

Table 5. Strategic objectives, focus areas and expected outcomes and impacts of functional areas with environmental responsibility, 2005/6 – 2009/10

Programme and Objective	Focus Areas	Actively contribute to sustainable development	Redress past imbalances and bridge the gap between the first and second economies	Govern the minerals and energy sectors to be healthier, cleaner and safer	Review and develop appropriate structures, processes and systems and skills as well as their maintenance	Regulate mining industry to achieve transformation	Bridging the gap between the two economies through SMME development	Achieve universal access to electricity
Mine, Health and safety Reduce mining-related deaths, injuries and ill health, through the formulation of national policy and legislation and the provision of advice and systems that monitor and audit compliance by the mining sector.	Hazard emanating from mining which impact on public health: Address environmental impact of mining at source (e.g. the dust originating from mine dumps and fumes from processing plants) Fatalities, injuries and occupational diseases relating to mining: Reduce the number of fatalities, injuries and	Reduce impact of minerals and energy on public health and environment Specific initiatives to address occupational health and safety problems Public health and environmental hazards dealt with at source	Deracialising of minerals and energy sectors Human resource development and poverty alleviation through the development of scarce skills, training and support of new entrants to mining	Cleaner, healthier and safer energy sectors Policy and legislation in place to govern the mining sector Research and development programmes to improve occupational health and safety are encouraged Harmonization of initiatives with	Alignment of processes, structures and systems to achieve objectives and mandate Develop and retrain appropriate skills			

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	occupational health diseases through enforcement activities, audits and inspections on mines.			other Government departments Contribution to international policies, and compliance with international obligations				
<i>Mineral Development</i> To transform, promote and regulate the mineral resources industry to competitively contribute to the equitable and sustainable socio-economic development in	Implementation of the Mineral and Petroleum Resources Development Act Finalization and implementation of the amendments to the Precious Metals and Diamond Acts Promotion of investment and broadening participation in the economy	Community upliftment programmes and skills Sound environmental management practices Optimal utilization of mineral resources				A representative mining industry at all levels	Partnerships between small and major players Sustainable SMMEs	

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the country.	Environmental hazards relating to un-rehabilitated mine sites.							
Hydrocarbons and Energy Planning Integrated energy planning leading to the sustainable use of South Africa's energy resources, internationally competitive energy prices and an increase in energy efficiency through the development and	Economic regulation Redressing past imbalances Promotion of Renewable energy and energy efficiency Cleaner safer fuels		Increased access to affordable modern energy for low income household Increased access to affordable energy Deracialisation and gender equity in the petroleum sector Increased procurement by oil companies from BEEs Improved skills supply	Decrease coal fire emissions and improve health Decrease vehicular emissions and improve health				

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implementation of appropriate energy policy and regulation/								
<i>Electricity and Nuclear</i> To ensure a well managed efficient, safe and cost effective electricity and nuclear industry in the Republic of South Africa through policy, legislation and regulations. Achieving increased access to electricity and globally competitive electricity	Security and diversity of supply Effective electricity distribution Universal access to electricity	Greater share of renewable energy Increased energy efficiency Increased efficiency of coal usage Carbon trading to reduce GHG emissions Meet multilateral commitments	Deracialisation and gender mainstreaming of the electricity and nuclear sectors Broader participation within the electricity sector	Cleaner, safer and healthier electricity and nuclear sectors and secure nuclear installations				Poverty alleviation

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prices within a safe, clean and healthy industry.								

7. PRINCIPLES, NORMS AND STANDARDS FOR ENVIRONMENTAL MANAGEMENT

The DME applies standards, norms and criteria aimed at ensuring compliance with policy and legislation which promote sustainable development. Environmental standards, norms and criteria are normally reflected in statutory regulations. However, legislated standards are not common in South Africa. In the absence of legislated standards, the DME applies standards that are generally accepted, though not legally binding. The standards are based on the principles of sustainable development.

7.1 Principles for Sustainable Development

The principles of sustainable development that are reflected in the legislation or policies which are implemented by the DME or which guide the work of the Department include those shown in Box 2. The statutes and policies that are based on these principles include the Environmental Management Policy, 1998; the Minerals and Mining Policy, 1998. Mineral and Petroleum Resources Development Act, 2002 and the National Environment Management Act, 1998.

In particular Chapter 5 of the National Environmental Management Act, 1998 promotes the application of environmental management tools that can ensure the integrated environmental management of activities. The objective of integrated environmental management (IEM) is to integrate the principles of environmental management into decision-making; identify and evaluate the impacts on the environment and options for minimizing negative impacts and maximizing benefits; ensure that the effects of activities on the environment receive adequate consideration; and ensure that adequate participation by the public is provided for in decisions that may affect the environment. Integrated environmental management therefore provides a framework for the integration of environmental issues into the planning, design, decision-making, implementation and decommissioning of projects and development proposals.

Box 2: Some principles of sustainable development.

Duty of care: This is also known as the environmental responsibility principle. It imposes the duty of acting with due care so that damage to others and the environment is avoided. Those who make, supply, import or use material are held responsible for providing sufficient information on its manufacture and intended use, so that the risks of such material to health and environment can be evaluated. The "cradle to grave" principle reflects this by stipulating that any entity that generates waste has a final responsibility for ensuring that such waste is safely disposed.

Polluter pays: According to this principle, the polluter pays the costs of reducing pollution that does damage to society, or that exceeds an acceptable level. Polluters therefore are required to assume individual responsibility for the environmental impacts that they cause. This also applies to accidental pollution, where the polluter bears strict liability, and is responsible for the safe handling and environmentally sound disposal of any material that is produced.

User pays: It requires the user of a natural resource to bear the cost of running down natural capital. Therefore, all costs associated with the use of a resource should, where possible, be included in the price of goods and services developed from such a resource.

Intragenerational equity: This is concerned with ensuring a fair distribution of the benefits and impacts of development within a generation, regardless of class, ethnicity, gender or any other social grouping or status.

Intergenerational equity: This means that no generation should increase its wealth, or generally benefit, from their utilisation of resources, if this will prejudice the subsequent generations enjoying a similar quality of life.

Precautionary principle: This principle promotes a cautious and risk-averse approach to the use of resources especially where scientific information is insufficient to accurately indicate the possible impacts of such use.

Public trust doctrine: It places a duty on the State to hold environmental resources in trust for the benefit of the public.

Subsidiary principle: Decisions should be made by the communities affected or, on their behalf, by the authorities closest to them. Decisions should preferably rest at the national rather than the international level, and local rather than national level.

Proximity principle: This requires the treatment and disposal of hazardous waste to take place at the closest possible location to its source, in order to minimise risks associated with its transport.

7.2 Environmental Quality Standards and Criteria

Environmental ambient standards provide numerical limits or threshold values to which industrial operations must be designed, operated and managed. These standards relate to water quality effluent discharge, air emission 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. Criteria are scientifically determined at "no-effect" levels of a pollutant, with a certain safety factor added. Some of these standards and criteria are presented in Table 6.

Table 6. List of standards and criteria applied

Subject	Standards	Legislation
WATER RESOURCE QUALITY		
Surface water: Water use	General authorizations and licenses	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, in stream and riparian habitat. Aquatic biota.	Resource classification and reserve determination. No standards exist. Red data species are generally accepted and applied as standard.	
Flood and storm water control.	Regulations of the MPRDA, 2002. Regulations 704 National Water Act, 1998	MPRDA, 2002 National Water Act, 1998
Dam safety.	Regulations MPRDA, 2002: 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)	MPRDA, 2002; Mine Health and Safety Act, 1996 National Water Act, 1998
Groundwater: Groundwater quantity. Groundwater quality	General authorizations and licenses. Resource quality objectives	National Water Act, 1998 National Water Act, 1998

Subject	Standards	Legislation
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 NEMA Air Quality Act (draft Ambient standards)
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 NEMA: Biodiversity Act Environment Conservation Act, 1989 Provincial ordinances Conservation of Agricultural Resources Act, 1988.
ANIMAL LIFE	Protected fauna Red Data Species.	NEMA, 1998 Environment Conservation Act, 1989. Provincial Ordinances.
SENSITIVE LANDSCAPE/ ENVIRONMENTS	Protected areas in terms of national legislation and/ or international conventions. The Department of Environmental Affairs and Tourism has finalized the <i>Environmental Attributes</i> which identifies 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/CAPABILITY:	Structure Plans and Land Development Objectives	Physical Planning Act Development Facilitation Act, 1995

Subject	Standards	Legislation
	Classification of agricultural land Mining operational requirements in terms of: Distance of mining to structures. Subsidence control.	Conservation of Agricultural Resources Act, 1983 Mine Health and Safety Act, 1996. MPRDA, 2002
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.

8. COLLABORATION WITH OTHER DEPARTMENTS

The Department of Minerals and Energy collaborates with other departments in implementing its mandate in addition to fostering coordination between the various branches, Chief Directorates and Directorates of the Department. The mechanisms for collaboration and coordination include memoranda of understanding, interdepartmental committees, and regular meetings within the DME.

8.1 Memoranda of Understanding

A Memorandum of Understanding (MOU) exists between DME and DWAF. The purpose of the MOU is to improve the working relationship between the two departments by minimizing potential conflict and ambiguity. The MOU records mutual understanding on the fundamental premises with regard to an Integrated Environmental Management System, the role of such a system and its key success factors and the principles and obligations of both departments regarding participation in the integrated system.

8.2 Inter-Departmental Committees

8.2.1 Committee for Environmental Co-ordination

The National Environmental Management Act, 1998, provides for the establishment of a Committee for Environmental Co-ordination (CEC) to promote the integration and co-ordination of environmental functions by organs of State. In particular it is intended to facilitate environmental implementation plans and environmental management plans. The DME is represented on the CEC as well as its sub-committees on Environmental Law Reform and EIPs / EMPs, as well as on various other project steering committees.

8.2.2 Government Task Team for Mine Water Management and Closure

The purpose of the Government Task Team (GTT) is to facilitate solutions and decision-making on water management and related problems as well as the implementation of safe and sustainable mine closure options within mining areas as identified in SA. The GTT is chaired by a representative of DME. Other representatives include DEAT, DWAF, DME Regulation Branch, Policy and Promotion Branch and Mine Health and Safety Inspectorate.

8.2.3 Sustainable Development through Mining Committee

A statutory Sustainable Development through Mining Committee has been established by the Minerals and Mining Development Board to assist the Board and to advise the Minister on matters pertaining to sustainable development and to prepare for reporting by 2010-2011.

8.2.4 Research Projects

The DME participates in various research projects relating to mining environmental management. They include Coaltech 20/20 (Administered by the CSIR) and the Water Research Commission (WRC). Furthermore, the DME is represented on several of the WRC Steering Committee and Technical Task Team of a project on Water Related Impacts of Small Scale Mining which was initiated at the beginning of 2000. With small scale mining playing an important role in the economy, it is imperative that all the implications of small scale mining activities (particularly those that affect the environment) are understood. The project aims to identify and characterize critical aspects of water-related impacts and to recommend appropriate tools for the environmental management of small scale mines. The project will provide an inventory of small scale mining types and sites which will subsequently be developed into priority listed areas that need to be managed. The information will be consolidated into an information database (GIS) which will provide information on the location of the different small scale mines. The study focuses on sand winning, clay mining, gold panning, alluvial diamond digging and artisanal coal mining.

8.2.5 Regional Mineral Development and Environmental Committees

These statutory committees in terms of MPRDA, 2002 were established within the regions to co-ordinate and promote participation on the approval of EIAs and EMPs as necessary. Some of the committees also deal with small-scale mining, illegal mining and rehabilitation of gold slimes dams, and specific mining related pollution aspects. With regard to illegal mining, certain regional offices have established formal communication structures with the South African Police Services.

9. COMPLIANCE WITH POLICIES AND PRINCIPLES

9.1 Procedures for Monitoring Compliance

The compliance and performance monitoring of the DME's statutes, policies and programmes with the objectives and principles of sustainable development is determined through information, obtained from regional inspections, DME internal Branch Management meetings, multi stakeholder and inter-departmental communication structures, trimester and annual reports, ministerial inquiries or complaints received, EMP reports and EMP compliance reports. The information obtained assists the DME to identify shortcomings in the implementation of these policies and statutes; and, undertake the necessary corrective action.

9.1.1 Regional mining inspections and reporting procedures

With regard to minerals, the Regional Offices, in cooperation with other relevant authorities, undertake inspections:

- At all mines on an ongoing basis to determine compliance with EMPs, measure performance, and to provide guidance and advice on their implementation.
- At all sites that are the subject of reconnaissance, prospecting and mining applications, in order to consider and evaluate these applications and any draft EMPs submitted for approval.
- To follow-up on complaints from interest and affected parties about negative environmental impacts and degradation at operating mines.
- Before closure of prospecting or mining operations.

9.1.2 Internal branch management committees

Internal Branch Management meetings are held monthly to discuss the implementation of policies, legislation, norms and standards, (including the interpretation of the provisions of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002)), and to identify shortcomings in the application of these policies and legislation.

9.1.3 Multi-stakeholder and inter-departmental communication structures

Discussions in multi-stakeholder and inter-departmental communication structures at national and regional level are also a source of information on the implementation of DME policies and statutory environmental obligations.

9.1.4 Trimester and annual reports

The DME has a trimester and annual reporting procedure. Reports from the various directorates and the nine Regional Offices are circulated within the DME for information.

9.1.5 Ministerial enquiries or complaints received

Ministerial enquiries or complaints are received by the DME and are investigated by the Regional Offices. These enquiries and complaints helped to determine the extent of the Department's compliance.

9.1.6 EMP Performance Assessment requirements

In regard to environmental management within the mining sector, a specific reporting procedure was introduced to monitor compliance and measure performance. Regulations R.527 of 2004 for EMP Performance Assessment and Monitoring have been promulgated in terms of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002). They provide the DME with a

mechanism to monitor compliance and performance with all mining environmental management policies and legislative requirements, as well as the DME's compliance and performance with the NEMA principles.

9.1.7 EMP Compliance reports

The purpose of the annual compliance report is to monitor the implementation of targets and commitments made in the EMP; monitor the implementation of recommendations made in the assessment report; monitor compliance by local authorities with the EMP; and provide information not included in the current Environmental Management Plan.

9.2 Compliance with NEMA Principles of Sustainable Development

Section 2 of NEMA outlines certain principles which are relevant to sustainable development and environmental management. These principles relate broadly to: (i) Sustainable development, (ii) integration, (iii) participation, empowerment and transparency, (iv) environmental justice and equity (v) maintenance of ecological integrity, and (vi) international responsibilities.

Tables 7 – 12 show how the DME applies the above principles in managing activities in the mining and energy sectors. These principles relate to sustainable development, integration, participation, empowerment, and transparency, environmental justice and equity, ecological integrity, and international responsibility.

Table 7. Compliance relating to sustainable development

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
Section 2(3)	Development must be socially, environmentally and economically sustainable.	<p>Within mining, sustainable development is being applied through the enforcement of the cradle to grave principle.</p> <p>Within the Energy Branch policies and programmes are being implemented to change energy consumption patterns.</p>	<p>The DME has adopted the principles of sustainable development in the Minerals and Mining Policy and in the Mineral and Petroleum Resources Development Act, 2002. Sections 2(h), 3(3) of MPRDA, 2002 provides for Minister to "ensure the sustainable development of SA's mineral and petroleum resources within a framework of national environmental policy, norms and standards while promoting economic and social development.</p> <p>A national Sustainable Development through Mining Programme (SDM Programme) supports the implementation of these sections. These SD principles also pertain to impact assessment, management, financial provision, monitoring and EMP performance assessment and mine closure.</p> <p>In terms of Section 37 of the Mineral and Petroleum Resources</p>

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
			<p>Development Act, 2002, the principles in section 2 of NEMA apply to all prospecting and mining operations and any matter relating to such operation; and serve as guidelines for the implementation of the environmental requirements of the Act.</p> <p>The DME adopted SD and encourages change in energy use by consumers and promotes energy efficiency through the Energy Policy, 1998, White Paper on Renewable Energy Policy for SA, 2003, Radio-active Waste Policy and Strategy, 2005 and the various energy-related conventions, agreements and programmes i.e. Integrated Energy Planning, clean development mechanism, renewable energy strategy, energy efficiency strategy, Paraffin Safety Strategy, SASDA, Integrated National Electrification Strategy, Free Basic Electricity, leCs, Alliance Labeling campaign, gas infrastructure plan, WINSA..</p>
Section 2(4)(a)(ii)	Pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimized and remedied.	The DME has a mandate for regulating and controlling the prevention of pollution and degradation of the environment and supports the implementation of international conventions.	<p>The DME applies a cradle to-grave environmental management process in the mining industry. This includes the rehabilitation of land, pollution control and management of mining waste and the land on which it is disposed. This approach is in accordance with the Mineral and Petroleum Resources Development Act, 2002, the Mine Health and Safety Act, 1996 and the Atmospheric Pollution Prevention Act, 1965 (draft NEMA: Air Quality Stds).</p> <p>Sections 5(4), 16, 17, 18, 18(3)(c), 19(2)(e), 22, 23, 24, 24(3)(c),</p>

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
			<p>25(2)(e), 27, 27(5)(b), 82(2)(d), 86(2)(d), 37, 38(1) and (2), 39, 41, 42 and Regulations, 43, 44, 45, 48.</p> <p>The DME also supports the implementation of international conventions and protocols, as well as norms and standards aimed at preventing and managing pollution, avoiding the degradation of the environment, minimizing atmospheric and water pollution, and regulating the disposal of mining waste.</p> <p>The DME manages various projects with the objective of protecting the atmosphere, i.e.</p> <ul style="list-style-type: none"> ▪ The low smoke fuel project. ▪ Monitoring of air quality and dust pollution in collaboration with MINTEK. ▪ The rehabilitation of derelict and ownerless asbestos mines and gold mine slimes dams. ▪ The preparation of an inventory of greenhouse gasses. ▪ The use of cleaner technology in collaboration with DEAT. ▪ The DME provides guidance on coal emissions at power stations. ▪
Section	The disturbance of landscapes and sites	The DME complies with this principle through the	The identification, investigation, assessment and management of

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
2(4)(a)(iii)	that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimized and remedied.	environmental management programme/plan required in terms of the Minerals and Petroleum Resources Development Act, 2002.	prospecting or mining related impacts on cultural and historical resources are included in the environmental management programme. Sections 38(1) and (2), 39. Detailed guidance is to be provided in the MEM Guideline Series.
Section 2(4)(a)(iv)	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.	The DME has an existing mandate for controlling mining waste and supports the implementation of national policies, international conventions and protocols in this regard.	The DME applies a cradle-to-grave environmental management process in the mining industry which includes the minimization and management of mining waste and related impacts including on the land which it is disposed. Section 42 and Regulations. Specific MPRDA regulations for the management, monitoring and closure of mine residue deposits and stockpiles have been promulgated in 2004. This is in accordance with the Mineral and Petroleum Resources Development Act, 2002, the Mine Health and Safety Act, 1996 and the Atmospheric Pollution Prevention Act, 1965. The DME also supports the implementation of international conventions and protocols, policy as described in the White Paper for Integrated Pollution and Waste Management, norms and standards with regard to the prevention and management of waste and its disposal. The objectives and principles of these norms and standards have been included in the MPRDA, 2002

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
			<p>The SABS Code of Practice for Mine Residue Deposits was adopted in terms of the Mine Health and Safety Act, 1996.</p> <p>The Energy Branch promotes the efficient 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 aspects detailed in the Energy White Paper.</p>
Section 2(4)(a)(v)	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.	In the Minerals and Mining Policy, DME 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. DME must ensure equitable access to all the mineral resources.	<p>Application of objectives and principles of SD. Sections 2(h) and 3(3) MPRDA, 2002.</p> <p>The provisions of the Mineral and Petroleum Resources Development Act, 2002, and the Mine Health and Safety Act, 1996 ensure that mineral resources are developed responsibly and safely.</p>
Section 2(4)(a)(vi)	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.	The DME promotes the careful use, development and exploitation of renewable resources.	<p>The Energy Branch promotes the use of new and renewable sources of energy that are compatible with the environment.</p> <p>Allocation of sections 2(h), 3(3), 37, 38(1) and (2), 39, 45, 46 and 48.</p> <p>The Department promotes forestry programmes to ensure sustainability of woodlands and forests.</p>
Section 2(4)(a)(vii)	A risk averse and cautious approach is applied, which takes into account the	Through the White paper on Minerals and Mining, the DME has adopted a risk averse and cautious approach	In the Mineral and Petroleum Resources Development Act, 2002, the cautious approach specifically applies to actions relating to prospecting

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
	limits of current knowledge about the consequences of decisions and actions.	in decision-making that recognizes the limits of current environmental expertise. Where there is uncertainty, action is required to be taken to limit the risk. This will include the consideration of the "no-go" option.	<p>and mining operations regulated in terms of this Act, and will serve as a general framework and guide for the implementation of the regulatory requirements for environmental management and remediation of environmental damage required by this Act.</p> <p>All the sections apply as referred to on pages 19 – 21 of the Dept EMP.</p> <p>The intention of the 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.</p>
Section 2(4)(a)(viii)	Negative impacts on the environment and on people's environmental rights are anticipated and prevented, and where they cannot be altogether prevented, are minimized and remedied.	<p>The DME applies a cradle-to-grave environmental management process in respect of the mining industry with the objective of preventing, minimizing, managing and remedying negative environmental impacts emanating from prospecting or mining operations.</p> <p>The DME has also formulated a policy on energy efficiency and the use of alternative energy sources to minimize negative environmental, health and safety</p>	<p>Through the EMP, negative impacts on the environment and on people's environmental rights are prevented, minimized, managed and remedied. The environmental management requirements include monitoring, EMP performance assessment, corrective action and continual improvement. MPRDA, 2002 also regulates mining and petroleum resource development from planning, decision-making, implementation, monitoring, auditing, closure to post closure stage.</p> <p>The DME has also done pioneering work in the rehabilitation of derelict and ownerless mines since 1986. The DME, however, also recognizes the legacies of the past and the large backlog in addressing these.</p>

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
		impacts.	The energy efficiency policy aims to minimize the overall negative impact on the environment. The Department is engaged in a number of low-smoke fuel projects to reduce negative impact on air quality and associated health and safety.
Section 2(4)(i)	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.	The DME applies a cradle to grave environmental management process in the mining industry, which includes social, economic and environmental impacts and benefits.	Socio-economic and environmental impacts and benefits are addressed in detail in the social and labour plans and EM Plans and EM Programmes, which is based on an EIA, as required in the Mineral and Petroleum Resources Development Act, 2002.

Table 8. Compliance relating to integration

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
Section 2(4)(b)	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.	The DME accepts DEAT 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.	<p>The EMP is a cradle to grave system, which specifically ensures that all elements of the environment are linked and interrelated.</p> <p>Environmental impact assessment, management, monitoring and performance assessment requirements in the Mineral and Petroleum Resources Development Act, 2002, also ensure that all elements of the environment are linked and interrelated.</p> <p>Section 40(1) of the Mineral and Petroleum Resources Development Act, 2002, requires the Director of Mineral Development to consult with all relevant departments prior to the approval of the EMP. This provides a mechanism to ensure that all elements of the environment are covered in an EMP and prior to the issuance of a prospecting permit or mining authorization in terms the Act.</p> <p>Section 10 of the Act requires the Regional Manager to publicize the receipt of an application for a prospecting</p>

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
			right, mining right or mining permit, and to request interested and affected persons to submit their comments regarding the application.
Section 2(4)(l)	There must be inter governmental co ordination and harmonization of policies, legislation and actions relating to the environment.	The DME complies with the principles and requirements of co operative governance in the Constitution and in NEMA, 1998. In this regard, the DME has accepted through the White Paper for Minerals and Mining that it will, in support of the lead agent for environmental issues (i.e. DEAT) and in accordance with national principles, norms and standards, develop and apply 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.	<p>The EMP 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.</p> <p>The environmental management requirements in relevant legislation, integrate all national norms and standards, which relate to the environment.</p> <p>The DME participates in the structures and mechanisms established by the Government to co-ordinate and harmonize policies, legislation and actions relating to the environment. It also has its own formal communication structures / mechanisms.</p>
Section 2(4)(m)	Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.	The DME adheres to the principle of co operative governance in terms of the Constitution and the different Acts administered by DME makes provision for conflict resolution procedures.	The Mineral and Petroleum Resources Development Act, 2002, Mine Health and Safety Act, 1996, the Energy Policy, the National Nuclear Act, 1999, and the National

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
			<p>Nuclear Regulator Act, 1999, stipulate actions on procedures to be followed for conflict resolution.</p> <p>The legislative requirements for consultation with authorities or other interested and affected parties prior to decision making provide a mechanism to resolve conflict pertaining to decisions made regarding mineral development.</p>

Table 9. NEMA principles on participation, empowerment, transparency in decisions

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
Section 2(4)(f)	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.	The DME 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.	The following structures and mechanisms have been established within the MPRDA, 2002 to ensure participation: Sections 10 and 40 to support the right of I&APs to comment on an application for a prospecting right, mining right or mining permit and the approval of the

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
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.		<p>EM Plans and EM Programmes as required in terms of section 39 of the Act.</p> <p>Statutory communication structures at regional offices (Regional Mineral Development and Environmental Committees exist).</p> <p>A database of I&APs.</p> <p>The involvement of local communities in the rehabilitation of derelict and ownerless asbestos mines and the creation of job opportunities.</p> <p>The development of the Energy White Paper through a widely consultative process including energy sector companies, associated institutions and NGOs.</p>
Section 2(4)(q)	The vital role of women and youth in environment related matters and development must be recognized and their full participation therein must be promoted.	The DME recognizes the constitutional right of women as full citizens of the country to make decisions on matters relating to mining environmental management and energy.	<p>A transformation and gender unit has been established within the DME to promote the advancement of women and previously disadvantaged groups. A gender policy has been finalized to <i>inter alia</i> achieve equality in all aspects pertaining to the governance of minerals and energy.</p> <p>Section 12 MPRDA, 2002 provides for assistance to HDSAs and vulnerable groups to access mineral</p>

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
			<p>resources.</p> <p>The DME recognizes the role of women in the rehabilitation of derelict and ownerless asbestos mine/dumps. In this regard, preference is given to women in the rehabilitation of asbestos mines/dumps creating awareness and promoting education and employment.</p> <p>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.</p>
Section 2(4)(k)	Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.	The DME complies with the principles of transparency in decision making and access to information as required in the Constitution. Legislation in terms of the Mineral and Petroleum Resources Development Act, 2002, are in place to ensure that decisions with regard to mining environmental management are open and transparent.	<p>Section 40 of the Mineral and Petroleum Resources Development Act, 2002, requires relevant authorities to be consulted prior to the approval of EMP, and Section 10 gives I&APs the right to comment on an application for a prospecting right, mining right or mining permit and the EMP.</p> <p>Section 40 MPRDA, 2002 requires consultation with all Government departments with a jurisdiction/function</p>

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
			<p>pertaining to the environment. on EIA EM Plans, EMPs prior to approval.</p> <p>Regional Mineral Development and Environmental Committees have been established in terms of MPRDA, 2002 in the nine regions to facilitate the approval of EMPs and to resolve any conflicts.</p> <p>The <i>audi alteram partem</i> (hear the other side) rule applies to all decision making in terms of the Mineral and Petroleum Resources Development Act, 2002. The Act also provides for appeal of decisions.</p> <p>The National Nuclear Regulator Act, 1999, stipulates that the decision to construct nuclear power stations should be taken within the Integrated Energy Policy Planning process with due consideration given to all relevant legislation subject to participation and consultation with all stakeholders.</p>
Section 2(4)(h)	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.	The DME 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.	<p>The DME promotes the involvement of local communities in the rehabilitation of derelict and ownerless asbestos mines/dumps.</p> <p>The social and labour plans required ito MPRDA, 2002 integrates with local IDPs and addresses training and</p>

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
		Community well being, empowerment, education and awareness are encouraged through different energy related projects and activities.	<p>skills development of workers.</p> <p>The DME also promotes the participation of local communities in the development of low smoke fuel projects.</p> <p>The Energy Branch promotes the involvement of local communities in the development of projects that promote environmental rehabilitation and the use of new and renewable energy sources. i.e. woodland and reforestation projects.</p>

Table 10. Compliance relating to environmental justice, and equity between and within generations

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
Section 2(2)	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.	MPRDA, 2002 Mining Charter	Social and Labour Plan required to MPRDA, 2002. Objectives of the Mining Charter. Legislative framework provided for SD to MPRDA, 2002.
Section 2(4)(c)	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.	Various Acts and control measures administered by DME ensure that environmental justice is pursued to avoid, minimize or remedy the distribution of negative environmental impacts from mining and energy related impacts to vulnerable or disadvantaged persons.	Communication, participation and transparency prior to decisions being made to MPRDA, 2002. The DME applies a cradle to grave environmental management process in the mining industry. This process allows negative impacts to be avoided, minimized, managed and/or remedied. This is in accordance with the Mineral and Petroleum Resources Development Act, 2002, the Mine Health and Safety Act, 1996 and the Atmospheric Pollution Prevention Act (NEMA Air Quality Act). The DME, however, also recognizes the legacies of the past and the large backlog in addressing the impacts in this regard. Various energy programmes which deal with environmental health and safety aspects, e.g. indoor and outdoor air pollution from coal and wood use, fires, burns and poisoning from

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
			<p>household fuels, environmental impacts of bulk energy supply, vehicle emissions, are being implemented.</p> <p>The National Nuclear Regulator Act, 1999, requires the Regulator to conclude cooperative agreements with relevant organizations to ensure that the monitoring and control of radioactive material or exposure is recognized.</p>
Section 2(4)(e)	Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.	Policy objectives and statutes administered by DME ensure that environmental health and safety consequences of mining and energy related aspects are addressed.	<p>The DME applies a cradle to grave environmental management, process in the mining industry. This process allows negative impacts to be avoided, minimized, managed and/or remedied in terms of the Mineral and Petroleum Resources Development Act, 2002, the Mine Health and Safety Act, 1996 and the Atmospheric Pollution Prevention Act, 1965 (NEMA Air Quality Act).</p> <p>Various strategies and programmes have also been initiated to address this matter.</p> <p>Various energy policy 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</p>

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
			impacts of bulk energy supply, vehicle emissions.
Section 2(4)(j)	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.	This principle is required in terms of the Mine Health and Safety Act, 1996,	This principle is required in terms of the Mine Health and Safety Act, 1996, and the Mineral and Petroleum Resources Development Act, 2002.
Section 2(4)(d)	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.	The DME 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.	<p>Section 12 MPRDA, 2002 ensures equitable access to HDSAs and vulnerable groups regarding mineral resources.</p> <p>Information on mineral rights and mineral deposits available for development will be made accessible, particularly for the benefit of small scale miners.</p> <p>The DME, in consultation with the mining industry, organized labour, NGOs, tertiary education institutions, research organizations and foreign aid agencies, will investigate possibilities for the establishment of training facilities for small scale miners in South Africa as well as within the region.</p> <p>All the environmental policy principles will apply to small scale miners. The DME supports skills development for small scale miners in environmental management.</p> <p>Intensive environmental management guidance will be provided in areas where there are a large number of small scale miners.</p>
Section 2(4)(o)	The environment is held in public trust for the people, the beneficial use of environmental resources must serve the	The DME has adopted the principle of transparency and no go option in policies and	Refer to various sections in MPRDA, 2002 (Sections 10, 40) to ensure transparency prior to decisions being made to issue

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
	public interest and the environment must be protected as the people's common heritage.	legislation.	permits or grant rights to MPRDA, 2002. Refer to no-go option being adopted in policy, and alternatives being applied in the consideration of prospecting or mining applications (section 38).
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 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.	The DME has adopted this principle in the White Paper for Minerals and Mining in South Africa and has incorporated practical implementation measures into legislation.	The 'polluter pays' principle has been adopted in the White Paper for Minerals and Mining and is being applied in the regulation and enforcement of environmental management through the Mineral and Petroleum Resources Development Act, 2002. The mining entrepreneur is responsible for all costs pertaining to the impact of the operation on the environment. The polluter pays principle has also been adopted in the current EMP system with specific requirements for financial provision and closure. However, DME recognizes the legacies of the past and the environmental damage and adverse health effects caused.

Table 11. Compliance relating to maintaining ecological integrity

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
Section 2(4)(a)(i)	The disturbance of ecosystems and loss of biological diversity should be avoided, or, where they cannot be altogether avoided, are minimized and remedied.	The DME integrates the requirements relating to the conservation of biodiversity as required in 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.	<p>Section 48 provides for restrictions or prohibition of prospecting/mining on certain land.</p> <p>With regard to onshore prospecting and mining activities, the implementation of international conventions on biodiversity form part of the requirements for mineral development. In this regard the DME supports the requirements of the Convention on Biological Diversity, CITES, the Bonn Convention and Ramsar Convention.</p> <p>NEMA: Biodiversity Act, provisions on the Conservation of Agricultural Resources, the Environment Conservation Act, 1989 and Provincial Ordinances apply and form part of the overall requirements for mineral development</p> <p>Section 3 of the Mineral and Petroleum Resources Development Act, 2002 requires the Minister for Minerals and Energy to ensure the sustainable development of mineral and petroleum resources within a framework of national environmental policy, norms and standards while promoting economic and social development.</p>

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
			<p>Information required for the Environmental Management Programme Reports (EMPRs) on "vegetation" and "animal life" enhances the baseline information on biodiversity for decision making.</p> <p>Prior to the approval of EMPs, the Regional Manager is required to consult with Provincial Environmental Departments, where applicable.</p>
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.	The DME 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.	<p>The DME supports the implementation of the national coastal management policy and environmental frameworks/attributes as provided for by DEAT. This has been integrated within the Mineral and Petroleum Resources Development Act, 2002, and the MEM Guideline Series.</p> <p>Prior to the approval of EMPs, the Directors: of Mineral Development must, <i>inter alia</i>, consult with Provincial Environmental Departments, which provides an additional measure for the protection of sensitive/vulnerable/stressed environments, areas or ecosystems.)</p>

Table 12. Compliance relating to international responsibilities

Relevant clause in NEMA	Principles	Compliance Indicator	Performance Indicator
Section 2(4)(n)	Global and international responsibilities relating to the environment must be discharged in the national interest.	The DME fulfils its global and international responsibilities relating to the environment as required in 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 DME also participates in international and sub-regional structures in the co-coordinating mining environmental management and energy matters.	<p>The DME established a Directorate: International Co ordination to promote international communication and co ordination and to render a support service in this regard.</p> <p>With regard to the consideration of offshore oil and gas operations as well as marine diamond mining, international agreements and international law applies and forms part of the overall requirements of offshore applications and/or operations.</p> <p>The DME participates in the SADC Energy and the Mining and Environment Sectors and is responsible for various projects in this regard.</p> <p>The DME adheres to the environmental conventions and agreements administered by DEAT.</p> <p>The DME adheres to energy-related conventions and agreements. Refer to international conventions/agreements in document.</p>

			<p>The South African government must comply with the requirements of the nuclear non proliferation treaty and a host of other energy-related conventions and protocols/agreements.</p>
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9.3 Promotion of Sustainable Development by the Mining Industry

South African Mining Industry Sustainability and Transformation Report

In 2005, the South African mining industry developed a "report card" for sustainable development which indicates progress. The report, among others, notes that many mining companies are pursuing ISO 14001 certification to ensure compliance with environmental performance and pollution prevention requirements.

With regard to social and community issues, all companies are required to report annually on their progress towards implementing the requirements of the Mineral and Petroleum Resources Development Act. Mines currently fund and assist many local projects and many mining companies have integrated Charter requirements into their social and labour plans. It is estimated that mines spend over R400 million per year on social development. With regard to closure and legacy issues, including with respect to rehabilitation, available information indicates that estimates of rehabilitation costs and the associated financial provision have increased.

With regard to biodiversity, the contribution that mining houses have made is primarily in the conservation and protection of areas and species, including by contributing to research and the development of guidelines (e.g. participation in the development of guidelines for biodiversity assessment).

The mining industry has also participated in the development of the Energy Efficiency Strategy. The Energy Efficiency Accord which is based on the strategy commits the industry to achieving a 15 percent reduction in energy demand by 2015.

The mining industry has entered a Memorandum of Understanding with the Department of Environmental Affairs and Tourism on the development of a Sustainable National Greenhouse Gas Inventory which will form part of the air quality information system.

Many mining companies have water management plans aimed at recycling water use in various processes to decrease freshwater consumption. The report indicates that about a third of the companies surveyed for the report demonstrated an absolute reduction in water use.

Table 13 shows the distribution of prospecting and mining applications received by the Department. The table illustrates that there is a high rate of approvals. Most prospecting currently takes place in Limpopo and the Northern Cape while mining largely takes place in the Northern Cape and North-West. There is no data on unauthorized mining, i.e. activities that are not compliant with statutory requirements.

Table 13. Mining industry compliance with statutory environmental requirements

Item	EC	FS	GP	KZN	LIP	MP	NC	NW	WC	Total
Prospecting applications received	2	58	11	14	206	93	147	81	12	624
Prospecting permits / rights granted	3	78	11	10	116	57	149	77	11	512
Mining applications received	34	35	37	68	47	36	130	223	23	633
Mining authorizations / rights granted	58	31	67	58	45	46	259	180	50	794
EMPRs / EM Plans / EM Programmes received	96	43	66	54	153	80	216	308	32	1048
EMPRs / EM Plans / EM Programmes approved	43	30	50	34	77	55	296	291	24	900
Performance Assessment Reports received	4	0	22	3	0	12	9	3	23	76
Performance Assessment Reports approved	0	0	0	3	0	5	0	0	23	30
Closure applications received	4	15	11	29	47	24	89	25	12	256
Closure certificates granted	18	27	3	30	16	0	24	8	3	129

Source: DME Annual EMP Compliance Report, 2004/2005

Statistics obtained from the 2005/06 financial year the DME received about 6 785 applications, of which 1225 were rejected mainly for being incomplete, 1384 rights were granted (therefore EMPs were also approved), 1007 permits were issued, 191 were withdrawn by the applicants and 927 were refused for non-compliance with the MPRDA, 2002.

9.4 Measures to improve Environmental Compliance

Revision of Legislation, Procedures and Guidelines

The DME is in the process to amend the MPRDA, 2002 to make procedures more effective and to harmonise EIA procedures with the NEMA EIA Regulations. Guideline documents are also being finalised as discussed above.

9.5 Challenges with Ensuring Compliance

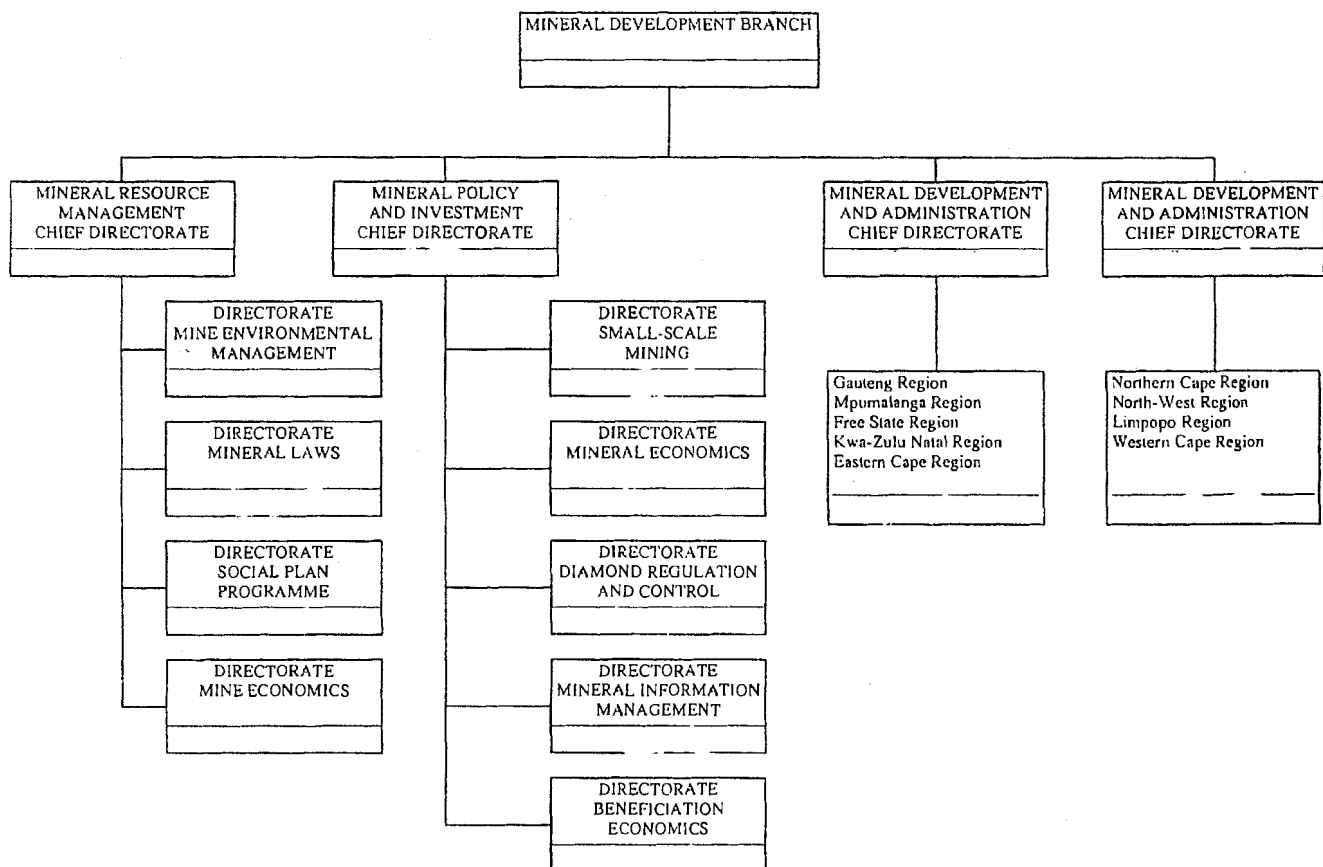
The following factors affect on the DME's ability to improve compliance of the mining and energy with environmental policies, legislation.

Minerals

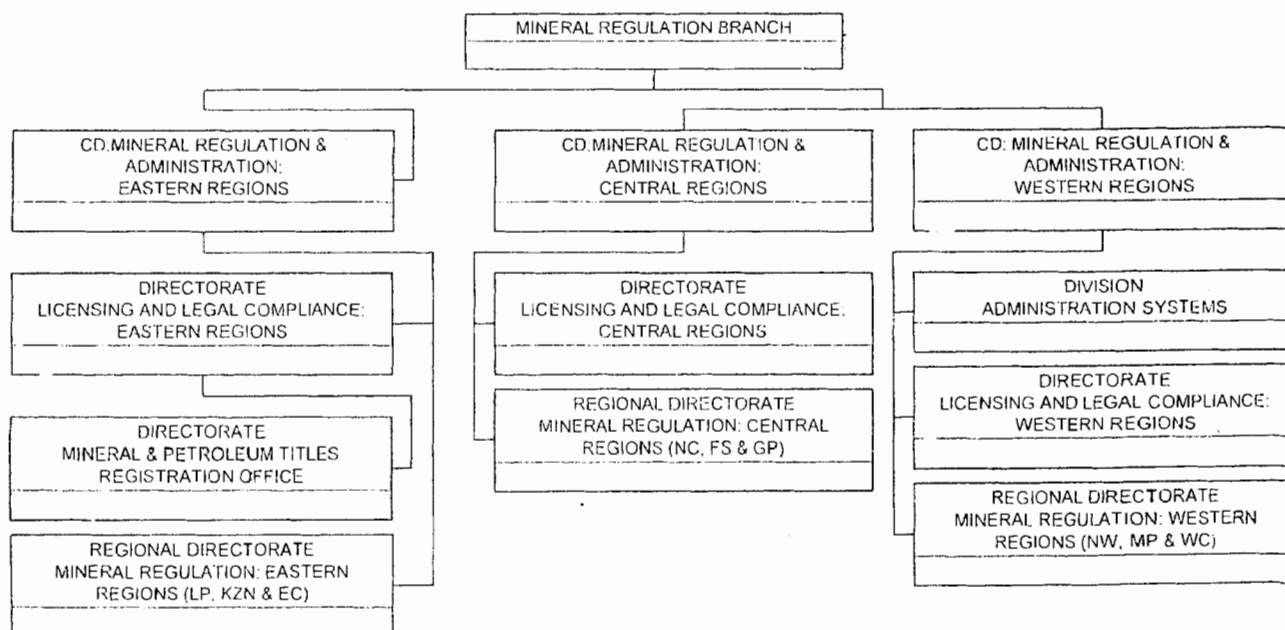
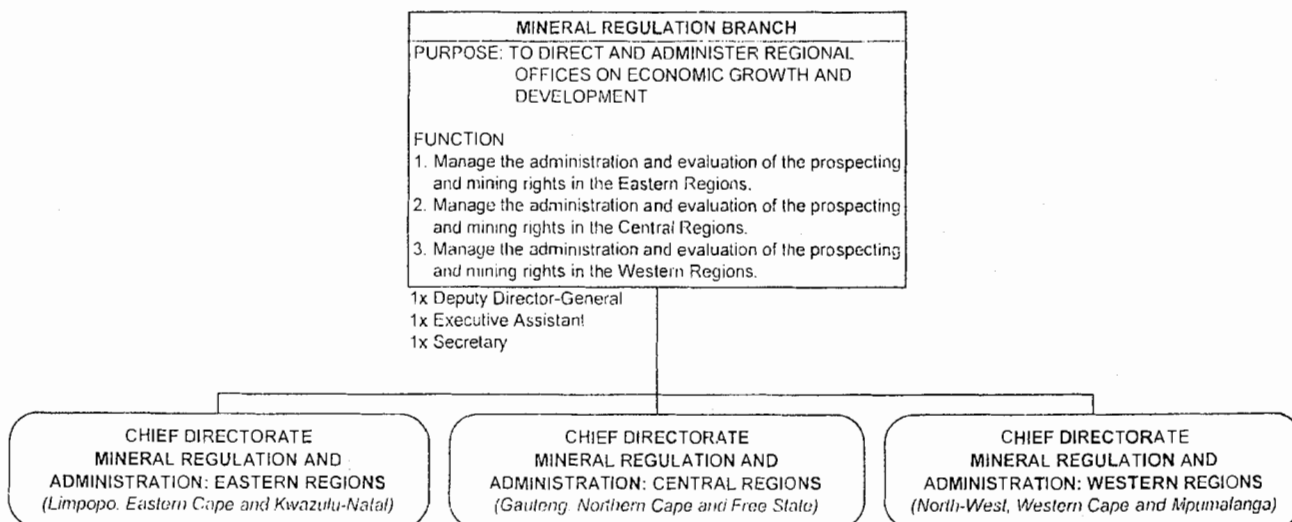
- The "organized" mining industry in South Africa is more than 100 years old and environmental legislation addressing the impacts of mining was only implemented in 1992. Major legacies and cumulative impacts that need to be addressed.
- Turn-around of personnel and capacity constraints in the regional offices.
- Some inconsistency in the application of regulatory measures and policies within the regions.
- The lack of capacity and skills with regard to small-scale mining.
- Illegal mining.

Energy

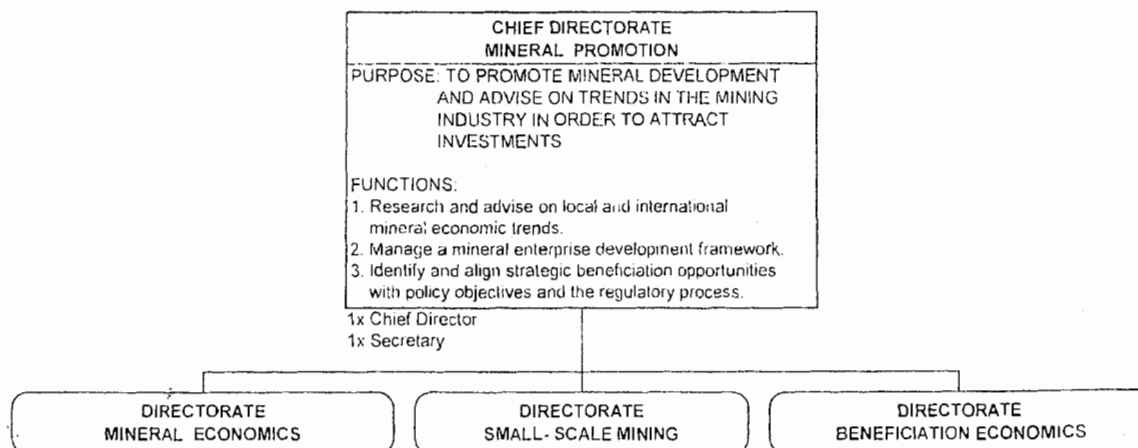
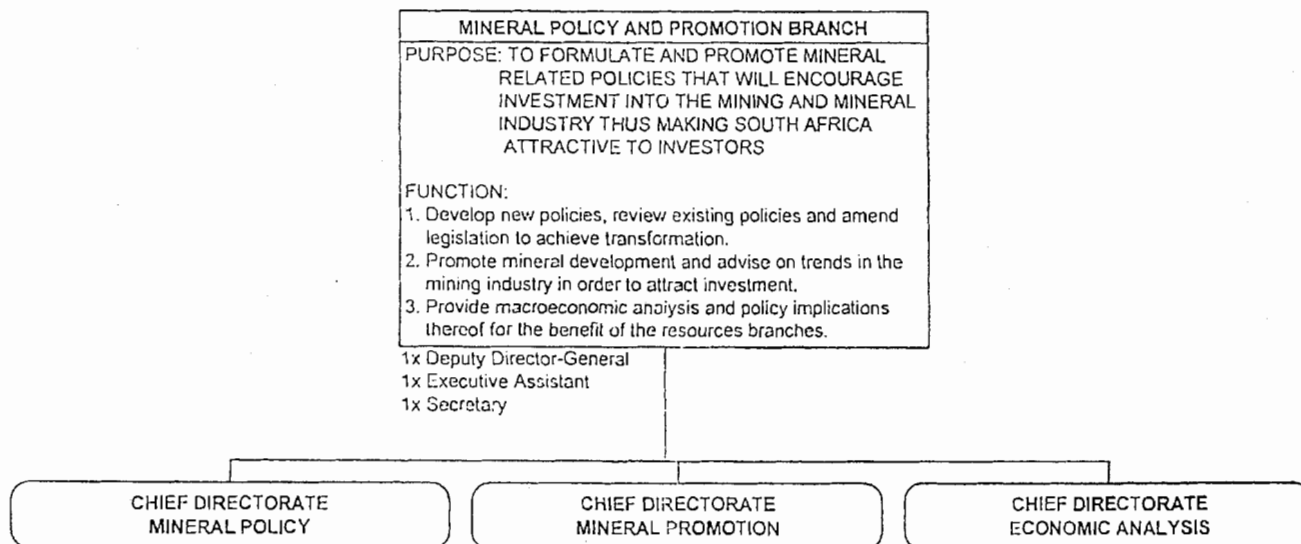
- The legislation for managing the energy sector is fragmented:
- Lack of legislative mandate to control and manage all aspects of energy development:
- Lack of a coherent framework for the Government departments to integrate the economic benefits and social challenges of energy development with the objectives of environmentally sustainable development:
- Shortage of specialised technical skills in the Department, including the Regional Offices and in the industry:
- Poor retention of staff:
- Inability to impact sufficiently on communities:
- Inadequate funding which impacts negatively on other resources:

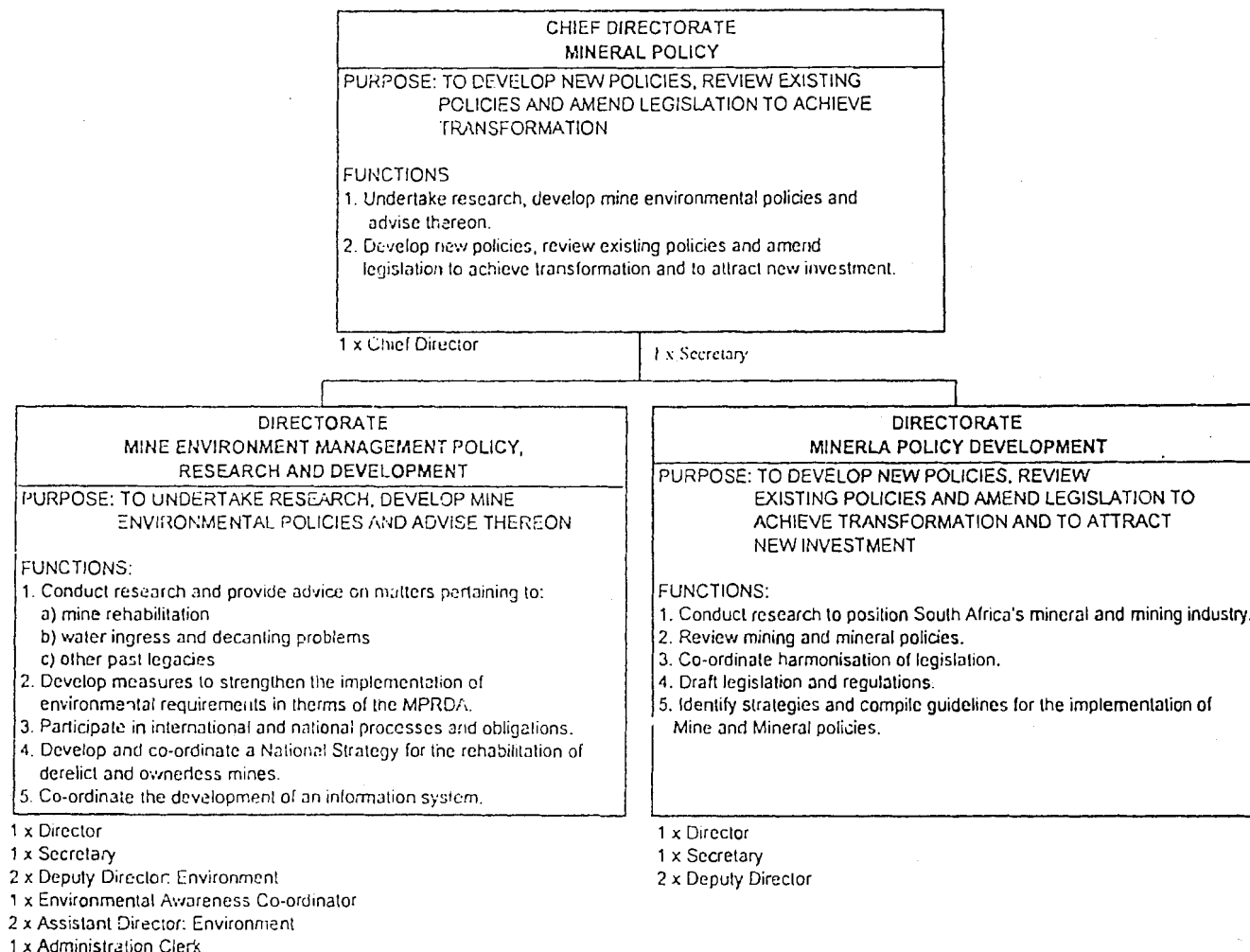
**APPENDIX A: ORGANIZATIONAL STRUCTURE AND FUNCTIONS OF MINERAL DEVELOPMENT
BRANCH**

APPENDIX B: ORGANIZATIONAL STRUCTURE AND FUNCTIONS OF MINERAL REGULATION BRANCH

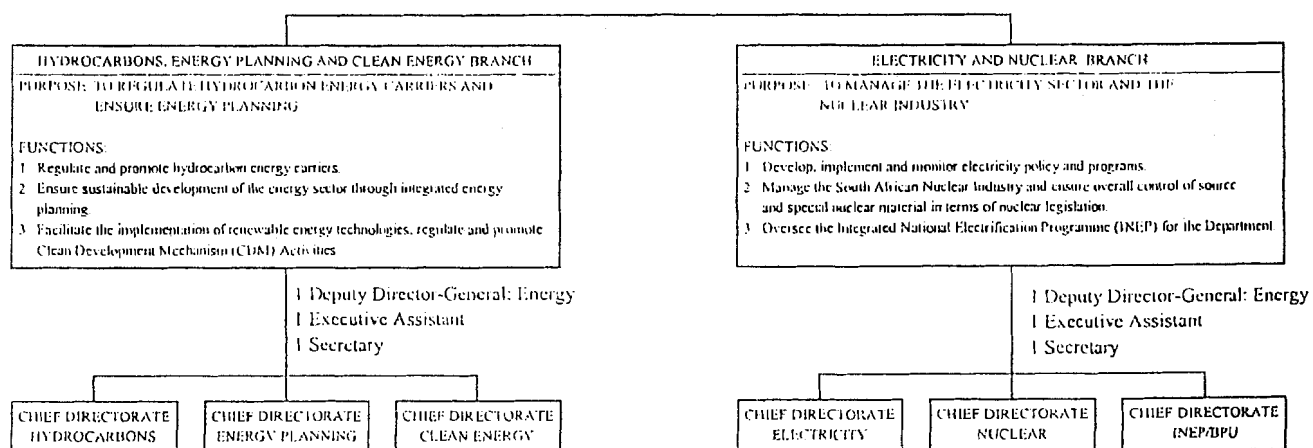


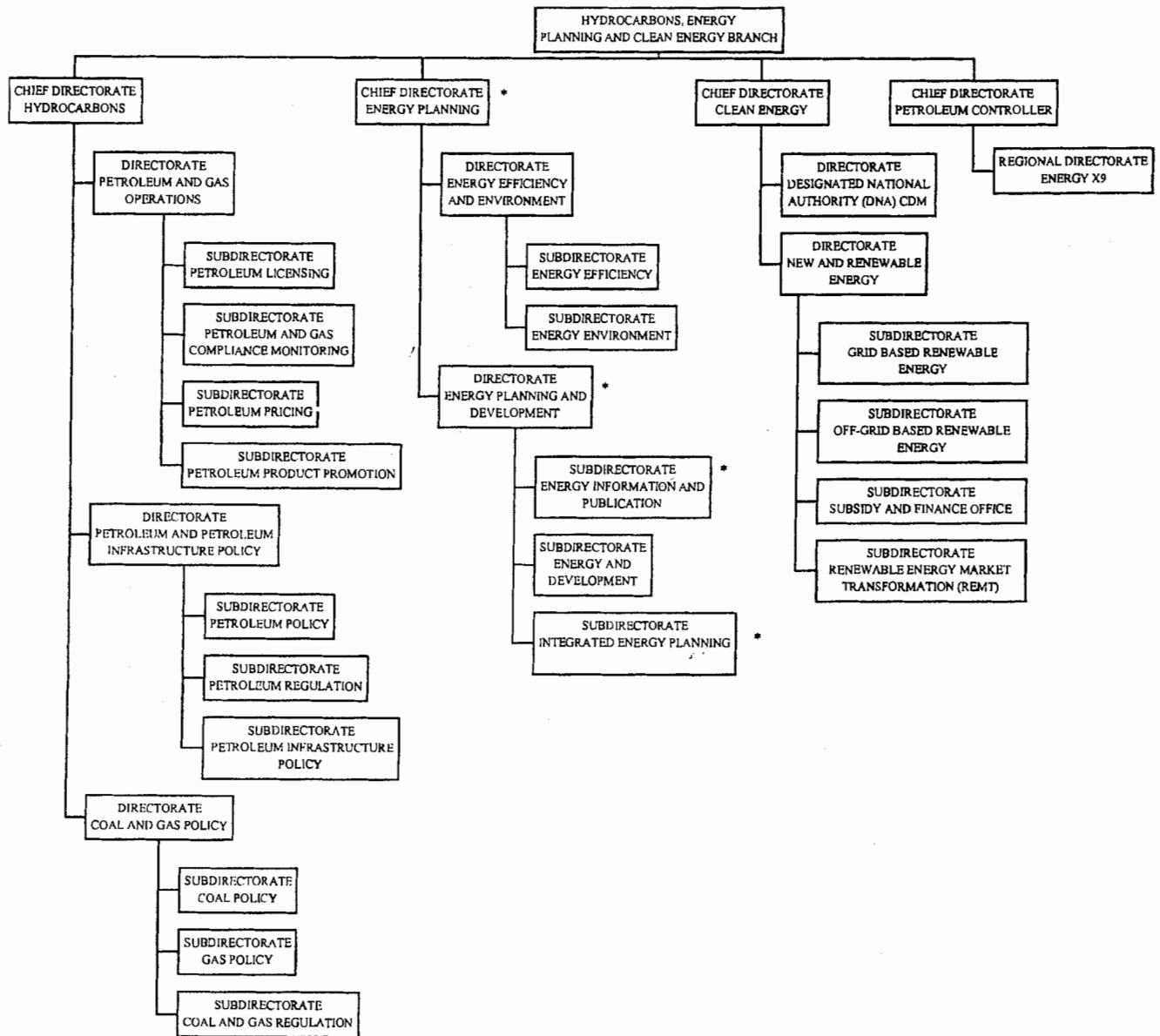
APPENDIX C: ORGANIZATIONAL STRUCTURE AND FUNCTIONS OF MINERAL POLICY AND PROMOTION BRANCH

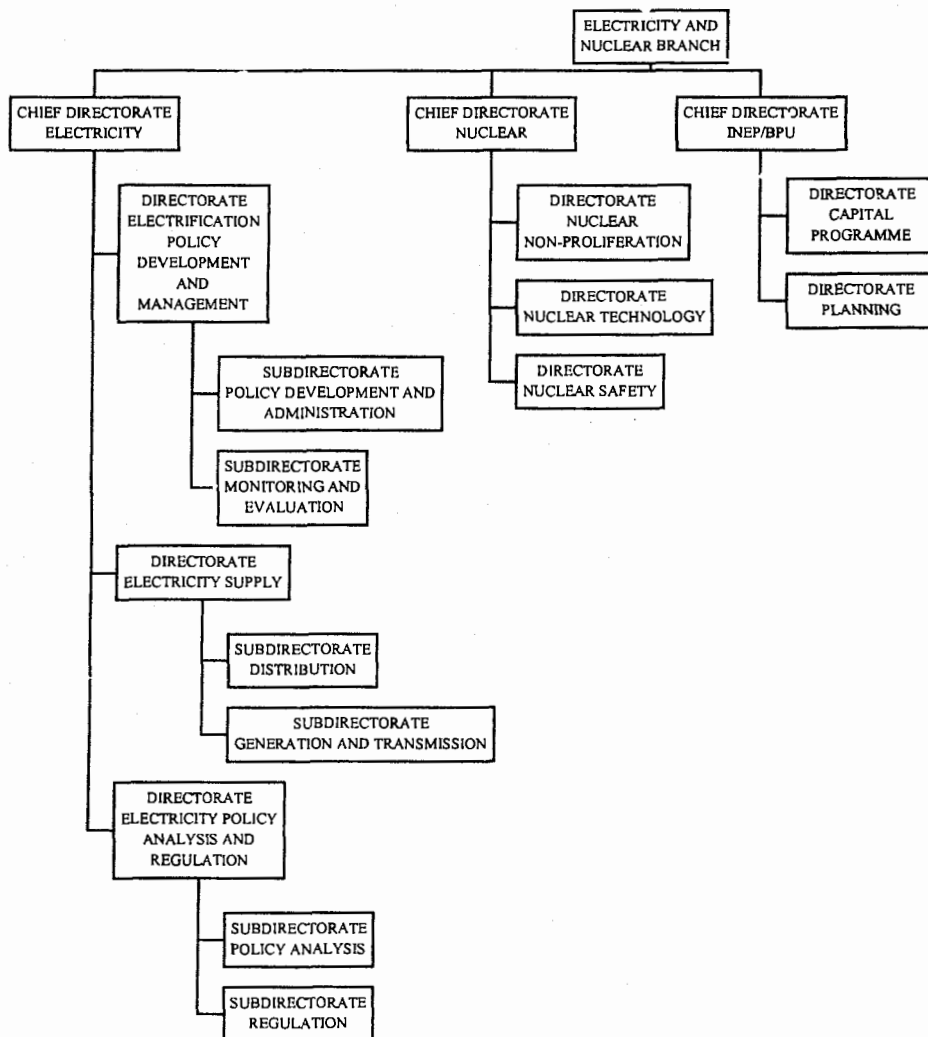




APPENDIX D: ORGANIZATIONAL STRUCTURE AND FUNCTIONS OF THE HYDROCARBONS, ENERGY PLANNING AND CLEAN ENERGY BRANCH





APPENDIX E: ORGANIZATIONAL STRUCTURE AND FUNCTIONS OF THE ELECTRICITY AND NUCLEAR BRANCH

APPENDIX F: ACKNOWLEDGEMENTS

1. DME officials:
 - Ms E Swart (Director: Mine Environmental Policy Research and Development)
 - Mr L LaBuschagne (Assistant Director: Environment)
 - Ms M Erasmus, Ms S Mudau, Mr O Rankhumize and Ms D Olivier
2. DME Branches:
 - Mineral Policy and Promotion
 - Mineral Regulation
 - Hydrocarbons, Energy Planning and Clean Energy
 - Electricity and Nuclear
3. Council for Geoscience, CSIR and Mintek

APPENDIX G: REFERENCES

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