial and marine protected areas.
Forest Act, 1984	Department: Water Affairs and Forestry	Control of forest and the protection of biota and ecosystems.
Regulations in terms of section 73, GN 1339 of 1976-08-06, GG 5242.	Department: Water Affairs and Forestry	List of protected indigenous trees.
Hazardous Substances Act, 1973	• Department: Health • D: EAT • Department: Transport	Control of the importation, manufacture, sale, use and disposal of substances, which may cause injury or ill-health or death to human beings by reason of their toxic, corrosive, irritant or strongly sensitising properties.

International Convention for the Prevention of Pollution from Ships Act, 1986	D: EAT (Marine pollution).	Control of the discharge of substances into the sea from ships, submersibles and fixed and floating platforms, which are liable to create a hazard to human health or harm marine life or interfere with amenities and other legitimate uses of the sea.
Regulations in terms of section 3, GN 1490 of 1992-05-29, GG 14000.	D: EAT	Prevention of pollution by garbage from ships.
Maritime Zones Act, 1994		Determination and definition of the territorial waters and fishing zone of the RSA and to provide for the exploitation of certain natural resources on the continental shelf.
National Environmental Management Act, 107 of 1998	• D: EAT (lead agent) • All other authorities	To provide for an overall framework for Integrated Environmental Management (IEM) and co-operative environmental governance.
National Water Act, 36 of 1998	Department: Water Affairs and Forestry	To provide for fundamental reform of the law relating to water resources; to repeal certain laws and to provide for matters connected therewith.
Regulations, GN 704 of 1999-06-04.	Department: Water Affairs and Forestry	Regulations on use of water for mining and related activities aimed at the protection of water resources.
Draft regulations, GN R1616 of 1998-12-11, GG 19565.	Department: Water Affairs and Forestry	Proposed pricing strategy for charges for raw water use.
Draft regulations, GN R1697 of 1998-12-31, GG19641.	Department: Water Affairs and Forestry	Proposed water management areas and their boundaries.
GN R174 of 1998-02-12, GG19740.	Department: Water Affairs and Forestry	• General authorisations. • Water use.
National Parks Act, 1976	National Parks Board	Control of proclaimed national parks, including all environmental matters.
National Health Act	Department: Health	
National Heritage Council Act, 1999 (Act No 11 of 1999)	National Monuments Council.	
National Heritage Resources Act, 1999 (Act No 11 of 1999)	National Monuments Council	
National Monuments Act, 1969 *(National Heritage Act)*	• Department: Arts, Culture, Science and Technology • National Monuments Council.	Controls for the protection of natural and historical monuments, relics and antiques.
• *National Nuclear Regulator Act* • *Nuclear Energy Act*	National Nuclear Regulator	Control of activities involving radioactive material.

Occupational Health and Safety Act, 1993 (Act No 85 of 1993) • *Draft Asbestos Regulations, GN R926 GG 20325 of 16/08/1999.*	Department: Labour.	
Physical Planning Act, 1991	Regional Services Councils.	Creation of policy plans, urban and local structure plans. *(Indicate sections that have been repealed).*
Prevention and Combating of Pollution of the Sea by Oil Act, 1981	D: EAT *(Sea Fisheries).*	Prevention and combating of pollution of the sea by oil from ships, tankers and offshore installations.
Regulations in terms of section 28, GN R1276 of 1984-06-29, GG9277.	D: EAT (*Sea Fisheries).*	Regulations for the prevention and combating of pollution of the sea by oil.
Marine Living Resources Act	• D: EAT • Provincial Environmental Departments.	Letting of seashores and the sea in terms of local authorities, exercising of powers for purposes of public health and regulating use and pollution of shore and sea.
South African National Roads Agency Limited and National Roads Act, 7 of 1998	National Roads Agency	Replaces the National Roads Act, 1976. Disposal of wastes near national roads.
Water Services Act, 1997	Department: Water Affairs and Forestry	To provide for the right of access to basic water supply and sanitation.
Water Services Act, 1997 *(Draft regulations, GN R1631 of 1998-12-11, GG19565).*	Department: Water Affairs and Forestry	Proposed norms and standards in respect of tariffs for water services.

Ordinances and regulations	Contact	Notes
Cape Land Use Ordinance, 1985 *(Cape Development Bill is being drafted which will regulate land use.*	Relevant local authorities.	To regulate land use planning in the Cape.
KwaZulu-Natal Planning and Development Act 5 of 1998		To facilitate development in the Province
Natal Town Planning Ordinance, 1949	Local authorities.	To regulate land use planning in Kwa-Zulu-Natal.
Nature and Environmental Conservation Ordinance (Cape), 1974	Western Cape and North West Provincial Environmental Departments.	Control of provincial nature reserves and the protection of indigenous animals and plants in the Cape Province.
Nature Conservation Ordinance (Free State), 1969	Free State Provincial Environmental Department.	Control of provincial nature reserves and the protection of indigenous animals and plants in the Free State.
Nature Conservation Ordinance (Natal), 1974	KwaZulu-Natal Provincial Environmental Department.	Control of provincial nature reserves and the protection of indigenous animals and plants in the Natal Province.

Nature Conservation Ordinance (Transvaal), 1983	Provincial Environmental Departments within Gauteng, Mpumalanga and the Northern Province.	Control of provincial nature reserves and the protection of indigenous animals and plants (including CITES listed species) in the former Transvaal.
	Provincial Environmental Departments within Gauteng, Mpumalanga and the Northern Province.	List of endangered and rare species of fauna and flora (CITES).

Bylaws	Contact	Notes
Free State Standard Bylaws on Public Health	Local authorities	Controls any nuisance - emission of smoke, dust, water pollution, littering.

Note: The above list of legislation has not recently been screened and/or updated by the D:ME.

In the light of the above, it is evident that the environmental related legislation is fragmented and that the Law Reform Process, as initiated by the D: EAT, will certainly contribute in rationalising and streamlining environmental legislation.

CHAPTER 4

POLICIES, PLANS AND PROGRAMMES

4.1 POLICIES, PLANS AND PROGRAMMES FOR MINERAL DEVELOPMENT

4.1.1 White Paper for a Minerals and Mining Policy for South Africa: Chapter 4, Environmental Management

4.1.1.1 Description of policy and underlying principles

The *White Paper on a Minerals and Mining Policy for South Africa* was accepted by Government and published during October 1998. Chapter four of the White Paper is specifically devoted to environmental management in the mining industry and is in harmony with other environmental policies recently accepted by Government. It also adopts the framework provided for *the White Paper on Environmental Management Policy for South Africa* where the D: ME will, in support of the lead agent (D: EAT) and in accordance with national principles, norms and standards, develop and apply the necessary policies, legislation and measures to ensure the mining industry's compliance with the national policy on environmental management. The requirements of the White Paper are currently being incorporated into legislation (the Mineral Development Bill has reference).

The above policy provides for the application of the following underlying key principles as summarized in Table 2:

TABLE 2: Key principles

Concurrent processes of considering the granting of a prospecting or mining authorization and approval of an EMP	The processes of considering the granting of a prospecting permit or mining authorization and the approval of an EMP will run concurrently and the granting of the prospecting permit or mining authorization and approval of the EMP will take place simultaneously.

Decision-making in consultation with other Departments	The DME, in consultation with the relevant State Departments, will provide procedures to accommodate their requirements. Decision-making will take place in consultation with such Departments. During authorization, cognizance will be taken of other legislative requirements.
Consultation with I&APs	Equitable and effective consultation with I&APs must be undertaken pro-actively by entrepreneurs in the decision-making process and the *audi alteram partem* (hear the other side) must rule apply to all decision-making. The decision-making process shall provide for the right to appeal. Access to information shall be in accordance with the requirements of the Constitution.
Risk-averse and cautious approach / Pre-cautionary principle	During decision-making, a risk-averse and cautious approach that recognizes the limits of current environmental management expertise will be adopted. Where there is uncertainty, action is required to be taken to limit the risk. This will include consideration of the "no-project" option.
Polluter-pays principle	The polluter-pays principle will be applied in the regulation of environmental management. The mining entrepreneur will be responsible for all costs pertaining to the determination of the impact of the operation on the environment and the design of management measures.
Appropriate and consistent standards for all operations	A consistent standard of environmental impact management must be applied irrespective of the scale of the mining operation.
Adherence to guidance provided by government	Guidelines provided by government on the process and sequence of events for implementation of environmental management procedures and decision-making must be adhered to.

Compliance to Land Development Objectives and spatial development frameworks	Mining entrepreneurs are required to comply with the Land Development Objectives, spatial development frameworks and Integrated Development Planning of provincial and/or local government within which they operate. They are also encouraged to promote social participation by planning their operations in such a manner that the needs of local communities are taken into consideration.
Integrated Environmental Management (IEM)	The principles of IEM will be applied during the planning and authorisation phase. Therefore, these principles must be amplified to include the up-front planning for cradle-to-grave management of environmental impact in all phases of a mine's life, effective monitoring and performance assessment procedures.
Provision of financial guarantees	Financial guarantees for environmental rehabilitation responsibilities must be planned for and provided in accordance with EMP requirements.
Waste avoidance, minimisation and management	The mining industry must plan and design appropriately to avoid impacts and if impossible, to pro-actively reduce pollution. Mines must promote a culture of waste minimisation and creative recycling and re-use of waste products.

4.1.1.2 Mechanisms and procedures implemented to comply with policy

The following mechanisms will be applied to ensure implementation and compliance with the new policy:

- Additional provisions for environmental management and remediation of environmental damage are proposed in the Mineral Development Bill.
- Supporting regulations regarding procedural, technical and minimum requirements are being developed.
- Mining Environmental Management (MEM) Series of Guidelines are being developed. On the first tier, the *MEM Framework* provides a broad vision for environmental management in the mining industry, overall environmental policies and objectives, principles, legislative requirements and how these are inter-linked with each other to form a

cradle-to-grave and integrated approach to mining environmental management. The *MEM Framework* also serves as a key to the rest of the guidelines. On the second tier of guidance, procedural and content guidelines for each of the phases in the life of a prospecting or mining operation are provided i.e. *the MEM Guideline for planning and authorization,* the *MEM Guideline for the implementation of Environmental Management Programmes (EMPs)* and the *MEM Guideline for decommissioning and closure.* The third tier of guidance represents the supporting and/or technical guidance on specific matters relating to mining environmental management. In case of existing accepted guidelines, those guidelines and information sources are referenced in a *MEM Reference Register.*

4.1.2 Other subsidiary policies

4.1.2.1 Policy concerning financial provision for the rehabilitation of land disturbed by mining activities

Description of the policy and underlying principles

Cabinet approved a policy, concerning the provision of funds by mines for the rehabilitation of the environment by the State should the mine fail or be unable to do so, in 1996 after Government and the mining industry had agreed on the policy guidelines. Government and the mining industry accepted the principle that the polluter must pay for pollution or the damage that prospecting or mining operations incur on the environment. Subsequent to the approval of the policy, regulations were promulgated in terms of the Minerals Act, 1991, to ensure that financial provision is made by a mine in the form of guarantees for the execution of its EMP. Important principles of the arrangement that has been formalised are the following:

- The financial provision shall be exclusively for environmental management and rehabilitation purposes and the funds may not be utilised for any other purpose.
- The funds shall be safe from seizure in case of liquidation or other incapacity of the mining operator and be readily available to the Department : Minerals and Energy in such an event.
- Provision shall be available at the onset of operations, during the life of the mine and at closure.

- Provision shall be sufficient to keep pace with rehabilitation obligations vis-à-vis mining operations, bearing in mind that a statutory obligation exists to rehabilitate affected land during and as an integral part of mining operations.
- The quantum of provision shall be reviewed annually.

Financial provision shall be by one or more of the following methods:

- Approved contributions to a dedicated trust fund as provided for in section 10(1)(cH) of the Income Tax Act, 1962. (Contributions to such a fund as well as any profit or gains of the fund are exempt from tax.)
- A written guarantee from a bank, other approved financial institutions, statutory bodies or provincial or municipal authorities guaranteeing the availability of funds if the mining company should fail or become incapacitated.
- Cash deposit placed with the DME.
- Other financial provision approved by the Director-General of the Department: Minerals and Energy on an ad hoc basis, if the above methods should, in a specific case, prove to be impractical.

Mechanisms and procedures implemented to ensure compliance with policy

The following mechanisms and procedures are being applied to implement this subsidiary policy:

- The Subcommittee for Financial Provision of the Standing Committee for Environmental Management in the Mining Industry make recommendations from time to time on the policy and procedures concerning financial guarantees for environmental management and remediation of environmental damage by mines.
- Supporting regulations 5.16.1 to 5.16.4 as promulgated in terms of the Minerals Act, 1991.
- Directives providing specific instructions to the directors: mineral development regarding the implementation of the policy and regulations.
- Performa's for the trust fund, bank guarantee and cash agreements as approved by the State Legal Advisors.
- Additional requirements for financial guarantees in terms of the new Mineral Development Bill, which is supported by regulations.

- A MEM Guideline document on Financial Provision is being finalised which will provide guidance on the itemisation of activities to be considered and the calculation of or estimated costs involved on, *inter alia, the* following:
  - Survey, area investigation and actual impact determination, in terms of rehabilitation of disturbed mining area.
  - Demolition, removals, structures and roads, making safe of other areas.
  - Pollution control and waste management.
  - Other environmental impact remediation.

4.1.2.2 Policy concerning the granting of a certificate in terms of section 12 of the Minerals Act, 1991, to mines releasing such mines from further regulatory responsibilities in terms of the Act

Description of the policy and underlying principles

Mine closure is often associated with a myriad of questions, doubts, and uncertainties regarding responsibilities related to environmental issues. In terms of section 12 of the Minerals Act, liability for complying with the relevant provisions of the Act remains with the holder of a prospecting permit or mining authorization until the Department : Minerals and Energy issues a certificate to the effect that the said provisions have been complied with. The authorities and industry have agreed on policy guidelines acceptable to all the role-players. The policy provides, inter alia, for the following objectives and principles:

- The safety and health of humans and animals must, after closure, be safeguarded from any and all hazards resulting from past mining operations.
- Environmental damage or residual environmental impacts must be minimised to such an extent that these are acceptable to all involved parties.
- The land is rehabilitated to, as far as is practicable, its natural state or to a predetermined and agreed to standard or land use which conforms to the concept of sustainable development.
- The physical and chemical stability of any remaining structures, such as residue dumps, should be such that risk to the environment is not increased by naturally occurring forces to the extent that such increased risk cannot be contended with by the installed measures.

- The optimal exploitation and utilisation of South Africa's mineral resources are not adversely affected.
- Mines are closed efficiently and cost effectively.

If the above objectives have been met and all the provisions of the Act, including the EMP, have been complied with, a certificate, as contemplated in section 12 of the Act, will be issued to a mine. A proviso is, however, that if residual and latent impacts have been identified, these must be described in the mine's EMP and adequate and irrefutable arrangements put in place to ensure that these impacts will be adequately dealt with. Such arrangements may include the need for a mine to make financial provision for the financing of post-closure environmental management or for the maintenance of pollution control measures. A competent third party may also have to be identified to assume responsibility for such management or maintenance and must be in a position to utilise the funds that the mine has made available for this purpose. Effective planning for closure should take place as early as possible in the life of a mine and, preferably, even before mining operations commence. Equally important is to identify the post-mining land use (or land use options if there is no certainty yet) so that mining methods, the placing of structures and interim rehabilitation actions may be adapted to cost effectively meet the identified goals.

Due to the complexity of important concepts of mine closure, the policy is supported by the development of Government position statements on the following related aspects:

- Determination of residual and latent impacts.
- Norms and standards applicable at closure.
- Responsibilities for post closure management.
- Closure under other legislation.
- Closure under previous legislation.
- Conditional/provisional closure.
- Partial closure.
- Transfer of liabilities to new owners / sale of mines.

Mechanisms and procedures implemented to comply with policy

The following mechanisms and procedures are being applied to implement the policy:

- Subcommittee for Mine Closure of the Standing Committee for Environmental Management in the Mining Industry, to assist in the development of guidelines, procedures and Government position statements on various issues regarding mine closure.
- The provisions of Minerals Act, 1991.
- Development of the above Government position statements.
- Additional requirements for mine closure are provided for in terms of the new Mineral Development Bill, which will be supported by regulations.
- A MEM Guideline for Decommissioning and Closure is being developed which will provide guidance on all legislative requirements and procedures for mine closure.

4.1.4 Monitoring and EMP Performance Assessment

4.1.4.1 Description

The inclusion of monitoring and EMP performance assessment into the environmental management process completes the last link of an integrated, cradle-to-grave environmental management process adopted by D:ME. The monitoring and EMP Performance Assessment process will also assist Government as well as the mining industry in determining compliance with the requirements of the EMP, the appropriateness of the EMP and to guide mines to effective and acceptable closure.

4.1.4.2 Mechanisms and procedures implemented to comply with policy

The following mechanisms and procedures are being applied to implement these requirements:

- A strategy for monitoring and EMP Performance Assessment has been negotiated with various role players and approved.
- Regulations for EMP Performance Assessment and monitoring have been promulgated in the *Government Gazette* No 20219 of 25 June 1999, Notice No. R801 in terms of the Minerals Act, 1991.
- Directives providing specific instructions to the directors: mineral development regarding the implementation of monitoring and EMP Performance Assessment.

- A MEM Guideline for the implementation of EMPs is being developed which will provide guidance on all legislative requirements and procedures for this phase.

4.1.5 EMEM Awards for Excellence in Mining Environmental Management

4.1.5.1 Description

In recognising excellence in environmental management and to reward this appropriately, thereby promoting the improvement of quality and standards in the mining industry, D: ME has implemented an Award system for excellence in environmental management in the mining industry. The Departments: Environmental Affairs and Tourism, Water Affairs and Forestry and Agriculture, endorse this system. Various professional institutions such as the International Association for Impact Assessment (IAIAsa), the Water Institute of South Africa (WISA) and the South African Institute for Mining and Metallurgy (SAIMM) act as patrons within this system to secure credibility and to ensure that a high environmental standard is maintained.

Objectives of the Award system

- To motivate the industry to excel in environmental management.
- To publicly recognise and reward those mining companies who have excelled in their environmental management endeavours and to highlight the environmental achievements of the industry.
- To evaluate and establish the status and effectiveness of the environmental management requirements of the mines, thereby ensuring a basis for continuous improvement.
- To ensure technology transfer and highlighting of examples of excellence in environmental management.
- To improve the image of the industry as well as to raise public awareness on mining environmental management.
- To promote responsibility and self-regulation within the industry.

Award Categories

- Large open-cast mining operations (>500 000 tons of rock/material moved per year)
- Small open-cast mining operations (<500 000 tons of rock/material moved per year)

- Underground mining operations
- Offshore mining operations.

4.1.5.2 Mechanisms and procedures for the implementation of this system

The following mechanisms and procedures are being applied to implement the Award system:

- The endorsement of the Award system by the following patron organisations: IAIAsa, WISA and SAIMM.
- The endorsement of the Award system by D: EAT, D: WAF, the National Department: Agriculture and the NNR.
- The establishment of a formal communication and adjudication structure consisting of the following committees:
  - Steering Committee for the EMEM Awards.
  - Executive Committee for the EMEM Awards.
  - Administration and Financial Control Subcommittee.
  - Regional and National Evaluation Panels.
- Communication and promotional strategy.

4.1.6 Programme: Rehabilitation of Derelict and Ownerless Mines

4.1.6.1 Description

In the case of derelict and ownerless mines Government, in the absence of a legally responsible person or company and subject to the availability of funds, acts in the interest of a community by addressing the pollution emanating from such mines or where circumstances prove to be detrimental to the safety and health of such communities. Funds are being budgeted for the rehabilitation of these dumps in terms of the Medium Term Expenditure Framework, which comprises Government's spending plans for 3 consecutive years. The D: ME has budgeted for this process since the enactment of the Minerals Act, 1991. The D: EAT also contributes annually to the rehabilitation process.

Derelict and ownerless asbestos mines/dumps

The need to rehabilitate derelict and/or ownerless asbestos mines was identified in 1986 after it became internationally accepted that asbestos fibers pose a serious health risk to humans as a cause of lung-related diseases such as lung cancer, asbestosis and mesothelioma when inhaled.

A computerized programme to assist with the determination of the priority of asbestos mines to be rehabilitated has been developed. The following criteria are, *inter alia,* taken into consideration:

- The proximity of communities living near such mines/dumps.
- The potential of dispersion of asbestos fibers from a dump by wind and water.
- The prevailing wind direction.
- The physical analysis of the fiber content of a dump.
- Funds available for the specific financial year.

A substantial number of job opportunities are created to local communities who assist with the re-establishment of vegetation and the construction of erosion control measures. These labourers are only employed after the asbestos dump has been encapsulated (covered with topsoil) to ensure that they are not exposed to the potential risk of inhaling the hazardous asbestos fibres.

The most critical asbestos pollution sources in the Northern Cape and the Northern Province has already been undertaken and D: ME will continue budgeting for funds for the rehabilitation of the remaining derelict and ownerless asbestos mines.

D: ME's mandate is limited to the mining area (the dumps and associated infrastructure) with the aim to rehabilitate (encapsulate) the main sources of pollution. Based on the proceedings and recommendations of a National Asbestos Summit held in November 1998, D: ME will produce a standard protocol and guideline document for the rehabilitation of derelict and/or ownerless asbestos mines.

Other derelict and ownerless mines

Part of the overall programme for the rehabilitation of derelict and ownerless mines is the control of underground fires, stabilisation and rehabilitation of the derelict Transvaal and Delgoa Bay Colliery (T&DB) in the Mpumalanga Province. The first phase of the project required the appointment of a consultant to develop an integrated plan for the control of underground fires and rehabilitation of the surface, which was completed in February 2000 and a final report with short and long term recommendations was submitted in March 2000. The most important short term recommendation already

accepted for implementation is to provide a safe and secure access way across the area. The various alternatives to rehabilitate the area are complex in nature and need some detail investigations. Certain pilot projects are therefore being considered for implementation.

4.1.6.2 Mechanisms for implementation to comply with this programme

- Requirements in terms of the Minerals Act, 1991, the Mine Health and Safety Act, 1996 and the Atmospheric Pollution Prevention Act, 1965.
- Through the Agreement between D: WAF and the Chamber of Mines (also known as the Fanie Botha Accord) regarding the implementation of pollution control measures at abandoned coal mines.
- The application of section 19 of the National Water Act, 1998.
- A Bilateral Committee for derelict and ownerless mines between the D: ME and the D: WAF to deliberate on, advise and co-ordinate and prioritize rehabilitation and pollution control by the State, at derelict and ownerless mines.
- Standard Protocol and guidelines for the rehabilitation of derelict and/or ownerless asbestos mines.

4.2 POLICIES, PLANS AND PROGRAMMES FOR ENERGY

4.2.1 White Paper on Energy Policy for South Africa

The White Paper on the Energy Policy of the Republic of South Africa was published in the *Government Gazette* No 19606 on 17 December 1998. The White Paper clarifies Government's commitment to a national energy policy which will ensure that the national energy resources shall be adequately tapped and developed to cater for the needs of the nation. It is of prime importance that energy must be available to all citizens at an affordable cost. Furthermore, energy production and distribution should not only be sustainable, but should lead to improvement of the standard of living of all people.

The White Paper places a high value on the necessity to balance the use of natural energy resources with the protection of the environment. The Energy Branch of the D: ME being primarily involved in policy formulation, does not administrate any legislation that is directly concerned with environmental protection during energy production. The erection of certain energy production and distribution facilities have been identified in terms of section 21 of the Environment Conservation Act, 1989, as facilities that may

have a substantial detrimental impact on the environment and, consequently, are subject to approval in terms of that Act. Many different Government departments exercise functions that involve the management of energy-related environmental, health and safety issues. In this regard, the policy is "*that a pro-active approach in communicating with other government authorities on areas of common environmental interest must be followed, and D: ME will establish mechanisms to address problems from time to time and to disseminate appropriate information. Provincial governments, as the responsible agencies for many environmental governance issues, will receive particular attention in this regard.*"

The following energy-related environmental, health and safety impacts have been identified and described and the policy objectives/programmes and mechanisms for implementation are specified below.

4.2.1.1 Indoor and outdoor air pollution from coal and wood use

Description

It is stated in the White Paper that "*Government will seek, as a matter of priority, to mitigate the negative environmental and health effects of air pollution from coal and wood use in household environments.*" In this regard, it should be mentioned that even after electrification, many households continue to use coal and wood on a daily basis although this is expected to slowly decrease as prosperity rises and living habits change. It has become clear that electrification alone does not eliminate air pollution in coal and wood-using areas. As it is likely that coal will remain the major source of domestic energy for the foreseeable future, the following programmes have been initiated:

- **Low-smoke fuels programme**

  The burning of fossil fuels (especially coal) for cooking, water and space heating during winter results in high levels of both indoor and outdoor air pollution. In pursuance of the objectives of the Reconstruction and Development Programme, *viz.* the provision of cleaner and affordable energy to the disadvantaged communities, the Department initiated the Low Smoke Fuels Programme during 1994. A macro-scale experiment in Qalabotjha in the Free State was undertaken to investigate the use of alternative low-smoke fuel resources.

An Integrated Energy Decision Support Model has been developed to determine the most cost effective policy for the alleviation of urban air pollution. It is also envisaged that a marketing/awareness campaign will be implemented to encourage consumers to explore different options.

Mechanisms and programmes being implemented

- Promote the use of cleaner fuels as a substitute for bituminous coal.
- Continued electrification programme of households.
- Thermal and ventilation improvements to existing and new houses.
- Education programmes on the implementation/application of the above.

4.2.1.2 Fires, burns and poisoning from household fuels

Description

Almost all non-electrified households in South Africa use candles or paraffin for lighting. Both of these commodities have specific hazards. A large number of accidental fires occur annually in informal settlements, some with devastating impacts. The causes of these fires include accidents through human error and also poor quality paraffin lighting or heating appliances. Paraffin poisoning is a common occurrence amongst infants in many low-income households. Measures such as child-resistant paraffin containers and lids are necessary.

Mechanisms being implemented

- The electrification of households, using either grid connections or off-grid means.
- Monitor the impact of electrification on the number and severity of fires caused by candles and paraffin, in order to establish whether expected reductions materialize.
- Develop, introduce and promote safety and performance standards for paraffin stoves.
- Require the suppliers of paraffin and related products, to the retail sector, to introduce safety measures as part of their activities.
- Monitor and assess the impact of the safety measures undertaken by the petroleum industry and will provide guidance and support to these activities where necessary.

4.2.1.3 Environmental impacts of bulk energy supply

The abundance of low-cost coal has led to that commodity satisfying approximately 75% of South Africa's primary energy demands. Although the impact on the environment would be considerably less if the energy economy were based on natural gas or hydro-electric resources, the presence of large and easily-exploited coal reserves suggest that coal will continue to be the mainstay of the energy sector for the foreseeable future. It is therefore essential that adequate environmental performance be achieved by the electricity generation, iron and steel, chemical and synthetic fuels industries that use coal as an energy source. Increases in the number of bulk electricity generators, which may follow the restructuring of the domestic electricity industry and increased regional energy trade, will require a systematic and balanced means of ensuring adequate environmental performance in this sector. Regulatory responsibility for the environmental governance of ESKOM, municipal generators and private sector companies such as SASOL, is widely distributed between the Department: Environmental Affairs and Tourism, the Department: Water Affairs and Forestry, the Department: Minerals and Energy (mining), the National Nuclear Regulator, provincial and local governments and potentially the National Electricity Regulator. Poor co-ordination between these entities often leads to ineffectual and inconsistent environmental governance. Improved environmental governance requires some clarification of the roles of these authorities. The D: EAT continues to carry principal responsibility for the establishment of environmental performance standards. The following policy has been accepted:

"The DME will include explicit environmental considerations into studies regarding energy suppliers and users, and will integrate these results through Integrated Energy Planning."

Mechanisms being implemented

The implementation of this policy will require:

- Systematic and independent monitoring of the environmental impacts of energy suppliers;
- Quantification of the costs and benefits of possible mitigation measures where the need for these arises; and
- The development of mitigation strategies where these are shown to be in the national interest.

Appropriate mechanisms for co-operation between the D: ME and the D: EAT in undertaking these activities must be established.

4.2.1.4 Vehicle emissions

Motor vehicle emissions represent a significant source of certain components of air pollution in the larger urban areas in South Africa, contributing to brown haze problems in some cities. Unleaded fuel was introduced in 1996 without mandatory emission controls or standards. Although the introduction of unleaded fuels is expected to bring about a reduction in ambient lead concentrations, the effect of other pollutants is unknown. To date South Africa has not pursued policies adopted by many industrialized countries in response to increased environmental emissions and congestion caused by extensive motor vehicle use. The D: ME and the D: EAT, in collaboration with the motor and oil industry, have embarked on a Vehicle Emissions Programme of vehicle emissions in the major urban centers of South Africa. The following policy has been accepted:

"Implement programme on vehicle emissions to promote the implementation of economically viable options and investigate the feasibility of possible emissions control and management measures to reduce pollution from vehicles".

4.1.2.5 Greenhouse gas impacts

Scientific opinion suggests that the continued emission due to human activities of greenhouse gases, principally carbon dioxide and methane, may bring about significant and long-term changes to the functioning of the earth's atmosphere. Of great uncertainty still are the possible impacts and damage attributable to climate change.

South Africa is responsible for approximately 1,6% of global greenhouse gas emissions and the country's energy sector is the single largest source of greenhouse gas emissions in Africa, being dependent on coal for more than 75% of the country's primary energy needs. Although South Africa is unlikely to be faced with obligations to reduce the use of coal as the main energy source in the near future, pressure on South Africa to take steps to reduce its global environmental impacts will undoubtedly increase. South Africa became a party to the UN Framework Convention for Climate Change (FCCC) in 1997. South Africa in its responsibility as a Party is lead in this activity by the D: EAT

through its National Committee for Climate Change. The D: ME is actively participating in the activities of the NCCC. The Kyoto Protocol strengthened the binding commitments for industrialized countries to reduce their emissions. The energy sector is one of the key stakeholders in the climate change arena. The D: ME therefore needs to increase its inputs and need to play a more active role, together with the D: EAT and Department: Foreign Affairs, in the development of South Africa's position in international negotiations around climate change issues. The following policy has been accepted:

"Monitor international developments and participate in negotiations around response strategies to global climate change, in order to progressively balance environmental responsibilities and development interests".

4.1.2.6 Implementation of Renewable Energies

The White Paper on Energy Policy for South Africa sets out Government's objectives and policy for the South African energy economy in support of its macro-economic strategy and recognizes the potential role of renewable energy. Broadly defined, renewable energy sources are those sources of energy available that arise from natural processes and are regularly replenished, with the sun as the primary renewable energy source available.

The White Paper presents a number of policy guidelines "based on the understanding that the renewables are energy sources in their own right, are not limited to small-scale and remote applications, and have significant medium and long-term commercial potential". In terms thereof Government undertakes to:

- "Provide focused support for the development, demonstration and applications of renewable energy sources for both small and large scale applications".
- "Support Renewable Energy Technologies for application in specific markets on the basis of researched priorities".
- "Facilitate the production and management of woodlands through a national social forestry programme for the benefit of rural households, where appropriate".
- "Promote the development of appropriate standards and guidelines and codes of practice for the correct use of Renewable Energy Technologies".

- "Establish suitable information systems of renewable energy statistics, where justifiable, and assist in the dissemination thereof".

The goal that emerges from these policy objectives when read together with the expressed need for diversified energy supply options to fulfil South Africa's varied energy requirements may be:
"To fully integrate the available renewable energy resources into the mainstream energy economy and development system of the country".

The White Paper seeks to exploit and utilise renewable energy, the largest indigenous energy resource base, to its full economic potential and as part of a more balanced and diversified overall energy supply portfolio.

Growing global commitment to sustainable development suggests as main thrusts for the future global energy economy -

- More efficient use of energy,
- innovative technologies for reducing environmental impacts of fossil fuel use, and
- the progressive exploitation of renewable energy sources.

In the South African context the renewable energy sources have the ability to impact favourably on the quality of life of a large number of people. The Reconstruction and Development Programme, which aims at, amongst others, parity between urban and rural communities, empowerment of the poor and disadvantaged communities by alleviating poverty, meeting basic needs and raising the quality of life, offers a unique window of opportunity for the large-scale utilization of the Renewables.

The main renewable energy resources available to South Africa are:

- **Biomass.** In South Africa close to 10% of the primary energy supply is indicated as renewable. This arises mainly from the use of biomass harvested from the natural woodlands as fuel wood or available as waste from the commercial forestry and sugar industries. In fact, renewable energy, as fuel wood or charcoal, supplies consumed in the domestic sector, whilst the figure is close to 12% in the industrial and commercial sectors.

- **The Sun.** The Southern African region, in fact the whole of Africa, is well endowed with sunshine all year round. The annual 24 hour global solar radiation average is about 220 W/m^2 for South Africa, compared to about 150 W/m^2 for parts of the United States and about 100 W/m^2 for Europe and the UK, making the local resource of the highest in the world. The solar resource is by far the most readily accessible in South Africa. It lends itself to a number of potential uses.
- **Wind.** South Africa has a fair wind resource. Areas of high potential, with average wind speed well in excess of 4 m/s, compare favorably with that of Europe and elsewhere. They are, however, concentrated along its long coastline and the Drakensberg escarpment. Large-scale exploitation will therefore have to be *via* electricity generation in wind farms and transmission through the national grid.
- **Hydropower.** South Africa has limited potential for large-scale hydroelectric power generation. Current installed capacity amounts to 600 MW spread over 2 power stations, with a further 1 400 MW by way of pumped storage schemes. There are, however, an estimated 6 000 to 8 000 potential sites for small hydropower applications in the power range sub 100 MW, situated mainly on the eastern escarpment in KwaZulu-Natal and the Eastern Cape. There are, however, an estimated 175 000 MW of untapped hydropower available within the Sub-Saharan region.

Mechanisms and programmes implemented to comply with this policy

- **Rural electrification.** Targeting the goal of universal access to electricity over the next two decades will require the launching of an ambitious non-grid electrification programme as an integral element of the National Electrification Programme. Photovoltaic Solar Home Systems (PV SHSs) should be installed in at least 1.5 million homes within 10 years (out of a total estimated target of 2 to 3 million) if backlogs are to be reduced. To reach such a target, the annual rate of dissemination should be steadily increased from, say, 5 000 in the first year to a steady rate of about 230 000 per annum from year 5 onward. Whilst the majority of installations should be rural, a small percentage of high profile urban pilots should be established to debunk the myth that renewable energy resources imply an inferior electrical supply. It is anticipated that the programme would continue

after year 10. This process has already commenced with a joint venture between Shell International Renewables and ESKOM in the Flagstaff district of Eastern Cape Province.

- **Solar Passive Building Design.** Houses and buildings in South Africa are seldom designed from an energy consumption, let alone energy efficiency, perspective. The energy characteristics of the low-cost housing are particularly bad, resulting especially in high levels of energy consumption for space heating in winter. The net result is dangerously high levels of indoor and outdoor air-pollution in the townships, due mainly to coal burning. Research has shown that low-cost housing could be rendered "energy smart" through the utilisation of elementary "Solar Passive Building Design" practice, resulting in fuel savings of as high as 65%. Such savings on energy expenditure would also have a major beneficial impact in improving the household cash-flow situation. The massive national low-cost housing programme provides a unique window of opportunity. The Department: Housing and the South African Bureau of Standards have been involved in amending the national housing standards, where necessary. Energy efficient homes may be constructed at the same direct cost (and lower life cycle cost) as energy wasteful houses. The challenge is to develop awareness and to ensure implementation of basic energy efficiency principles.

- **National Solar Water Heating Programme.** Water heating accounts for a third to a half of the energy consumption in the average household. In South Africa this derives mainly from electricity, being the most common energy carrier employed. Avoidance of this expenditure on household budgets could lead to significant improvements in disposable incomes of the lower income sector. Furthermore, the equivalent of a large coal fired power station (2 000 MW +) is employed to provide hot water on tap to the domestic sector alone. Since the inception of the accelerated domestic electrification programme through grid extension, a major distortion of the national load curve has emerged, with the early evening load peak growing significantly. Modeling indicate that the introduction of solar water heating could ameliorate the situation substantially. Switching from electrical to solar water heating could, therefore, have significant

economic and environmental benefits. Economic benefits for the home-owner in reducing his/her energy bill; for the utility in obviating expensive generation capacity to address load peaks; and/or postponing the introduction of new base-load capacity. Also for the country in reducing greenhouse gas releases and the release of scarce capital for other pressing needs.

- **Renewable Energy Technologies - Resource Assessment and Feasibility Studies.** Feasibility studies will be conducted on a number of promising technologies for possible implementation in the medium to longer term. These include:
  - Grid connected wind farms. A study has been conducted in the Darling district of the Western Cape. The project is now in the investment phase.
  - Wind farm/Pumped storage, as a means of addressing peak loads on the national electricity grid.
  - The local production and commercial dissemination of solar cookers. This is the second phase of a collaborative project between the German development agency GTZ and the D: ME.
  - Solar thermal power generation, a collaborative programme with ESKOM, also involving the SolarPACES programme of the International Energy Agency.
  - Small-scale hydropower; a scoping study aimed at developing an implementation strategy.
  - Landfill gas exploitation.
  - Rural water supply and sanitation.

- **Rural Development.** Sustainable Rural Development can be defined as the access to affordable basic services and the activation of economies to sustain and to expand these services. The D: ME will spearhead the establishment of the concept of "Energisation" in the rural areas of which a rural electrification programme is an important component. An electrification programme, particularly when it has a strong non-grid component, has to form part of a holistic approach to energy provision, if it is to succeed. Electricity supplied through SHSs is insufficient to cater for thermal energy requirements of households, while experience shows that even if grid-electricity is supplied the energy intensive thermal requirements remain to be satisfied through

conventional fuels. The holistic approach to energy provision taking into account both the electricity and thermal needs of households define Energisation. The D: ME will pilot a unique approach to activate dormant or under utilised economic development, using the available renewable energy as a catalyst supported by adult basic education training programmes (ABET), for the promotion and sustainability of rural agricultural and home based industries, starting with the KwaZulu-Natal and Eastern Cape Provinces.

- **National Public Education, Training and Marketing Campaign.** There is a general depth in understanding the benefits and potential of renewable energy resources amongst the public, specifically amongst the targeted sectors for immediate implementation. Consequently, the economic viability, technological soundness and utility of these technologies are doubted. This is further compounded by high expectations on access to the familiar conventional energy sources. The D: ME will launch a sustained and well-focused public education and marketing campaign to underpin the actions identified above as one of its prime tasks.

4.1.2.7 Nuclear energy

The White Paper on an Energy Policy specified the following:
"The Department: Minerals and Energy will investigate all aspects of the management of radioactive waste in South Africa and will make recommendations in regard to the safe management and disposal of such waste, following a process, which is subject to structured participation and consultation of all stakeholders. An Integrated Environmental Planning approach will be considered by the Department: Minerals and Energy in consultation with the Department: Environmental Affairs and Tourism."

Decisions to construct future nuclear power stations will be taken within the context of an integrated energy planning process with due consideration given to all relevant stakeholders. This integrated energy planning process has been initiated by the D: ME and will involve participation by experts and stakeholders, including the public.

ESKOM is investigating the Pebble Bed Modular Reactor (PBMR) with the objective of potentially expanding South Africa's nuclear power capacity .

Whilst the D: ME recognises ESKOM's ongoing research and investigations into PBMR, no decision to construct a demonstration plant has as yet been taken. Because the PBMR is not at present commercially applied technology anywhere in the world, Government has requested the International Atomic Energy Agency (IAEA) to investigate and advise on the technical and economic feasibility, safety and nuclear proliferation aspects of the PBMR. The feasibility report from the IAEA would also feed into the Integrated Energy Planning process thereby assisting Government to make decisions on the matter and to build the required national consensus from the people of South Africa on the possible expansion of nuclear power generation in South Africa.

Mechanisms being implemented

- In order to implement this policy, the D: ME gave priority to the development of new nuclear legislation resulting in the Nuclear Energy Act, 1999 and the National Nuclear Regulator Act, 1999.
- Other legislation that are relevant to the management of radioactive waste are the Hazardous Substances Act, 1973, the Mine Health and Safety Act, 1996, the Minerals Act, 1991, the NEMA, 1998, the National Water Act, 1998, and the Dumping at Sea Control Act, 1980.

CHAPTER 5

PRIORITY FUNCTIONS AND ACTIONS

5.1 PRIORITY FUNCTIONS AND ACTIONS FOR MINERAL DEVELOPMENT

In accordance with the DME's mandate, the Directorate Mine Rehabilitation is responsible for the development and communication of environmental policy, legislation and guidelines for the mining industry. The Mineral Development Directorates are responsible for the implementation thereof within the nine Provinces. With regard to environmental management, the priority functions and actions of these Directorates are highlighted below:

5.1.1 Development and implementation of environmental management policy and supporting legislation for the mining industry in accordance with the Minerals and Mining White Paper and the national environmental policy and legislation (2000/2001).

Specific actions in this regard include:

- Planning for and providing a suitable framework strategy which will enable the Department's officials to execute their functions in accordance with the requirements of newly developed national policies such as the White Paper on Minerals and Mining and supporting legislation, the national Environmental Management Policy of the Department of Environment Affairs and Tourism, Integrated Pollution Control and Waste Management (IPC & WM) and Integrated Environmental Management (IEM) as well as National Environmental Management legislation.
- Planning for effective implementation of the policies and legislation.

The resources available to execute this priority function include:

- Head Office: 5 officials and supporting administrative staff.
- Regional Offices: 43 officials and supporting administrative staff.
- Additional expertise: Mining industry, other departments/authorities, consultants, I&APs.

5.1.2 Revise, develop and implement specific supporting framework policies and strategies that relate to environmental management in the mining industry which include, *inter alia*:

- **Financial guarantees for rehabilitation (already implemented).**

- **Mine closure objectives and post closure arrangements (already implemented).**
- **Awards for excellence for environmental management in the various sectors of the mining industry (already implemented).**
- **Environmental management programme performance assessment and monitoring (already implemented).**

Specific actions in this regard include:

- Monitoring the effectiveness of existing guidelines.
- Revising the existing guidance accordingly or develop new guidelines.
- Providing procedural, content and technical guidelines pertaining to monitoring and performance assessment in mining industry.
- Developing procedural guidelines for mine closure.

5.1.3 **To rehabilitate derelict/ownerless mines which may cause a safety/health risk to neighburing communities or have the potential to cause environmental pollution or degradation (ongoing).**

Scope of rehabilitation of derelict/ownerless mines include all polluting or dangerous mines especially asbestos mines/dumps, coal and gold slimes dams.

Specific actions in this regard include:

- Proceeding with planning for rehabilitation and pollution control at derelict/ownerless mines via the Bilateral committee (D:WAF and D:ME).
- Phased and prioritised rehabilitation of derelict and ownerless mines in the nine regions.

Working relationships with other role players include:

Internally with the Subdirectorate Financial Management.

Externally with the Department: Water Affairs and Forestry, D: EAT, Provincial Agriculture and Environmental Departments, I&APs and consultants.

5.1.4 **Continue to strengthen a communication network for effective environmental management planning for the mining industry (ongoing).**

Specific actions in this regard include:

- Continuation of management of established formal communication structures to guide and promote environmental management in mining industry as discussed in Chapter 7.
- Establish as required, formal and temporary communication structures for the development of guidelines and minimum requirements as discussed in Chapter 7.

- Interdepartmental liaison with the Department: Environmental Affairs and Tourism as required in terms of the National Environmental Management Act, 1998 through regular meetings of the Committee for Environmental Co-ordination and other Sub-committees.
- Interdepartmental Bilateral Committee with the Department: Water Affairs and Forestry on derelict and ownerless mines.
- Regional Communication Forums established to facilitate communication between different authorities and parties concerned pertaining to environmental management in mining industry.
- Internal Mineral Development Branch meetings to pro-actively identify shortcomings, training needs, interpretation of policies /legislation etc. in environmental management in the regions.
- Attend and participate in conferences, symposia, workshops, etc.

Working relationships with other role players include the Departments: Water Affairs and Forestry, Agriculture and provincial environmental departments, mining industry, labour organisations, NGOs, relevant professional institutes/consultants.

5.1.6 **Provide an advisory service pertaining to environmental management in the mining industry, disseminate information pertaining to environmental management in the mining industry to role-players involved and influence and participate in development of other authorities' policies, legislation and guidelines (ongoing).**

Working relationships with other role players include the Departments: Water Affairs and Forestry, Agriculture, D: EAT and provincial environmental departments, mining industry, labour organisations, NGOs, relevant professional institutes/consultants, public.

5.1.7 **To improve the expertise of officials in order to strengthen the effectiveness of the implementation of environmental management in the mining industry (ongoing).** The scope of training includes officials with Head Office and Regional Offices.

Specific actions include:

Identify training needs

- Provide internal environmental management courses to officials in regions, including information on all policy, guideline on research products.
- Identify appropriate courses in mining environmental management at institutions.

Working relationship with other role players include experts in Public Administration, Mineral Laws, Environmental Management, Institutes, Councils and professional bodies (specific for mining industry).

5.2 PRIORITY ENERGY-RELATED FUNCTIONS AND ACTIONS PERTAINING TO ENVIRONMENT, SAFETY AND HEALTH ASPECTS

5.2.1 To develop policies and strategies on the demand for energy, renewable energy resources and technologies and the implementation of non-grid electricity programmes

Specific actions in this regard include:

- The implementation of a national energy strategy where energy activities are co-ordinated, implications and gaps in these developments are assessed and corrective measures proposed and public awareness and capacity building programmes are implemented.
- The implementation of the national policy and strategy for household energy other than electricity which includes facilitating the implementation of programmes in areas of non-electricity cooking including the correct utilization of fire wood and new cooking technologies, to investigate the utilization of the use of non-electrical energy and gender issues, identify trends and problem areas and recommend corrective measures, to develop and implement a general household energy capacity building and education programme focused on developing communities.
- The implementation of non-grid electrification in appropriate areas, monitor the results and problem areas of these programmes and introduce a revision of appropriate policies and strategies.

The resources available to execute this priority function include:

DME: 15 officials

Additional expertise: Working relationship with other authorities and role players.

5.2.2 To develop and implement policy on the supply of electricity and to develop and implement strategies for coal, gas and the efficient use of energy.

Specific actions in this regard include:

- Manage the national electrification planning programme and analyse the supply and demand for electricity together with the identification of specific needs.
- Managing a programme of assessment of coal resources and reserves.
- Developing a suitable policy for the supply and use of low smoke fuels in developing communities.

- Implementing a Gas Regulatory Bill.
- Monitoring and quantify the interaction between the use of energy and the physical environment, locally and internationally and investigate response strategies.
- Administering a national energy efficiency programme focussed on developed households.
- Analysing the correlation between the efficient use of energy, economic growth, environmental interaction and investment in the energy sector.
- Facilitating a national energy efficiency programme in the industrial, mining, commercial and transport sectors.

The resources available to execute this priority function include:

DME: 12 officials

Parastatals i.e. National Electricity Regulator.

Additional expertise: Linkages with other authorities and role players.

5.2.3 **To develop nuclear energy policy and the implementation thereof.**

Specific actions in this regard include:

- Monitoring the activities of nuclear energy institutions and recommend corrective action to Minister.
- Administer nuclear material imports and exports and requests for approval by the Minister.

The resources available to execute this priority function include:

DME: 3 officials

Parastatals i.e. National Nuclear Regulator (NNR) and the South African Nuclear Energy Corporation.

Additional expertise: Linkages with other authorities and role players.

5.2.4 **To develop, maintain and analyse national energy data and administer the Energy Branch's programmes/projects.**

Specific actions in this regard include:

- The collection of energy use and supply data into appropriate electronic data basis and the development of appropriate publications thereof.
- The analysis of energy data, the modelling of energy demand, the development of energy scenarios and the resultant building of alternative integrated energy plans.
- The development of appropriate publications on the general energy economy investment opportunities and the analyses of trends and future implications.

The resources available to execute this priority function include:

DME: 7 officials

5.2.5 To implement regulatory dispensation regarding the distribution, price setting and price control of liquid fuels

Specific actions in this regard include:

- Implement the approved system of regular price adjustments.
- Monitor international developments and trends and determine changes and improvements in the local price control policy.
- Undertake investigations and programmes with regard to the effect of vehicle emissions.
- Administer the rationalisation plan for retail fuel marketing.
- Administer import and export permits for liquid fuels.
- Monitor the policy on strategic oil stockpiles.

The resources available to execute this priority function include:

DME: 7 officials

Parastatals i.e. CEF.

Additional expertise: Linkages with other authorities and role players.

CHAPTER 6

ENVIRONMENTAL QUALITY STANDARDS AND CRITERIA

6.1 DESCRIPTION OF ENVIRONMENTAL QUALITY STANDARDS AND CRITERIA

Environmental standards, norms and criteria are normally reflected in regulations published in terms of environmental legislation. In South Africa, apart from water quality standards, legislated environmental quality standards are uncommon. In the light thereof, the D: ME recognises and applies standards which are not legally binding but are generally accepted. The following environmental quality standards are therefore distinguished and are integrated in mining environmental management:

- **Environmental ambient standards:**
  Environmental ambient standards are regulatory requirements that provide numerical limits or threshold values to which industrial operations must be designed, operated and managed. These may include water quality standards, effluent discharge standards, air emission standards and/or workplace air quality, noise emissions or exposure, waste disposal, especially waste materials allowed to be dumped, human exposure to dust, toxic chemicals or radioactivity. Ambient standards must, however, be distinguished from procedural standards, management standards (such as ISO 14000), performance standards, codes of practice and legislative requirements.

- **Criteria:**
  Criteria are scientifically determined at "no-effect" levels of a pollutant, with a certain safety factor added.

- **Protected species/areas:**
  Protected species, areas or features that have been declared, designated or demarcated in terms of legislation.

6.2 List of standards and criteria applied

Subject	Standards	Legislation
WATER RESOURCE QUALITY:		
Surface water: Water use	General authorizations and licences.	National Water Act, 1998
Determination of class of water resource and resource quality objectives.	Chapters 3 and 4 of the National Water Act, 1998.	National Water Act, 1998.
Water quality, instream and riparian habitat. Aquatic biota.	Resource classification and reserve determination. No standards exists. Red data species are generally accepted and applied as standard.	
Flood and storm water control.	Regulations Chapter 5 of the Minerals Act, 1991. Regulations 704 National Water Act, 1998	Minerals Act, 1991 National Water Act, 1998.
Dam safety.	Guideline for the Mandatory Code of Practice for Mine Residue Deposits. Chapter 12 National Water Act, 1998 and the regulations pertaining to the use of water for mining and related activities (GN 704 of 4 June 1999)	Mine Health and Safety Act, 1996. National Water Act, 1998.
Groundwater: Groundwater quantity. Groundwater quality.	General authorisations and licences. Resource quality objectives.	National Water Act, 1998 National Water Act, 1998.
AIR QUALITY:	List of scheduled processes. Common pollutants. Particulate matter/Dust fallout (standards as prescribed are based on EPA requirements).	Atmospheric Pollution Prevention Act, 1965
RADIOACTIVITY:	License requirement levels.	National Nuclear Regulator Act, 1999
NOISE:	Ambient + 7dBA (Local authorities). SABS Codes 0103 and 020. 85dBA Mine Health and Safety Act, 1996 regulations (only for health related aspects within the workplace).	Environment Conservation Act, 1989 Mine Health and Safety Act, 1996.

NATURAL VEGETATION:	Protected flora. Red Data Species. Regulations on weeds and invader species promulgated in terms of the Conservation of Agricultural Resources Act, 1988.	Conservation of Agricultural Resources Act, 1983. Environment Conservation Act, 1989. Provincial ordinances. Conservation of Agricultural Resources Act, 1988.
ANIMAL LIFE:	Protected fauna. Red Data Species.	Environment Conservation Act, 1989. Provincial Ordinances.
SENSITIVE LANDSCAPES / ENVIRONMENTS:	Protected areas in terms of national legislation and/or international conventions. The Department of Environmental Affairs and Tourism is finalising the *Environmental Attributes* which will identify sensitive areas/landscapes within South Africa *via* the need to produce Integrated Development Plans. Limited Development Areas. Designated/demarcated areas/features.	Environment Conservation Act, 1989. National Environmental Management Act, 1998. National Monuments Act, 1969. National Heritage Resources Act, 1999. Mountain Catchment Act. Local Government Transition Act
LAND USE / CAPABLITY:	Structure Plans and Land Development Objectives. Classification of agricultural land. Mining operational requirements in terms of: Distance of mining to structures. Subsidence control.	Physical Planning Act Development Facilitation Act, 1995. Conservation of Agricultural Resources Act, 1983. Mine Health and Safety Act, 1996. Minerals Act, 1991
CULTURAL AND ARCHAEOLOGICAL RESOURCES:	Legislative requirement: Protection of resources 50 years and older. Listed / known resources.	National Monuments Act, 1969. National Heritage Resources Act, 1999.

WASTE MANAGEMENT:	Hazardous waste classification. Minimum requirements and criteria (generally accepted standards).	Environment Conservation Act, 1989. *Integrated Pollution Control & Waste Management Policy, National Waste Management Strategy and proposed legislation.*
	Guideline for the Mandatory Code of Practice for Mine Residue Deposits.	Mine Health and Safety Act, 1996.

6.1.3 Mechanisms and procedures implemented to ensure compliance with these standards/criteria

The following mechanisms and procedures are being used to apply the standards and criteria:

Within the Mineral Development Branch:

- The Environmental Management Programme as required in terms of the Minerals Act, 1991.
- Monitoring and EMP Performance Assessment requirements.
- Communication/liaison between Deputy Director-General and regions at Branch meetings.
- Communication/liaison at Regional Communication Forum meetings.
- Communication/liaison industry, government and other role players at Standing Committee for Environmental Management in Mining Industry.

Within Energy Branch:

- Energy White Paper / Energy Policy document.
- International environmental protocols and conventions as directed by the National Convention in Climate Change.

CHAPTER 7
COMMUNICATION AND ARRANGEMENTS FOR CO-OPERATION

7.1 INTERNATIONAL COMMUNICATION AND CO-OPERATION

The Directorate International Co-ordination, which forms part of the Management Services Chief Directorate of the Department, specifically renders an international liaison service and promotes co-ordinated communication and participation on mineral and energy matters.

The Energy Branch of the D:ME has been involved in the SADC regional energy sector for a number of years. It has been ensured that South Africa ratifies the regional energy protocol for the establishment of a regional energy commission. The Branch has been instrumental in the formation and establishment of the Regional Power pool, which houses the utility power co-operation agreement between SADC member countries. Power trade between SADC countries has benefited tremendously from those initiatives leading, *intr alia,* to the recently inaugurated Motraco Agreement, for power trade between South Africa-Swaziland-Mozambique.

The Energy Branch has also hosted a number of SADC Energy Sector sub-committee meetings, the most important of which was the petroleum sub-committee, which considered at standardizing petroleum products in SADC countries.

The Energy Branch is also involved in other countries, through bilateral and multilateral forums. The Branch has been involved in binational commissions with countries such as Germany, United States of America, Norway, Netherlands, Mozambique and certain others. The Branch has links with forums such as the European Union, United Nations Economic Commission for Africa (UNESCA), African Energy Commission (AFREN) and SADC sector.

With regard to energy, the D: ME has entered into a number of international agreements with a number of countries, some of which are:

- Memorandum of Understanding on Energy between RSA and the Dutch Government.
- SADC Energy Sector Protocol.
- Agreement on Energy Policy, Science, Technology and Development between the SA Government and the Department of Energy of the United States of America.
- Statement on Energy with the United States of America.
- MOU between the Government of the Republic of Zimbabwe and the Government of the Republic of South Africa on Co-operation in the Field of Energy.

- MOU on Energy Co-operation between the Ministry of the Republic of South Africa and the Ministry of the Arab Republic of Egypt.
- Agreement for Co-operation between the RSA and the USA concerning peaceful uses of Nuclear Energy.
- Southern African Development Community: Intergovernmental MOU: The Southern African Power Pool.

The Directorate Mine Rehabilitation of the Mineral Development Branch is responsible for the following mining environmental management related projects within SADC:

- Project AAA4, Spontaneous combustion. Zambia was initially responsible for this project, but once South Africa's input was received on this project, it was "inherited" by South Africa. Responsibility for this project is being co-ordinated between the D:ME and the Council for Geoscience.
- Project AAA5, Environmental Regulatory Framework for Mining within SADC.
- Project AAA7, Impacts and management of mining and exploration on the coastal and marine environment. Namibia is responsible for this project and good progress has been made with input from South Africa. Both the Marine Diamond Mines Association and the Petroleum Agency of South Africa have compiled and submitted information in the form of Generic Environmental Management Programme Reports (EMPRs).

7.2 COMMUNICATION AND CO-OPERATION BY AND THROUGH THE MINERAL DEVELOPMENT BRANCH

7.2.1 Legislative requirements for consultation

Section 39 of the Minerals Act, 1991, stipulates that consultation shall take place with each department charged with the administration of any law that relates to any matter affecting the environment before an Environmental Management Programme (EMP) may be approved. This includes the Mine Health and Safety Inspectorate. It is the policy to also consult with all persons who will be affected by the prospecting or mining operations. Approval of an EMP may take a considerable period of time and the legislation empowers the granting of a temporary permission to proceed with mining operations. Such permission will, however, only be granted in exceptional cases, after consultation with the other instances, under stringent conditions and only in certain circumstances, for instance where insignificant impact on the environment is expected and/or if exceptional circumstances require that the mineral involved should come into production urgently.

Section 2 of the Minerals Act, 1991 furthermore, provides that the Act must be administered under the control of the Minister in accordance with the instructions and directives of the Director-General by the directors: mineral development and forms part of the legislative requirements of the Minerals Act, 1991. As a result of a decision by an Appeal Court (Save the Vaal appeal), a directive was issued by the Director-General which requires that directors: mineral development must consult with relevant interested and affected parties prior to the consideration of prospecting permits and/or mining authorizations in terms of sections 6 and 9 of the Act. The Directive furthermore provides that consultation pertaining to prospecting permits or mining authorizations be done concurrently with that pertaining to EMPs.

7.2.2 Multi-stakeholder communication and co-operation

The following formal multi-stakeholder communication structures have been established by the Mineral Development Branch to co-ordinate mining environmental management with the relevant Government departments, mining industry and various role players involved:

7.2.2.1 Standing Committee for Environmental Management in the Mining Industry

The Standing Committee is a high level committee with the objective of developing the most appropriate course of action for D: ME, other Government departments, the mining industry, labour unions and NGOs to manage, within the context of the Minerals Act, 1991, the environmental issues associated with prospecting and mining activities so as to ensure the development of South Africa's mineral resources and the protection and conservation of the environment to the benefit of the country. The Standing Committee is chaired by the Deputy Director-General of the Mineral Development Branch and meets three times per year. Representation on the Committee includes the relevant National and Provincial Government Departments, the National Nuclear Regulator (NNR), the Chamber of Mines, Aggregate and Sand Producers' Association of South Africa (ASPASA) and other mining companies not represented by the Chamber, National Union of Mine Workers (NUM) and NGOs.

The following sub-committees of the Standing Committee have been established:

- **Sub-committee for Environmental Management Guidelines and Procedures**, to assist in the development of Environmental Management Guidelines and procedures to be published and implemented by the Department from time to time.
- **Sub-committee for Monitoring and Performance Assessment**, to develop and finalise the strategy and regulations for monitoring and EMP performance assessment for the mining industry.
- **Sub-committee for Financial Provision**, to recommend on policy and procedures concerning guarantees for environmental management by mines.
- **Sub-committee for Mine Closure**, to assist in the development of guidelines, procedures and Government position statements on various issues regarding mine closure.

The above sub-committees were brought into existence after the advent of the Minerals Act, 1991.

7.2.2.2 Regional Communication Forums

The Regional Communication Forums are convened by the directors: mineral development within the nine regions to facilitate communication between the different authorities and concerned parties on matters regarding environmental policy, legislation, and the preparation, evaluation, approval , implementation and monitoring of EMPs, closure applications for mines and the identification of possible deficiencies in relation to the above. The Forums meet four times per year in each Region and representation on the Forums include the relevant National and Provincial Government departments, local authorities/metropolitan councils, representation from the Mine Health and Safety Inspectorate, relevant mining companies, consultants, specialists and NGOs.

7.2.2.3 Steering Committee for the EMEM Awards and sub-committees

A Steering Committee, represented by relevant Government departments, professional institutions i.e. International Association for Impact Assessment (IAIAsa), Water Institute of Southern Africa (WISA) and the SA mining industry, organised labour, various NGOs and special co-opted members, has been established to advise the D:ME on the setting up and running of a system to reward excellence in environmental management in the mining industry. In support of the Steering Committee, an Executive Committee and

an Administrative and Financial Control Sub-committee have also been established to deliberate on and make recommendations on key aspects within the EMEM Awards System to the Steering Committee. Key aspects *inter alia* include:

- The establishment of procedures and criteria for nomination and evaluation.
- Financial requirements and sponsorships.
- Marketing initiatives.
- Development of documentation.

Regional Evaluation Committees for the EMEM Awards are also established by the directors: mineral development within the nine regions to objectively assess, evaluate and rate the contenders according to the evaluation criteria and procedures as determined. Members of the Regional Evaluation Committee include the representation of the relevant Government Departments, local authorities, regional NGOs, the scientific community and academic institutions.

7.2.2.4 Other Ad hoc committees and Task Teams

- ***Review Group for the revision of the Aide-mémoire / development of the MEM Guideline Series and Task Teams***

  Communication, co-ordination and public involvement in the revision process of the *Aide-mémoire* and the development of the MEM Guideline Series have been ensured through the Review Group, various task teams and participation with interested and affected parties (I&APs). The Review Group was established in 1997 to review the processes followed with regard to the revision and development of new guidelines as well as the documentation produced. Their membership reflects a balanced representivity of role players involved which include relevant Government departments, NGOs (GEM/EJNF), labour unions (Cosatu/NUM), IAIAsa, National Nuclear Regulator, Water Research Commission, Chamber of Mines, ASPASA, SASOL, academic institutions and specialists. It is regretted that the Department: Environmental Affairs and Tourism has withdrawn from this committee due to the lack of personnel/resources.

  Two task teams, consisting of specialists, have been established to assist with the development of the MEM guidelines and to identify existing

guidelines, knowledge gaps and to prioritise the development of additional guidelines.

7.2.2.5 Public involvement

A mailing database of 800 interested and affected parties (I&APs) has been established within the Directorate Mine Rehabilitation of the Mineral Development Branch to promote communication and consultation on various projects relating to mining environmental management. The mailing list of I&APs include Government (at all levels), the mining industry, labour organisations, NGOs, professional institutes, consultants, parastatals and academic institutions.

7.2.3 Inter-departmental communication and co-operation

7.2.3.1 Bilateral Committee for derelict and ownerless mines

The purpose of the Bilateral Committee is to deliberate on, advise and co-ordinate the task of rehabilitation and pollution control by the State, through the D: ME and the D: WAF, at mines which have for various reasons not been properly rehabilitated and do not have an accountable owner, e.g. mines that are closed or abandoned and which are referred to as derelict and ownerless. The objectives of the committee are therefore:

- To prevent the further degradation of land and pollution due to ineffective control regarding derelict and ownerless mines.
- To establish acceptable procedures for the D: ME and D: WAF to manage rehabilitation and pollution control at derelict and ownerless mines.
- To prioritise the various activities and assess the various alternatives for mitigation appropriately.
- To co-ordinate the most efficient/effective planning, organisation and completion of the relevant rehabilitation, pollution control and maintenance tasks at derelict and ownerless mines.
- To ensure the necessary upfront insight and transparent decision-making required for the task.
- To pro-actively manage all functions required to ensure effective solution of the problem.

The committee consists of representatives of D:ME Head Office and its Regional Offices, D: WAF Head Office and representatives from other departments, provinces and affected parties are co-opted on a case-by-case basis. The origin of the committee stems from the fact that it was decided to join financial and human resources of D: ME and D: WAF who are the two Departments who have budgeted for the rehabilitation of poluting derelict and ownerless mines.

7.2.3.2 Memorandum of Understanding (MOU) between D: ME and D: WAF

A memorandum of understanding exists between D: ME and D: WAF to provide an understanding of the nature of the working relationship between D: ME and D: WAF concerning participation within an Integrated Environmental Management System for prospecting and mining activities as applied by the requirements of the Minerals Act, 1991 and the National Water Act, 1998. The intension of the MOU is to improve the efficiency of the system and will minimise potential conflict and ambiguity. The MOU records a mutual understanding on the following issues:

- The fundamental premises with regard to an Integrated Environmental Management System, the role of such system and its key success factors.
- The principles and obligations of both Departments regarding participation in the integrated system.

7.2.3.3 Environmentally Sound Low Cost Housing Task Team

Preliminary discussions in the Department: Housing indicated that there are three main aspects to the development of environmentally sound low cost housing i.e. energy efficiency, water efficiency and sustainable and productive greening of the living environment. An inter-departmental task team between the Departments: Housing, D: EAT, D: WAF and D: ME has been established. It is expected that this task team will be extended to include other role players.

7.2.4 Internal Branch Management meetings held between Head Office and the Regional Offices

Internal Branch meetings are held once every month to, *inter alia, discuss* the implementation of policies, legislation, norms and standards, the interpretation of the provisions in the Minerals Act, 1991 and to proactively identify shortcomings in the

implementation of mineral regulation, including mining environmental management, within the nine Regions. Representation on the committee is as follows:

- Deputy Director-General: Mineral Development (Chairperson)
- Chief Director: Mineral Regulation
- Chief Director: Mineral Promotion
- Director: Mining Rights
- Director: Mine Rehabilitation
- Director: Mine Economics
- Director: Mineral Economics
- Director: Communication
- Directors: Mineral Development (9 regions)

7.2.5 MINACT System

The implementation of a computerized database to support the Mineral Law Administration (MINACT) system enables the nine regional offices to produce valuable information and statistics relating to applications for prospecting permits and authorizations, the negotiation of prospecting contracts and mineral leases in respect of State-owned minerals and also in respect of surface usage to Head Office. The MINACT system also makes it possible to cross-reference details of prospecting and mining projects through to environmental management/rehabilitation and other surface developments.

7.2.6 Other

7.2.6.1 CEC and other committees

The National Environmental Management Act, 1998, (NEMA), provides for the establishment of a Committee for Environmental Co-ordination (CEC) to promote the integration and co-ordination of environmental functions by relevant organs of State and, in particular, to promote the achievement of the purpose and objectives of environmental implementation plans and environmental management plans. The CEC held its inaugural meeting during April 1999 and the Director-General appointed the Director: Mine Rehabilitation to represent him at meetings when he is unable to attend such meetings. The D: ME is also represented on the CEC's Subcommittees for

Environmental Law Reform and EIPs/EMPs and various other project steering committees.

7.2.6.2 Research and development

Various research projects related to **mining** environmental management are underway through other organisations **or authorities** with the participation and support of the D: ME. They include:

- Research Committee for High Extraction Coal Mining
- Coaltech 20/20 (Administered by the CSIR)
- Water Research Commission (WRC)

The Directorate forms part of the WRC Steering Committee and Technical Task Team regarding a project on Water Related Impacts of Small Scale Mining. The project was introduced at the end of 1999 and initiated at the beginning of 2000. With small scale mining playing an important role in the economy, it is imperative that the holistic implications of small scale mining activities are understood - particularly those that affect the environment.

Guided by this, the project aims to identify and characterise critical aspects of water-related impacts and to recommend appropriate tools to steer environmental management of small scale mines. The project will provide an inventory of small scale mining types and sites which will later be developed into priority listed areas that need to be managed. The ultimate intention is to consolidate the information into an information database (GIS) which will provide information on the location of small scale mines of the different mining types. The study focuses on sand winning, clay mining, gold panning, alluvial diamond digging and artisinal coal mining.

7.2.6.3 Regional ad hoc committees

Ad hoc committees are established within the regions to co-ordinate and promote participation on a case-by-case basis. These include i.e. small-scale mining, illegal mining and rehabilitation of gold slimes dams, specific mining related pollution aspects. With regard to illegal mining, certain regional offices have established formal communication structures with the South African Police Services.

7.3 COMMUNICATION AND CO-OPERATION BY AND THROUGH THE ENERGY BRANCH

7.3.1 Multistakeholder communication

The Energy Branch actively communicates primarily on ad hoc basis with associated institutions and energy-related companies, industry, role players, communities in a number of environmental projects and processes.

7.3.2 Inter-departmental communication and co-operation

The Energy Branch is keenly participating in a number of key intergovernmental forums, such as the National Convention on Climate Change (NCCC). The Branch is also a key player in the Department: Environment and Tourism, international negotiating terms at the UNFCCC negotiations, particularly as regards articles 4.8 and 4.9 of the protocol and the response mechanisms and the convention.

7.3.3 Internal Energy Management Branch

Various meetings within the Energy Branch are constantly taking place. These include Energy Management meetings, Senior Management meetings and Energy Strategic meetings. The Energy Branch consults internally and co-ordinates environmental actions actively between different directorates and chief directorates.

CHAPTER 8

EXTENT OF COMPLIANCE WITH POLICIES, LEGISLATIVE REQUIREMENTS INCLUDING NEMA PRINCIPLES AND ASSESSMENT OF PERFORMANCE

8.1 COMPLIANCE AND PERFORMANCE MONITORING

Compliance and performance monitoring of the D: ME's policies, programmes and legislative requirements with the NEMA principles and the objectives of sustainable development have been determined and measured by means of information obtained, discussions held or statistics obtained from the following: [Also refer to Appendix A for detailed information in this regard and the methodology followed in determining compliance and performance.]

8.1.1 Regional inspections and reporting procedures

With regard to mineral development, the Regional Offices of the D: ME, in co-operation with other relevant authorities, undertake inspections:

- At all mines on an ongoing basis to determine compliance with and measurement of performance regarding the implementation of the EMPs and to provide guidance and advice on various matters relating thereto.
- At all sites that are the subject of prospecting and mining applications to consider and evaluate these applications as well as draft EMPR submitted for approval.
- To follow-up on complaints received from parties/individuals regarding negative environmental impacts/degradation at operating mines.
- Before closure of prospecting or mining operations.

Information obtained assists the D: ME to determine the mining industries compliance with the applicable environmental policies and legislative requirements, to identify shortcomings in the application thereof and to undertake the necessary corrective action.

8.1.2 Information obtained *via* the D: ME's internal Branch Management Committee

Internal Branch Management meetings are held monthly to discuss the implementation of policies, legislation, norms and standards, the interpretation of the provisions in the Minerals Act, 1991 and to identify shortcomings in the application/implementation of these policies and legislation. Information obtained from discussions held at these meetings assists the D: ME in determining how the mining

industry complies with the applicable environmental policies and legislative requirements and to identify shortcomings in the application thereof.

8.1.3 Information received via the multi-stakeholder and inter-departmental communication structures

As indicated in Chapter 7, the D: ME obtains information regarding the application of its policies and legislative requirements pertaining to the environment from discussions held at the multi-stakeholder and inter-departmental communication structures on national and regional level.

8.1.4 Trimester and annual reporting requirements for the Mineral Development and Energy Branches of the D: ME

Within the D: ME, a trimester and annual reporting procedure exists where reports from the various directorates within Head Office and the nine Regional Offices are circulated to all officials within D: ME for information purposes. Information obtained in the trimester and annual reports assist the relevant directorates to monitor compliance and performance pertaining to environmental policies and legislative requirements, as well as to identify shortcomings in the application thereof and to undertake the necessary corrective action.

8.1.5 Ministerial enquiries or complaints received

Ministerial enquiries or complaints are received by the D: ME, which are investigated by the Regional Offices. Information obtained from these enquiries also assists the D: ME to, *inter alia,* monitor compliance and performance of environmental policies and legislative requirements, to identify shortcomings in the application thereof and to undertake the necessary corrective action where necessary.

8.1.6 Monitoring and EMP Performance Assessment requirements

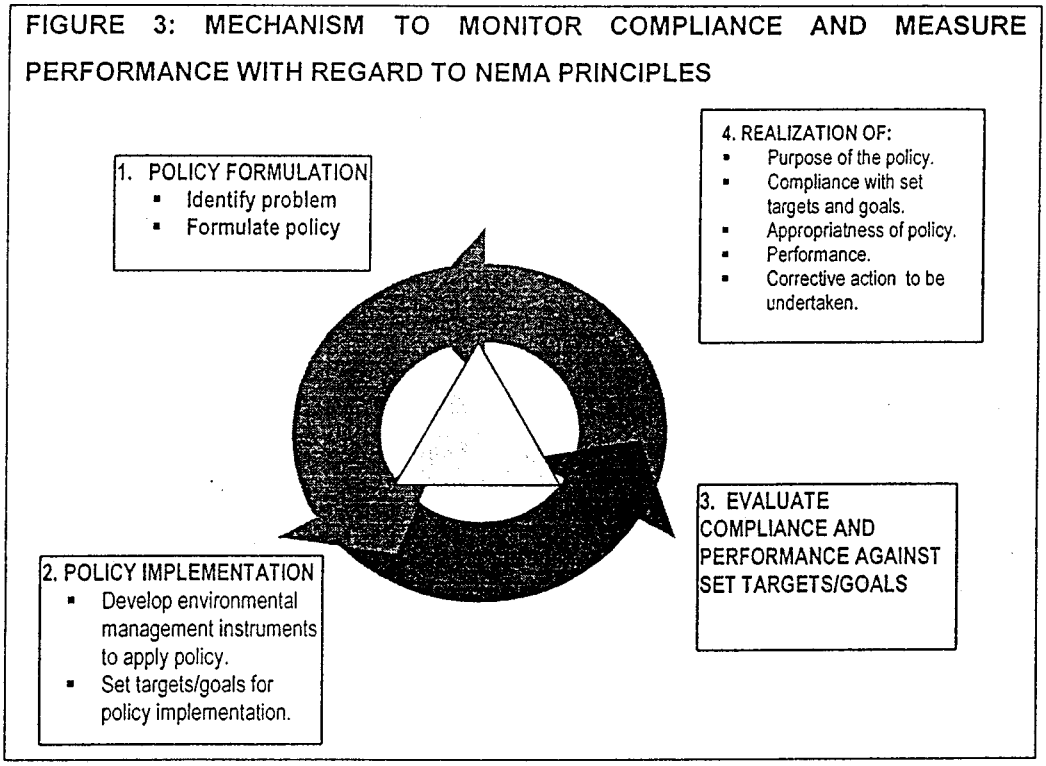
Within mining environmental management, the D: ME has realized that a specific reporting procedure must be introduced to monitor compliance and measure performance. Regulations for EMP Performance Assessment and Monitoring in terms of the Minerals Act, 1991 have recently been promulgated. The inclusion thereof not only completes the last link of an integrated cradle-to-grave environmental management process but also provides the D: ME with a mechanism to monitor

compliance and performance with all mining environmental management policies and legislative requirements. It furthermore provides a mechanism (Figure 3) to assess the D: ME's compliance and performance with regard to the NEMA principles.

The compliance monitoring and performance mechanism in Figure 3 is based on a generic policy-making process which include the following steps:

1. Problem identification and policy formulation.
2. Policy implementation and setting targets/goals for policy implementation.
3. Evaluating and assessing the compliance to and appropriateness of policy.
4. Realization of the purpose of the policy and corrective action.

FIGURE 3: MECHANISM TO MONITOR COMPLIANCE AND MEASURE PERFORMANCE WITH REGARD TO NEMA PRINCIPLES



It should be mentioned that the regulations for EMP performance assessment and monitoring require that the mining industry must submit a report in this regard to the director: mineral development every second year or as determined by him. Unfortunately, such reports have not yet been submitted to the directors: mineral development.

8.2 SHORTCOMINGS WITH REGARD TO THE IMPLEMENTATION OF POLICIES AND LEGISLATION

The following shortcomings have been identified regarding the D:ME's compliance and performance with regard to the implementation of environmental policies, legislation and achievement of the objectives of the NEMA principles.

8.2.1 Within Mineral Development Branch:

- Addressing the legacies of the past. The "organized" mining industry in South Africa is more than 100 years old and environmental legislation addressing the impacts of mining was only implemented in 1992.
- Lack of capacity in regions to implement requirements.
- Some inconsistency in the application of regulatory measures and policies within the different regions.
- The lack of capacity and skills with regard to small-scale mining.
- Illegal mining.

8.2.2 Within Energy Branch:

- Fragmentation of legislative requirements in controlling and managing the energy sector in its totality.
- Lack of legislative mandate within D: ME to control and manage all aspects with regard to energy development.
- Lack of relevant Government departments in integrating the economic benefits and social challenges relating to energy development with the objectives of sustainable development and protection of the environment.
- Lack of co-ordination between the D: EAT and D: ME regarding the control of impacts relating to the construction and operation of energy production and distribution facilities.

8.3 SUMMARY OF D: ME's COMPLIANCE AND PERFORMANCE *VIS-A-VIS* THE NEMA, 1998 PRINCIPLES

The D: ME's compliance and performance have been measured by means of indicators. Indicators are tools used to measure, monitor and report the progress made towards the achievement of the goals and objectives of sustainable development. There is no standard methodologies or a formula for the development of policy indicators. The development of policy indicators have therefore been based on identified environmental and sustainable

development indicators for South Africa as well as information relating to the physical, chemical and biological measures associated with mining activities, the environmental quality and socio-economic factors.

An attempt to assess the D:ME's compliance and performance relevant to the NEMA principles appears in Appendix A. The approach followed in this assessment has been discussed with officials within D:EAT with expertise relevant to sustainable development indicators. The approach has been adopted by the members of the CEC Sub-committee for EIPs and EMPs.

Figure 4 summarizes the results obtained.

8.4 CORRECTIVE ACTION

8.4.1 Section 2 of the Minerals Act, 1991

Section 2 of the Minerals Act, 1991, provides a mechanism for corrective action which determines that the Minerals Act "*must be administered under the control of the Minister in accordance with the instructions and directives of the Director-General by the directors: mineral development*". Such directives form part of the legislative requirements in terms of the Minerals Act, 1991, and specific directives have been issued by the Director-General to the nine directors: mineral development since 1994 for implementation, covering the following subject matters:

- Various aspects on the implementation of financial guarantees.
- Appeals on specific cases.
- Requirements pertaining to mine closure.
- SABS ISO 14000 Environmental standard.
- Conditions regarding the granting of temporary authorizations.
- National Water Act.
- Strategy and regulations on EMP Performance Assessment and monitoring.
- The application of Standard EMPs.
- Strategy for mines operating without EMPs.
- Use of consultants for compiling EMPRs.
- I&APs consultation: Consideration of prospecting / mining authorizations and approval of EMPs.

8.4.2 Revision of existing legislation, procedures and guidelines

With regard to mining environmental management, the D: ME has also initiated a process in 1997 to revise the existing guideline document known as the, A*ide-mémoire*

for the preparation of Environmental Management Programme Reports (EMPRs) for prospecting and mining. This revision process was initiated at the time when new environmental policies and legislation for environmental management and related aspects were formulated, published and/or promulgated in South Africa. The initial objective to revise this guideline document was therefore to:

- Integrate international trends and developments.
- Integrate new national policies and legislation pertaining to the environment (NEMA, 1998) and water-related aspects (National Water Act, 1998) with that of mining environmental management.
- Address deficiencies and shortcomings identified within the existing EMP system and process implemented in terms of the Minerals Act, 1991.

The D: ME was therefore in a position to assess the current policies, legislation procedures and guidelines pertaining to mining environmental management and to integrate and to re-align these with the new environmental requirements, to incorporate provisions/actions for corrective action to strengthen the effectiveness and to improve the current system. This has resulted in the development of the following:

- The White Paper on Minerals and Mining for South Africa (including Chapter 4 pertaining to Environmental Management).
- The Mineral Development Bill and supporting regulations.
- The MEM Guideline Series.

FIGURE 4: SUMMARY OF DME'S COMPLIANCE AND PERFORMANCE TO NEMA PRINCIPLES

NEMA PRINCIPLE GROUPING		Standard Score				Performance rating					
		Applicable Indicators	Raw Score	Max Pos Score	Percent Rating	Below standard		Meets standard		Exceeds standard	
						Poor	Below Sat	Marginal Sat	Satisfactory	High Sat	Superior
						0-10&	11-43%	44-54%	55-65%	66-77%	78-100%
1	Sustainable development	23	114	207	55				X		
2	Integration	8	47	72	65				X		
3	Participation	14	79	126	63				X		
4	Environmental justice	13	60	117	51			X			
5	Ecological integrity	10	50	90	55				X		
6	International responsibilities	5	26	45	64				X		

Overall Performance Rating

		Poor	Below Sat	Marginal Sat	Satisfactory	High Sat	Superior
Maximum Possible Score:	657						
Departmental Score:	376	0-10&	11-43%	44-54%	55-65%	66-77%	78-100%
Departmental Rating:	57%						
Departmental Performance: Satisfactory Performance					X		

Overall Compliance Rating

		Non-Compliance	Compliance
* Maximum Possible Score:	27		
** Compliance Score:	25	0-89%	90-100%
Compliance Score:	92,5% Compliance		X

* There are 27 principles in terms of section 2 of NEMA 1998.

** The DME complies to 25 principles.

CHAPTER 9
INTEGRATION AND ALIGNMENT

With regard to the integration and alignment of environmental policies, principles, norms and standards, the D:ME has already gone a long way in this regard. The following pertains:

Section 15(5) of NEMA, 1998, provides that a national department, which has submitted an EMP, must adopt and publish its plan in the *Government Gazette* within 90 days of such submission and the plan becomes effective from the date of such publication. Once the EMP has been considered by the CEC, it will be published and implemented accordingly.

9.1 **Minerals Act, 1991** [Also refer to pages 17 and 18 of the EMP for detailed information with regard to these requirements].

Environmental requirements in terms of the Minerals Act, 1991 comply with the minimum requirements in terms of section 24(7) of the NEMA which include the following:

- Environmental management programme based on an EIA to be implemented throughout the life of the prospecting or mining operation.
- Financial provision for rehabilitation and remediation.
- An EMP Performance Assessment and ongoing monitoring.
- Mine closure requirements.

9.2 **Mineral Development Bill (currently being developed and will be lodged with Parliament during 2001 session)**

In terms of Government policy reflected in the White Paper on Minerals and Mining Policy for South Africa, Government requires that:

"In order to achieve integrated and holistic environmental management throughout South Africa, Government requires compliance with a single national environmental policy and governance within a framework of co-operative governance. While Government has appointed the national Department: Environmental Affairs and Tourism as its lead agent for this role, the D:ME will, in support of the lead agent and in accordance with national principles, norms and standards, develop and apply the necessary policies and measures to ensure the mining industry's compliance with the national policy on environmental management and other relevant policies such as the national water policy".

It may be mentioned that great care was taken during the development of the Bill to ensure that the South African mining industry would, for as far as environmental management issues are concerned, be subject to the same norms, standards and requirements that are applicable to the rest of South African industry but that duplication of effort would not result. The environmental management and pollution prevention / control objectives of the Bill were consequently synchronised with NEMA and the National Water Act, 1998. The following are relevant:

- NEMA section 2: National Environment Management Principles. The principles form the background to the legal requirements being imposed on the mining industry and the background against which the environmental management requirements of the Bill must be interpreted.

- NEMA section 28 and National Water Act section 19: These sections require duty of care for environmental management and for remediation of environmental damage. The provisions of the Bill do not nullify the requirements of NEMA or of the said Water Act but stipulate that directives to entrepreneurs to undertake specific measures for cleanup can be issued by an official of D:ME if an authority mentioned in NEMA or the Water Act has not already done so. It is also a requirement that such authorities be advised of directives that are issued in terms of the Bill. (This approach will, apart from preventing duplication of requirements promote co-operative governance).

- NEMA section 23(1): The objectives of integrated environmental management as stated in NEMA section 23(1) are built into the Bill and form the important background to the requirements for environmental impact assessment and for environmental management through the EMP. This ensures that the mining industry is regulated on par with the rest of industry.

- NEMA section 24(3)(a) and (b): The latter subsection stipulates that every Minister that is charged by law with the authorising, permitting, etc, of an activity, may prescribe regulations laying down the procedures to be followed and report to be prepared for environmental impact assessment for the purpose of compliance with certain minimum requirements stipulated in sections 24(3)(a) and 24(7). The Bill incorporates these requirements and provides for the making of the necessary regulations by the Minister of Minerals and Energy in consultation with the CEC.

- NEMA section 30: The approach of this section is that a relevant authority, which includes the Director-General of a national department, may direct a person who is responsible for

an incident to take specific, timeous measures to contain / minimise pollution resulting from the incident and to undertake clean-up and remedial measures. A relevant authority may, if the responsible person fails to do so, take the necessary measures and claim costs from the responsible person. The Bill provides for the above and reiterates that approach adopted by NEMA (section 30(2)) that close co-operative governance must be exercised at all times, that due cognisance be taken of the requirements and instructions of other authorities and that reports must be furnished to the Director-General of the Department: Environmental Affairs and Tourism.

9.3 Alignment with the objectives of Chapter 5 of NEMA (Section 23(2)). Integrated Environmental Management

The Bill provides for:

- The integration of the principles for effective environmental management set out in section 2 of NEMA.
- Integrated environmental impact assessment in accordance with sections 24(4) and (7) of NEMA.
- Adequate opportunity for I&AP participation through obligatory consultation by entrepreneur and by Department.
- Adequate opportunity for authority decision-making through obligatory consultation by the Department and through an appeal process.
- Integrated environmental management through EMPs.
- The applicability of national norms, standards and procedures.
- The development of EIA regulatory measures in consultation with CEC.

9.4 Alignment with the minimum procedures in section 24(7) of NEMA

The Bill incorporates the requirements of section 24(7) of NEMA and the procedures are thus faithfully aligned with NEMA's approach. The only differences are found in:

- Subsection 7(d): The Bill provides for independent review when required only. The alternative is that every application to prospect or to mine must be subjected to independent review. This could be an unnecessary, expensive and time-consuming exercise. The Department holds the opinion that the Bill's procedures provide adequately for consultation, decision-making on an informed basis and an appeal process. The Bill provides, furthermore, that if an EIA, EMP or a monitoring and reporting exercise is found to be unacceptably lacking in required information, the Department may appoint an

independent reviewer to investigate the issues involved and to obtain the information required. This will be at the expense of the entrepreneur.

9.5 Other supporting initiatives pertaining to integration and alignment

9.5.1 Mining Environmental Management (MEM) Series of guidelines

During 1997 the Department initiated a process to revise the *Aide-mémoire.* At the same time various new policies and legislation regarding the environment were developed and promulgated. Notable is the new National Environmental Management Act, 1998, which provides the basis on which all development activities should be regulated.

The need for a full set of guidelines to be developed was identified and the concept of the Mining Environmental Management (MEM) Series of Guidelines was accepted by all participating interested and affected parties (I&APs). In this MEM series as indicated below, different tiers of guidance have been developed as follows:

First tier of guidance

On the first tier, the *MEM Framework* provides a broad vision for environmental management in the mining industry, overall environmental policies and objectives, principles, legislative requirements and how these are inter-linked with each other to form a cradle-to-grave and integrated approach to mining environmental management. The *MEM Framework* also serves as a key to the rest of the guidelines.

Second tier of guidance

On the second tier of guidance, procedural and content guidelines for each of the phases in the life of a prospecting or mining operation are provided i.e. *the MEM Guideline for planning and authorization,* the *MEM Guideline for the implementation of Environmental Management Programmes (EMPs)* and the *MEM Guideline for decommissioning and closure.*

Third tier of guidance

The third tier of guidance represents the supporting and/or technical guidance on specific matters relating to mining environmental management. In case of existing accepted guidelines, those guidelines and information sources are referenced in an *MEM Reference Register.*

9.5.2 Monitoring and EMP Performance Assessment

The regulations for EMP Performance Assessment and monitoring has been promulgated in the *Government Gazette* No 20219 of 25 June 1999, Notice No. R801. The inclusion of monitoring and performance assessment into the mining environmental management process completes the last link of an integrated and cradle-to-grave environmental management process adopted by D: ME. The monitoring and EMP Performance Assessment process will also assist Government as well as the mining industry in determining compliance with all applicable requirements of the EMP, the appropriateness of the EMP and to guide mines to effective and acceptable closure. In terms of these regulations, the holder of a prospecting permit or mining authorisation is required to :

- Conduct environmental monitoring on an ongoing basis.
- Conduct performance assessments on the appropriateness and compliance to the implementation of the approved EMP and to submit a report in this regard every two years from the date of approval of that EMP or as specified in the approved EMP or as agreed to in writing by the director: mineral development.

This reporting procedure will assist all relevant authorities to determine whether their requirements are adhered to.

9.5.3 Awards for excellence in mining environmental management

Apart from the fact that the EMEM Award system has been endorsed by the D: EAT, the D: WAF, the national Department: Agriculture, the National Nuclear Regulator (NNR) and the three patron organizations i.e. IAIAsa, WISA, and the SAIMM, the nomination acceptance criteria and the evaluation criteria require that the environmental performance on all applicable mining and environmentally related requirements be determined and evaluated.

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APPENDIX A

ASSESSMENT OF D: ME'S COMPLIANCE AND PERFORMANCE WITH NEMA PRINCIPLES

1. Approach followed

The D: ME's compliance and performance with NEMA principles have been determined and measured according to the approach as discussed with officials of the D: EAT and as agreed to by the CEC Subcommittee for EIPs and EMPs. The approach involves the following:

1.1 Identification of compliance indicators

Compliance indicators are based on whether a department's programmes, policies, plans, procedures and practices are in accordance with the NEMA principles. A "two-point", yes/no scale is used according to the guide below:

Non-compliance	Compliance
0	1

Definition of compliance:

The Department's policies, procedures and practice are in accordance with the NEMA principles. All the requirements of the indicator have been met at 90% of the time.

Definition of non-compliance:

The Department's policies, procedures and practice are not in accordance with the NEMA principles. All requirements for the indicator are met less than 90% of the time.

1.2 Identification of performance indicators

Performance indicators are rated on how well a department is performing with regard to applying/implementing the NEMA principles by using a ten-point scale.

Non performance	Partial performance			Satisfactory performance			Superior performance		
0	1	2	3	4	5	6	7	8	9

Superior performance is achieved when a department is excelling all elements in a particular indicator with either an innovative approach or an exceptional departmental

dedication to performance that is readily apparent. There is evidence of very few, if any exceptions to this.

Satisfactory performance is achieved if all of the requirements of the indicator are met almost all of the time. While the items, elements or actions necessary to accomplish the indicator are prevailing practice, minor exceptions may occur occasionally.

Partial performance is achieved when not all of the elements of the indicator are being accomplished or there are frequent exceptions to accomplishing the items, elements, or actions required to satisfy the requirements of the indicator. While there may be a policy in place, many staff is unaware of it or there is no policy or procedure in place.

Non-performance is achieved when the items, elements or actions necessary to accomplish the indicator are missing or are done so poorly that it does not contribute to the accomplishment of the indicator or the overall standard.

2. **Methodology followed in determining compliance and performance**

In order for D: ME to comply with the objectives of sustainable development and the principles of NEMA, 1998, the D: ME developed and implemented environmental policies and legislative requirements for the mining industry to meet these objectives and principles. The assessment of D: ME's compliance and performance with NEMA principles in Appendix A of the EMP includes an assessment of the following:

- The mining industry's compliance with these policies and legislation.
- The effective application and execution thereof by the D: ME.
- The adequacy of these policies and legislation in achieving the objectives of sustainable development and the principles as listed in NEMA, 1998 and the necessary corrective action undertaken in this regard.

Monitoring and performance assessment information and reporting procedures are required from the mining industry to scientifically assess:

- The mining industry's compliance with these policies and legislation as well as applicable requirements in terms of other legislation, norms and standards.
- The effective application and execution of environmental policies and legislation by the D: ME.
- The adequacy of these policies and legislation in achieving the objectives of sustainable development and the principles listed in NEMA, 1998.

In terms of the Minerals Act, 1991, regulations for EMP Performance Assessment and Monitoring have been promulgated. According to these regulations, the mining industry must report its compliance to environmental requirements in the EMP as well as the adequacy of the EMP on a biennial basis to the director: mineral development or as otherwise determined by him. This system has unfortunately not run long enough to obtain information by means of this reporting procedure. In the light thereof alternative means have been used to obtain sufficient information to enable D:ME to make such an assessment. The information used in the assessment of D:ME's compliance and performance with NEMA principles contained sufficient information to attempt to assess compliance with its policies and legislation. Further detail with regard to the type of information used in this regard is attached to this document (Appendix B).

Compliance and performance indicators have been determined for the D: ME according to the following:

- Guidance provided by Dr Rudi Pretorius (D: EAT), at a Subcommittee meeting held by D: EAT.
- Criteria, guidance and methodology contained in Chapter 2 of the document "Environmental Indicators, as published by D: EAT in 1996.
- Report to the United Nations Commission on Sustainable Development, Results from Testing of CSD indicators of sustainable development in South Africa, 1998, published by D: EAT in 1998.
- Agenda 21 indicators on sustainable development, website www.un.org/esa/agenda21/natinfo/countr/safrica/index.htm.

With regard to the assessment of compliance, the approach has been followed that the following must be in place in order for D: ME to "comply":

- Policies.
- Legislation.

- Programmes.

With regard to assessing D: ME's performance, the following approach have been followed:

- Identify performance indicators in accordance with criteria and guidelines.
- Assess information (refer to type of information in Appendix B) to determine the mining industry's compliance with these policies and legislation, the effective application and execution thereof by the D: ME, the adequacy of these policies and legislation in achieving the objectives of sustainable development and the principles as listed in NEMA, 1998.
- Make judgement and provide a rating according to the criteria determined for performance indicators (item 1.2 of Appendix A).

3. **Assessment of D: ME's compliance and performance to the NEMA principles**

[Note: NEMA principles have been typed in italics].

3.1 **Principles pertaining to sustainable development and compliance and performance indicators identified and described:**

Section 2(3), NEMA, 1998

Development must be socially, environmentally and economically sustainable.

Compliance indicators:

The D: ME supports the implementation of the concept of sustainable development as described in section 1(1) of the NEMA, 1998. Within mining environmental management, sustainable development is being applied through the enforcement of a mandatory integrated cradle-to-grave environmental management system. Within the Energy Branch policies and programmes are being implemented to change energy consumption and energy patterns.

Performance indicators:

The D: ME has adopted the concept and principles of sustainable development within the Environmental Management Programme as required in terms of the Minerals Act, 1991, which consists of an EMP based on an EIA, monitoring and EMP Performance Assessment. (6)

The D: ME has adopted the concept and principles of sustainable development within the White Paper for a Minerals and Mining Policy as well as the subsidiary policies pertaining to financial provision, monitoring and EMP performance assessment and mine closure. (5)

The D: ME has adopted the concept and principles of sustainable development as provided on section 2 of NEMA, 1998, in the Mineral Development Bill. (6)

The D: ME encourages consumer change in energy consumption and use and promotes energy efficiency through Integrated Energy Planning to influence people's choice of clean and environmentally friendly energy projects and programmes. (5)

Section 2(4)(a), NEMA, 1998

Sustainable development requires the consideration of all relevant factors including the following:

(ii) That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimized and remedied.

Compliance indicators:

The D: ME has an existing mandate for regulating and controlling the prevention of pollution and degradation of the environment and supports the implementation of international conventions and protocols.

Performance indicators:

The D: ME has an existing mandate for regulating and controlling a cradle-to-grave environmental management process in the mining industry which includes the rehabilitation of land, pollution control and control of mining waste and the land on which it must be disposed, in terms of the Minerals Act, 1991 (which will be replaced by the new Mineral Development Bill), the Mine Health and Safety Act, 1996 and the Atmospheric Pollution Prevention Act, 1965. **(5)**

The D: ME furthermore supports the implementation of international conventions and protocols, new policy options, norms and standards with regard to the prevention and management of pollution and the degradation of the environment to avoid, minimize and remedy the negative impacts emanating from atmospheric pollution, water pollution, the disturbance of the surface of land and the disposal of mining waste which have been integrated in the Mineral Development Bill. **(5)**

The D: ME manages various projects with the specific objective to protect the atmosphere, i.e.

1. The low smoke-fuel project.
2. Monitoring of air quality and dust pollution in collaboration with MINTEK.
3. The rehabilitation of derelict and ownerless asbestos mines and gold mine slimes dams is aimed at addressing dust pollution.
4. The drawing up of an inventory of greenhouse gasses and promoting of the concept of best practicable means and the use of cleaner technology, which is done in collaboration with D: EAT.
5. The D: ME provides guidance on coal emissions at power stations. **(5)**

Section 2(4)(a), NEMA 1998

Sustainable development requires the consideration of all relevant factors including the following:

(iii) That the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimized and remedied.

Compliance indicators:

The D: ME complies with this principle through the environmental management programme required in terms of the Minerals Act, 1991.

Performance indicators:

The identification, investigation, assessment and management of prospecting or mining related impacts on cultural and historical resources are included in the required environmental management programme. Detail guidance pertaining to the identification, investigation, assessment and management thereof is provided in the MEM Guideline for Planning and Authorization. **(5)**

Section 2(4)(a), NEMA 1998

Sustainable development requires the consideration of all relevant factors including the following:

(iv) That waste is avoided, or where it cannot be altogether avoided, minimized and re-used or recycled where possible and otherwise disposed of in a responsible manner.

Compliance indicators:

The D: ME has an existing mandate for controlling mining waste and supports the implementation of national policies, international conventions and protocols in this regard.

Performance indicators:

The D: ME has an existing mandate for regulating and controlling a cradle-to-grave environmental management process in the mining industry which includes the minimization and management of mining waste, related impacts and the land on which it must be disposed, in terms of the Minerals Act, 1991, the Mine Health and Safety Act, 1996 and the Atmospheric Pollution Prevention Act, 1965. **(5)**

The D: ME furthermore supports the implementation of international conventions and protocols, new policy options as described in the White Paper for Integrated Pollution and Waste Management in South Africa, norms and standards with regard to the prevention and management of waste and the disposal thereof. Objectives and principles of these norms and standards have been included in the Mineral Development Bill. **(6)**

The SABS Code of Practice for Mine Residue Deposits was adopted as a mandatory code of practice in terms of the Mine Health and Safety Act, 1996. **(5)**

The Energy Branch promotes the efficient exploitation and utilization of non-renewable primary energy sources, such as oil and coal to minimize harmful impact on the environment. Energy Efficiency is one of the key developments detailed in the Energy White Paper. **(5)**

Section 2(4)(a), NEMA 1998

Sustainable development requires the consideration of all relevant factors including the following:

(v) That the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource.

Compliance indicators:

In the White Paper for a Minerals and Mining Policy for South Africa, D: ME recognizes that mineral resources are a non-renewable national asset which must be developed to its full potential, responsibly and safely and within the framework of sustainable development for the benefit of present and future generations. D: ME must ensure equitable access to all the mineral resources.

Performance indicators:

Provisions of the Minerals Act, 1991 and the Mine Health and Safety Act, 1996 ensure that mineral resources be developed responsibly and safely. **(5)**

Section 2(4)(a), NEMA 1998

Sustainable development requires the consideration of all relevant factors including the following:

(vi) That the development, use and exploitation of renewable resources and the ecosystems of which they form part do not exceed the level beyond which their integrity is jeopardized.

Compliance indicators:

The D: ME promotes the careful use, development and exploitation of renewable resources.

Performance indicators:

The Energy Branch promotes the use of new and renewable sources of energy that are compatible to the environment size keeping. **(4)**

The Department promotes forestry programmes to ensure sustainability of woodlands and forests. **(4)**

Section 2(4)(a), NEMA 1998

Sustainable development requires the consideration of all relevant factors including the following:

(vii) That a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions.

Compliance indicators:

The D: ME adopted the principle in the White Paper for Minerals and Mining of South Africa in that "During decision-making, a risk-averse and cautious approach that recognizes the limits of current environmental management expertise will be adopted. Where there is uncertainty, action is required to be taken to limit the risk. This will include the consideration of the "no-go" option.

Performance indicators:

In the new Mineral Development Bill, the above principle specifically applies to all matters and actions relating to prospecting and mining operations regulated in terms of this Act, and will serve as a general framework and guide for the interpretation, administration and implementation of the regulatory requirements for environmental management and remediation of environmental damage required by this Act. This includes the "no-go" option. **(5)**

The intention of the required EMP is to identify the nature, source and scope of potentially significant impacts of prospecting or mining operations on the environment, to identify the potential risks arising from the uncertainty and to propose the necessary mitigatory and management measures/options to avoid and/or minimize the environmental consequences. **(5)**

Section 2(4)(a), NEMA 1998

Sustainable development requires the consideration of all relevant factors including the following:

(viii) That negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimized and remedied.

Compliance indicators:

The D: ME has an existing mandate for regulating and controlling a cradle-to-grave environmental management process in respect of the mining industry with the objective to prevent, minimize, manage and remedy negative environmental impacts emanating from prospecting or mining operations.

The D: ME also formulated policy objectives with regard to energy efficiency and the use of alternative energy sources to minimize negative environmental, health and safety impacts.

Performance indicators:

Through the required EMP system negative impacts on the environment and on people's environmental rights are prevented, minimized, managed and remedied. Part of the environmental management requirements are monitoring, EMP performance assessment, corrective action and continual improvement. (6)

The D: ME has also done pioneering work in the rehabilitation of derelict and ownerless mines since 1986. The D: ME, however, also recognizes the legacies of the past and the tremendous backlog in addressing these. (4)

The energy efficiency projects are formulated to minimize overall negative impact on the environment. The Department is engaged in a number of low-smoke fuel projects to minimize negative impact on the air quality of the people and to minimize health and safety risks associated therewith. (5)

Section 2(4)(i), NEMA 1998

The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.

Compliance indicators:

The D: ME has an existing mandate for regulating and controlling a cradle-to-grave environmental management process in the mining industry, which includes social, economic and environmental impacts and benefits.

Performance indicators:

Socio-economic and environmental impacts and benefits are addressed in detail in the EMP, which is based on an EIA, as required in terms of the Minerals Act, 1991. (5)

Provisions in terms of the Mineral Development Bill and supporting regulations include socio-economic and environmental impacts and benefits to be investigated, assessed and managed. (5)

Table summarizing the ratings for compliance and performance to principles relating to sustainable development

NEMA principles Sustainable Development	Applicable performance indicators	Raw score	Max Pos Score	% Rating
S2(3)	4	22	36	61%
S2(4)(a)(ii)	3	15	27	55%
S2(4)(a)(iii)	1	5	9	55%
S2(4)(a)(iv)	4	21	36	58%
S2(4)(a)(v)	2	8	18	44%
S2(4)(a)(vi)	2	8	18	44%
S2(4)(a)(vii)	2	10	18	55,5%
S2(4)(a)(viii)	3	15	27	55,5%
S2(4)(i)	2	10	18	55,5%
TOTAL:	23	114	207	55%
Performance Rating				Meets standard, satisfactory
Compliance	Applicable compliance indicators	Raw score	Max Pos score	Compliance rating
9 principles	9	9	9	100%

3.2 **Principles pertaining to integration and compliance and performance indicators identified and described**

Section 2(4)(b), NEMA, 1998

Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.

Compliance indicators:

The D: ME accepts D: EAT as the lead agent for the environment and will, in support of the lead agent and in accordance with national principles, norms and standards, develop and apply the necessary policies and measures to ensure that the mining industry's compliance to and integration with national policy on environmental management norms and standards.

Performance indicators:

The EMP system, as required in terms of the Minerals Act, 1991, is a cradle-to-grave system, which specifically ensures that all elements of the environment are linked and interrelated.**(6)**

Environmental impact assessment, management, monitoring and performance assessment requirements in terms of the Mineral Development Bill also ensure that all elements of the environment are linked and interrelated.**(7)**

The following legislative requirements for consultation in terms of the Minerals Act, 1991, provides a mechanism to ensure that all elements of the environment are covered in an EMP prior to approval thereof and prior to the consideration of a prospecting permit or mining authorization in terms of sections 6 or 9 of the Minerals Act, 1991:

- Section 39(4) of the Minerals Act, 1991, requires that prior to the approval of the EMP, the director: mineral development must consult with all departments, which administer an Act, which relate to the environment.
- As a result of a decision made by an Appeal Court, a directive was issued by the Director-General to the nine directors: mineral development to consult with interested and affected parties prior to the consideration of a prospecting permit or mining authorization. **(6)**

Section 2(4)(l), NEMA, 1998

There must be inter-governmental co-ordination and harmonization of policies, legislation and actions relating to the environment.

Compliance indicators:

The D: ME complies with the principles and requirements of co-operative governance in terms of the Constitution and as required in terms of NEMA, 1998. In this regard, the D: ME has adopted the policy in its White Paper for Minerals and Mining where D: ME accepts the D: EAT as the lead agent for the environment and will, in support of the lead agent and in accordance with national principles, norms and standards, develop and apply the necessary policies and measures to ensure the mining industry's compliance with national policy on environmental management and other relevant policies such as the national water policy.

Performance indicators:

The EMP in terms of the Minerals Act, 1991, provides for an omnibus instrument where all requirements relating to mining environmental management are included in an integrated manner. Environmental quality standards and criteria are also being implemented. **(5)**

The environmental management requirements in relevant legislation, integrates all national norms and standards, which relate to the environment. **(6)**

The D: ME participates in the co-ordination structures/mechanisms established by Government to co-ordinate and harmonize policies, legislation and actions relating to the environment. The D: ME established formal communication structures / mechanisms, to co-ordinate and harmonize policies, legislation and actions relating to mining environmental management. **(7)**

Section 2(4)(m), NEMA 1998

Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.

Compliance indicators:

The D: ME adheres to the principle of co-operative governance in terms of the Constitution and the different Acts administered by D: ME makes provision for conflict resolution procedures.

Performance indicators:

The Minerals Act, 1991, Mine Health and Safety Act, 1996, the Energy Bills, the National Nuclear Act, 1999, and the National Nuclear Regulator Act, 1999, clearly stipulates actions on procedures to be followed for conflict resolution. **(5)**

The legislative requirements for consultation with authorities or other interested and affected parties prior to decision-making provides a mechanism to resolve conflict pertaining to decisions made regarding mineral development. **(5)**

Table summarizing the ratings, for compliance and performance to principles relating to integration

NEMA principles Integration	Applicable performance indicators	Raw score	Max Pos Score	% Rating
S2(4)(b)	3	19	27	66%
S2(4)(l)	3	18	27	70%
S2(4)(m)	2	10	18	55%
TOTAL:	8	47	72	65%
Performance Rating				Meets standard, satisfactory
Compliance	Applicable compliance indicators	Raw score	Max Pos score	Compliance rating
3 principles	3	3	3	100%

3.3 **Principles pertaining to participation, empowerment, transparency in decisions and compliance and performance indicators identified and described**

Section 2(4)(f), NEMA 1998

The participation of all interested and affected parties (I&APs) in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.

Section 2(4)(g)

Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognizing all forms of knowledge, including traditional and ordinary knowledge.

Compliance indicators:

The D: ME requires I&APs to participate in environmental policy-making and governance. Legislation, communication structures and mechanisms for participation are established and are known to the public.

Performance indicators:

The following structures/mechanisms have been formally established within the Mineral Development Branch to ensure participation:

- A directive, which requires that I&APs must be consulted with the consideration of section 6 and 9 authorizations and the approval of the EMP as required in terms of section 39 of the Act.
- Formal communication structures at Head Office as well as on Regional level have been established.
- A database of I&APs has been established and is maintained.
- The involvement of local communities in the rehabilitation of derelict and ownerless asbestos mines and the creation of job opportunities. **(7)**

The development of the Energy White Paper was a widely consultative process that promotes broader input on participation for different key stakeholders. All Energy sector companies, associated institutions and NGOs had an opportunity on commenting and shaping environmental provisions of the Energy policy. **(5)**

Section 2(4)(q), NEMA 1998

The vital role of women and youth in environment related matters and development must be recognized and their full participation therein must be promoted.

Compliance indicator:

The D: ME recognizes the constitutional right of women as full citizens of the country to make decisions on matters relating to mining environmental management and energy.

Performance indicator:

A transformation and gender unit has been established within the D: ME to promote the advancement of women and previously disadvantaged groups. A gender policy has been finalized to *inter alia* achieve equality in all aspects pertaining to the governance of minerals and energy. **(5)**

The D: ME recognizes the role of women in the rehabilitation of derelict and ownerless asbestos mines/dumps within South Africa. Preference is given to the participation and involvement of women in the rehabilitation of asbestos mines/dumps creating awareness, promotes education and employment. **(6)**

Women groups and youth groups have been involved in a number of Energy related environmental projects. The project on low smoke fuels was particularly targeted to women as primary users of energy i.e. the Qalabotjha low smoke fuel trials and test projects are a case in point. **(6)**

Section 2(4)(k), NEMA 1998

Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.

Compliance indicators:

The D: ME complies with the principles of transparency in decision-making and access to information as required in terms of the Constitution. Legislation and Directives in terms of the Minerals Act, 1991 are in place to ensure that decisions with regard to mining environmental management are open and transparent.

The application of this principle has also been adopted in the Mineral Development Bill.

Performance indicators:

Section 39 of the Minerals Act, 1991 requires that relevant authorities must be consulted prior to the approval of EMP. (6)

As a result of a decision by the Appeal Court (Save the Vaal appeal), a directive was issued by the Director-General which requires that directors: mineral development must consult with relevant interested and affected parties prior to the consideration of prospecting permits and/or mining authorizations in terms of sections 6 and 9 of the Act. The directive furthermore provides that consultation pertaining to prospecting permits or mining authorizations be done concurrently with that pertaining to EMPs. (6)

Regional Communication Forums have been established in the nine regions to facilitate the approval of EMPs and to resolve conflicts on matters pertaining thereto. (6)

The *audi alteram partum* (hear the other side) rule applies to all decision-making in terms of the Minerals Act, 1991. The Act also specifically provides for appeal and the revision of decisions. (5)

The application of this principle has been adopted in the Mineral Development Bill to apply to all matters and actions relating to prospecting and mining operations regulated in terms of the Bill and to serve as a general framework and guide for the interpretation, administration and implementation of the regulatory requirements for environmental management and remediation of environmental damage required by the Bill. (6)

The National Nuclear Regulator Act, 1999, stipulates that the decision to contract nuclear power stations are taken within Integrated Energy Policy Planning process with due consideration to give to all relevant legislation and the powers subject to participation and consultation with all stakeholders. (6)

Section 2(4)(h), NEMA 1998

Community well-being and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.

Compliance indicators:

The D: ME recognizes the role and promotes the participation and involvement of the local community in minerals and energy policy making as well as in various projects relating to mineral development and energy within South Africa.

Community well-being, empowerment, education and awareness are promoted and encouraged through different energy related projects and activities.

Performance indicators:

The D: ME recognizes the role and promotes the participation and involvement of the local community in the rehabilitation of derelict and ownerless asbestos mines/dumps within South Africa. **(5)**

The D: ME recognizes the role and promote the participation and involvement of local communities in the development of low-smoke fuel projects in South Africa. **(5)**

The Energy Branch of D: ME recognizes the role and promotes the participation and involvement of local communities in the development of projects to promote environmental rehabilitation and regarding the use of new and renewable energy sources. i.e. woodland and reforestation projects. **(5)**

Table summarizing the ratings for compliance and performance to principles relating to participation, empowerment, transparency

NEMA principles Participation, empowerment and transparency	Applicable performance indicators	Raw score	Max Pos Score	% Rating
S2(4)(f)	2	12	18	67%
S2(4)(q)	3	17	27	63%
S2(4)(k)	6	35	54	67%
S2(4)(h)	3	15	27	56%
TOTAL:	14	79	126	63%
Performance Rating				Meets standard, satisfactory
Compliance	Applicable compliance indicators	Raw score	Max Pos score	Compliance rating
4 principles	4	4	4	100%

3.4 Principles pertaining to environmental justice, equity between and within generations and compliance and performance indicators identified and described

Section 2(2), NEMA 1998

Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.

Section 2(4)(c), NEMA 1998

Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.

Compliance indicators:

Various Acts and control measures administered by D: ME ensure that environmental justice be pursued to avoid, minimize or remedy the distribution of negative environmental impacts from mining and energy related impacts to vulnerable or disadvantaged persons.

Performance indicators:

The D: ME has an existing mandate for regulating and controlling a cradle-to-grave environmental management process in the mining industry which includes that negative impacts be avoided, minimized, managed and/or remedied in terms of the Minerals Act, 1991, the Mine Health and Safety Act, 1996 and the Atmospheric Pollution Prevention Act, 1965. The D: ME however, also recognizes the legacies of the past and the tremendous backlog in addressing the impacts in this regard. **(3)**

Various energy policy objectives and programmes are being implemented which relate to environmental, health and safety aspects i.e. indoor and outdoor air pollution from coal and wood use, fires, burns and poisoning from household fuels, environmental impacts of bulk energy supply, vehicle emissions. **(5)**

The National Nuclear Regulator Act, 1999, stipulates that the Regulator must conclude co-operative agreements with organizations and with every relevant organization or state to ensure that functions in respect of monitoring and control of radioactive material or exposure is recognized. **(5)**

Section 2(4)(e), NEMA 1998

Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.

Compliance indicators:

Policy objectives and Acts administered by D: ME ensure that environmental health and safety consequences of mining and energy related aspects are addressed.

Performance indicators:

The D: ME has an existing mandate for regulating and controlling a cradle-to-grave environmental management process in the mining industry which includes that negative impacts be avoided, minimized, managed and/or remedied in terms of the Minerals Act, 1991, the Mine Health and Safety Act, 1996 and the Atmospheric Pollution Prevention Act, 1965. **(5)**

Various energy policy objectives are being implemented which relate to environmental, health and safety aspects i.e. indoor and outdoor air pollution from coal and wood use, fires, burns and poisoning from household fuels, environmental impacts of bulk energy supply, vehicle emissions. **(5)**

Section 2(4)(j), NEMA 1998

The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.

Compliance indicators:

This principle is a requirement in terms of the Mine Health and Safety Act, 1996.

Performance indicators:

This principle is a requirement in terms of the Mine Health and Safety Act, 1996. **(5)**

This principle is also adopted in the new Mineral Development Bill. **(5)**

Section 2(4)(d), NEMA1998

Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination.

Compliance indicators:

The D: ME has adopted the policy to encourage and facilitate the sustainable development of small-scale mining in order to ensure the optimal exploitation of small mineral deposits and to enable this sector to make a positive contribution to the national, provincial and local economy.

Performance indicators:

Information on mineral rights and mineral deposits available for development will be made accessible, particularly for the benefit of small-scale miners. (5)

The D: ME, in consultation with the mining industry, organized labour, NGOs, tertiary education institutions, research organizations and foreign aid agencies, will investigate the establishment of training facilities for small-scale miners, not only in South Africa, but in the region as a whole. (5)

With regard to environmental management, all the policy principles will apply to small-scale miners. The D: ME supports the provision of training and skills development for small-scale miners in environmental management. (4)

Intensive environmental management guidance will be provided in areas where there is a high concentration of small-scale miners.(4)

Section 2(4)(o), NEMA 1998

The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.

Section 2(4)(p)

The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimizing further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.

Compliance indicators:

The D: ME has adopted this principle in the White Paper for Minerals and Mining in South Africa and has incorporated practical implementation measures into legislation.

Performance indicators:

The 'polluter-pays' principle has been adopted in the White Paper for Minerals and Mining in South Africa and is being applied in the regulation and enforcement of

environmental management. The mining entrepreneur is responsible for all costs pertaining to the impact of the operation on the environment.**(5)**

The polluter-pays principle has also been adopted in the current EMP system and specifically requirements for financial provision and closure. However, D: ME recognizes the legacies of the past and the environmental damage and adverse health effects caused. **(4)**

Table summarizing the ratings for compliance and performance to principles relating to environmental justice, equity

NEMA principles Environmental justice and equity	Applicable performance indicators	Raw score	Max Pos Score	% Rating
S2(2)				%
S2(4)(c)	3	13	27	48%
S2(4)(e)	2	10	18	56%
S2(4)(j)	2	10	18	56%
S2(4)(d)	4	18	36	50%
S2(4)(o)				%
S2(4)(p)	2	9	18	50%
TOTAL:	13	60	117	51%
Performance Rating				Meets standard, marginal satisfactory
Compliance	Applicable compliance indicators	Raw score	Max Pos score	Compliance rating
7 principles	5	5	7	71%

3.5 Principles pertaining to maintaining ecological integrity and compliance and performance indicators identified and described

Section 2(4)(a), NEMA 1998

Sustainable development requires the consideration of all relevant factors including the following:

(i) That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimized and remedied.

Compliance indicators:

The D: ME supports and integrates the requirements relating to the conservation of biodiversity as required in accordance with the international agreements and conventions, the national policy on the conservation and sustainable use of biological diversity and other legislation within mineral development to minimize and remedy the disturbance of ecosystems and loss of biological diversity.

Performance indicators:

With regard to onshore prospecting and mining activities the implementation of international conventions on biodiversity, as administered by D: EAT, relate indirectly but form part of the requirements for mineral development. In this regard the D: ME supports the requirements pertaining to the Convention on Biological Diversity, CITIES, the Bonn Convention and Ramsar Convention. A list and a description of these conventions are provided in the MEM Reference Register (a reference index containing information sources pertaining to mining environmental management). **(5)**

Provisions pertaining to the Conservation of Agricultural Resources, the Environment Conservation Act, 1989 and Provincial Ordinances apply and form part of the overall requirements for mineral development. A list and a description of these provisions are provided in the MEM Reference Register (a reference index containing information sources pertaining to mining environmental management).**(5)**

In order to protect the biological integrity of an area, section 7 of the Minerals Act, 1991 provides that no person shall prospect in or on land which has been reserved or is being used under this Act or any other law for Government or public purposes except with written consent of the Minister and in accordance with such conditions as may be determined by him/her. This particular section has been applied by the Minister of Minerals and Energy.**(5)**

Information required as part of the Environmental Management Programme Reports (EMPRs) on "vegetation" and "animal life" enhances the baseline information on biodiversity for decision-making. **(5)**

Prior to the approval of EMPs, the directors: mineral development must consult with Provincial Environmental Departments, which provides an additional catch-net for the protection and conservation of the biodiversity where applicable. **(5)**

The implementation of EMEM Awards system for excellence in mining environmental management rewards mines, which excels in environmental management. This includes additional initiatives pertaining to the conservation or protection of the biodiversity. **(5)**

Section 2(4)r

Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.

Compliance indicators:

The D:ME participated in the development of a coastal management policy and the implementation of policies, legislative requirements and non-legislative criteria pertaining to sensitive environments, vulnerable or highly stressed areas/ecosystems.

Performance indicators:

The D:ME supports the implementation of the national coastal management policy and environmental frameworks/attributes as provided for by D: EAT. A provision with regard to the consideration of environmental attributes has also been integrated within the Mineral Development Bill and the MEM Guideline Series. **(5)**

In order to protect/conserve sensitive ecosystems, section 7 of the Minerals Act, 1991 provides that no person shall prospect in or on land which has been reserved or is being used under this Act or any other law for government or public purposes except with written consent of the Minister and in accordance with such conditions as may be determined by him/her. This particular section has been applied by the Minister of Minerals and Energy to protect sensitive environments. **(5)**

A directive pertaining to the granting of temporary authorizations in terms of section 39(4) of the Minerals Act, 1991 provides that the granting of temporary authorizations may not be considered within sensitive areas. The list of sensitive areas/features as

described in the IEM Guideline Document 1 has been included as the Addendum to this Directive **(5)**

Prior to the approval of EMPs, the directors: mineral development must, *inter alia,* consult with Provincial Environmental Departments, which provides an additional measure for the protection of sensitive/vulnerable/stressed environments, areas or ecosystems. **(5)**

Table summarizing the ratings for compliance and performance to principles relating to ecological integrity

NEMA principles Maintaining ecological integrity	Applicable performance indicators	Raw score	Max Pos Score	% Rating
S2(4)(a)	6	30	54	56%
S2(4)(r)	4	20	36	55%
TOTAL:	10	50	90	55%
Performance Rating				Meets standard, satisfactory
Compliance	Applicable compliance indicators	Raw score	Max Pos score	Compliance rating
2 principles	2	2	2	100%

3.6 **Principles pertaining to international responsibilities and compliance and performance indicators identified and described**

Section 2(4)(n), NEMA 1998

Global and international responsibilities relating to the environment must be discharged in the national interest.

Compliance indicators:

The D: ME fulfils its obligations with regard to global and international responsibilities relating to the environment as required in terms of the Constitution in that international agreements, international law and international customary law are binding on the Republic of South Africa, unless it is inconsistent with the Constitution or an Act of Parliament. The D: ME also participates actively within the international and sub-regional capacity in the co-ordinating and co-operating mining environmental management and energy matters.

Performance indicators:

The D: ME established a Directorate: International Co-ordination to promote international communication and co-ordination and to render a support service in this regard. (6)

With regard to the consideration of offshore oil and gas operations as well as marine diamond mining operations, international agreements and international law applies and forms part of the overall requirements of offshore applications and/or operations. (5)

The D: ME participates in the SADC Energy and the Mining and Environment Sectors and is responsible for various projects in this regard.(5)

The D: ME recognizes and adheres to the environmental conventions and agreements administered by D: EAT. The D: ME is active with the National Committee on Climate Change (UNCCC), inter-governmental forums on negotiation on the Kyoto Protocol and UNFCCC negotiations. (5)

The South African government, must comply with the principles and objective of the nuclear non-proliferation treaty. (5)

Table summarizing the ratings for compliance and performance to principles relating to international responsibilities

NEMA principles International responsibilities	Applicable performance indicators	Raw score	Max Pos Score	% Rating
S2(4)(n)	5	26	45	64%
TOTAL:	5	26	45	64%
Performance Rating				Meets standard, satisfactory
Compliance	Applicable compliance indicators	Raw score	Max Pos score	Compliance rating
1 principle	1	1	1	100%

APPENDIX B

EVALUATION CRITERIA FOR EMPs

Content of the EMP	Functions, laws & standards: Does the EMP clearly describe the Department's environmental functions, prescribed environmental laws, norms and standard?	Yes
	Actions for compliance: Does the EMP describe the actions to ensure compliance with these environmental policies, laws norms and standards?	Yes
	Does it describe extent of compliance, and priorities for achieving compliance?	Yes
	Implementation: Are actions to achieve compliance with the relevant environmental laws and standards clearly described in terms of target/outputs, timeframes, performance indicators and resources?	Yes
	Co-operation: Does the EMP describe arrangements for co-operation with other national departments and spheres of government, and specify areas of co-operation – is the explicit? Are the co-operative governance mechanisms sufficient? Does the EMP describe the role of outside stakeholders, and opportunities for participation?	Yes
	Integrated Environmental Management: Does the EMP describe how the objective of chapter 5 is being promoted?	Yes
	Is the information user-friendly and accessible? Will the CEC readily be able to evaluate the plan and compare it with other plans?	Yes
	Will the EMP be a catalyst for action and engagement on achieving sustainable development – or an essay for the bookshelf.	The EMP has, *inter alia*, identified strong points and also weaknesses that must be rectified. It is a catalyst for action.
	Does the EMP link with/include information from the annual national report on sustainable development to the UN CSD.	Yes