MINE WATER MANAGEMENT POLICY

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WATER IS LIFE - SANITATION IS DIGNITY

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PREFACE

Mining as a catalyst attracts foreign investment, creates employment, stimulates the economy and contributes to community social outreach. However; mining activities result in macro impact on the natural environment, thereby causing pollution of water resources. Pollution affects both surface and ground water, and the risk is huge as it translates into issues of water security.

As the custodian of the nation's water resources, the Department of Water and Sanitation must develop a mine water management policy as a mechanism for protection and management of these resources to the benefit of all South Africans. Years of legacy mines being inherited by the State, coupled with ineffective legislation governing the mining sector, have contributed to mine water impacts becoming externalized. To effectively address inadequacies around mine water management, there is a need to target specifically current limitations around fragmented and non-integrated legislative frameworks including inter alia: Sections 19 and 21 of the National Water Act, 1998 (Act 36 of 1998); Section 38 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002); and Section 24 of the National Environmental Management Act, 1998 (Act 107 of 1998).

The Mine Water Management Policy has thus been developed. The Policy provides the Department's prospective position on mine water management and introduces measures on protection of water resources due to prospective, operational and historical mining activities. It enhances the legislative and regulatory role of the Department through clearly defined policy principles.

The Mine Water Management Policy also provides basis for holding parties accountable and potentially liable for negative effects and damages relating to acid-mine drainage and/or any other negative impacts that can be related to mining activities. This is in support of the 'polluter pays' principle, which essentially requires the polluter to contribute to costs for any remedial actions taken. The Policy does not seek to burden the mining sector with onerous regulatory requirements but aims at promoting joint regulation towards securing water for socio economic benefits while finding a common goal towards dealing with adverse mining impacts.

The Policy draws a clear distinction between handling and regulating new, active and historic mines – including abandoned mines and derelict or ownerless mines. The current legal and policy context does not impose stricter measures in the case of mines with a significant adverse impact potential. Specific conditions should be imposed on mines that have an acid generation potential. The regulatory environment on mine water management applying to new mines will be different if compared to that applying to active and/ or historic mines.

This policy also articulates the need for integration and harmonisation of efforts across sector departments towards formulating workable mechanisms that will ensure maximal value creation across the entire mining value chain. It does not substitute but is instead complementary to prevailing legislative frameworks and regulations. It therefore creates certainty for the mining sector in the advancement of responsible mining and sustainability tenets in a post-mining landscape.

The Mine Water Management Policy was consulted upon through interaction with all stakeholders. It has been endorsed by DG clusters and has also been approved by Cabinet. Each sector department (notably the Department of Mineral Resources and Energy, being the custodian of Mining activities) is expected to develop its own implementation plan in collaboration with the Department of Water and Sanitation. In time (and with implementation of this policy), regulatory reforms and legislative amendments may be considered where necessary.

MR SENZO MCHUNU
MINISTER OF WATER AND SANITATION

PREFACE

Water quality continues to deteriorate at an alarming rate. Results indicate that pollution emanates from mining activities, amongst others. The scarce fresh water in South Africa is decreasing in quality because of an increase in pollution. This problem is exacerbated by the destruction of river catchments caused by sand mining within the river streams – which often result in surface water pollution.

Acid mine drainage and related mine water impacts have in the past decade evolved into a major environmental challenge. Whilst this challenge is limited to the mining sector during operations, it eventually becomes externalised during mining downturn, and is pertinent particularly in post-mining closures, especially if these closures are not executed according to approved recommendations as per regulation.

Pollution from acid mine drainage degrades the quality of water resources. It must be managed accordingly to improve the ecological integrity of water resources including strategic water source areas. The National Water Act, 1998 (Act 36 of 1998) provides a framework for protection, use, development, conservation, management, and control of water resources for the country. Chapter 2 of the NWA makes provision for development of strategies to facilitate proper management of water resources.

The Department of Water and Sanitation is the custodian of South Africa's water resources, with a primary responsibility to formulate and implement policies governing this sector and aiming at the protection and management of the country's water resources.

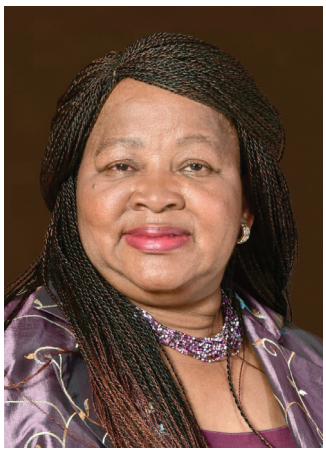
The Department has made progress in responding to the problem of acid mine drainage in the Witwatersrand basin through building three treatment plants designed to pump the acidic water out of the ground and neutralise its acidity. This means that the risk of acidic water, which poses a threat to the environment, has been greatly reduced.

The Water Research Commission is now carrying out research on how to desalinate this mine water to further improve its quality, so that the water can be re-used. Even though progressive steps have been taken in the country to address mine water related impact including acid mine drainage, there still exist challenges. These challenges have thus prompted the Department to develop a mine water management policy.

The Department of Water and Sanitation has, through the National Water and Sanitation Summit held on 18-19 February 2022, committed to reviving an Anti-pollution Task Team – and an anti-pollution action plan with specific timeframes has since been developed. The anti-pollution action plan is aimed at implementing key projects that will have a direct link to improving the water quality in the country. This will be implemented through strengthening the Department's current policy and technical measures to ensure the water resource is protected from pollution induced by mining related activities. Possible alternative solutions and interventions to manage mine water will be identified. One of key issues documented in the anti-pollution action plan is the approval and implementation of the Mine Water Management Policy.

The Mine Water Management Policy provides issues of authorisation in terms of NEMA, NWA, NEMWA and MPRDA between the Department of Water and Sanitation, Department of Environment, Forestry and Fisheries (DEFF) and the Department of Mineral Resources and Energy (DMRE). The Policy will ensure a unified approach in regulatory oversight of the entire mining value chain by sector departments.

MR DAVID MAHLOBO, MP
DEPUTY MINISTER OF WATER AND SANITATION



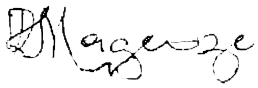
PREFACE

South Africa is a water-stressed country with frequent drought, increasing water demand and a deteriorating water quality. Security of water supply has become a key strategic issue as well as driver for continued and sustained economic growth and service delivery to the people of South Africa. The South African mining sector is one of critical pillars and drivers of the South African economy. The National Development Plan Vision 2030 places the responsibility on the Department of Water and Sanitation in leading the planning process, reviewing and updating water and sanitation programmes to ensure coordination with other long-term planning processes in social, economic and infrastructure sectors.

Mine Water Management Policy principles are guided by and advocate for prioritisation of an environment that is not harmful to community health or wellbeing, with a special focus on vulnerable groups. This policy also seeks to mitigate and curb the pollution of water resources from mining operations and is geared towards managing effluent that continues to present health hazards to water consumers downstream, particularly the children, the elderly and the poor.

In view of progressive strides already taken in addressing acid mine drainage, two broader gaps have also been identified in the existing policy framework: Firstly, the delegation of powers between various government departments at national, provincial, and municipal levels is unclear (and government's responsibility with respect to handling and managing mine water is fragmented, overlapping and is vaguely defined); Secondly, the existing frameworks place government – particularly the Department of Water and Sanitation – in an awkward position of having limited powers in terms of imposing sanctions.

Legislation needs to be strengthened to give the Department of water and Sanitation a strong legislative basis to impose sanctions and apportion liabilities on polluters, while effectively managing the mine water in the country.



MS DIKELEDI MAGADZI, MP
DEPUTY MINISTER OF WATER AND SANITATION

FOREWORD

South Africa is a water-scarce country. While it is so, institutional roles and responsibilities during mine closures are still fragmented, overlapping and vaguely defined. The absence of direct reference to mitigation measures against adverse mining impacts on water resources, coupled with a lack of implementation of environmentally acceptable mine closures, features as an intrinsic weakness in regulating mine water.

Talks and efforts for development of a mine water management policy were initiated in 2015 and culminated into this Mine Water Management Policy. The Policy is aiming to provide integrated regulatory authorisations between the National Water Act, 1998 (Act 36 of 1998), the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) and the National Environmental Management Act, 1998 (Act 107 of 1998). It was consulted upon widely through interaction with all stakeholders and various government departments – and was approved by Cabinet in May 2022.

The purpose of the Policy is to symbiotically provide integrated and coherent approaches across sectors including government, the private sector and the civil society. These approaches are geared towards sustainable management of mine water by building on existing legislative frameworks – addressing gaps and weaknesses, while capitalizing on opportunities identified in relation to mine water management including acid mine drainage.

The Mine Water Management Policy provides the overall vision of mine water management in South Africa and sets out fundamental norms, values and standards for better management of mine water. It features as a responsive mechanism to challenges through enabling the re-use of treated mine water including acid mine drainage, and encourages optimum use of appropriate and cost-effective technology to do so. Mine water re-use should also prioritise agricultural activities adjacent to the mining area.

This Mine Water Management Policy provides the basis for holding parties potentially liable for negative effects and damages on water resources, and for any other adverse impact that relates to acid mine drainage. Thus the Department supports the 'polluter pays' principle – where the polluter is made to contribute to the costs towards any remedial actions taken. The mine water problem is not going to be solved by a single intervention but will require an integrated implementation of a range of measures including the re-use of treated mine water in other operations and/or re-engineer it for municipal networks. All this will need to be led by pragmatic and progressive policies and legislations.

The technological options in treating the current acid mine drainage and other mine water related situations should not only be cost-effective but also be tailor-made for unique situations. Care should be taken that such a solution should be self-funding in line with the 'user-pays' principle. While acknowledging the usage of the best technology available, it is almost inevitable that a portion of undesirable deposits will be generated by acid mine drainage treatment. The policy will rely on the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) for deposit management options.

I would like to acknowledge and thank all stakeholders who contributed towards the development of this Mine Water Management Policy. This policy provides robust discussions towards achieving the goal of 'sustainable management of mine water'. The successful implementation of this policy will require commitment and collaborative efforts from all role players, coupled with innovative and strategic thinking.

DR SEAN PHILLIPS
DIRECTOR-GENERAL OF WATER AND SANITATION

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ACRONYMS AND ABBREVIATIONS

AMD	Acid Mine Drainage
BPEO	Best Practicable Environmental Option
CARA	Conservation of Agricultural Resources Act
CBA	Cost-Benefit-Analysis
CMA	Catchment Management Agency
CMS	Catchment Management Strategy
DALRRD	Department of Agriculture, Land Reform and Rural Development
DEEF	Department of Environment, Forestry and Fisheries
D&O	Derelict and Ownerless
DMRE	Department of Mineral Resources and Energy
DWS	Department of Water and Sanitation
EIA	Environmental Impact Assessment
IMC	Inter-Ministerial Committee
IWQM	Integrated Water Quality Management
LP	Leading Practice
MOU	Memorandum of Understanding
MPRDA	Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998)
NWA	National Water Act, 1998 (Act 36 of 1998)
NEMBA	National Environmental Management: Biodiversity Act, 2004
NEMLA	National Environmental Management Laws Amendment
NEMPAA	National Environmental Management: Protected Areas Act, 2003
OEPS	One Environmental Permitting System
SPLUMA	Spatial Planning and Land Use Management Act, 2013
RQOs	Resource Quality Objectives
WDCS	Waste Discharge, Charge System
WRC	Water Research Commission
WSA	Water Services Authorities

GLOSSARY

TERM	DEFINITION
Apportionment of liability	The act of determining contributory negligence and for proceedings against joint and several mines especially with respect to water pollution from individual mining operations and mining operations that are interconnected. with other
Abandoned mine	A mine which is not operational due to e.g. financial constraints, but still having a legal custodian
Acid Mine Drainage (AMD)	The seepage or flow of poor quality water into ground or surface water systems. AMD occurs as a result of water in a mine void interacting with the mineralogy of the mine in the presence of air and microorganisms to form water that is typically characterised with a low pH and elevated concentrations of salt and metals.
Cost - effectiveness	Minimising the cost of achieving an objective
Derelict Mines and Ownerless mines	Refers to Mines whose owners/ operators/ or mining rights/ lease holders have abandoned the mining activities and are not implementing any interventions for the mitigation of mining-associated safety, health, water resources and environmental impacts. These would typically comprise mines that were operational during the period when environmental management at mining sites was not well regulated. Ownerless mines are those mines whose directors can no longer be traced or because the legal business enterprise is no longer in existence.
Government	Collective relevant departments with mandates/authority to govern activities relating to mining, water and the environment
Legal liabilities	One's /a company's legal responsibility for historical, present or future environmental consequences caused by mining activities
Liquidated mine	A situation where mine has ceased to operate; where environmental management (including rehabilitation and/or demolition) have not been conducted to acceptable standards and the holder has been declared insolvent and the mine assets would have to be sold to recover costs and/or to service the debt
Long term liabilities	All closure and post-closure interventions to manage the mining-induced and post-mining latent impacts.
Mine water	Any surface and/ or groundwater which comes into contact with any part of a mine's workings, operations or mine waste material and hence contaminated/ mine-impacted water.
One Environmental system	A synchronised system for environmental authorisation between the NWA, the MPRDA, NEMA, NEMAQ,NEMWA, where the Minister responsible for Mineral Resources will issue environmental authorisations in terms of the NEMA for prospecting, exploration, mining or operations, and that the Minister for Environmental Affairs will be the appeal authority for these authorisations and agree on fixed time-frames for the consideration and issuing of the authorisation in their respective legislation and agree to synchronise the time-frames. The Minister of Water Affairs is responsible for commenting in terms of water use authorisation, which is an integral part of the process.
Polluter-pays principle	A principle provided for in section 2 of the National Environmental Management Act 1998 (Act No. 107 of 1998): "the cost for remedying pollution, environmental degradation and consequent adverse health effects and for preventing, controlling or minimising further pollution; environmental damage or adverse health effects must be paid for by those responsible for harming the environment
Precautionary principle	When there are threats of serious or irreversible damage, any lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation
Retrospective liabilities	This is where the mine owner is held solely responsible for impacts attributable to mining, including those attributable to changing regulatory standards. It implies that the mine owner is responsible for all the environmental impacts of mining, irrespective of standards in place at the time of closure
User pays principle	The 'user- pays' principle holds agents who have benefited from the processes that caused the mine water degradation liable for paying the costs towards addressing the harm caused

1 INTRODUCTION

The South African mining sector is dynamic: For more than a century, mining has been the cornerstone of SA's economy which has advanced the socio-economic development and poised the country as a key player in the international mining, minerals and beneficiation sectors. The host of mineable commodities locked across the country, continues to bode well for direct and foreign mining investments in South Africa.

As we enter the era of entrenching sustainable economic development, the business of mining is evolving to a circular economy, with the re-processing of mine waste facilities to recover residual lower-grade commodities that may now be considered as a "mining renaissance". Furthermore, South Africa's largely coal-fired power generation provides the impetus for intensive coal mining operations across the north-eastern limb of the country, with existing and proposed coal mines potentially boasting operational lifespan of up to 50 years.

Despite the socio-economic benefits, mining is regrettably fraught with inherent risks for the natural and built environments. Mining-impacted waters (colloquially termed "acid mine drainage" (AMD) and its potential to cause macro impacts on clean water resources, is cited as a global risk. AMD is often ranked in the same tier of other threats such as climate change, water security, waste management without recycling, deforestation and irreversible land degradation (desertification). Conversely, mining-induced water resources impacts could potentially impede the developmental objectives specified in the National Development Plan (NDP) 2030, unless such risks are planned for and duly mitigated.

Since Section 24 of the South African Constitution provides the right to an environment that is not harmful to health or well-being (and an environment that is protected for the benefit of present and future generations), this right must be ensured through inter alia, measures that prevent pollution and ecological degradation associated with mining-induced macro water resources impacts.

The National Water Act, 1998 (Act 36 of 1998) (NWA) provides a framework for protection, use, development, conservation, management and control of water resources for the country as a whole, with Chapter 2 making provision for the development of strategies to facilitate the proper management of resources. In line with this stipulation, the National Water Resource Strategy-3 provides the overall framework for water resource management in the country. Despite the foregoing – and recognising other progressive legislative frameworks and regulations for water resources management – it needs to be enunciated that the management of mine water impacts and potential mine water hazards are not categorically outlined.

Given the legacy impacts of mining in South Africa – together with the socio-economic stimulus triggered by current and potential mining mega-developments in provinces such as Mpumalanga, Limpopo, Free State, North-West and the Northern Cape – it is prudent that the Department of Water and Sanitation (DWS) formulates a Policy on the management of mine water. The Policy aims to respond to cross-cutting mine water management issues in abandoned and ownerless mines, in mines that are currently active, and in proposed mining operations.

The Mine Water Management (MWM) Policy is supported by principles of the Integrated Water Quality Management (IWQM) Policy – which itself is geared to: amalgamate and describe an integrated, inclusive and adaptive approach to IWQM; amplify the tenets of sustainable development; address gaps in policy and legislation; and invoke the"polluter-pays" principle framework. The Policy further sets out the vision, goal, values, underlying principles and policy responses for managing the overall quality of our water resources.

The MWM Policy will focus mainly on mine water management challenges and thus contribute towards strengthening and implementing existing legislation and regulatory instruments.

2 PROBLEM STATEMENT

Acid Mine Drainage (AMD) and related mine water impacts have, in the past decade, evolved to become a major environmental challenge. Whilst the challenge may be limited to the mining sector during operations, it eventually becomes externalised during mining downturn, and is especially pertinent to post-mining closures, especially if a mine closure is not executed in line with regulatory-approved recommendations. A prime example of this problem is the palpable impact of AMD in the Witwatersrand gold fields that exacerbates risks for water security in the Vaal River System.

Potentially, some 13 million residents in Gauteng and surrounds – as well as strategic water use sectors such as mining, industry and power generation – may be compromised. Similarly, current and potential mining-induced water resources macro impacts in water management areas (WMAs)such as the Olifants, Orange, Limpopo and Pongola, as well as the nationally-important groundwater and surface freshwater priority areas are significant caveats as these resources interface the food and energy sectors, whilst simultaneously creating water security risks for the region's peri-urban and rural (marginalised) citizens.

To deal with this AMD challenge at a very high level, an Inter-Ministerial Committee (IMC) was established in 2010 which comprised of Ministers of Mineral Resources, Water and Environmental Affairs, Finance, Science and Technology, with the Minister in the Presidency: National Planning Commission having the role of providing guidance on responses needed. This intervention culminated in a suite of Cabinet-endorsed recommendations for mine water management ranging from pollution prevention and reduction, treatment, ingress control, research and mine water re-use.

Over the period between 2012 and 2016, National Government had already expensed around R2.6 billion for the Witwatersrand AMD Emergency Works Project. Whilst this budget was necessary to support water security objectives for the Vaal WMA, it was based on an off-budget funding mechanism with full cost recovery that invoked both the 'user-pays' and 'polluter-pays' principles yet to be fully rolled-out. An added complexity is that advancing the Emergency Works Project into a long-term, sustainable project will incur

additional funding requirements of around R10 billion. Given that current fiscal conditions curtail such funding, it becomes even more prudent to recognise that fully funding AMD mitigation efforts across key mining regions could incur costs in excess of R100 billion over several fiscal years. The funding projection thus becomes prohibitive when considering water management and closure of ownerless mines, which potentially requires up to R60 billion.

The current limitations around fragmented legislative frameworks (including inter alia, Sections 19 and 21 of the NWA; Section 38 of the MPRDA; and Section 24 of the NEMA) despair regulatory efforts in implementing the One Environmental System due to: operational pressures and timeframes attached thereto, the absence of direct reference to the mitigation of mining-impacted waters, and delayed implementation of environmentally-acceptable mine closure. These are an intrinsic weakness in regulating mine water management.

All the said challenges necessitate the development of a policy on mine water management which is geared towards integrating and exploiting efficiencies for mine water management thereby creating a framework for effective management of mining-impacted water, optimising integrated water resources management and stimulating socio-economic development in a post-mine closure scenario.

3 PURPOSE AND OBJECTIVES

The purpose of the Policy is to provide integrated and coherent approaches across government, the private sector and civil society for sustainable management of mine water by; building on existing legislative frameworks; addressing gaps or weaknesses; and capitalising on opportunities identified in relation to mine water management, including AMD.

The Objective of the policy is to:

- Provide relevant and integrated legislative remedies in order to entrench a proactive mine water management approach within the whole mining life cycle (i.e. prospecting and planning, commissioning, operation, decommissioning and mine closure, post-closure);
- Provide measures for protection of water resources from prospective, operational and abandoned mines;
- Promote mine closure that engenders sustainable societal and environmental benefits, with an emphasis on mine water management;
- Support the mandates of government as a whole for management of mine closure, in particular the mandates of the DALRRD, DEFF, DMRE and DWS.

The Policy is guided by and takes cognisance of existing and current initiatives towards strengthening mine water management by:

- Supporting full implementation of the National Water Amendment Act, 2014 (Act No. 27 of 2014) and the National Environmental Laws Amendment Act, 2014;
- Supporting (and participating in) the three sector departments' efforts geared towards full implementation of the One Environmental Permitting System;
- Acknowledging the political directive of the Inter-Ministerial Committee (IMC) on AMD and considering proposed solutions for addressing acid mine drainage (AMD); and
- Supporting (and contributing to) the current work being undertaken by the National Treasury and the Department of Environment, Forestry and Fisheries (DEFF) towards financial securities for mine water management and other latent mining impacts on the water resources and the general environment.

4 SCOPE OF THE POLICY

The MWM Policy sets out the policy principles which are divided into three sections, as follows:

Section A: which deals with proposed/prospective mines, active mines and mines placed under care and maintenance;

Section B: Abandoned Mines;

Section C: which deals with the funding approach, roles, responsibilities, and timeframes that are aimed towards achievement of the actions of this policy. These are aimed at strengthening efforts for protection of water resources from mine water contamination, for both short and long terms. The policy principles enshrined herein are informed by the current legislative framework on water resource management. The Policy further proposes an integrated inter-departmental approach to mine water management where legislative weaknesses are collectively identified.

The policy scope covers the whole mining life cycle (prospecting and planning, commissioning, operation, decommissioning and mine closure, post-closure mine water management) by providing guidance on sustainable water use, especially in as far as it relates to IWQM. It further addresses mine water challenges (including AMD) within current and future mines, abandoned and ownerless mines.

5 RELATIONSHIP BETWEEN POLICY, STRATEGY, IMPLEMENTATION PLAN, MASTER PLAN AND LEGISLATIVE REVIEW

The Mine Water Management Policy provides the overall vision of mine water management in South Africa and also sets out fundamental norms, values and standards for management of mine water. The Policy is geared to respond to these challenges through enabling the re-use of treated mine water and optimising the use of Appropriate and Cost-Effective Technology. The mine water re-use is to prioritise those agricultural activities that are adjacent to mining areas (provided there is no negative impact).

The supporting strategy (which entails updating of existing initiatives) sets out key actions (prioritised key actions that need to take place over a short to medium term). These actions are required to be undertaken (and as necessary be updated) in order to realise sustainable mine water management in South Africa. The implementation plan describes roles, responsibilities, time frames and resources required to achieve the priority key actions. The translation of this policy into a strategy and an implementation plan will provide critical tools to make the vision of this policy a reality. The master plan identifies key actions in the water sector and allocates roles and responsibilities to all in the water sector – from various tiers of government, through to the private sector and other stakeholders. The master plan has also acknowledged that there currently exists a heavy reliance on surface water (73% of total available yield) and no sufficient diversified water mix. As such, the plan makes reference to the following in relation to mine water, that:

- By 2040, treated acid mine drainage and desalinated seawater will make a significant contribution to South Africa's water mix;
- Groundwater usage will increase, and over-reliance on surface water will reduce.
- Alternative sources of unused water be identified (e.g. mines that are closing)
- MoU between DWS and strategic users be developed and subsequently be implemented.

6 CURRENT LEGISLATION AND POLICY FRAMEWORK

The legislative and policy framework for water quality management begins with relevant provisions in the Constitution of South Africa (1996) and cascades down through to national policies and legislation – and will be supported by secondary legislation or regulations. The current legislative framework for mine water management spans across three national departments, namely: the Departments of Water and Sanitation (National Water Act, 1998); Mineral Resources (Mineral and Petroleum Resources Development Act, 2002) and Environmental Affairs (National Environmental Management Act, 1998); and includes other supporting legislation outlined in Table 1, below:

Table 1: Current Legislative and Policy Framework

Legislation		Relevance
Republic of South Africa, Constitution,1996	**S10** - "everyone has inherent dignity and the right to have their dignity respected and protected." **S24** (a) -"everyone has a right to an environment that is not harmful to their health or well-being" **S27** (1)(b) - "everyone has the right to have access to sufficient water" 27(2) obliges the state to "take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation" of everyone's right of access to sufficient water.	Clear cross over between dignity and sanitation
National Water Act, 1998 (Act 36 of 1998) (NWA)	**Chapter 2: Water management strategies**: The National Water Resource Strategy (NWRS) and all Catchment Management Strategies (CMSs) must be aligned with this policy and its approach to mine water management. As the Minister, the Director-General of the DWS, organs of state and water management institutions are obliged to implement the NWRS and CMSs. **Chapter 3: Water classification system**: With specific reference to Sections 19, provides that the protection of water resources is fundamental to their use, development, conservation, management and control. This chapter of the NWA further provides measures which are intended to ensure comprehensive protection of water resources, including measures to prevent pollution and remedy the effects of pollution of water resources. The policy reaffirms the stricter application of Section 19 (1) and (2) of the National Water Act (NWA) that: "An owner of the land, a person in control of the land or a person who occupies or uses the land on which - any activity or process is or was performed or undertaken; or any other situation exists, which causes, has caused or is likely to cause pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring. (2) The measures referred to in subsection (1) may include measures to - (a) Cease, modify or control any act or process causing the pollution; (b) Comply with any prescribed waste standard or management practice;	It provides for fundamental reform of the law relating to water resources; to repeal certain laws; and to provide for matters connected therewith

Legislation		Relevance
	In terms of this policy, the resource quality objectives (RQOs) and the reserves published under Chapter 3 of the NWA will be used to inform decisions relating to mine water management, including decisions to grant or refuse water use licenses (WULs) for mines and developing conditions subject to which WULs are granted. RQOs and reserves published for mining-affected catchments – such as the Olifants, Vaal, Tugela, Pongola, Inkomati and Usuthu catchments – can also be used to inform related decisions (e.g. decisions to utilize section 19 or 20 of the NWA and decisions to require security from WUL applicants). **Chapter 4: Use of Water**: Prescribes certain factors that need to be taken into account by responsible authorities when taking decisions relating to water use, such as the decisions to grant or refuse WUL applications. The policy will take into account the relevant considerations, the essential requirements of licenses, conditions for issuing general authorizations and licenses and security by applicants in sections 27-30 of the Act, in particular section 30 in terms of which the responsible authority has the power to require applicants for licenses to put up security for their obligations under a WUL. In circumstances where the ministry responsible for minerals currently (i.e. Department of Minerals Resources and Energy (DMRE), as a matter of course, does not require mining right holders to make financial provision for water treatment costs, it is imperative that the ministry responsible for water resources currently (i.e. Department of Water and Sanitation (DWS) uses its authority through its legislation (i.e. National Water Act (NWA) to obtain security for these costs. **Section 53 of Chapter 4** further deals with the following: A responsible authority may act by notice in writing to a person who contravenes – (a) Any provision of this Chapter; (b) A requirement or directive was given by the responsible authority under this Chapter; or (c) A condition which applies to any authority to use water, direct that person, or the owner of the property in relation to which the contravention occurs, to take any action specified in the notice to rectify the contravention, within the time (being not less than two working days) specified in the notice or any other longer time allowed by the responsible authority. If the action is not taken within the time specified in the notice, or any longer time allowed, the responsible authority may – carry out any works and take any other action necessary to rectify the contravention and recover its reasonable costs from the person on whom the notice was served; or Apply to a competent court for appropriate relief.	

Legislation		Relevance
	Part 1 of Chapter 5: Water use charges: In acknowledgement of that South Africa is a water scarce country. The policy affirms that charges for water use and pollution should be set at a higher tariff enough level to prevent overuse and pollution by mines. The policy encourages efficient and reuses where feasible and sustainable.	
	Chapter 14: Monitoring, assessment and information: The various monitoring assessment and information mechanisms provided for in Chapter 14 of the NWA will be fully utilized to ensure that the Minister and responsible authorities have sufficient information about mine water management in ensuring that water resources are adequately protected from mine water pollution.	
	Chapter 16: Offences and remedies: The policy will rely on chapter 16 to deal with the following inappropriate circumstances: • When a mining company fails to comply with a directive issued in terms of section 19, 20 or 53of the NWA, • When a mining company uses water without a water use license, or • When a mining company causes unacceptable pollution of a water resource, The legal steps will be taken to initiate the prosecution of those persons or water users.	
National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA)	The national environmental management principles must guide all environmental decision-making. This policy will rely on these principles to guide decision-making around mine water management. The key relevant principles are: the 'polluter pays' principle, the risk averse and cautious approach, the mitigation hierarchy, integrated environmental decision-making, environmental justice, equitable access to environmental resources, public participation, access to information and protection of sensitive, highly dynamic or stressed ecosystems, amongst others.	There is a clear cross over between environmental management and water security.
	Section 24(2A): Restriction or prohibition on the granting of environmental authorizations: In terms of section 24(2A) of NEMA, the Minister of Minerals and Energy may prohibit or restrict the granting of environmental authorizations for specified listed activities in respect of specified geographical areas. The policy concurs with the decision based on 24(2A) of NEMA as a supreme measure for the protection of key water source areas. A motivation can thus be submitted to the Minister of Environmental Affairs for the restricting or prohibiting of mining-related activities in water source areas.	

Legislation		Relevance
	Section 28 of the NEMA: Dealing with the "duty of care and remediation of environmental damage": section 28 stipulates that: (1) Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring or in so far as such harm to the environment is authorized by law or cannot reasonably be avoided or stopped, to minimize and rectify such pollution or degradation of the environment. (8) Subject to subsection (9), the Director-General or the provincial head of the department may recover all costs incurred as a result of it acting under subsection (7) from any or all of the following persons – (a) any person who is or was responsible for or who directly or indirectly contributed to, the pollution or degradation or the potential pollution or degradation; (b) the owner of the land at the time when the pollution or degradation or the potential for pollution or degradation occurred or that owner's successor in title; (c) the person in control of the land or any person who has or had a right to use the land at the time when – (i) the activity or the process is or was performed or undertaken: or (ii) the situation came about: or (d) any person who negligently failed to prevent – (iii) the activity or the process being performed or undertaken: or (iv) the situation from coming about: Provided that such person failed to take the measures required of him or her under subsection (1). The implementation of the section should be in concurrence with NWA and MPRDA in consideration of relevant/complementary section with the above section.	
	Section 24(0): criteria to be taken into account by competent authorities when considering applications: In terms of this section, competent authorities are obliged to take into account information when considering applications for environmental authorizations, including the comments of any organs of state charged with the administration of any law which relates to activities listed in the listing notices published under NEMA. The policy reaffirms the sustainability and equity (as outlined in NWA) identified as central guiding principles in the protection, use, development, conservation, management and control of water resources to inform the comments by the DWS on applications relating to mine development.	

Legislation		Relevance
	Section 24(P): Financial provision for remediation of environmental damage must be aligned with the One Environmental System: In the interest of sustainable mine water management; DWS involvement in the determination of financial provision (as a commenting authority) should be guided by sustainability and equity (as outlined in NWA). Steps, which include approval of technical solution to address sustainable mine water management, must be taken into account to ensure that sufficient financial provision is made for mines that will have significant impacts on water resources. In the event that the Department of Mineral Resources fails to require sufficient financial provision, DWS will automatically require verification of financial guarantee to address water resources impacts during the active mining life cycle (in terms of section 30 of the NWA). Additionally, alignment with the One Environmental System is needed such that the water use license (if granted) for the mining activity, only becomes active if guarantee for the water management has been catered for in the financial provisions for remediation of post-mining (latent) environmental damages. The policy takes cognisance of (and is aligned with) the current development of NEMA Financial Provision Regulations that cater for current issues of mine water management. It states that: The financial provision must guarantee the availability of sufficient funds for remediation and management of residual and latent environmental damage, including the on-going pumping and treatment of polluted or extraneous water where relevant." In view of the above, the Policy and NEMA Financial Provision Regulations will ensure alignment with a view to eliminate double pricing/charging of users.	
NEMA: Financial Provision Regulations	The "One Environmental System (OES)" for mining came into existence in December 2014 initiating the streamlining of the licensing processes for mining, environmental authorisation and water use. In November 2015, in line with OES, the Financial Provisioning Regulations (FPR) were published in terms of NEMA. As a result of continued discussion with stakeholders (DWS, DMR, SARS, NT), the Minister (DEA) published proposed amendments to the Regulations on 10 November 2017 and gazetted for public comments. **Alignment of FPR to Mine Water Management Policy:** **Integrated Approaches to Mining Closure** (a) In line with OES, under which all environmental matters pertaining to mining are to be regulated in terms of the environmental legislation. it is recommended that DWS be allowed access to the financial provision for the rehabilitation of impacts on water resources. (b) A new requirement is that the provision made for latent or residual environmental impact must specifically address the pumping and treatment of extraneous or polluted water. This speaks to the: Apportionment of liabilities; Promotion of sustainable mining development and Re-use of treated mine water including AMD.	

Legislation		Relevance
	(c) The adequacy of the financial provision must be reviewed and assessed annually. The result of this assessment must now also be audited by an independent auditor, and submitted to the Minister. Any excess must be deferred against subsequent assessments, and any shortfall must be remedied by increasing the financial provision, within 90 days from the date of signature of the auditor's report. These amendments will greatly strengthen the credibility of the provision because the mining sector will be wary of incurring liabilities arising from inadequate provisioning. This is also emphasized by the policy principle on Environmental vigilance and continuous improvement and Promotion of sustainable mining development. (d) The concept of asset transformation, which provides an opportunity to establish new industries on rehabilitated mine sites, and thereby avoiding the prevalence of ghost towns which are often associated with mine closures. In support of this shift, NEMLA IV allows for the use of specialist rehabilitation companies as a new kind of financial vehicle to be used for financial provisioning.	
Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA)	**Chapter 4: Mineral and Environmental Regulation:** DWS must take steps to ensure that decisions to grant or refuse applications for mining rights, mining permits and prospecting rights are guided by principles in this policy and existing/future legal instruments underpinned by this policy. Where those rights or permits are granted, they must be granted subject to appropriate conditions that ensure the sound management of mine water.	It provides that the permits or rights that are granted for mining should be subject to appropriate conditions that ensure the sound management of mine water.
	Section 38(A): Environmental authorizations: DWS will take steps to ensure that decisions to grant or refuse applications for environmental authorizations for mining and related activities are guided by principles in the policy and existing/future legal instrument underpinned by this policy. Where environmental authorizations are granted, they must be granted subject to appropriate conditions that ensure the sound management of mine water.	
	Section 43: **Closure certificate**s: This section provides for issuing of closure certificates for mines at the end of their lifespan. In terms of subsection (5), "[n]o closure certificate may be issued unless the Chief Inspector and each government department charged with the administration of any law which relates to any matter affecting the environment have confirmed in writing that the provisions pertaining to health and safety and management pollution to water resources, the pumping and treatment of extraneous water and compliance with the conditions of the environmental authorization have been addressed." The Policy reaffirms this and in addition as part of collective decision, DWS approves the mine water management technical solution that must guide the decisions by relevant authorities to grant or refuse closure certificate applications. (1) In addition the proposed land use post mining should be agreed upon before the issuing of closure certificate. This will enable the participation of the lead department i.e. DALRRD to provide the technical guidance on the expected state of rehabilitated land, post mining.	

Legislation		Relevance
	Section 45 of the MPRDA dealing with the Minister's power to recover costs in event of urgent remedial measures provides that:- (1) If any prospecting, mining, reconnaissance or production operations cause or results in ecological degradation, pollution or environmental damage which may be harmful to the health or well-being of anyone and requires urgent remedial measures, the Minister may direct the holder of the relevant right, permit or permission to: (b) investigate, evaluate, assess and report on the impact of any pollution or ecological degradation; (c) take such measures as may be specified in such directive; and (d) complete such measures before a date specified in the directive. (2) (a) If the holder fails to comply with the directive, the Minister may take such measures as may be necessary to protect the health and well-being of any affected person or to remedy ecological degradation and to stop pollution of the environment. (e) The Minister may recover an amount equal to the funds necessary to fully implement the measures from the holder concerned. The policy reaffirms the above section and in addition as part collective decision DWS approve the mine water management technical solution that must guide the decisions to address mine water pollution.	
	Section 46: Minister's power to remedy environmental damage in certain instances: The Policy supports that the directives should be issued to mining companies in charge of mining operations that are causing, have caused, or are likely to cause unacceptable pollution to water resources.	
	Section 47: Minister's power to suspend or cancel rights, permits or permissions: The Policy supports that Minister should cancel the mining rights, mining permits or prospecting rights of mining companies in charge of mining operations that are causing, have caused, or are likely to cause unacceptable pollution to water resources.	
	Section 48: restriction or prohibition or prospecting and mining on certain land: Section 48 provides that no reconnaissance permission, prospecting right, mining right may be granted or mining permit being issued in respect of land in most protected areas, as identified in NEMPAA. The Policy therefore reiterate that the declaration of protected areas can be used as a mechanism to protect key water source areas. This will be enabled through participation of lead departments in providing legislative/mandates and technical guidance in the interest of collective decision making.	

Legislation		Relevance
	Section 49: Minister's power to prohibit or restrict prospecting or mining: The Minister of Mineral Resources may: prohibit or restrict the granting of any reconnaissance permission, prospecting right, mining right or mining permit in respect of land identified by the Minister for such period and on such terms and conditions as the Minister may determine. DWS will annually submit a motivation to the Minister of Mineral resources for declaration of section 49 in terms of strategic areas for protection of key water resources and water source areas from certain types of mining operations that are associated with water pollution and AMD, such as coal mining.	
National Environmental Management: Protected Areas Act, 2003 (NEMPAA)	Mining is prohibited in most protected areas as defined in NEMPAA. The declaration of the protected areas should therefore be one of possible mechanisms referred to in the draft policy position to ensure that mining is not authorized in areas that are critical for ensuring water security, such as strategic water resource areas and wetlands. Furthermore, the draft policy position should provide that mine water must be managed in such a way as to prevent pollution from having unacceptable impacts on downstream protected areas.	It ensures that mining is not authorized in areas that are critical for ensuring water security, such as strategic water resource areas and wetlands.
National Environmental Management: Biodiversity Act, 2004 (NEMBA)	Threatened and protected ecosystems (including ecosystems that are critical for ensuring water security in South Africa) are identified in terms of NEMBA. The Policy reaffirms mechanisms for licensing that promote the protection of ecosystems.	It ensures that the threatened and protected ecosystems, including ecosystems that are critical for ensuring water security in South Africa, are identified.
Spatial Planning and Land Use Management Act, 2013 (SPLUMA)	SPLUMA deals with land use and development by municipalities. The draft policy position should provide that the DWS will liaise with relevant municipalities including the Water Services Authorities (WSA) to ensure that inappropriate development in water source areas should be avoided.	Deals with land use and development by municipalities to ensure that inappropriate development in water source areas should be avoided
Conservation of Agricultural Resources Act, 43 of 1983	The objects of this Act are to provide for conservation of natural agricultural resources of the Republic through maintenance of the production potential of land by combating and preventing erosion and weakening or destruction of the water sources	Deals with land use, Land Productivity, Conservation, Protection and restoration of water sources/ resources

7 KEY POLICY CONSIDERATIONS

There are a number of legislative considerations that need to be taken into account in this policy to fully understand different scenarios that will guide decision-making. Five different phases in the whole mining life cycle (prospecting and planning, commissioning, operation, decommissioning and mine closure, and post-closure mine water management) should also be considered.

The following environmental principles underpin different pieces of legislation which are relevant for mine water management (and these principles should be taken into consideration):

(i) **Sustainability:** meet the needs of the present, without compromising the ability of future generations to meet their own needs. It is important to ensure that a reasonably intact resource base is left for future generations (i.e. environmental, social and economic asset base).

(ii) **Precautionary principle:** Precaution, prevention and rectifying pollution at source. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

(iii) **Polluter pays principle:** Those who produce pollution should bear the costs of managing it to prevent damage to human health or the environment. Costs can be recovered from polluters (those responsible for or who directly or indirectly contributed to the pollution or degradation or the potential pollution or degradation (NEMA and NWA).

(iv) **Equity:** Linked to the principle of sustainable development, as it is also important that future generation benefit. Similar to the 'polluter pays' principle, approaches for determining who bears the burden of the cost of treating mining-impacted water should be explored.

8 POLICY PRINCIPLES

It is within the scope of this policy to bring about solutions or answers or interventions in relation to the above issues as far as mine water management is concerned. The Policy is comprised of three sections as follows:

Section A: which deals with proposed/ prospective mines, active mines and mines placed under care and maintenance;

Section B: Abandoned Mines;

Section C: which deals with the funding approach, roles, responsibilities, and timeframes that are aimed towards the achievement of the actions of this policy. Each of these sections is equipped with applicable policy principles and directives aimed at guidance for successful mine water management taking into consideration the discharging of the required obligations.

8.1 SECTION A: PROPOSED/ PROSPECTIVEMINES, ACTIVE AND MINES UNDER CARE AND MAINTENANCE

This section outlines measures to be taken on the protection of water resources from prospective and operational mining activities that have negative water quality impacts.

8.1.1 Integrated Approaches to Mining Closure

(i) Delegation of Powers to mine closure

Problem Statement

The delegation of powers between different government departments at national, provincial, municipal, water and environmental institution levels is unclear. Institutional roles and responsibilities are: fragmented, overlapping or vaguely defined. Therefore, there is a need to rationalise and align national legislation, as well as the NWA to remove ambiguity and address mine water directly.

Policy Principle

Government's responsibility with respect to handling and management of mine water is dealt with through the One Environmental System (OES) since 2014, which includes three Departments (i.e. Ministry for Mineral Resources and Energy, Ministry for Water and Sanitation and Ministry for Environment, Forestry and Fisheries. Furthermore, the guideline will be developed to ensure the effectiveness of the OES.

The national mine closure strategy will be developed to reach specific agreements and clarify roles and responsibilities in the process of mine closure – even prior to the actual mining. Amongst others, the strategy will incorporate the process as outlined in the National Water Amendment Act, 2014 and the National Environmental Laws Amendment Act, 2014 with the aim of enabling Government to have enhanced control and legal administration of mine water challenges and issues to further give more clarity on responsibilities and obligations.

(ii) Sustainable Water related infrastructural management post mining

Problem statement

Proper infrastructural transfer post mining closure is required to ensure sustainable management of the infrastructure. Section 28(2) (c) of the MPRDA contemplates that mines should report on their compliance to section 24P of NEMA, read together with the Financial Provisioning Regulations, 2015. However; proper infrastructure transfer challenges remain – and in some instances where mine is declared insolvent and subsequently closes, the responsibility is inherited by the State, which then has to ensure continuous rehabilitation of derelict and ownerless mines. Technically, the mine escapes liability and the rehabilitation fund provided prior by the mine is often not sufficient for continuous infrastructure management and rehabilitation. As a result, mine water is left unmanaged if the transfer has not taken place – which then typically becomes a State liability.

Policy Principles

In the interest of optimum water resource protection, a legislative provision on institutional arrangements of infrastructure ownership and management/ transfer post mine closure is needed for proper infrastructure/assets transfer. Mines should provide for funding and infrastructural management plans for prior, during and post mine closure. Relevant institution/s should be in place to oversee and regulate this process. In instances where a mine is declared insolvent and subsequently closes; it is imperative that financial provision for rehabilitation of mining is calculated accurately to sufficiently meet the technical requirements for remediation and management of all mine water residual environmental impacts, including the pumping and treatment of polluted or extraneous water (as per the DEFF) Financial Regulations).

This policy will be applicable to abandoned mines in section B.

8.1.2 Apportionment of Liabilities

Apportioning a liability remains problematic. NWA has gaps with regard to "retrospective liability", whilst application of retrospective liability is currently provided for under NEMA. The impacts caused by mine water drainages e.g. AMD from any mine, whether during active mining or subsequent to mine closure, must have that impact and its attendant liability addressed through a consistent and comprehensive application of the above-mentioned legislation. This suggests that any person/company/institution that can be proven to fall within the ambit of Section 19 of NWA, and/or Section 28 of NEMA, and/or Sections 38 and 45 of MPRDA can be held legally liable for damages and/or negative impacts caused by mine water. This regulatory intervention is critical to ensure equity and prevent pollution impacts, and the perceived liability thereof being externalised to other mines, other water users and/ or the general environment.

Policy Principle

In terms of liability, the 'polluter pays' principle will be applied to mine water in all its forms. Mine water will be addressed in the context of environmental management principles in the NWA, which state that "the costs of remedying pollution, environmental degradation and consequent adverse health effects of and preventing, controlling and minimising further pollution and environmental damage or adverse health effects must be paid for by those responsible for harming the environment".

Determining the cost of remedying pollution will rely on national environmental management principles which inform how environmental legislation, including NEMA, the NWA and the MPRDA must be applied. The application of the above definition will be applied concurrently with the international norms and definitions to cater for multi-national mining houses that recognise them, and this has been incorporated within their legal frameworks elsewhere in the world. Where subcontracting exists, the mine remains responsible.

Addressing apportionment of liabilities interconnected and co-liabilities:

In cases where more than one person is liable (in terms of classification and differentiation of mines stipulated by this policy as per Section 19 of NWA, and/or Section 28 of NEMA, and/or Section38 and 45 of MPRDA), the apportionment will be undertaken on the basis of a legal relationship, in this case, between the state, the mining company (if it exists) or mining sector (if the company ceases to exist) and the general public. For mine water management, identifying the role of government and the mining sector is important and some of the key considerations for mine water management including AMD. In this regard, the State (DEFF, DWS & DMRE) will internalise negative externalities through regulations/charges to ensure co-ordinated and joint water quality compliance monitoring and enforcement system to optimize the use of government resources and to achieve maximum impact in partnership with the mining companies/sector and the general public.

Addressing apportionment of liabilities interconnected and co-liabilities:

In cases where more than one person is liable (in terms of classification and differentiation of mines stipulated by this policy as per Section 19 of NWA, and/or Section 28 of NEMA, and/or Section38 and 45 of MPRDA), the apportionment will be undertaken on the basis of a legal relationship, in this case, between the state, the mining company (if it exists) or mining sector (if the company ceases to exist) and the general public. For mine water management, identifying the role of government and the mining sector is important and some of the key considerations for mine water management including AMD. In this regard, the State (DEFF, DWS & DMRE) will internalise negative externalities through regulations/charges to ensure co-ordinated and joint water quality compliance monitoring and enforcement system to optimize the use of government resources and to achieve maximum impact in partnership with the mining companies/sector and the general public.

The transfer of the mine to another company should not exonerate the selling company from their environmental obligations, unless the purchasing company can prove financial provisions to address any environmental liabilities associated with the mine they are purchasing. The application of retrospective liability will be considered. An applicant and/or holder/s of a right or permit must determine financial provision for remediation and management of all mine water residual environmental impacts, including the pumping and treatment of polluted or extraneous water (as per the DEFF Financial Regulations). The cost to address mine water drainages (e.g. AMD) should be internalised by the mining industry.

Policy Principle

The Policy calls for explicit articulation of respective liability with respect to mine water pollution, while it also reaffirms and acknowledges the following:

- Application of section 30 of the NWA, which ensures adequate security to cover the costs of remedying pollution of water resources.
- The criminal remedies in the NWA, which are retrospective and can therefore be used to hold to account persons who have committed offences in terms of the NWA, even after they have ceased the conduct, constituting those offences, such as those who "unlawfully and intentionally or negligently commit any act or omission which pollutes or is likely to pollute water resource".
- Section 28 of NEMA, which is specifically retrospective and is, therefore, another remedy that may be utilised to hold recalcitrant mining companies to account even after they have ceased operations;
- Apportionment of liabilities, which will rely on the National Mine Closure Strategy for effective implementation. In cases where, the liabilities are as a result of the regulation failure, the apportionment will thereof be borne by the responsible authority.

The Policy is also aiming at protecting and empowering poor and vulnerable communities who should be part of the decision making process throughout the whole mining value chain, including the mine water management life cycle.

The following table outlines the scenario to be considered in the application of apportionment of liabilities in relation to determining whether the mine water, including AMD, is resulting from current operational mines, or newly established mines, or mines placed under care and maintenance. This is also to determine whether mine water, including AMD, is arising from those activities that were subject to regulation or those that were unregulated. In the case of regulated mines, and the problem of pollution of water, mining companies would be regulated by the Minerals Act or the MPRDA. If financial provision for AMD is insufficient (as per scenario below), section 38(2) of the MPRDA will be invoked in order to finance the clean-up and treatment of AMD on the closure of mines. Measures would be needed to ensure that sufficient funds are available for treatment of mine water in the future when the owner or company ceases to exist. One of the options that could be considered is an additional tax to be used for mine water treatment to serve as a cost-recovery mechanism – this almost serves as an insurance mechanism to deal with the future environmental liability.

Scenarios	Type of mine	Regulated (MPRDA)/ Unregulated	Responsible parties	Regulatory framework - Rehabilitation fund	How to recover costs	Full or partial cost recovery	Use of revenues	Institutional mechanism
a	Current/operational, proposed/ prospective mines, and mines under care and maintenance	Regulated	Mining companies	Yes Are funds sufficient? Yes	No need to tax	Costs covered by rehab fund provision		Government remediates
b	Current/operational, proposed/ prospective mines, and mines under care and maintenance	Regulated	Mining companies	Yes Are funds sufficient? No	Additional tax on mining sector	Full additional cost recovery – fully responsible	On-going Mine water treatment	Government remediates on behalf of sector
c	Current/operational, proposed/ prospective mines, and mines under care and maintenance	Regulated	Mining companies	new regulatory framework for proposed/prospective mines, and mines under care and maintenance	Polluter pay/Mine water treatment levy/Waste Discharge Charge System	Marginal additional cost recovery	Insurance mechanism	

8.1.3 Optimum use of Appropriate and Cost Effective Technology

Problem Statement

The mining operation is a dirty activity that has potential adverse impacts on water resources. Furthermore, inappropriate technology in the mining value chain will lead to the high cost of remedying water resources impacts including that of operation and maintenance.

Policy Principle

The selected technology should adhere to the following:

- The use of tailor-made and most cost-effective treatment methods based on the situation should be adopted;
- Care should be taken that such a solution should be self-funding in line with the user-pays-principle. There should be no financial burden to the fiscus.

The Policy acknowledges the technology evolvement, therefore it is not the intention of it to be prescriptive in terms of recommending particular technologies but rather encourage achievement of efficiency through innovation. The regulatory framework will focus on regulating the desired water quality requirement for specific use e.g. Industrial, Irrigation drinking purposes etc.

The Ministry of Water and Sanitation will support efforts by the Ministry of Science and Innovation, with the Water Research Commission (WRC) for establishment and facilitation of technology assessment and demonstration, to ensure skills and capacity for managing, operating and maintaining the technology, as well as exploiting local human capital development.

8.1.4 Classification and Differentiation of Mines

Problem statement

The issue of classification and differentiation of mines within DWS remains a challenge. The current legal and policy context does not draw a clear distinction between the handling and regulation of active, proposed/prospective mines and mines under care and maintenance. The current legal and policy context does not impose special and/ or stricter measures in the case of mines with significant adverse impact potential. Specific conditions should be imposed on mines that have an acid generation potential.

Policy Principle

The regulatory environment on mine water management will be applicable as per the following categories:

Category A: Any mine where sulphide-producing or other acid-generating material occurs in the mineral deposit. Any mine with any kind of extractive process, including heap leaching. This includes all precious and base metal mines

Category B: Any mine with potentially significant and/or permanent impact on the characteristics of a watercourse, such as a yield or availability of water, dynamics of the river, riparian uses,

Category C: All mines with low or no significant impact on the water environment. This includes exploration and prospecting operations. The stricter measures imposed according to these categories will be implemented through:

(i) Encouragement of implementation of Best Practicable Environmental Option (BPEO) to deal with mine water drainages by all categories.

(ii) The Risk-based approach supported by credible methodology based on sound scientific evidence for a risk-based approach which should be based on: consultative manner, site-specific and situational assessment rather than a one size fits all approach.

8.1.5 Promotion of Sustainable Mining Development

Problem statement

There is often mining authorisation, irrespective of whether the long-term "sustainability" outweighs the long-term "cost of impact", including the costs for managing mine water. Sustainable development is the cornerstone of section 24 of the Constitution. Organs of state are therefore bound to give effect to sustainable development. This inevitably involves a "green approach" to mining in terms of which a cost-benefit analysis is already mandatory for each mine; particularly mines that have the potential of producing acid mine drainage as well as the mines that are discharging mine water that is emanating from mining operations that is not compliant to wastewater quality standards (e.g. Resource Quality Objectives (RQOs).

Policy Principle

New mining ventures should prove, beforehand, that the cost to deal with the residual impacts associated with mining (e.g. AMD) is catered for. A Cost-Benefit-Analysis (CBA) should be demonstrated. Prospective mining companies must comply with DWS regulations (e.g. GN704) for water resource protection in the South African mining industry and any other government legislative provisions. The current mines should also comply with the same regulation.

The investigation of the long term benefits, including sustainability and the benefits of technology should be prioritised. This will include investigation on sustainable methods whilst balancing the environmental and socio-economic impact, with reference to existing legislative provisions. Monitoring and Evaluation tools should be in place to address the on-going impact in all stages of mining from initial planning through development and operation, and to closure and rehabilitation. The environmental impact of mines is cumulative and requires several years to take effect; therefore, there is a need for continuous monitoring and assessment post-mining closure. Leading Practice (LP) to mine water management should also be considered for sustainable mine development.

Sustainable mining development in the context of "mine water management" will be achieved through consistent law application in terms of section 24 of the Constitution and the national environmental management principles set out in section 2 of NEMA.

The mining sector is encouraged to build knowledge and create awareness towards achieving enhanced sustainable mining development.

8.1.6 Environmental Vigilance and Continuous Improvement

Problem statement

From a mine water management perspective, there often appears to be a mismatch between environmental planning and the actual interventions earmarked for implementation. Access to information by the general public also appears to be a major challenge limiting the overall public from participating. The DMRE mandate, i.e. to promote minerals development, appears to be incompatible with DWS's mandate, i.e. to protect and use water resources sustainably. Mining authorisations often appear to be granted for mines that are to mine in water sensitive areas and high potential agricultural land. From a mining sector perspective – significant impacts due to AMD are often attended to on a case-by-case basis. From a regulatory perspective – an "Integrated Master Plan" is currently required for the regulation of future mining developments. Mining authorisations appear to be granted on an ad hoc basis without the necessary consultations amongst the relevant Government Departments (DMRE, DWS, DALRRD and DEFF). The OEPS requires continuous sector department engagement to ensure all mandates are realised.

Policy Principle

Continuous environmental risk appraisal is required to achieve environmental vigilance, this will be achieved through:

- Prohibition of mining activity in water sensitive areas in line with NWA, sec 13 (3) (g).
- Adherence to Conservation of Agricultural Resources Act, 43 of 1983, which provides for the conservation of the natural agricultural resources of the Republic by the maintenance of the production potential of land.
- Adherence of mines to sustainable development principles as prescribed in the MPRDA in terms of water resources management.

The enactment of the National Master Plan will contribute towards achieving environmental vigilance through the One Environmental System. Whilst, the National Mine closure strategy will ensure a perspective on mine closure, the National Master Plan for mineral development should be considered to regulate regional consequences of new and active mining in a catchment context. The National Mine Closure strategy will ensure a perspective on mine closure.

8.1.7 Re-use of treated mine water including AMD

Problem statement

Evidence depicts that supplying South Africa's growing population with clean, safe drinking water is a significant challenge. Not only is the country's water infrastructure in need of refurbishment in some places while entirely absent in many others, but also access to sufficiently large quantities of potable water is increasingly becoming a challenge. Acid mine drainage often contains toxic heavy metals and radioactive particles, is acidic and can be extremely harmful to the health of humans, animals and plants. Situated on the Witbank Coalfields in the Mpumalanga Province of South Africa, the eMalahleni Waste Water Reclamation Plant uses reverse osmosis to desalinate mine-impacted underground water, and provides potable water that is used to benefit local needs. It should be noted that whilst reverse osmosis is the front runner for most treatments, there is a plethora of other treatments and technologies that can be used. This is done through a partnership between Anglo American, eMalahleni Local Municipality and BHP Billiton Energy Coal South Africa (BECSA). While this is encouraging and should be supported and the responsibility is clear when mine is still in operation, the challenge is when the mine has reached its life span (mining activities ceased) and there is no appropriate mechanism to continue to take operational responsibilities to sustain AMD Management Operations.

Policy Principles

Consideration should be given to include in this section, a discussion on the opportunity costs of different options to meet water demand and cost-effectiveness of these options. Cost reflective water tariffs should reflect both the financial costs taking into account water scarcity and environmental externalities over the short, medium and longer-term. In instances where water users pay a levy or increased water tariffs but do not receive any treated AMD water, the benefit received should clearly be stated (these benefits are not necessarily linked to water tariffs but could be indirect benefits such as assurance that the environment is not adversely affected due to nearby mining activity).

Due to the major impact on the quality and quantity of water in the catchment, the management of mine water should form part of integrated planning of water and wastewater treatment works with a focus on reuse. This should be part of the contribution to alleviating the water shortage in the country.

A few flagship projects are already in operation, such as those producing drinking water quality from active coal mines through desalination systems, and this water is then fed into municipal networks. Mining companies should explore the benefits of using treated mine water for their operations and/ or to provide it to the municipal networks. Additional possibilities such as treatment to various grades of industrial and agricultural water use should be considered. Likewise, the potential for treated water to be used for non-essential irrigation purposes (e.g. city parks, golf courses, etc.). The mining companies should see the acid mine drainage and other mine water pollutants as shared risk and opportunity. An appropriate mechanism such as Private Public Partnership (PPP) should be adopted for sustainable mine water management including AMD operations for continued dual benefits of potable water provision and pollution minimisation treatment.

This policy will be applicable to abandoned mines in section B

8.1.8 User Commitment to Mine Residue Deposits

Problem Statement

While the best available technology will be utilised to treat mine water, it is almost inevitable that a portion of undesirable deposits will be generated by AMD treatment. Such deposits could affect water resources, or may exacerbate the AMD problem. Deposit management options should hence be explored to ensure sustainable protection of water resources.

Policy Position

In this regard, the policy will rely on the MPRDA on deposits management options.

9 SECTION B: ABANDONED MINES

This section outlines measures to be taken on the protection of water resources from abandoned/derelict and ownerless mine activities that have negative water quality impacts.

9.1 Government Accountability: Mine Water Management including AMD on derelict and ownerless (D&O) mines

Problem statement

Government has inherited many years of mining legacy impacts on water resources due to absence or ineffectiveness of the legislation dealing with mine water challenges, particularly those abandoned in the past. Ownerless mines that do not have a legal custodian became the responsibility of the State. Mine water, including acid mine drainage was limited to the mining sector during operations; however, it eventually became externalised during post-mining closures especially if these mine closures did not proceed according to regulatory approved recommendations. Still – within the current key legislative framework for mine water management that spans across three national departments – major environmental problems related to mining is acid mine drainage from abandoned mines. Usually the owners for abandoned mines cannot be found, or the owner is unable to carry out environmental maintenance and remediation and therefore Government needs to take responsibility and search for a suitable remedial response.

Policy Principles

The government will institute a legal process to trace the owners of the abandoned/ownerless and derelict mines. Where it results in the successful tracing of the owner and/or where the owner cannot be traced, the government will exercise its accountability as guided below.

The role of Government accountability can be summarized as follows:

(i) Regulator through market failure interventions.
(ii) Acting as a responsible mechanism to serve the public and taxpayer's interest and to ensure a safe and healthy environment.
(iii) Promoter and enabler of sustainable development as part of a proactive approach.
(iv) Final inheritor of remaining liabilities and mine legacies will be apportioned to the failing responsible authority.
(v) The Regulator of the mining, water resources and environment industry

Mine Closure Scenarios guiding Government Accountability

The Government will exercise its accountability on mine water management including AMD within the following mine closure scenarios:

(i) A closed mine where a mine has been granted a closure certificate, in terms of section 43 of the MPRDA, which provides for the issuing of closure certificates for mines at the end of their lifespan
(ii) An abandoned mine, derelict mine or liquidated mine, where mine has ceased to operate, environmental management process including rehabilitation and/or demolition have not been conducted to acceptable standards.
(iii) "Passing the buck" where irresponsible mining companies "sell" their environmental and social responsibilities to other mining companies.
(iv) Derelict and ownerless mine, where there is no traceable owner/holder.
(v) Conditional/provisional closure.
(vi) Partial closure.
(vii) Closure explicitly expressed consistently under One Environmental system one.

Policy Principles

Government accountability demonstration

(i) Compilation and maintenance of an inventory of abandoned and ownerless mines in order to effectively address mine water challenges.

(ii) The database should include information on accurate positions of the mines, commodities mined, the scale of operations and possible impacts from those mines.

(iii) Provide a framework for the identification of priority sites in terms of public health and safety, environmental and water resources risks.

(iv) Development of an Action plan for the management of the risks related to abandoned and ownerless mines.

(v) Ensure that mine water including AMD from abandoned and ownerless sites are treated to acceptable water quality standard.

(vi) Formalize mine stewards with the inclusion of the community members or establish an appropriate institutional arrangement for sustainable mine water management.

The Policy further acknowledges and notes current initiative of abandoned and ownerless mines progress by the DMRE on the developed of a database listing all abandoned and ownerless mines and the processes it includes thereof. The Policy submits for the continuation of the work in an integrative manner managed by DWS, DEFF and DMRE taking a collective accountability for issues relating to the mandate of each respective department. Annual update of the plan with a clear indication of all required resources including technical, financial and human resources should be provided. The continuation of the work should be guided by the following principles:

(i) Determining priority areas through risk-based approach consultation;

(ii) Acknowledging that mines are an integral part of sustainable mining development, environment and water resource management;

(iii) Recognizing that water is both a human right and is commodity-based;

(iv) Ensuring that each priority is outcomes-based and measurable;

(v) Committing to appropriate mix of short-term successes and long-term sustainability;

(vi) Promoting an integrated, inter-disciplinary and inter-sectoral approach;

(vii) Focusing on prioritised key challenges;

(viii) No one-size solution fits all;

(ix) Starting with the basics, and get them right;

(x) Ensuring political management and operational focus. (All levels must commit to sustainable mine water management in order for it to be successful – from politicians who ensure political will, to departmental management that has a duty to enforce legislative compliance and fulfil community requirements.

9.2 Mine water Stewardship

Problem statement

Acid mine drainage poses severe risks to communities, and to ecological systems as well. The magnitude of the task to overcome AMD increases exponentially as the implementation of intervention measures are delayed. The state has an obligation to intervene where the owner of the mine cannot be found and when the owner is simply unable to carry out environmental maintenance and remediation. This poses a challenge as the state does not have finite resources. The State has to create an enabling environment for non-governmental stakeholders to participate in finding lasting solutions. However, there is no formal mechanism to guide such involvement/participation with regard to mine water challenges.

Policy Principles

The current situation in South Africa regarding ownerless mines arose through poor regulation. Post-1994, Government becomes liable for the clean-up and treatment of mine water for these mines and see to it that the responsibility is shared between the mining sector (as these mining companies no longer exist), the state, and the public.

In acknowledging that responsibility, DWS will actively promote the concept of water stewardship and encourage private enterprise to look beyond the factory fence to support Integrated Water Quality Management (IWQM) at the local and catchment scale in line with the International Alliance for Water Stewardship Standard, which is designed to achieve the following five water stewardship outcomes:

(i) Good water governance,
(ii) Sustainable water balance,
(iii) Good water quality status,
(iv) Healthy status of important water-related areas, and
(v) Awareness Creation.

Government (through DWS, DEFF and DMRE) will determine a formal mechanism to manage the mine stewards to ensure protection of water resources and long term water security.

The following principles underpin the implementation of this mine water stewardship:

(i) Acknowledging that mines are an integral part of sustainable mining development, environment and water resource management;
(ii) Recognizing that water is both a human right and is commodity-based;
(iii) Ensuring that each priority is outcomes-based and measurable;
(iv) Committing to an appropriate mix of short-term successes and long-term sustainability;
(v) Promoting an integrated, inter-disciplinary and inter-sectoral approach;
(vi) Focusing on key challenges and prioritizing them;
(vii) No one-size solution fits all;
(viii) Starting with the basics and get them right;
(ix) Ensuring political, management and operational focus (i.e. all levels must commit to sustainable mine water management in order for it to be successful – from politicians who ensure political will, legislative compliance and community requirements).

10 SECTION C: IMPLEMENTATION, MONITORING AND EVALUATION

To achieve the policy objectives, this section describes the funding approach, roles, responsibilities and timeframes.

10.1 Funding approach: Water Pricing Strategy

The water prising strategy is one of key elements of South Africa's approach to water resource management and is provided for in the National Water Act, 1998 (Act No 36 of 1998). It concerns the pricing of South Africa's water resources. The Act provides for introduction of economic instruments, incentives and disincentives to encourage water conservation, efficient water use and reductions, recycling and treatment of wastewater. However; alignment and dovetailing of financial prescripts reflected in the Financial Provision Regulations, One Environmental System and NWA are required to ensure that the mining sector is not double-priced. This is a key consideration to stimulate economic development in the mining sector.

10.2 Roles and Responsibilities

Presented below is the summary roles and responsibilities of key Government Departments and action implementation matrix which include other government institutions that should contribute to sustainable mine water management.

The Department of Water and Sanitation is the apex in relation to water quality management, and will lead the co-ordination and alignment of policy, legislation and implementation and put in place necessary institutional arrangements under the Inter-Governmental Relations Framework Act, 2005 (Act No. 13 of 2005) to ensure a government-wide approach to integrated water quality management. DWS and DEA – with support from provincial offices – will develop a co-ordinated and joint water quality compliance monitoring and enforcement system to optimize the use of government resources and to achieve maximum impact.

The National and Provincial Departments of Environment, Forestry and Fisheries Affairs are responsible for implementation of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and for conducting Environmental Impact Assessments (EIA) on development projects. The DEEF must ensure, in consultation with DWS/CMAs, that water quality impacts are sufficiently dealt with in EIAs and through a co-ordinated approach with DWS to compliance monitoring and enforcement.

The Department of Mineral Resources and Energy is responsible for approving Environmental Management Plans and for regulation and control of mining waste. In exercising this responsibility, DMRE is required to ensure that DWS and CMAs are involved throughout the process of mine authorisation, and that no authorisation for mining is given without a water use authorisation from DWS, which will include stringent water quality management conditions. In addition, DWS, DMRE and DEFF will develop a joint process for mine closure which effectively addresses the potential long-term water quality impacts of the mine. Work has already begun in this regard through the Inter-departmental Project Implementation Committee on integrating licensing for the mining sector. To ensure that authorisation processes associated with mining are aligned, all four acts (i.e. NWA, NEMA, CARA and MPRDA) will be amended as required. DMRE is also responsible for promoting mining practices that reduce pollution.

While acknowledging that, key roles should be played by the above-mentioned key departments. The following is the Implementation matrix that goes beyond these three departments.

The existing Monitoring and Evaluation Framework should be updated to reflect and articulate indicators (derived from this policy's objectives) to be monitored to determine the progress of actions to be implemented and provide the foundation required to manage mine water adaptively. It also outlines the reporting structures and processes to be followed to ensure successful accountability in relation to the implementation of this policy.

Action for Implementation	Responsible Implementing entity	Priority	Time frame
Provide specific guidance for the management of mine waters in the implementation of the Mine Water Policy Framework Directive.	DWS	Very High	Immediately
Support the proposed Directive on mine waste and seek to include excavation voids and abandoned mines	DEFF, DMRE/DWS	Very High	Immediately
Improve the existing framework for the management of largely closed coalfields with particular attention to ground water issues	DWS	Very High	Immediately
Develop and fund a national programme for remediation of metal mines based on the example of the existing coal and gold mine's programme as per the DMRE baseline	DMRE	Very High	12 Months
Develop a national framework to facilitate mine water stewards programme focusing on the remediation of abandoned sites	DEFF, DMRE, DWS, CHAMBER OF MINES	Very High	2 years from the date of policy approval
Improve the performance of the mining industry (preventive measures, groundwater and silts)	DEFF, DMRE, DWS, CHAMBER OF MINES	Very High	On-going
Increase research and capacity building and knowledge dissemination	Lead by DSI with Academia, Council for Scientific Industrial Research (CSIR), and the Water Research Commission (WRC)	Very High	On-going

11 WAY FORWARD

It is worth noting that the current legislation(s) (i.e. NEMA, MPRDA and NWA) do not formally define mine water management, and this may continue to hinder the progress of dealing with mine water management decisively. These policy principles will take either of two approaches, namely: legislative review/ amendment of existing regulations such as GN704; or policy alignment.

The Mine Water Management Unit has been established and will accomplish an integrated and composite approach, ensuring efficient coordination of all mine water management related initiatives and activities within the Department and amongst all other departments and Institutions. The functions of the Unit are continuously aligned with the objectives of the Department's Annual Performance Plan.

Parallel to the formulation and development of the policy position, emergency interventions are currently underway to address mine water challenges in the gold fields of the Witwatersrand mining region. Additionally; tandem activities such as work streams dealing with finance and regulatory matters, mine water monitoring, research to support future decision-making, pilot testing of emerging mine water treatment technologies, ingress control, and potential applications of cost recovery and/ or an environmental levy in the mining sector (as plausible revenue streams for mine water management) are on-going. These activities remain to be optimized as guided by the final policy position.

The mine water problem is not going to be solved by a single intervention but will require integrated implementation of a range of measures, including considering the use of treated mine water for operations and/or providing it to the municipal networks – which should be led by pragmatic and progressive policies and legislations.

ANNEXURE A

IMPLEMENTATION PLAN FOR THE CRADLE-TO-GRAVE APPROACH TO COLLECTIVELY REGULATE THE WHOLE MINING LIFE CYCLE (PROSPECTING AND PLANNING, COMMISSIONING, OPERATION, DECOMMISSIONING AND MINE CLOSURE, AND POST-CLOSURE) IN LINE WITH THE PRINCIPLES OF THE MWM POLICY

The table below outlined a response to ensure an integrated regulation of authorisations issued in terms of the NEMA, NWA, NEMWA and MPRDA. The response will ensure a unified approach in regulatory oversight of the entire mining value chain by sector departments. (Joint mine water management report should be produced annually to ensure the implementation of the OES in respect of water management).

MINING LIFE CYCLE PHASE (BRIEF DESCRIPTION)	KEY ACTIONS/ACTIVITIES	Priority Ranking	Decision Flow Amongst	Time frame
PROSPECTING or exploration: This entails the use of geological techniques involving *inter alia*, drilling, blasting and excavating of ore and mineral deposits bodies for surveying and testing	Prospecting or exploration: activities must be jointly authorised and regulated by DMRE and DWS, especially when activities listed in NWA, MPRDA, NEMA and NEMWA are triggered. Activities that each key Department must execute to ensure due diligence with respect to successful prospecting.	Medium Rank according to priority the rest with each key department	DMRE based on Record of Recommendations (RoR) issued by DWS who is responsible for final decisions/ or the allocated decision powers in this activity	within 6 months of policy approval
PLANNING: This entails development of mine infrastructure and related facilities for active mining.	Any mine infrastructure and related facilities that trigger activities listed in the NWA, MPRDA, NEMA and NEMWA must be authorised before the development of same can commence.	Highest	DMRE and DEFF based on RoR issued by the DWS DWS will only consider issuing a WUL based on an EA issued by the DMRE	within 6 months of policy approval
COMMISSIONING: This entails the start-up of mine infrastructure and related facilities to support active mining.	Certain infrastructure and related facilities will require confirmation of compliance to legislated norms and standard before the infrastructure/ facility can be operated/ tested.	Medium	DWS (for water management in mine residue deposits and Pollution Control Dams(PCDs)	within 12 months of policy approval
OPERATION: This entails all mining and water uses invoked during mine activity, including care and maintenance of mine infrastructure and related facilities.	Annual compliance monitoring of all Category A (gold and coal) mines	Highest	DWS DALRRD	within 6 months of policy approval/ gazetting

MINING LIFE CYCLE PHASE (BRIEF DESCRIPTION)	KEY ACTIONS/ACTIVITIES	Priority Ranking	Decision Flow Amongst	Time frame
DECOMMISSIONING: This entails cessation and or termination of certain mining operations, as well as care and maintenance of mine infrastructure and related facilities.	Any deviation in mining activity must be applied for and sanctioned by regulatory authorities.	Highest	DWS and DMRE jointly (to ensure environmental, public safety and risks to other mines are addressed)	within 6 months of policy approval
MINE CLOSURE: this entails the formal closure of all mine infrastructure and related facilities to avert impacts on the natural and built environment.	Mine closure is a legislated activity requiring the mine to apply for closure and obtain approval thereof prior to the closure of a mine.	Highest	DWS and DMRE jointly (to ensure environmental, public safety and risks to other mines are addressed) The proposed land use post mining should be agreed upon before the issuing of closure. certificate. This will enable the participation of the lead department to provide the technical guidance on the expected state of rehabilitated land, post mining. The role of DALRRD would be to ensure that considerations on agricultural production and food safety are considered in decision making.	within 6 months of policy approval

MINING LIFE CYCLE PHASE (BRIEF DESCRIPTION)	KEY ACTIONS/ACTIVITIES	Priority Ranking	Decision Flow Amongst	Time frame
POST MINE CLOSURE: this entails the management of infrastructure/ facilities that are aimed at mitigating post-mining environmental impacts, including latent impacts	Authorisations issued to post-mine entities may require amendments to cater for changing circumstances when managing post-mining impacts	Highest	DWS and DMRE jointly (to ensure risk to the environment, public, and other mines are addressed) Considering the fact that there is a potential that the agricultural sector could utilise treated mine waste water for irrigation purposes and that there are possibilities of using rehabilitated land for agricultural development, post mine closure. The role of DALRRD would be to ensure that considerations on agricultural production and food safety are considered in decision making.	within 12 months of policy approval
DALRRD,DEEF,DMRE and DWS will Jointly produce mine water management report annually to ensure the implementation of the OES in respect of water management				

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