



The legal framework for stakeholder
participation in acid mine drainage regulation
in South Africa

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ABSTRACT

This research examines the legal framework that governs and regulates acid mine drainage (AMD), the roles of various stakeholders, and the mechanisms that either promote or impede stakeholder involvement in AMD regulation in South Africa. The study pursued three objectives: assessing the impact of AMD on water sources and human rights; evaluating AMD regulation in South Africa and the significance of stakeholder engagement; and analysing the roles, rights, and responsibilities of different stakeholders, including government and communities. The research was conducted as a desktop study, using existing legal sources such as books, journal articles, and other media related to AMD regulation and stakeholder roles. The study aimed to evaluate stakeholder engagement in AMD and the participation of all involved in decision making and policy formulation. Analysing the current practices of various stakeholders in AMD regulation is vital to propose strategies to enhance collaboration and participation.

International frameworks help to establish global water management standards, particularly concerning transboundary water resources. Instruments such as the United Nations Watercourses Convention (1997) and the Ramsar Convention (1971) regulate and protect international water bodies. Regional legal frameworks ordinarily adopt international principles to meet the specific environmental, social, and economic conditions of their regions. For example, the African Union and Africa Water Vision (2025) and the SADC Protocol on Shared Watercourses (2000) are key to managing water resources in Africa and promoting the cooperative management of transboundary watercourses. At the national level, legal frameworks offer specific guidelines for managing water resources in individual countries. The study highlights examples such as South Africa's *National Water Act 36 of 1998*, recognised for its progressive stance on water management and its emphasis on equitable access, sustainability, and environmental protection.

The findings emphasise the necessity of strong legal frameworks at the international and national levels to govern water management, especially in sectors like mining that present significant environmental challenges. These frameworks

provide essential guidelines and principles to ensure sustainable water resource use, ecosystems protection, and the safeguarding of human rights. Effective implementation and enforcement of these laws are crucial for achieving long-term water security and environmental sustainability.

Key words: Legal frameworks, stakeholder participation, acid mine drainage, regulation, South Africa

LIST OF ABBREVIATIONS AND ACRONYMS

ACHPR	AFRICAN CHARTER ON HUMAN RIGHTS
AMD	ACID MINE DRAINAGE
CBPR	COMMUNITY-BASED PARTICIPATORY RESEARCH
CESCR	COMMITTEE ON ECONOMIC, SOCIAL AND CULTURAL RIGHTS
CSR	CORPORATE SOCIAL RESPONSIBILITY
EE	ENVIRONMENTAL ECONOMICS
EIA	ENVIRONMENTAL IMPACT ASSESSMENT
EMP	ENVIRONMENTAL MANAGEMENT PLANS
EMS	ENVIRONMENTAL MANAGEMENT SYSTEM
ICLQ	INTERNATIONAL & COMPARATIVE LAW QUARTERLY
JAMBA	JOURNAL OF DISASTER RISK STUDIES
JOCE	JOURNAL OF CHEMICAL ENGINEERING
MEC	MEMBER OF THE EXECUTIVE COUNCIL
<i>MPRDA</i>	MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT
<i>NEM:WA</i>	NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT
<i>NEMA</i>	NATIONAL ENVIRONMENTAL MANAGEMENT ACT
NFR	NATURAL RESOURCES FORUM
<i>NWA</i>	NATIONAL WATER ACT 36 OF 1998
OES	ONE ENVIRONMENTAL SYSTEM
PELJ	POTCHEFSTROOM ELECTRONIC LAW JOURNAL

SA	SOUTH AFRICA
SADC	SOUTHERN AFRICAN DEVELOPMENT COMMUNITY
SAGJ	SOUTH AFRICAN JOURNAL OF SCIENCE
SAHRC	SOUTH AFRICAN HUMAN RIGHTS COMMISSION
SERAC	SOCIAL AND ECONOMIC RIGHTS ACTION CENTRE
UDHR	UNIVERSAL DECLARATION OF HUMAN RIGHT
UN	UNITED NATIONS
UNEP	UNITED NATIONS ENVIRONMENTAL PROGRAMME
VDPA	VIENNA DECLARATION AND PROGRAMME OF ACTION

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CHAPTER 1: BACKGROUND OF THE STUDY

1.1. Problem Statement

Legal frameworks for stakeholder participation in acid mine drainage (AMD) regulation in South Africa ensure inclusive decision making, balancing environmental protection with community interests in managing the consequences of AMD.¹ AMD primarily affects local communities, particularly those near mining sites, by contaminating water sources, agricultural soil, ecosystems and exposing communities to health risks.² The affected communities are often marginalised during planning and decision-making processes, leaving them under-informed about mining activities and their environmental impacts.³

Given South Africa's susceptibility to drought and limited water resources, it is critical to address the challenges posed by AMD.⁴ Many communities already face water scarcity, with rivers and other sources greatly affected by AMD and water quality compromised.⁵ The adverse effects of AMD extend beyond immediate health risks; it also threatens biodiversity and agricultural productivity. The effective management and remediation of AMD are essential to safeguard South Africa's limited water resources and to ensure sustainable availability while protecting both environmental integrity and public health.⁶

Many mines stopped operating during the 1970s and the 2000s due to fluctuating global demands and a decline in their profitability.⁷ There is no one to be held accountable for the environmental damage caused by AMD at these mines, as the mining operators or mining companies can no longer be found. The companies should be held accountable after the mining operations have ceased.⁸ The South African government is left with the responsibility of managing the pollution caused

¹ Adom and Simatele 2022 *NFR* 413.

² Feris and Kotzé 2014 *PELJ* 2120.

³ Moeng 2019 *Environment, Development and Sustainability* 2619.

⁴ Center for Environmental Rights 2017 *SA UPR* 2.

⁵ Matsumoto *et al* 2016 *Natural Resources* 446.

⁶ Matsumoto *et al* 2016 *Natural Resources* 446.

⁷ Simate and Ndlovu 2014 *JOCE* 1785.

⁸ Makua *et al* 2017 *Environmental Economics* 15.

by the AMD generated by the mines as it affects the water systems of the communities around the mines.⁹ As a result, the government enacted transformative laws, policies and measures to regulate AMD since 1994. The regulation of AMD remains a challenging issue for both communities and the government in South Africa. This study subsequently focuses on stakeholder engagement in AMD regulation for the effective protection of resources such as water. This problem raises the question on the impact on AMD on water sources and human rights and whether stakeholders play role in the participation of AMD regulation and decision making process.

1.2. Historical Background

Since the 1970s, the government, mining industry, and non-governmental organisations have been ill-equipped with respect to resources to tackle the imminent threat of AMD effectively.¹⁰ This lack of preparedness significantly hindered their ability to address the challenges AMD creates. AMD refers to the release of acidic water from abandoned or active mining sites, contaminating surface and groundwater, degrading ecosystems, and posing risks to human health. Over the years, the government has devised strategies to address the pollution that results from AMD, including laws on AMD. However, mines are yet to engage communities and various stakeholders in managing the potential human rights infringements due to AMD.¹¹ While mines do provide employment opportunities, economic growth, and support infrastructure development and community services, the mining industry also contributes to environmental contamination and a lack of regard for fundamental human rights.¹² Mines should make an effort to understand how their social impact may develop into possible human rights breaches. They should expand on their contextual analysis.¹³

⁹ Feris and Kotzé 2014 *PELJ* 2110.

¹⁰ Simate and Ndlovu 2014 *JOCE* 1785.

¹¹ SAHRC 2013 <https://Sahr.org.za>

¹² Cronje *et al*/2013 *JAMBA* 2.

¹³ SAHRC 2013 <https://sahr.org.za>

AMD in South Africa is governed by section 27(1)(b) of the *Constitution of the Republic of South Africa* 108 of 1996, (hereafter the *Constitution*), *Section 28* of the *National Environmental Management Act* 107 of 1998 (*NEMA*), mining legislation such as section 38 of the *Mineral and Petroleum Resources Development Act* 28 of 2002 (*MPRDA*), section 19 of the *National Water Act* 36 of 1998 (*NWA*) and section 19 of the *National Environmental Management: Waste Act* 59 of 2008 (*NEM:WA*). These laws serve to uphold the mandates outlined in sections 24 and 27 of the *Constitution*, which provide all people the right to an environment that is not harmful to their health or well-being and access to clean water. With the enactment of these legislative frameworks, South Africa aims to mitigate the environmental impact of AMD while ensuring sustainable resource management and safeguarding the well-being of the people. These laws provide guidelines to direct state organs and mining companies as they perform duties that could have an impact on the environment.¹⁴

Section 2(4)(ii) of the *NEMA*, which governs the preservation and protection of all natural resources, including water, requires mining companies to adhere to and exercise the duty of care.¹⁵ In order for mining companies to effectively exercise their duty of care, they should adopt the ISO 14001 Environmental Management System (ISO 14001) as part of their EMS. It is an internationally recognised standard for environmental management systems (EMS). In terms of ISO 14001, the parties responsible for environmental pollution are the corporations¹⁶ There is environmental damage as these corporations try to meet consumer demand for material goods. As a result, most industrialised countries have implemented environmental policies to limit the effect of individual production. Corporations have partially improved industrial processes to meet the consumer and political demand for sustainable industrial development.¹⁷

¹⁴ Feris and Kotzé 2014 *PELJ* 2120.

¹⁵ Feris and Kotzé 2014 *PELJ* 2120.

¹⁶ Haufler 2014 "Negotiating international standards for environmental management standards: ISO 14000 Standards" 2.

¹⁷ Haufler 2014 "Negotiating international standards for environmental management standards: ISO 14000 Standards" 2.

If mining companies in South Africa adopt and implement the ISO 14001 Environmental Management System, it can enhance good corporate environmental citizenship. This would entail that mining companies make an effort to abide by all applicable environmental laws and other laws that govern its operations.¹⁸ The adoption of internationally recognised standards would demonstrate that such mining companies go beyond mere compliance with environmental regulations and strive to integrate environmental consideration into their core business strategies and operations.

NEMA lists environmental impact assessment (EIA) as one of the tools of environmental management to prevent negative and damaging environmental impacts.¹⁹ The EIA system is described by the United Nations Environmental Programme (UNEP) as a systematic framework for identifying, anticipating, and assessing the environmental effects of proposed activities and projects.²⁰ The South African government has developed programmes where residents are active and participate in governmental decision making using the platform of *imbizos* and ward committees in accordance with the participative principle provided by UNEP.²¹ EIA includes public participation, which enables affected and interested parties to take part in the decision-making process.²² Through this procedure, interested parties can influence public policy and receive a share of the State's resources.²³

The study examines the threat of AMD in South Africa, highlighting its detrimental effects on environmental and public health. The consequences include contamination of water sources, harm to ecosystems, and negative effects on local communities. The study underscores the urgent need for effective solutions to mitigate these issues and address the ongoing challenges posed by AMD in South Africa.

¹⁸ Feris and Kotzé 2014 *PELJ* 2120.

¹⁹ Phungela *et al* 2022 *SAGJ* 2.

²⁰ Phungela *et al* 2022 *SAGJ* 2.

²¹ Phungela *et al* 2022 *SAGJ* 2.

²² Phungela *et al* 2022 *SAGJ* 2.

²³ Xala *Ethical Environmental Governance* 26.

1.3. Research Question

How does AMD affect water sources and human rights, and what role does stakeholder participation play in the effectiveness of AMD regulations and decision-making processes?

1.4. Research Aim and Objectives

The main aim of this research is to analyse the legal framework governing stakeholder participation in AMD regulation in South Africa.

The study's objectives were to:

- a. Assess the impact of AMD on water sources and human rights;
- b. Assess the regulation of AMD in South Africa and the importance of stakeholder engagement;
- c. Analyse the roles, rights and responsibilities of various stakeholders (government, and communities) in the context of AMD regulations;
- d. Evaluate the measures, mechanisms and platforms available for stakeholder engagement within the legal framework;
- e. Identify and analyse the challenges and impediments hindering effective participation of stakeholders in AMD regulations; and
- f. Analyse of the current practices to involve stakeholders such as mining companies, government agencies, local communities and environmental organisations in AMD regulation in South Africa, and assess their effectiveness in order to propose strategies for enhancing stakeholder participation and collaboration.

1.5. Research Method

This research relied on a desktop study. Existing sources of law, including books, journal articles, and other media dealing with the regulation of AMD and the role of

stakeholders, are assessed to analyse the role of stakeholder engagement in AMD regulation and the participation of stakeholders in the decision and policymaking. An analysis of the current practices of various stakeholders in AMD regulation is significant, as well as a study that proposes strategies for enhancing stakeholder participation and collaboration.

1.6. Framework of the Study

Chapter 2 examines transformative laws, policies and measures of the impact of AMD on water sources and human rights. It evaluates international, regional and domestic law frameworks, the constitutional framework, environmental legislation, water legislation, mineral and petroleum resources legislation and mine water management policies. The chapter also follows the evolution of legal frameworks, recent policy changes, regulatory practices, and stakeholder roles, and makes recommendations for enhanced management to address AMD challenges effectively.

Chapter 3 discusses the impediments to effective stakeholder participation in AMD. This chapter assesses the platforms, procedures and legal frameworks that facilitate stakeholder engagement.

Chapter 4 presents various strategies for enhancing stakeholder participation and collaboration, such as effective communication strategies and channels, engagement techniques, collaboration frameworks, technology and tools, organisational culture and leadership, and measuring and evaluating participation.

Chapter 5 concludes the study and makes some recommendations.

CHAPTER 2: TRANSFORMATIVE LAWS, POLICIES AND MEASURES ON THE IMPACT OF ACID MINE DRAINAGE ON WATER SOURCES AND HUMAN RIGHT

2.1. Introduction

Mining activities such as surface mining and underground mining have been driving the economy of South Africa.²⁴ Over the years, the mining industry has contributed to the growth of the economy and social progress.²⁵ The mining activities have resulted in the problems with AMD that South Africa is presently facing.²⁶ The government of South Africa, in addressing the challenge of AMD, implemented a number of legislative measures aimed at safeguarding both the environment and public health. This chapter deals with transformative laws, policies and measures to mitigate the impact of AMD on water sources and human rights. The chapter examines the international, regional, and domestic legal framework.

2.2. International and Regional Law Framework

Chapter 14 of the *Constitution* establishes the framework for the country's international relations, affirms the principle of South Africa's adherence to international law, and recognises the importance of treaties as binding agreements.²⁷ Sections 231 to 233 of the *Constitution* prescribes the role and application of international law in South Africa.²⁸ These sections establish how international treaties and customary international and foreign legal principles should adopted, interpreted and applied in South Africa to align domestic laws to international standards. Environmental protection has been affected by the positive responsibilities arising from sections 231 to 233 of the *Constitution*. These

²⁵ Matsumoto *et al* 2016 *Natural Resources* 446.

²⁶ Matsumoto *et al* 2016 *Natural Resources* 446.

²⁷ Binding instruments include treaties such as the UN Council Resolution and non-binding instruments include declarations of the UN Assembly.

²⁸ Section 231 to 233 of the *Constitution*.

responsibilities guard the international legal order, which protects national interests.²⁹

South Africa has ratified various international human rights treaties and has incorporated these principles into its legal system through constitutional provisions and domestic legislation.³⁰ The *NEMA* also provides for the national fulfilment of global and international responsibilities related to environmental law. The Universal Declaration of Human Rights (UDHR), as a foundational document of the international human rights framework, serves as a guiding instrument for South Africa's human rights jurisprudence.

Article 25 (1) of the UDHR recognises the right to an adequate standard of living. The right to an adequate standard of living requires that the environment should be protected from AMD pollution. The community should be protected from pollution to make living adequate in the context of Article 25(1) of the UDHR. The United Nation General Assembly recognised the right to safe and clean drinking water and sanitation in 2010. This right is linked to the enjoyment of other human rights and plays a key role in facilitating the right to an adequate standard of living, as mentioned in Article 25 of the UDHR.³¹ In its resolution, the General Assembly also mentions various human rights treaties and other documents that uphold the right to water.³² The UN Human Rights Council subsequently adopted a resolution on the right to water.³³

For a dignified life, a person needs an adequate standard of living. AMD violates this right, which is fully recognised in international law. This requires intervention from mines and the government to have policies in place that regulate the water pollution caused by AMD. Should the government not take all the necessary steps to ensure that the rights of persons are not violated, then it is in violation of its

²⁹ Roberts 2011 *ICLQ* 57–92.

³⁰ United Nations Watercourses Convention (1997) and Ramsar Convention (1971).

³¹ Eide *Adequate Standard of Living* 196.

³² UNHRC, 'Human Rights and Access to Safe Drinking Water and Sanitation' (28 March 2008) UN Doc A/HRC/RES/7/22; and UNHRC, 'Human Rights and Access to Safe Drinking Water and Sanitation' (1 October 2009) UN Doc A/HRC/12/50 15.

³³ UNHRC, 'Human Rights and Access to Safe Drinking Water and Sanitation' (30 September 2010) UN Doc A/HRC/RES/15/9.

duty to protect people's health.³⁴ The Guiding Principles (GPs) also impose human rights responsibilities on the State and corporations; they provide guidance on the human rights responsibilities of companies.³⁵ Society expects that companies should have a responsibility to respect human rights. This responsibility is expected from companies of all sectors, size and operational context.³⁶ The responsibility entails that mines should avoid causing or contributing to adverse impacts on humans due to their activities and that they should address such impacts when they occur.³⁷ When it comes to AMD and mining companies, it is the responsibility of the mine to avoid damage to the environment and pollution to water courses that would result in adverse impacts on humans. Mines should have measures in place to address AMD and the resulting pollution when it occurs.

South Africa's membership in international human rights bodies and engagement in treaty monitoring mechanisms further reinforce its commitment to upholding human rights standards at the international level.³⁸ In line with this study, the application of international law, including human rights norms, in South Africa underscores the country's dedication to promoting environmental sustainability. The principles of sustainable development are enshrined in the 1992 Rio Declaration on Environmental Development and confirmed in subsequent instruments. People are the primary focus of concerns for sustainable development. They have a right to a productive and healthy existence in balance with the environment. They also incorporate equity and justice for current and future generations, both within and between generations.

Lastly, at the regional level, the *African Charter on Human and People's Rights* 1981 (hereinafter 'the *ACHPR*') reflects that "all people have a right to a generally satisfactory environment which is favourable to their development."³⁹ There are

³⁴ Eide *Adequate Standard of Living* 206.

³⁵ United Nations, *Guiding Principles on Business and Human Rights* (UN 2011) 13.

³⁶ Deva *Guiding Principles on Business and Human Rights: Implications for Companies*.

³⁷ Deva *Guiding Principles on Business and Human Rights: Implications for Companies* 105.

³⁸ Committee on Economic, Social and Cultural Rights (CESCR) and Human Rights Committee (CCPR).

³⁹ Article 24 of the *ACHPR*.

other group-specific substantive instruments of the African Union (AU) that provide for the right to water. The Protocol to the African Charter on Human and People's Rights on the Rights of Women in Africa recognises the right to access clean drinking water for women.⁴⁰ The Convention for the Protection and Assistance of Internally Displaced Persons (IDPs) in Africa provides for access to clean water for IDPs, while the African Charter on the Rights and Welfare of the Child (ACRWC), similar to its global counterpart, provides for safe drinking water as a measure to ensure the realisation of the highest attainable state of health for children.⁴¹

The AU reads the right to water into other rights recognised in the African Charter. The right to a healthy environment was recognised in article 24. The right to dignity (article 5) and right to health (article 16) are also recognised. In the landmark case of *Socio-Economic Rights Action Centre v Nigeria* (the SERAC case), the complainants alleged contamination of water sources. However, the African Commission found a violation of the right to health and the right to a satisfactory environment in relation to the alleged contamination.⁴² Similarly, in the case of *Sudan Human Rights Organization & Another v Sudan*, the complainants alleged *inter alia* the poisoning of water sources and denial of access to water by the government of Sudan in the Darfur region and requested the Commission to find a violation of the right to water.⁴³ The African Commission examined the duties to respect and protect and concluded that the destruction of residences, livestock, and agricultural land, along with the contamination of water sources like wells, constituted a breach of the right to the highest attainable standard of health

Section 24 of the *Constitution* entrenches the *ACHPR's* continental aspirations into South African law. Thus, section 24 of the *Constitution* and Article 24 of the *ACHPR* share common objectives in promoting environmental rights and sustainable

⁴⁰ Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa AHG/Res240 (XXXI) (1995) article 15(a).

⁴¹ African Charter on the Rights and Welfare of the Child 7773 Treaty 0014 (1990) article 14(1).

⁴² *Social and Economic Rights Action Centre (SERAC) & Another v Nigeria* (SERAC) (2001) AHRLR 60 (ACHPR 2001) paras 49–54.

⁴³ *Human Rights Organization & Another v Sudan* (2009) AHRLR 153 (ACHPR 2009) (Sudan) para 207.

development within their respective legal frameworks. The responsibilities derived from international human rights law go beyond carrying out environmental assessments. The *Constitution* ensures that environmental rights ratified on an international level are observed in our domestic laws.

In summary, the international, regional and national legal frameworks discussed above play a crucial role in reducing AMD and protecting the right to drinking water by establishing binding agreements, guidelines, and standards that govern mining practices to protect the environment. These legal frameworks provide a collaborative platform for countries to implement sustainable mining practices, enforce environmental regulations, and promote the adoption of advanced technologies to mitigate AMD. Additionally, these frameworks facilitate the exchange of best practices, foster cross-border cooperation, and ensure that mining activities are conducted with due regard for the ecological and socio-economic impacts, ultimately reducing the occurrence and severity of AMD on a global and regional scale.

2.3. Domestic Legal Framework

2.3.1. The Constitution of the Republic of South Africa

The *Constitution* came into effect and transformed access to basic human rights and environmental protection in South Africa. AMD pollution poses threats to several constitutional rights enshrined in the *Constitution*.⁴⁴ For instance, the right to a safe environment as provided in section 24 of the *Constitution* is violated when AMD contaminates water sources, soil, and air, leading to ecological degradation and posing health risks to communities living near affected areas.⁴⁵

The right to dignity is protected in the *Constitution* as it provides that “everyone has inherent dignity and the right to have their dignity respected and protected.” This means people have the right to clean water and a safe environment, which

⁴⁴ Such as access to information, participation in decision making, access to justice in environmental matters and right to safe, healthy and ecologically balanced environment.

⁴⁵ Feris and Kotzé 2014 *PELJ* 2113.

implies that problems such as AMD should be addressed.⁴⁶ There is a precise crossover between dignity and sanitation. AMD can potentially even threaten the right to life. Section 24(b) of the *Constitution* guarantees the right to environmental protection through reasonable legislative and other measures to benefit the present and future generations. This environmental protection is the duty and obligation of all persons and state and non-state actors. To uphold section 24(b) and mitigate the impacts of AMD, there is need for the government to regulate mining activities. This includes stringent environmental impact assessments for mining projects, enforceable pollution control measures, and robust monitoring and compliance mechanisms.

Section 27(1)(b) of the *Constitution* guarantees everyone the right of access to sufficient and clean water, so it provides a framework for governing AMD challenges. The State must take reasonable legislative, policy, and other measures within its available resources to progressively realise this right. Generally, section 27 is delineated as a socio-economic right, not an environmental one. However, section 24 requires the State to ensure that water is conserved and protected and that there is sufficient access to the resource.⁴⁷ Firstly, while section 24 mandates the State to ensure the conservation and protection of water resources, the achievement of this goal is often hindered by competing interests and priorities. In the context of water management, conflicts arise between various stakeholders, including industries, agriculture, urban development, and environmental conservation efforts. Balancing these interests while safeguarding water resources for present and future generations requires careful planning, robust regulations, and effective governance mechanisms. In summary, section 24, as read together with section 27 of the *Constitution*, obligates the government to guarantee adequate access to water and to ensure that it is conserved and protected. This requirement, directly and indirectly, mandates the State to address all AMD issues related to access to sufficient, clean water and the environment.⁴⁸ The government

⁴⁶ See section 10 of the *Constitution*.

⁴⁷ Feris and Kotzé 2014 *PELJ* 2113.

⁴⁸ Lwabukuna "Interrogating and Reviewing Legal and Policy Frameworks Governing Acid Mine Drainage in South Africa" 128-129.

is mandated to address AMD both directly and indirectly through various legislative, regulatory, and policy measures. Directly, the government is required to implement specific interventions aimed at mitigating the environmental and socio-economic consequences of AMD, such as monitoring and regulating mining activities to prevent or minimise acid mine effluent discharge, implementing remediation and rehabilitation programmes to restore affected ecosystems, and investing in infrastructure for water treatment and pollution control. Indirectly, the government is mandated to address AMD by enacting broader environmental and water management policies and regulations that promote sustainable development, resource conservation, and pollution prevention.

In the context of section 24(b)(i), read together with section 7(2) of the *Constitution*, the State has a duty to implement reasonable legislative measures to prevent pollution and ecological degradation. While section 24 of the Constitution does not expressly place a duty on any other person except the State, section 28(1) of *NEMA* and section 19 of the *NWA* impose a duty on mining companies to prevent, minimise and remedy pollution and environmental degradation.⁴⁹ According to section 19 of the *NWA*, the government has the authority to hold mining corporations accountable for AMD-related pollution.⁵⁰ This provision places a legal duty on mining companies to mitigate and remediate environmental harm. This underscores the government's commitment to environmental protection while balancing economic interests with ecological concerns.

South Africa's environmental governance is supported by the court system.⁵¹ In *Minister of Water Affairs and Forestry v Stilfontein Gold Mining Company Limited* 2006 5 SA 333,⁵² the court emphasised the need to ensure effective enforcement tools for statutory responsibilities to consistently hold mining firms accountable and prevent them from abdicating their environmental obligations.⁵³ Stakeholder

⁴⁹ Feris and Kotzé 2014 *PELJ* 2120.

⁵⁰ Feris and Kotzé 2014 *PELJ* 2120.

⁵¹ Feris and Kotzé 2014 *PELJ* 2130.

⁵² *Minister of Water Affairs and Forestry v Stilfontein Gold Mining Company Limited* 2006 5 SA 333.

333 (W) para 47.

⁵³ Feris and Kotzé 2014 *PELJ* 2132.

engagement is encouraged in terms of the *NEMA*, and the participation of all interested and affected parties is required to advance environmental governance.⁵⁴ Therefore, mining companies must adopt proactive measure to mitigate the negative impact of their operations, particularly concerning AMD, which poses a severe environmental and public health risk. Compliance with these legal mandates ensures that the environment is protected, mining practices are sustainable and socio-economic stability is fostered. Therefore, it is the responsibility of the government and mining companies to protect water resources and reduce the consequences of pollution.⁵⁵

Under Part B of the *Constitution* the local government is responsible for water and sanitation services, including the provision of sufficient water to the people.⁵⁶ Feris and Kotzé note that:

"The ecological impacts of AMD could also have various socio-economic effects is vividly illustrated by the daily struggles of municipalities across South Africa to provide people with a sufficient quantity of potable water of acceptable quality. It is not immediately evident that local government is able to adequately fulfil its statutory and constitutional duties concerning water provision".⁵⁷

The *Federation for Sustainable Environment v Minister of Water Affairs* 2012 ZAGPPHC 128 (10 July 2012) para 6⁵⁸ (*Carolina* case) related to the constitutionally entrenched fundamental right to access to water and involved the contamination of water supply by "AMD".⁵⁹ In *Silobela* and *Carolina*, the water was not healthy for human and animal consumption.⁶⁰ In South Africa, there is a duty to protect the supply of sufficient water to citizens in terms of the *Municipal Systems Act* 32 of 2000, which governs the functioning and operations of municipalities. The Act was

⁵⁴ S 2 (4) F (O) of the *National Environmental Management Act* 107 of 1998.

⁵⁵ Feris and Kotzé 2014 *PELJ* 2120.

⁵⁶ Feris and Kotzé 2014 *PELJ* 2113.

⁵⁷ Feris and Kotzé 2014 *PELJ* 2113-2114.

⁵⁸ *Federation for Sustainable Environment v Minister of Water Affairs* 2012 ZAGPPHC 128 (10 July 2012) para 6.

⁵⁹ See Dept of Water & Sanitation *Mine Water Management Policy* iv where "mine water" is defined as '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'.

⁶⁰ *Federation for Sustainable Environment v Minister of Water Affairs* 2012 ZAGPPHC 128 (10 July 2012) para 21.

enacted to promote good governance, accountability, and service delivery at the local government level.⁶¹ It also outlines the roles, responsibilities and powers of municipalities in providing essential services and promoting development in their jurisdictions. These spheres of governments are mandated to progressively realise the right to a sufficient water supply.⁶² It follows that the South African government is the public trustee of all the water resources⁶³ as constitutionally prescribed under sections 24 and 26 of the *Constitution* and the *NWA*.⁶⁴ In the *Carolina* case, the Court did not address the pollution resulting from AMD and the liability of the responsible mines, leaving the issue unresolved.⁶⁵ Measures should be taken to ensure that the mines that cause AMD are held responsible for the pollution they cause to the environment, including water resources. As such, local government can collaborate with mines or polluters to effectively address AMD through various mechanisms. Firstly, local government can work with mining companies to implement best practices in mining operations to minimise the generation of acid mine effluent and mitigate environmental impacts. This includes adopting technologies for water treatment and pollution control, implementing responsible mine closure and rehabilitation practices, and investing in sustainable mining techniques that prioritise environmental conservation. Courts can also play a crucial role in deterring AMD by providing legal remedies and enforcing environmental laws and regulations. Individuals, communities, or environmental organisations affected by AMD can seek recourse through public interest litigation, challenging regulatory non-compliance, environmental degradation, or violations of constitutional rights. Courts can issue injunctions or orders requiring polluters to cease harmful activities,

⁶¹ Act 32 of 2000.

⁶² Section 6 of the *Municipal Systems Act* 32 of 2000.

⁶³ Feris and Kotzé 2014 *PELJ* 2115.

⁶⁴ Section 3(1) of the *NWA* provides that "As the public trustee of the nation's water resources the National Government, acting through the Minister, must ensure that water is protected, used, developed, conserved, managed and controlled in a sustainable and equitable manner, for the benefit of all persons and in accordance with its constitutional mandate. (2) Without limiting subsection (1), the Minister is ultimately responsible to ensure that water is allocated equitably and used beneficially in the public interest, while promoting environmental values. (3) The National Government, acting through the Minister, has the power to regulate the use, flow and control of all water in the Republic".

⁶⁵ Feris and Kotzé 2014 *PELJ* 2115.

remediate environmental damage, or compensate affected parties for losses incurred.

2.4. Environmental legislation

There are quite a number of legislative frameworks in place to regulate environmental issues such as AMD. Among them, the *NEMA* provides environmental management principles for environmental protection.⁶⁶ The *NEMA* provides the framework for integrated environmental management in South Africa.⁶⁷ The responsibility and authority for environmental approval, monitoring, and enforcement for South African mining was previously held by the ministers of Water, Mineral Resources, and Environmental Affairs.

Section 37 of *MPRDA* extends the application of the binding principles to the mining sector. Therefore, the legal framework of South Africa binds all the state organs and mines to environmental governance. These legislative frameworks are discussed below in the context of AMD.

2.4.1. Sustainable development

Sustainable development is essential to addressing AMD pollution because it promotes a balanced approach that considers economic growth, environmental protection, and social well-being. By prioritising sustainable practices, mining operations can minimise their environmental impact, ensuring that natural resources are used efficiently and responsibly. As such, mines should take into consideration all the relevant factors.⁶⁸ Sustainable development places an obligation on environmental management and those conducting activities in the environment to ensure that the needs of the present generation are met without compromising the ability of the future generations to meet their own needs.⁶⁹ This principle recognises the “no harm” principle and justifiable socio-economic

⁶⁶ Section 2(1)(e) of the *NEMA*.

⁶⁷ King and Reddell 2015 *PELJ* 950.

⁶⁸ Section 2(4) (a) of the *NEMA*

⁶⁹ *Mine Water Management Policy* May 2022.

development that leads to adverse environmental impacts.⁷⁰ Such impacts should be minimised and remedied. Where mining is justifiable for socio-economic development and it harms the environment, such harm must be prevented, minimised, and remedied by reasonable measures.

2.4.2. *Liability for environmental damage and the polluter-pays principle*

The life-cycle liability requires that the “responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle”.⁷¹ The polluter-pays principle reinforces the life-cycle liability and holds that polluters are liable for remedying their activities that result in environmental pollution, degradation, and adverse health effects.⁷² In the mining sector, the mines must pay the costs for the prevention, minimisation, and remediation of environmental pollution and degradation throughout their operations, and this should include rehabilitation of the environmental damage and degradation caused by AMD. The polluter-pays principle is practical; if the polluter is known, and possesses the financial capacity or means, they must cover the remediation cost. Many derelict, ownerless⁷³ and abandoned mines⁷⁴ contribute to the AMD problem. Where the polluters are no longer identifiable, this dilutes the

⁷⁰ Feris and Kotzé 2014 *PELJ* 2122.

⁷¹ Section 2(4)(e) of the *NEMA*.

⁷² Section 2(4)(p) of the *NEMA*. Dept of Water & Sanitation *Mine Water Management Policy* 24 describes the “polluter pays principle” in the following terms: “those who produce pollution should bear the costs of managing it to prevent damage to human health or the environment’ and the ‘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”. See also Hunter *et al* *International Environmental Law and Policy* 24; Feris and Kotzé 2014 *PELJ* 2123; Lwabukuna “Interrogating and Reviewing Legal and Policy Frameworks Governing Acid Mine Drainage in South Africa” 131.

⁷³ Dept of Water & Sanitation *Mine Water Management Policy* iv. D & O mines refer 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’ and ‘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 “whose directors can no longer be traced or because the legal business enterprise is no longer in existence”.

⁷⁴ Dept of Water & Sanitation *Mine Water Management Policy* iv. Abandoned mines are “not operational due to [such as] financial constraints, but still having a legal custodian”.

effectiveness of this principle.⁷⁵ It is my view that, the government should develop risk-based assessment methodologies to prioritise areas or industries with the highest likelihood of causing environmental harm. These environmental risk assessments could involve pollution modelling, and spatial analysis techniques to identify potential sources of pollution and allocate resources for investigation and remediation efforts accordingly.

2.4.3. *Duty of care and remediation of environmental damage*

Section 28 of the *NEMA* provides comprehensive liability for mines, including those of AMD. Section 28(1) of the *NEMA* provides as follows:

"Every person who causes or 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 authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment."

In terms of this section, a duty of care and liability is set out for mines to refrain from causing, or at least minimising and rectifying environmental pollution and degradation. The *NEMA* applies to historical pollution, and liability applies retrospectively to activities caused prior to the *NEMA*'s commencement.⁷⁶

The *NEMA* also imposes criminal liability so that the directors of mining companies that cause environmental pollution can be held criminally liable in their capacity for offenses relating to the environment their firm commits if they fail to take reasonable steps to prevent misconduct.⁷⁷ The directors of mines should take all reasonable measures to prevent environmental pollution and degradation or else face criminal liability in their capacity. One example illustrating the importance of holding directors accountable for environmental pollution is the case of *Minister of Environmental Affairs and Tourism v Aquarius Platinum (South Africa) (Pty) Ltd*

⁷⁵ Feris and Kotzé 2014 *PELJ* 2123.

⁷⁶ *National Environmental Management Amendment Act* 14 of 2009.

⁷⁷ Section 34(7) of the *NEMA*.

2016 ZACC 4.⁷⁸ In this case, the Aquarius Platinum mining company faced legal action for environmental violations related to water pollution as a result of its mining activities. The court held that the company's directors could be held personally liable for the environmental damage due to their failure to take reasonable measures to prevent pollution, despite the company's separate legal personality. This ruling emphasised the principle of individual accountability for environmental offenses, sending a strong message to directors about their responsibility to ensure the environmental compliance of their organisations.

2.5. Waste legislation

The *NEM:WA* is the national legislation that deals with waste management.⁷⁹ The *NEW:WA* applies to mines in the AMD context as their waste-generating activities affect water resources. Waste is broadly defined under section 1 of the *NEM:WA* to include any substance that can be reduced, reused, recycled, and recovered or not, that is identified as waste by the Minister by gazette notice. The definition of waste in the context of *NEM:WA* includes waste generated by mining, medical, or other sectors.⁸⁰ The waste generated in mines often contains harmful substances and when exposed to the environment, they can produce acidic runoff known as AMD.⁸¹ Section 16 of the *NEM:WA* provides that holders of waste, including mines, must take all reasonable measures to avoid, minimise, and reduce waste generation; reuse, recycle and recover waste; treat and dispose of waste in an environmentally friendly manner; and to manage waste in a manner that does not endanger health, environment, and cause nuisance. The *NEM:WA* also prohibits the negligent disposal of waste on any land, in water bodies, or at a facility unless the law authorises such disposal. It prohibits the disposal of waste in any manner that would cause environmental pollution and harm the health and well-being of human beings.⁸²

⁷⁸ *Minister of Environmental Affairs and Tourism v Aquarius Platinum (South Africa) (Pty) Ltd* 2016 ZACC 4.

⁷⁹ *National Environmental Management: Waste Act* 59 of 2008.

⁸⁰ Emphasis added.

⁸¹ Rezaie and Anderson *Science of the total environment* 2020.

⁸² Section 26 of the *NEM: WA*.

The *NEM:WA* also provides for waste management licenses for listed activities under sections 19 and 20.⁸³ These sections provide information on the treatment of wastewater containing AMD. These prohibitions and obligations reflect the duty of care and environmental liabilities found under the *NEMA*, *NWA* and *MPRDA*. Further, the prohibitions and obligations concerning mining waste are helpful as this waste causes water resources to be polluted and leads to AMD.

Section 34A(1) of the *NEM:WA* establishes an implementation bureau (Waste Management Bureau) to deal with waste management as a juristic person. If a functional Board of the Bureau is absent, the powers and functions of the Board revert to the Minister, who must exercise those functions and perform powers until the Board is functional.⁸⁴ Section 34C of the *NEM:WA*, as introduced by section 64 of the *National Environmental Management Laws Amendment Act, 2022* provides for the Minister's supervisory powers, including:

- (a) monitoring the Bureau's exercise and performance of its powers and duties;
- (b) setting norms and standards for the Bureau's exercise and performance of its powers and duties;
- (c) issuing directives to the Bureau on policy, planning, strategy, and procedural issues to ensure its effective and efficient functioning; and
- (d) determining the limits on fees charged by the Bureau in exercising and performing its powers and duties.

Regarding section 34C(2) of the *NEM:WA*, the Bureau must exercise its powers and perform its duties subject to the policy determined under section 34B and any norms and standards, directives, and determinations issued by the Minister. This provision ensures that the Bureau operates within the parameters established by the government, aligning its powers and duties with overarching environmental

⁸³ Failing to comply with these provisions is a criminal offence under section 67(1)(a) of the *NEM: WA*.

⁸⁴ Section 34A(3) of the *NEM:WA*. These amendments were introduced by section 63 of the *National Environmental Management Laws Amendment Act, 2022*.

policies and objectives outlined in section 34B. By subjecting the Bureau to ministerial directives and determinations, the legislation seeks to maintain consistency and coherence in waste management practices, facilitating coordinated efforts towards environmental protection and sustainable waste management.

Sections 35–41(Part 8) of the *NEM:WA* relates to contaminated land. Contaminated is defined in section 1 as the:

“presence in or under any land, site, buildings or structures of a substance or micro-organism above the concentration that is normally present in or under that land, which substance or micro-organism directly or indirectly affects or may affect the quality of soil or the environment adversely.”

AMD also contaminates land according to the Act’s provisions. Section 36 of the *NEM:WA* identifies and investigates areas suspected of having been contaminated by the government. The government is empowered to make remediation orders for the mines to address the contaminated land, and such mines bear the cost.⁸⁵ Furthermore, section 40 of the Act prohibits the transfer of contaminated land, thus making it difficult for mining areas contaminated with AMD to be transferred without the remediation of such mines. Therefore, this provision underscores the importance of remediation efforts in addressing the legacy of AMD pollution, ensuring that sites are adequately rehabilitated before changing ownership.

The *NEM:WA* was enacted to manage waste and regulate detrimental environmental pollution and degradation from waste. The mines’ residue deposits and residue stockpiles are excluded from the application of the Act. Due to the *NEM:WA* exclusions,⁸⁶ the Act does not apply to mine residue deposits and stockpiles under the *MPRDA*. Therefore, mine tailings that leach AMD are unregulated by the Act, but leached AMD falls within the Act. If the *NEM:WA* is to

⁸⁵ Section 38(2) of the *NEM:WA*.

⁸⁶ Section 4(1)(b) of the *NEM:WA*. See section 4(1)(bA) of the *NEM:WA* introduced by section 62 of the *National Environmental Management Laws Amendment Act, 2022*. This provision provides “residue deposits and residue stockpiles that are regulated under the *National Environmental Management Act*”. This means that the *NEMA* exclusively regulates residue deposits and stockpiles.

make any meaningful contributions to regulating AMD issues, residue and stockpiles must be brought within its regulatory scope.

Section 43(1A) of the *NEM:WA* provides the following: (1A) The Minister responsible for mineral resources is the licensing authority where the waste management activity is a mining activity as defined in the *NEMA*. Section 43(1B) reads that the Minister responsible for mineral resources is responsible for the implementation of the licensing system provided for in this Chapter in so far as the matters referred to in subsection (1A) are concerned. These provisions were introduced by section 71 of the *National Environmental Management Laws Amendment Act, 2022*. They imply that the Minister is responsible for implementing the waste management system for mines.

2.6. Water Legislation

The *NWA* provides a framework for protecting, using, developing, conserving, managing, and controlling water resources. Chapter 2 of the *NWA* makes provisions for strategies to facilitate the proper management of resources. The National Water Resource Strategy 3 provides the overall framework for water resource management, including AMD that is harmful to the environment.

The *NWA* provisions address water quality and the protection and conservation of water resources, and its provisions apply to mines in relation to AMD. By regulating water use, discharge, and pollution prevention, the *NWA* establishes a framework for sustainable water management that applies to mining activities. However, to enhance the effectiveness of the *NWA* in addressing AMD, there is a need for greater coordination and integration with other environmental legislation, such as the *NEMA* and the *MPRDA*. Section 19 of the *NWA* provides as follows:

“(1) An owner of the land, a person in control of the land or a person who occupies or uses the land on which-

(a) any activity or process is or was performed or undertaken; or

(b) 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.”⁸⁷

This therefore relates to this study on AMD in South Africa. The *NWA* defines “pollution of a water resource” broadly to include the direct or indirect alteration of such resources’ physical, biological, and chemical properties, making them less fit for any beneficial purpose and harmful to the health of humans, organisms and resource quality and property.⁸⁸ Section 19 of the *NWA*, read with the definition of water pollution, leads to the inescapable conclusion that these liability provisions of the Act apply to water and its infrastructure as far as AMD is concerned.⁸⁹ Section 19 of the *NWA* imposes a broader duty of care and liability on mines to address AMD issues using “all reasonable means”, similar to section 28 of the *NEMA* as discussed above. The “all reasonable measures” are an open-ended list including:

- (a) ceasing, modifying or controlling any acts or processing causing water pollution;
- (b) complying with any prescribed waste standard or management practice;
- (c) containing or preventing the movement of water pollutants;
- (d) eliminating any sources and remedying the effects of the water pollution;
- (e) remedying the effects of any disturbances to beds and banks of watercourses.⁹⁰

Mines that do not take all reasonable measures are directed to do so by the government, and where they fail, the government takes the measures on its behalf

⁸⁷ Emphasis added.

⁸⁸ Section 1(xv) of the *NWA*.

⁸⁹ Feris and Kotzé 2014 *PELJ* 2131.

⁹⁰ Section 19(2) of the *NWA*.

and recovers the costs of such measures from the mines.⁹¹ However, this becomes a problem especially for small scale miners without resources.

Concerning AMD, section 19 of the *NWA* empowers the government to hold mines liable for water pollution due to AMD and to prevent, minimise and remedy such pollution. Section 19 supports the idea of preventing water pollution and holding mines liable for such pollution, as well as using all reasonable measures to remedy such pollution.⁹² For instance, in *Minister of Water Affairs and Forestry v Stilfontein Gold Mining Company Limited*,⁹³ the High Court found that mines cannot be permitted to exploit minerals and walk away from environmental obligations at the end of the operation, as that would be contrary to the Constitution, *NWA*, *NEMA*, and *MPRDA* since the people have a right to be protected from the effects of pollution and environmental degradation.⁹⁴

Further, in terms of sections 21 to 55 of the *NWA*, mines require a water use license to conduct their primary mining activities. These licenses may be issued with conditions with respect to AMD issues and water. Breaching the licence could attract criminal and administrative functions.⁹⁵ These conditions could include all reasonable measures that the mines should take to address water pollution, especially that caused by AMD, including the financial security that applies to water resources, such as rehabilitation in the AMD context.⁹⁶ The Act also provides a pricing strategy for water use charges relevant to AMD issues, including water resources management, protection and conservation, discharge of waste, and protection of water reserves.⁹⁷

⁹¹ Section 19(3), (4) and (5) of the *NWA*.

⁹² Section 19(3), (4) and (5) of the *NWA*

⁹³ (7655/05, 7655/05) [2006] ZAGPHC 47; 2006 (5) SA 333 (W) (15 May 2006) (hereinafter 'the *Stilfontein Gold* case').

⁹⁴ *Stilfontein Gold* case para 16.9.

⁹⁵ Section 29 of the *NWA*.

⁹⁶ Section 30(1)-(2) of the *NWA*. This financial security may include a letter of credit, surety or bank guarantee; bond, an insurance policy or any other appropriate form of security. See also Feris and Kotzé 2014 *PELJ* 2133.

⁹⁷ Section 56 of the *NWA*.

The *NWA* has provisions that regulate criminal liability related to the management and use of water and water resources.⁹⁸ The offenses include mines other than those authorised using water, failing to comply with the conditions set out in the water use licenses, failing to comply with directives issued by competent authorities, and polluting water resources.⁹⁹ Feris and Kotzé correctly observe that these criminal liability provisions are formulated in a broad sense, and many mines could be held liable for water pollution caused by AMD.¹⁰⁰

The *NWA* also provides a comprehensive set of guidelines that guide mining activities related to water resources. These guidelines were made in terms of section 26(1)(b), (g), and (i) of the *NWA*, and the requirements prescribed in the Regulations are minimum requirements to protect water resources in South Africa. The legal provisions provide a non-exhaustive list of the reasonable measures that mines can take to protect water resources from AMD issues. These measures are provided under Regulation 7 (Protection of water resources) and include:

- (a) prevention of wastewater that causes water resource pollution from entering any water resources, and reuse, purification, and lawful disposal of such wastewater;
- (b) designing, modifying, locating, constructing, and maintaining all water systems, including residue deposits, in any area to prevent water resource pollution;
- (c) minimising the flow of any surface water or floodwater into mine workings, opencast workings, and other openings;
- (d) prevention of the erosion or leaching of materials from any residue deposit from any area to prevent them from polluting water resources;
- (e) water used in any mining processes is recycled as far as practicable;

⁹⁸ See sections 151-155 of the *NWA*.

⁹⁹ Section 151(1) of the *NWA*.

¹⁰⁰ Feris and Kotzé 2014 *PELJ* 2134.

- (f) keeping water systems free from obstruction that affects the efficiency; and,
- (g) causing domestic waste that cannot be disposed of in a municipal system disposed of per the *NWA*.

All the above aspects are central to addressing AMD challenges in South Africa. As such, persons who fail to comply with the Regulations commit offenses for which the punishment is a fine or at most five years' imprisonment (Regulation 14(1)). The fines will force the perpetrators to abide by the law wherever possible. Notably, Regulation 3 gives the Minister a broader discretion to authorise an exemption from the Regulation on his or her initiative or on application according to the conditions that may be determined. This broader discretion is problematic as it can hinder efforts to prevent pollution that AMD may cause.

The Minister of Water Affairs and the Director General: Water Affairs is responsible for implementing and administering the *Water Services Act* 108 of 1997 (*WSA*) and its regulations, and the *NWA* and its regulations must provide water nationally.¹⁰¹ The national government is enjoined constitutionally to provide essential services to communities, which entail, among other things, essential water services in terms of section 2(1) and section 3(2) of the *WSA* and the *NWA*. Most importantly, by enshrining these pieces of legislation, the government commits to upholding the fundamental human right to water, recognising water as a basic necessity essential for life and well-being.

2.7. Mineral and Petroleum Resources Legislation

The *MPRDA* is the national legislation that regulates the development of minerals and petroleum resources for the benefit of South Africans.¹⁰² The legislation aims to give effect to section 24 of the *Constitution* by ensuring the development of minerals and petroleum resources in an ecologically sustainable manner and

¹⁰¹ Maphela and Cloete 2020 *Development Southern Africa* 539-540

¹⁰² Van der Schyff 2012 *New Contree* 132

promoting socio-economic development.¹⁰³ Therefore, the *MPRDA* promotes mining activities and socio-economic development in light of the developmental objectives under the Act, including ecological sustainability.¹⁰⁴ Section 38(1)(d) of the *MPRDA* provides that mines are responsible for rehabilitating the environment affected by mining activities in a state that conforms with sustainable development. According to section 38(1)(e) of *MPRDA*, mines are also responsible for environmental pollution and degradation due to mining activities inside and outside the mining areas. In *Director: Mineral Development, Gauteng v Save the Vaal Environment* 1999 2 SA 719 SCA,¹⁰⁵ Olivier JA took judicial notice of the fact that mining is potentially damaging to the environment and potentially contrary to the idea of sustainability, stating that:

"The application of the [*audi alteram partem*] rule is indicated by virtue of the enormous damage mining can do to the environment and ecological systems. What has to be ensured when application is made for the issuing of a mining licence is that development which meets present needs will take place without compromising the ability of future generations to meet their own needs".¹⁰⁶

Like with the *NEMA*, liability for environmental damage and pollution in mines extends to its directors.¹⁰⁷ The amendments to the *NEMA* and *MPRDA* apply to retrospective liability, where former mine owners can be held liable for environmental damage and pollution that they caused in the past¹⁰⁸. This is known as historic pollution, and the liability for environmental damage and pollution from mining operations is regulated under the *NEMA*.¹⁰⁹ Feris and Kotzé note that mining activities are responsible for the highest incidence and most severe forms of

¹⁰³ Section 2(h) of the *MPRDA*.

¹⁰⁴ Feris and Kotzé 2014 *PELJ* 2137.

¹⁰⁵ 1999 2 SA 719 SCA (hereinafter 'the *Save the Vaal* case').

¹⁰⁶ *Save the Vaal* case [719B] – [719C]. See also the Dept of Water & Sanitation *Mine Water Management Policy 24*, where the principle of sustainability is explained in the following terms: "meets the needs of the present, without compromising the ability of future generations to meet their own needs", and it is "important to ensure that a reasonably intact resource base is left for future generations, i.e. environmental, social and economic asset base". Emphasis in original.

¹⁰⁷ Section 38(2) of the *MPRDA*. See also section 34(7) of the *NEMA*.

¹⁰⁸ Lwabukuna "Interrogating and Reviewing Legal and Policy Frameworks Governing Acid Mine Drainage in South Africa" 127.

¹⁰⁹ Section 28(1A) of the *NEMA*.

historical mining environmental damage and pollution from AMD.¹¹⁰ Therefore, the principle of retrospective liability is vital in addressing AMD issues. However, where the polluter cannot be found, the retrospective liability provisions are unable to remedy historic pollution due to their unenforceability.¹¹¹

Under section 5(4) of the *MPDRA*, mines must have environmental management programmes or plans approved by the State. Such environmental management programmes and plans must contain prescribed information,¹¹² including financial provisions¹¹³ for the remediation of environmental damage.¹¹⁴ In terms of section 24P(1) of the *NEMA*, the financial provision can only be used for progressive rehabilitation, decommissioning, closure, and post-closure to ensure mitigation, remediation and rehabilitation of the adverse environmental impacts for which it was provided. It cannot be used for any other purposes. The government may use this money to address the negative environmental impacts if the mines fail to fulfil their environmental obligations.¹¹⁵ Notably, closure certificates for mines or prospecting operations are only issued after the government is satisfied that the health, safety, and pollution of water resources have been adequately addressed.¹¹⁶

¹¹⁰ Feris and Kotzé 2014 *PELJ* 2138.

¹¹¹ Feris and Kotzé 2014 *PELJ* 2138.

¹¹² Section 24N of the *NEMA*. This section was introduced by section 6 of the *National Environmental Management Laws Amendment Act, 2022*. Section 24N is now very broad and open-ended, as the programmes can include any information as prescribed by the competent government authorities, as opposed to the way it was before when the information in such programmes was listed under the section.

¹¹³ The *National Environmental Management Laws Amendment Act, 2022*, section 1, amends section 1 of the *NEMA* by broadly defining “financial provision” as the “amount which is to be provided in terms of this Act by a holder, holder of an old order right or applicant, guaranteeing the availability of funds to fulfil the obligation to undertake progressive rehabilitation, decommissioning, closure and post-closure activities including the pumping and treatment of polluted or extraneous water to ensure that the State does not become liable for those costs which should be covered by a holder, holder of an old order right or applicant”. Emphasis added.

¹¹⁴ Section 24P of the *NEMA*. This provision, as substituted by the *National Environmental Management Laws Amendment Act, 2022*, requires under section 24P(3) for applicants, before the competent authorities (Minister for Mineral Resources) issues environmental authorisation, to “determine the financial provision which is required for undertaking progressive rehabilitation, decommissioning, closure and post-closure activities, including the pumping and treatment of extraneous and polluted water, where relevant” Emphasis added. The pumping and treatment of polluted water is meant to address water pollution including the one caused by AMD.

¹¹⁵ Section 41(2) of the *MPRDA*.

¹¹⁶ Section 43(5) of the *MPRDA*.

The government is empowered to retain a portion of the financial provision to rehabilitate the mines, prospecting operation for rehabilitation, and address any adverse environmental impacts.¹¹⁷ This provision may have to be revised to address the AMD issues, as most AMD is caused by historic mining activities that occurred when no such provision was available. In my view, the government should take a holistic and proactive approach to address both the immediate and long-term challenges associated with AMD, thus ensuring the protection and rehabilitation of affected ecosystems and communities.¹¹⁸ This should apply to present and future mines and prospecting operations seeking mining and prospecting rights. Moreover, the financial provision requires frequent reviews to address its adequacy, inflation, new scientific knowledge on AMD, and consultation with all stakeholders.¹¹⁹ This is critical to ensure financial adequacy in light of current economic conditions and changes in the cost of rehabilitation materials and services.¹²⁰

Section 9 of the *National Environmental Management Laws Amendment Act, 2022* introduces section 24PA to the *NEMA* on “financial provision for mining”. This section requires holders of environmental authorisation for mining activities or holders of old order rights to:

- (a) maintain and retain financial provisions until the Minister issues a closure certificate for mineral resources under the *MPRDA*;
- (b) review and adjust the environmental liability;
- (c) subject the financial provision at intervals as prescribed and the basis of the calculations to an independent audit;
- (d) at the intervals as prescribed, submit to the Minister for mineral resources an audit report;

¹¹⁷ Section 43(6) of the *MPRDA*.

¹¹⁸ Hartzler and Du Plessis 2014 *SAPLP* 470.

¹¹⁹ Feris and Kotzé 2014 *PELJ* 2140.

¹²⁰ Feris and Kotzé 2014 *PELJ* 2140.

- (e) publish, at the intervals as prescribed, the review decision in a provincial newspaper and newspapers distributed within the municipal area within which the mining operation is located, and indicate where the review can be obtained; and
- (f) undertake the prescribed mitigation and rehabilitation measures annually.

This provision compels mining operators to allocate resources for remediation and environmental protection upfront. These resources can be used to address AMD. By incorporating regular reviews and adjustments based on economic changes, emerging scientific knowledge, and stakeholder consultations, section 24PA ensures that the financial provisions remain adequate and effective in mitigating both current and historical AMD impacts. Further, this amendment strengthens the regulatory framework for environmental protection in the mining sector, promoting sustainable development by holding mining companies financially responsible for the environmental consequences of their activities. It also reflects a broader commitment to mitigating the long-term ecological risks associated with mining, thereby contributing to the preservation of South Africa's natural resources for future generations.

Further, the *National Environmental Management Laws Amendment Act 2022* introduces integrated environmental authorisation where the Ministers for Environmental Affairs, Water Affairs, Mineral Resources and Members of the Executive Council (MEC) must consult with one another before such authorisations are issued to applicants.¹²¹ Section 4 of the *National Environmental Management Laws Amendment Act, 2022*, amends section 24C of the *NEMA*. Under section 24C(2A), the Minister for Mineral Resources is identified as the competent authority when the listed activity is a mining activity. The Minister for Mineral Resources and the MEC should agree that the application for environmental authorisation concerns mining activities. This helps integrate regional environmental priorities with national mining policies, thereby ensuring comprehensive oversight and better

¹²¹ Adom and Simatele 2022 *NRF* 410.

environmental protection in mining activities, including effective management of issues like AMD.

The *National Environmental Management Laws Amendment Act, 2022* introduced sections 24C(11), (12) and (13) of the *NEMA*. Section 24C(11) of *NEMA* provides that persons who apply for environmental authorisations for activities requiring licenses or permits under environmental laws must simultaneously submit all applications to the competent authorities. Such applications must indicate all the other licenses, authorisations and permits applied for. Section 24C(12) of *NEMA* provides that persons applying for mining activities that also involve activities requiring licenses, permits and authorisation under any specific environmental management Acts, must simultaneously apply for environmental authorisation after accepting the application in terms of the *MPRDA*. This provision promotes better coordination among regulatory bodies, thereby improving the overall management and oversight of environmental impacts. This is particularly beneficial for complex projects like mining, where integrated assessments can more effectively address cumulative environmental issues such as AMD. Suppose the competent or licensing authority under sections 24C(11) and (12) of *NEMA* is the same authority to consider and decide the application for an environmental authorisation under the *NEMA* and the application under a specific environmental management Act. In that case, an integrated decision must be per section 24L.¹²² These provisions address authorisations relating to mining activities, where mines should design measures to address AMD before being issued authorisations, permits, and licenses for the mining activities.

Section 24PA(2) of the *NEMA* provides for consultation between the Ministers for Mineral Resources and Water Affairs to approve an annual draw down of the financial provision to support final decommissioning and closure for a period not exceeding ten years before the final decommissioning and closure. Thus, by authorising consultation between relevant government departments, the provision promotes coordinated decision making and accountability in managing the long-

¹²² Section 24C(13) of the *NEMA*. Emphasis added.

term environmental and socio-economic impacts of mining activities. The financial provision for latent or residual environmental impacts, including the pumping and treatment of extraneous and polluted water, must be transferred to the Minister for Mineral Resources upon issuing a closure certificate. Where such provision is insurance, the Minister for Mineral Resources must access such funds when issuing the closure certificate. Suppose the person fails to mitigate or rehabilitate the negative environmental impacts, the Ministers for Mineral Resources and Water Affairs can notify such a person and use all or part of the financial provision to manage and rehabilitate such environmental impacts.

Section 43(2) of *MPRDA* gives the Minister broad discretion to transfer environmental responsibilities and liabilities to suitably qualified persons. However, it remains unclear who the "suitably qualified persons" are or what the criteria are for identifying them as the Act is silent. These persons may include the State, new mine owners or environmental rehabilitation companies.¹²³ Since environmental liability and responsibility usually revert to the State after issuing closure certificates, the government should issue such certificates only after the mines have addressed all the negative environmental impacts, such as AMD. It is submitted that the transfer of environmental responsibilities and liabilities should consider the polluter-pays principle, so that the government does not foot bills for remedying environmental pollution and degradation while the polluters walk scot-free. This would allow the government to deal effectively with the issue of environmental liability for mines, including the AMD issues.

Section 45 of the *MPRDA* requires mines to take "urgent remedial measures" if the mining activities and prospecting operations result in environmental damage and pollution, which is harmful to the health and well-being of human beings. This section is similar to section 28 of the *NEMA* and section 19 of the *NWA*, as discussed above. If mines do not undertake the "urgent remedial measures", the government may take such measures on their behalf and recover the costs from

¹²³ Center for Environmental Rights *Mineral and Petroleum Development Act 28 of 2002*

such mines.¹²⁴ If the mines fail to compensate the government, the government is empowered to seize and sell their properties to recover the costs.¹²⁵ Section 46 of the *MPRDA* empowers the government to take the necessary measures to prevent environmental pollution and degradation where mines are no longer operational or the owners cannot be tracked. The monies to be used are those from the financial provision and those allocated by Parliament for that purpose. This clearly shows that the government is responsible for responding to AMD issues if the mines cannot do so or no longer exist, and the money comes from the taxpayers.¹²⁶

It is a criminal offence to contravene the provisions of the *MPRDA*.¹²⁷ Criminal liability is a viable alternative to holding mines liable for AMD, as it deters present and future perpetrators.¹²⁸ Criminal liability and measures only punish and deter, they do not rehabilitate, and they largely depend on the government's willingness to prosecute such offenses.

2.8. Mine Water Management Policy

In addition to the constitutional and legislative framework, the *Mine Water Management Policy 2022* aims to "respond to cross-cutting mine water management issues in abandoned and ownerless mines, mines that are currently active, and in proposed mining operations."¹²⁹ This policy is meant to strengthen and implement existing legislation and regulatory instruments and is relevant to addressing AMD issues. This policy is effective in addressing the problem of AMD in South Africa as it provides clear regulatory standards, guidelines, and protocols for mine operators to manage water resources responsibly and minimise pollution risks. The *Mine Water Management Policy* considers five phases in the mining life cycle: prospecting and planning, commissioning, operation, decommissioning and closure,

¹²⁴ Section 45(2)(a) of the *MPRDA*.

¹²⁵ Section 45(2)(c) of the *MPRDA*.

¹²⁶ Lwabukuna "Interrogating and Reviewing Legal and Policy Frameworks Governing Acid Mine Drainage in South Africa" 125; Feris and Kotzé 2014 *PELJ* 2110-2111, 2142.

¹²⁷ Sections 98 and 99 of the *MPRDA* provide for the offences and penalties, respectively.

¹²⁸ Feris and Kotzé 2014 *PELJ* 2143.

¹²⁹ Dept of Water & Sanitation *Mine Water Management Policy 2*.

and post-closure mine water management.¹³⁰ The critical policy principles are discussed below.

(a) Proposed/prospective mines, active mines, and mines under care and maintenance

The policy provides measures for protecting water resources from prospective and operational mining activities that negatively affect water quality. It also advocates for integrated approaches to mining closure. It states that the delegation of powers between different government departments and spheres and the institutional roles and responsibilities should be clarified as they are fragmented, overlapping, or vaguely defined.¹³¹ Mine water management should be handled by the ministries for Mineral Resources, Water Affairs and Environmental Matters. There is a need to develop a mine closure strategy to clarify roles and responsibilities, align national laws, and the *NWA* to remove ambiguity and address mine water directly.¹³²

On apportionment of liabilities, the *Policy* recognises the gaps the *NWA* has concerning “retrospective liability”, provided for under the *NEMA*. The liability for the consequences of mine water drainages, such as AMD from mines during active mining or after mine closure, must be addressed via a comprehensive application of the *NEMA*.¹³³ This means that persons falling within section 19 of the *NWA*, section 28 of the *NEMA*, and sections 38 and 45 of the *MPRDA* can be liable for the negative impacts and damages. The policy principle is that the polluter-pays principle will be applied to mine waters in all its forms, including AMD. The apportionment of liabilities will rely on the *National Mine Closure Strategy* for effective implementation. In cases where the liabilities result from the regulation’s failure, the responsible authority will bear the apportionment.¹³⁴ This principle emphasises accountability based on regulatory frameworks, ensuring that authorities responsible for oversight and enforcement are held accountable for any

¹³⁰ Dept of Water & Sanitation *Mine Water Management Policy* 24.

¹³¹ Dept of Water & Sanitation *Mine Water Management Policy* 25.

¹³² Dept of Water & Sanitation *Mine Water Management Policy* 25–26.

¹³³ Dept of Water & Sanitation *Mine Water Management Policy* 27.

¹³⁴ Dept of Water & Sanitation *Mine Water Management Policy* 28.

shortcomings or lapses that lead to environmental damage or other negative consequences. If regulations are not adequately designed, implemented, or enforced, and this failure results in harm or liability, the authority in charge must address the issue, potentially including financial responsibility for remediation or compensation. This approach is crucial in maintaining trust in regulatory bodies and ensuring that regulations effectively protect public interests and the environment.

The transfer of mines to other companies should only exonerate the selling company from its environmental obligations if the purchasing company can prove financial provisions to address any environmental liabilities associated with the mine it is purchasing.¹³⁵ The application of retrospective liability should be considered. An applicant and 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 treating of polluted or extraneous water (as per the Department for Environmental, Forestry and Fisheries Financial Regulations). The cost of addressing mine water drainages, such as those in the mining industry, should internalise AMD. If this policy principle is implemented later, it can lead to positive results, but that is yet to be seen.

Regarding the reuse of treated mine water, including AMD, the *Policy* states that the “management of mine water should form part of integrated planning of water and wastewater treatment works with a focus on reuse”.¹³⁶ Such treated water should be fed into municipal systems using the best available technology, or should be used by mines, or provided to municipal networks for industrial and agricultural water use and non-essential irrigation purposes such as city parks and golf courses.

(b) Abandoned mines

Measures must be taken to protect water resources from abandoned/derelict and ownerless mines that have negative water quality impacts. These measures include the government’s mine water management, including AMD, at derelict and ownerless mines. The policy principle provides that the government will “institute a

¹³⁵ Dept of Water & Sanitation *Mine Water Management Policy* 28, 31.

¹³⁶ Dept of Water & Sanitation *Mine Water Management Policy* 37.

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".¹³⁷ This government accountability makes the State the final inheritor of the remaining liabilities and mine legacies to be apportioned to the failing responsible authority. The government accountability ensures that mine water, including AMD from abandoned and ownerless sites, is treated to acceptable water quality standards.

(c) Implementation, monitoring and evaluation¹³⁸

It is important to consider the funding approaches, roles, responsibilities, and timeframes needed to achieve the policy objectives. The *NWA* introduces a funding approach for water resource management and is concerned with the pricing of water resources. The Act also introduces the economic instruments, incentives and disincentives to encourage water conservation, efficient use, recycling and treatment of wastewater, including AMD. The relevant government departments that have roles and responsibilities with respect to the implementation of the policy should contribute to sustainable mine water management. These departments include the Department of Water and Sanitation, the National and Provincial Departments of Environment, Forestry and Fisheries Affairs, and the Department of Mineral Resources and Energy. These departments must adopt an integrated approach in performing their respective roles and responsibilities to ensure effective and efficient mine water management and to address AMD issues.

2.9. Conclusion

The above legal framework for addressing the negative environmental impacts of mining activities, including the impacts on water resources, is relatively well established, and the framework is in a good position to address AMD issues. The framework has generous criminal liability provisions, especially in the *NEMA*, the *NWA*, the *NEM:WA*, the *MPRDA*, and in the recent amendments found in the *National Environmental Management Amendment Act 2022*. The provisions also

¹³⁷ Dept of Water & Sanitation *Mine Water Management Policy* 38.

¹³⁸ See the Dept of Water & Sanitation *Mine Water Management Policy* 42–46.

provide for liability for historic environmental pollution, which is essential in the AMD context. The framework imposes criminal liability, including holding directors of mines liable in their personal capacities, and has financial provisions that make monies available to remedy the effects of environmental pollution from AMD.

CHAPTER 3: MEASURES AND MECHANISM TO FOSTER STAKEHOLDER ENGAGEMENT IN ACID MINE DRAINAGE REGULATION

3.1. Introduction

It is crucial for everyone who is affected by environmental decisions to have a voice and to participate in the decision-making process.¹³⁹ Public participation is essential to hold the government accountable for resolving AMD-related issues. Although laws that ensure stakeholder participation with respect to AMD concerns have been passed, this chapter examines and evaluates the roles, rights, and duties of different stakeholders (government, business, and communities) in relation to AMD regulations. The chapter assesses the platforms, procedures, and legal frameworks that allow for stakeholder engagement. It also identifies and examines the difficulties and barriers that prevent stakeholders from effectively participating in AMD regulation.

3.2. The Meaning of Stakeholder Participation

In order to promote fairness and accomplish the sustainable development goals, the government, legal experts, employees, and industry leaders should collaborate to encourage stakeholder involvement.¹⁴⁰ The achievement of sustainable development goals can be facilitated by making sure that the government and mining companies listen to community concerns. Additionally, participation from the general public fosters environmental democracy.¹⁴¹ An environmental democracy is a system in which decision makers that affect the environment answer to the people.¹⁴² It holds that not just the government and business sector but all those affected by the outcomes of environmental activities should solve environmental challenges. As a result, it is critical that they take part in environmental decision making.¹⁴³

¹³⁹ King and Reddel 2015 *PELJ* 947.

¹⁴⁰ Sisilana 2019 <https://etd.uwc.ac.za>.

¹⁴¹ Sisilana 2019 <https://etd.uwc.ac.za>.

¹⁴² Sisilana 2019 <https://etd.uwc.ac.za>.

¹⁴³ Sisilana 2019 <https://etd.uwc.ac.za>.

3.3. The Roles, Rights and Responsibilities of Different Stakeholders in the Context of Acid Mine Drainage Regulations

3.3.1. *The Role of the Mining Companies*

Due to the profits mining companies generate and the jobs they create, both communities and mining corporations often overlook the immediate attention AMD requires.¹⁴⁴ Mining companies ought to have policies in place to address the pollution that comes with their operations. Kengni claims that certain mining companies, like Kropz Mining, have procedures in place from the beginning that aims to reduce water pollution from their operations.¹⁴⁵ This is a significant step, and other mining companies must follow them as most communities are of the view that their views and plight is ignored by mining companies when addressing AMD issues.¹⁴⁶

Over the years, mining companies have absolved themselves of accountability for the environmental damage and water contamination caused by mining activities.¹⁴⁷ In the matter of *Minister of Water Affairs and Forestry v Stilfontein Gold Mining Company Ltd*¹⁴⁸ (hereafter *Stilfontein*), the Department of Water Affairs, as it was then called, instituted an action against the gold mines to take anti-pollution measures and to comply with directives issued by the department. If the mining corporations had not stopped pumping water out of the holes, precious water supplies would have been contaminated.¹⁴⁹ The mining company justified its

¹⁴⁴ Kaggwa *AMD and the mining sector's contribution to the South African Economy* 80.

¹⁴⁵ Kengni *Strengthening decision-making process to promote water sustainability in the South African Mining context: The role of good environmental governance and the law* 21.

¹⁴⁶ Kengni *2024 Arbitration of water disputes in the African mining sector* 5.

¹⁴⁷ Kengni *Strengthening decision-making process to promote water sustainability in the South African Mining context: The role of good environmental governance and the law* 21.

¹⁴⁸ *Minister of Water Affairs and Forestry v Stilfontein Gold Mining Company Ltd* 2006 5 SA 333 (W) para 12.

¹⁴⁹ *Minister of Water Affairs and Forestry v Stilfontein Gold Mining Company Ltd* 2006 5 SA 333 (W) para 12.

conduct, claiming it couldn't afford to follow the order made by the court. The company's directors all resigned from their positions.¹⁵⁰

Given that the mining corporation had the financial means to do so, the court ordered that they were financially able to comply with the order.¹⁵¹ In *Harmony Gold Mining Co Ltd v Regional Director, Free State Department of Water Affairs and Others*¹⁵² the Department of Water Affairs issued a directive to Harmony Gold to take anti-pollution measures to rectify the pollution caused by gold mining activities resulting in ground and surface water contamination.¹⁵³

Harmony sold the mine; therefore, it was no longer involved in mining after the directive was given. Harmony said that the transaction rendered the directive obsolete.¹⁵⁴ However, the polluter-pays principle states that a polluter must pay for the cost of preventing, controlling, minimising, and remedying pollution. The court claimed that it would result in "absurdity that a polluter would walk away from pollution caused by it with impunity."¹⁵⁵ Harmony filed an appeal, but it was dismissed by the court, holding that the Minister is authorised to order anyone responsible for pollution to take the required steps to control it.¹⁵⁶ The court clarified that when a landowner ceases to be the owner, their obligation to manage pollution does not end.¹⁵⁷

Mining corporations make every effort to avoid being held accountable for AMD-related pollution. In some cases mining operations cease and mines are left

¹⁵⁰ *Minister of Water Affairs and Forestry v Stilfontein Gold Mining Company Ltd* 2006 5 SA 333 (W) para 15.

¹⁵¹ *Minister of Water Affairs and Forestry v Stilfontein Gold Mining Company Ltd* 2006 5 SA 333 (W) para 15.

¹⁵² *Harmony Gold Mining Co Ltd v Regional Director, Free State Department of Water Affairs and Others* 2014 3 SCA 149 para 206.

¹⁵³ *Harmony Gold Mining Co Ltd v Regional Director, Free State Department of Water Affairs and Others* 2014 3 SCA 14 para 9.

¹⁵⁴ *Harmony Gold Mining Co Ltd v Regional Director, Free State Department of Water Affairs and Others* 2014 3 SCA 14 para 1.

¹⁵⁵ *Harmony Gold Mining Co Ltd v Regional Director, Free State Department of Water Affairs and Others* 2014 3 SCA 14 para 25.

¹⁵⁶ *Harmony Gold Mining Co Ltd v Regional Director, Free State Department of Water Affairs and Others* 2014 3 SCA 14 para 26.

¹⁵⁷ *Harmony Gold Mining Co Ltd v Regional Director, Free State Department of Water Affairs and Others* 2014 3 SCA 14 para 24.

abandoned.¹⁵⁸ Although laws and regulations have been put in place to guarantee appropriate rehabilitation, there are still a significant number of unowned abandoned mines, and the State must control the pollution that contaminates surface and shallow groundwater resources that are vital for human consumption and agriculture.¹⁵⁹ The government would never be able to find former owners and hold them accountable. For the liability system to be effective, the addressees have to be real and recognisable.¹⁶⁰

3.3.2. *The Role of the Community*

Communities are regarded as key stakeholders in the mining sector.¹⁶¹ The public must become involved in matters that affect them, and there must be established channels for participation if they are to fully realise democracy and the rights the *Constitution* guarantees.¹⁶² In order for the community to voice its preferences or opinions, it should have a say in decision making and policy formulation.¹⁶³ The community members should actively organise themselves and create community forums to solve issues that affect them. Most of the time, affected populations are not consulted when making decisions. However, if community forums are established, the community can interact with the mine.¹⁶⁴

As per Kengni's analysis, communities can exercise their stakeholder role by alerting mining corporations and the government about potential water pollution and its actual occurrence.¹⁶⁵ Most of the time, the communities lack the expertise necessary to tell the government or mining companies about pollution in a timely

¹⁵⁸ Feris and Kotzé 2014 *PELJ* 2110.

¹⁵⁹ AMD Report iv.

¹⁶⁰ Feris and Kotzé 2014 *PELJ* 2111.

¹⁶¹ Kengni "*Strengthening decision-making process to promote water sustainability in the South African Mining context: The role of good environmental governance and the law*" 23.

¹⁶² Boakye and Boakye 2012 *JSD* 104.

¹⁶³ Adom and Simatele 2022 *NFR* 410.

¹⁶⁴ Boakye and Boakye 2012 *JSD* 104.

¹⁶⁵ Kengni "*Strengthening decision-making process to promote water sustainability in the South African Mining context: The role of good environmental governance and the law*" 23

manner.¹⁶⁶ Although laws govern AMD matters, the general public believes that political involvement in AMD matters is necessary.¹⁶⁷ Government assistance for civil society organisations is lacking. It also takes political will to address the problems associated with water pollution. The government must confront mining companies to offer assistance and back civil society's efforts to address AMD issues. Nonetheless, the government has been reluctant to take the mining companies to task.

3.3.3. *The Role of Government*

The government's responsibility is to carry out and uphold the legislation now in place to safeguard water resources in the mining industry.¹⁶⁸ In order to ensure the protection of water resources in the mining sector, the government has to ensure that there is implementation and enforcement of these existing laws.¹⁶⁹ Community members are affected by government decisions as well, particularly when it comes to the preservation of water supplies. In cases where the communities in question stand to be affected by its actions, it is imperative that relevant stakeholders are involved. The government should be accountable and transparent and involve stakeholders in its operations to take their opinions into account.¹⁷⁰

The government ought to make water sustainability a priority in its environmental governance initiatives. Planning for both water protection and the avoidance or mitigation of water pollution can help achieve this.¹⁷¹ The government must make

¹⁶⁶ Kengni *Strengthening decision-making process to promote water sustainability in the South African Mining context: The role of good environmental governance and the law* 23.

¹⁶⁷ C Mpofu *et al Water Policy* 80.

¹⁶⁸ Kengni *Strengthening decision-making process to promote water sustainability in the South African Mining context: The role of good environmental governance and the law* 22.

¹⁶⁹ Naidoo *Acid mine Drainage in South Africa: Development Actors, Policy Impacts, and Broader Implications* 79.

¹⁷⁰ Kengni *Strengthening decision-making process to promote water sustainability in the South African Mining context: The role of good environmental governance and the law* 85.

¹⁷¹ Kengni *Strengthening decision-making process to promote water sustainability in the South African Mining context: The role of good environmental governance and the law* 87.

sure that administrative duties are carried out in a way that satisfies community demands.¹⁷²

3.4. The Mechanisms and Platforms Available for Stakeholder Engagement within the Legal Framework

3.4.1. The National Environmental Management Act

The *NEMA* provides the fundamental structure for integrated environmental management in South Africa. The ministers of environmental affairs, mineral resources, and sanitation came to an agreement in 2013 to establish a more integrated environmental regulating mechanism known as the "One Environmental System."¹⁷³

The *NEMA* also serves as the foundational structure for the competent authority to evaluate applications for environmental authorisation.¹⁷⁴ Before any of the operations specified in the Listing Notices published under the *NEMA* can start, environmental authorisation is necessary. The *NEMA*'s section 2 lays out the principles of environmental management. Section 2 (4) (f) of the *NEMA* outlines the requirements for the effective and equitable participation of interested and affected parties and stipulates that:

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

Furthermore, the *NEMA* requires that the needs, values, and interests of all interested and affected parties be taken into account. Recognising all forms of information, including common and customary knowledge, is part of this.¹⁷⁵ Additionally, decisions must be made in an open and transparent manner and

¹⁷² Kengni *Strengthening decision-making process to promote water sustainability in the South African Mining context: The role of good environmental governance and the law* 87.

¹⁷³ King and Reddel 2015 *PELJ* 950.

¹⁷⁴ King and Reddel 2015 *PELJ* 950.

¹⁷⁵ Section (2)(4)(g) of the *NEMA*.

access to information must be granted in accordance with the law.¹⁷⁶ Women's and young people's participation in environmental development and management must also be encouraged.¹⁷⁷

An environmental authorisation application must be submitted in accordance with the *NEMA* before commencement of any activity that is included in the Environmental Impact Assessment (EIA) Regulations Listing Notice.¹⁷⁸ The EIA Regulations deal with the steps that must be taken to guarantee public involvement in the application process for environmental authorisation, which includes applications for mining and prospecting activities.

Interested and affected parties must be given a reasonable opportunity to participate in terms of the *NEMA*.¹⁷⁹ Communities affected by mining are included in the definition of interested and affected parties.¹⁸⁰ The IPAP2 Spectrum for Public Participation provides an overarching objective for public participation. The goal of public involvement is to guarantee that all pertinent information is accessible to interested and affected parties so they may provide feedback.¹⁸¹

Regulation 4 outlines the procedures for parties who are interested in or affected by the decision of the competent body to grant an environmental authorisation to challenge it.¹⁸²

The aforementioned legislative provisions under the *NEMA* also make it easier to enforce rehabilitation after mining operations have ceased and before a mine closure permit is granted.¹⁸³

3.4.2. *The Mineral and Petroleum Resources Development Act*

¹⁷⁶ Section (2)(4)(k) of the *NEMA*.

¹⁷⁷ Section (2)(4)(q) of the *NEMA*.

¹⁷⁸ Section (24) of the *NEMA* and EIA Regulations Listing Notices 1-3.

¹⁷⁹ Section 1 of the *NEMA*.

¹⁸⁰ Pape "A critical analysis of the evolution of public participation in environmental decision-making in the South African Mining sector" 13.

¹⁸¹ Pape A critical analysis of the evolution of public participation in environmental decision-making in the South African Mining sector 14.

¹⁸² Pape A critical analysis of the evolution of public participation in environmental decision-making in the South African Mining sector 14.

¹⁸³ Moeng 2019 *Environment, Development and Sustainability* 2619.

It is up to the competent authority to decide whether or not to issue a mineral right. Environmental authorisation is required in addition to an application for prospecting or mining rights.¹⁸⁴ Applicants for mineral rights are required to consult "in the prescribed manner" with interested and affected parties, landowners, and authorised occupiers.

The participation process in terms of the amended *MPRDA* regulations is now aligned with the *NEMA* public participation process.¹⁸⁵ According to Pape, the degree of consultation offered by the EIA Regulations is sufficient for the purposes of the *MPRDA* and *MPRDA* Regulations, and there should be meaningful consultation with interested and affected parties.¹⁸⁶ This approach means that environmental justice in a substantive sense, is undermined. Meaningful environmental justice is then also undermined.

Mining-affected communities are not required to consent to proposed prospecting or mining developments. The court in *Baleni and Others v Regional Manager: Eastern Cape Department of Mineral Resources and Others* acknowledged the need to achieve environmental justice in a procedural sense, recognising affected communities of mining as deserving and valid participants in mining decision making.¹⁸⁷ In addition to the *NEMA*-linked public involvement process provisions, section 10 of the *MPRDA* stipulates consultation requirements.¹⁸⁸

The majority of the *MPRDA* and *MPRDA* Regulations' public participation measures do not go beyond the EIA Regulations' duty to consult before awarding a mining right. As a result, its ability to significantly improve environmental justice is

¹⁸⁴ Sections 16 (1) and 22 (1) of the *MPRDA*.

¹⁸⁵ *MPRDA* Regulations 3A(1).

¹⁸⁶ Pape *A critical analysis of the evolution of public participation in environmental decision-making in the South African Mining sector* 20.

¹⁸⁷ *Baleni and Others v Regional Manager: Eastern Cape Department of Mineral Resources and Others* 2020 4 All SA 374 para 89.

¹⁸⁸ See Section 10 Read with Regulation 3 of the amended *MPRDA* Regulations.

limited.¹⁸⁹ Mining activities affect the vulnerable and poor in the community; more has to be done to boost involvement.¹⁹⁰

3.4.3. *The National Water Act*

The *NWA* was enacted to guarantee that water resources are protected, used, developed, conserved, managed, and controlled to meet the basic needs of both current and future generations.¹⁹¹ According to Pape, the aims of the *NWA* align with environmental justice in the substantive sense of the equitable distribution of water.¹⁹²

The *NWA* and *Water Use Licence Application and Appeals Regulations 2017* deal with public participation in water use licence applications (*WULAs Regulations*).¹⁹³ When abstracting groundwater on the property of another, one has to obtain prior consent from the owner or “if there is good reason to do so”.¹⁹⁴ Before amending or substituting a water use licence, the responsible authority may also require a licence to obtain written consent from any affected person.¹⁹⁵ According to the *WULA Regulations*, landowners whose property will be used for water use must give their written consent before submitting a *WULA*.¹⁹⁶ Consent in terms of the *NWA* requirement must be understood against the background of the public participation requirements prescribed in the *NWA*.¹⁹⁷ Therefore, consent is just one of the many factors that should be taken into account before a *WULA* is approved or denied. The consent procedures required by the *NWA* differ from those under

¹⁸⁹ Pape *A critical analysis of the evolution of public participation in environmental decision-making in the South African Mining sector* 22.

¹⁹⁰ Centre for Environmental Rights 2016 *ZERO HOUR Poor Governance of Mining and Violation of Environmental Rights in Mpumalanga* 74.

¹⁹¹ Section 2(a) - (c) of the *NWA*.

¹⁹² Pape *A critical analysis of the evolution of public participation in environmental decision-making in the South African Mining sector* 23.

¹⁹³ Section 41 of the *NWA* read with Regulations on use of water for mining and related activities aimed at the protection of water resources GN 704 published in GG 20199 of 4 June 1999.

¹⁹⁴ Section 24 of the *NWA*.

¹⁹⁵ Section 50(2)(a) of the *NWA*.

¹⁹⁶ *WULA Regulations* Appendix C and D.

¹⁹⁷ *Endangered Wildlife Trust and Others v Director-General, Department of Water and Sanitation and Another* [2019] ZAWT 3 para 163.5.

Interim Protection of Informal Land Rights Act 31 of 1997 (IPILRA) for land uses like mining.¹⁹⁸

Similar to the *MPRDA*, the consent granted under the *NWA* is restricted to the ability to provide feedback and be consulted on a planned *WULA*. This indicates that the *NWA* pursues procedurally limited environmental justice rather than substantive environmental justice. With the *MPRDA* consent afforded in terms of the *NWA*, there is a limited right to be consulted and to comment on a proposed *WULA*.

3.5. Challenges and Impediments Hindering Effective Participation of Stakeholders in AMD Regulations

The legal framework has demonstrated that AMD is a complex, multi-dimensional issue with widespread effects, making it challenging for governance and legal systems to effectively address and manage. The majority of the community members, particularly those from disadvantaged backgrounds, lack the technical knowledge necessary to understand the AMD, so in order for them to comprehend and meaningfully contribute, participants' skills and capacities must be developed.¹⁹⁹ As a result of a lack of knowledge, communities may face increased health hazards due to exposure to untreated or poorly managed AMD. Furthermore, without adequate understanding, stakeholders may be less likely to engage in or support the necessary interventions and policies.

Corruption has been identified as one of the challenges in EIA.²⁰⁰ In an EIA process, conflicts of interest and improper interference from public and private parties are common. In most countries, mining companies hire outside experts to perform EIAs, which gives rise to conflicts of interest. In order to speed up the EIA process, top officials regularly accept bribes.²⁰¹ Due to their conflict of interest, the consultants

¹⁹⁸ *Endangered Wildlife Trust and Others v Director-General, Department of Water and Sanitation and Another* [2019] ZAWT 3 para 163.6 and 163.5.

¹⁹⁹ Akpor and Boakye 2012 *JSD* 104.

²⁰⁰ Maphanga *et al* 2022 *SAGJ* 10.

²⁰¹ Maphanga *et al* 2022 *SAGJ* 10.

are also biased, even in cases where some community members are better suited to organise and communicate their concerns.²⁰²

Although the government recognises the value of public involvement in a democracy, there are also perceived obstacles to government participation.²⁰³ One of the challenges facing the government is the expenses associated with scheduling meetings to discuss AMD issues. The engagement process, the lack of qualified and committed personnel, and the logistical costs associated with meeting locations and support materials cannot be sustained with the current level of funding. The government often believes that most community members will not attend the meetings, so there will not be enough communication with the community as a result.²⁰⁴

The government is putting too little effort into encouraging public promotion.²⁰⁵ Another problem is that there is not enough planning.²⁰⁶ The community must be informed about the issues at hand and given guidance on where and how to engage in order for them to be interested in the planning process. Participants should be given information in a format that they can understand. It is important to format the language and style so that attendees can understand the content. Jargon and other foreign terms should be explained so that the participants understand the language being used. Members of the community will also be better able to contribute because they will have fast access to correct information.²⁰⁷ It is critical that information be shared both ways between the community and the agencies. Information should be clear to enable the community to influence decisions that affect them.²⁰⁸ All South African people, especially those at the

²⁰² Adom and Simatele 2022 *NFR* 424.

²⁰³ Adom and Simatele 2022 *NFR* 424.

²⁰⁴ Adom and Simatele 2022 *NFR* 424.

²⁰⁵ Adom and Simatele 2022 *NFR* 424.

²⁰⁶ Maphanga *et al* 2022 *SAGJ* 10.

²⁰⁷ Boakye and Akpor 2012 *JSD* 108.

²⁰⁸ Boakye and Akpor 2012 *JSD* 106.

grassroots level, must be included in and given a voice in decision-making processes in a participatory democracy.²⁰⁹

Aside from studies on the subject and the effects of AMD on public health and well-being, stakeholders continue to query the government about its actions with respect to AMD. Where AMD pollution is caused by abandoned mines, it may be a challenge for the government to effectively address it due to limited resources. There has to be a determination on whether the government alone should be held accountable or whether the responsibility should be shared with companies as they previously benefited from the profits derived from mining activities. Answering this question depends on whether the mining company can be located and held accountable for AMD pollution. The government has passed laws and developed policies to address the legacy of the liability of mines.

The government has taken measures to ensure mining companies are accountable for environmental restoration. However, mining companies have rejected and ignored these initiatives.²¹⁰ The government is now responsible for ensuring that the effect of previous actions on local mining communities and the environment is minimised, given its duty of care. Rehabilitating and remediating water contamination, including historical pollution, is now the responsibility of polluters and users. The polluter-pays approach has been used to enforce this, but dealing with AMD liabilities, especially historical ones, has proven challenging. As illustrated in the case of *Harmony Gold*, mining companies try by all means to avoid being held responsible for AMD liability.

3.6. Conclusion

In conclusion, this chapter underscores the vital role of laws in safeguarding environmental rights. It highlights the importance of public involvement, as emphasised by existing literature and legal frameworks. The EIA process, as a pre-decision evaluation tool, is essential in this context. Public participation throughout the EIA process is critical, as it addresses the concerns of agencies, local

²⁰⁹ Khan 2012 *SAGJ* 73.

²¹⁰ Lwabukuna O 124.

communities, stakeholders, and affected organisations. Additionally, incorporating traditional knowledge, often overlooked by conventional approaches, enhances the effectiveness of these processes. To maximise the benefits of stakeholder engagement, it is crucial to equip citizens with skills such as problem solving, creative thinking, and active listening. Furthermore, enhancing accountability and transparency within government institutions will ensure that public participation fosters genuine openness and improves decision making.

CHAPTER 4: STRATEGIES FOR ENHANCING STAKEHOLDERS' PARTICIPATION AND COLLABORATION WITH ACID MINE DRAINAGE IN SOUTH AFRICA

4.1. Introduction

AMD creates environmental challenges in the community and contaminates rivers, streams and groundwater resources, posing severe ecological, social and economic risks. Addressing the environmental, social and economic challenges caused by AMD requires coordinated strategies from the government, mines, and local communities. There are various strategies for enhancing stakeholders' participation and collaboration in AMD in South Africa. The strategies include effective communication strategies and channels, engagement techniques, collaboration frameworks, technology and tools, organisational culture and leadership and measuring and evaluating participation. This chapter explores strategies for enhancing stakeholder participation and collaboration in AMD regulations in South Africa.

4.2. Communication Strategies to Improve AMD Challenges in South Africa

Good communication is essential to environmental management for a number of reasons. First, it makes stakeholders such as nearby communities, governmental organisations, and mining companies more aware of the gravity and ramifications of environmental problems like AMD. Secondly, it promotes cooperation and consensus, both of which are necessary for well-thought-out and long-lasting solutions.²¹¹ Third, communication ensures that all parties are informed and able to make significant contributions to mitigation efforts by helping to spread scientific knowledge and best practices.²¹²

²¹¹ Masindi *et al* 2022 *Ecological Engineering* 15.

²¹² Reed 2008 *Biological Conversation* 2423.

Regarding communication, Goodman and Sanders Thompson discussed the importance of stakeholder participation.²¹³ Their research indicates that inclusive communication strategies that involve all relevant stakeholders lead to more effective and sustainable outcomes.²¹⁴ In South Africa, the involvement of local communities, who are often the most affected by AMD, is essential. Effective engagement requires transparent communication, regular updates, and opportunities for stakeholders to voice their concerns and suggestions.

According to Bellucci *et al*, the choice of communication channels and tools significantly influences the effectiveness of stakeholder engagement.²¹⁵ Traditional methods such as public meetings, workshops, and printed materials remain important, especially in areas with limited internet access. However, digital tools and platforms are increasingly being used to reach a broader audience and to facilitate real-time communication. Social media, online forums, and mobile applications can enhance information dissemination and stakeholder interaction.²¹⁶

Several case studies in South Africa highlight the importance of tailored communication strategies in addressing AMD in South Africa.²¹⁷ For instance, the Western Basin AMD project employed a multi-faceted communication approach, combining public meetings, newsletters, and a dedicated website to keep stakeholders informed and involved.²¹⁸ This approach helped to build trust and foster a collaborative environment, which was crucial for the project's success.

Another example is the eMalahleni Water Reclamation Plant, where communication strategies focused on transparency and inclusivity.²¹⁹ The project team conducted regular community meetings and used local media to disseminate information

²¹³ Goodman *et al* 2017 *J Community Psychol* 486

²¹⁴ Goodman *et al* 2017 *J Community Psychol* 486.

²¹⁵ Belluci *et al* 2019 *AAAJ* 13.

²¹⁶ Belluci *et al* 2019 *AAAJ* 13.

²¹⁷ Hobbs and Cobbing 2017 *A Hydrogeological Assessment of Acid Mine Drainage in the West Rand Basin, Gauteng Province* 4.

²¹⁸ Hobbs and Cobbing 2017 *A Hydrogeological Assessment of Acid Mine Drainage in the West Rand Basin, Gauteng Province* 4.

²¹⁹ Hobbs and Cobbing 2017 *A Hydrogeological Assessment of Acid Mine Drainage in the West Rand Basin, Gauteng Province* 4.

about the project's progress and challenges.²²⁰ This proactive communication helped manage community expectations and secure public support.²²¹

However, despite the benefits of effective communication, several challenges persist. Language barriers, literacy levels, and technological access can hinder effective communication, particularly in remote and underprivileged communities. Additionally, mistrust between stakeholders, often due to past negative experiences with mining companies, can impede open and constructive dialogue.

Several recommendations can be made to enhance communication to address AMD in South Africa. First, employing a mix of communication channels can ensure broader reach and inclusivity. Second, building capacity within local communities through education and training can empower stakeholders to engage more effectively. Third, fostering partnerships between government agencies, mining companies, and non-governmental organisations can create a more cohesive and collaborative approach to communication.

4.3. Engagement Technique as a Strategy to Improve the Challenge of Acid Mine Drainage in South Africa

Stakeholder engagement is essential for successful environmental management. It ensures that all relevant parties are involved in the decision-making process, promoting transparency, trust, and collaboration.²²² In the context of AMD, engaging stakeholders helps to identify shared goals, distribute responsibilities, and leverage diverse expertise and resources. The engagement can be done through community-based participatory research (CBPR), which is an approach that actively involves community members in the research process. This technique has been effective in environmental management, including AMD mitigation, as it empowers

²²⁰ Hobbs and Cobbing 2017 *A Hydrogeological Assessment of Acid Mine Drainage in the West Rand Basin, Gauteng Province* 4.

²²¹ Hobbs and Cobbing 2017 *A Hydrogeological Assessment of Acid Mine Drainage in the West Rand Basin, Gauteng Province* 4.

²²² Goodman and Sanders Thompson 2017 *Translational Behavioral Medicine* 23.

local communities and ensures that their knowledge and needs are integrated into the solutions²²³.

CBPR tends to lay the groundwork for further organisation as the training and education of community members lead to mobilisation in hearings.²²⁴ Further, public meetings and workshops are traditional yet effective engagement techniques for addressing environmental issues like AMD.²²⁵ These forums provide opportunities for stakeholders to share information, discuss concerns, and collaboratively develop solutions.²²⁶ In South Africa, public meetings have been used to engage communities living near mining sites, allowing them to voice their experiences and participate in decision-making processes.²²⁷ Workshops also serve as educational platforms, raising awareness about AMD and its impacts.²²⁸

Collaborative decision making is another engagement strategy. It involves multiple stakeholders working together to reach a consensus on actions and policies. This technique is particularly relevant for complex issues like AMD, where diverse perspectives and expertise are needed. Research shows that collaborative approaches can lead to more innovative and accepted solutions²²⁹. In South Africa, collaborative decision making was used in the management of the Witwatersrand Basin, where stakeholders from government, industry, and civil society jointly developed strategies to mitigate AMD.

Participatory mapping is another engagement strategy that engages stakeholders in creating maps that reflect their perceptions and knowledge of environmental issues. This method is useful for identifying AMD-affected areas, understanding community priorities, and planning mitigation efforts.²³⁰ In South Africa, participatory mapping

²²³ Masindi *et al* 2022 *Ecological Engineering* 12.

²²⁴ Santos *Environmental Justice Organising and the Policy Making Process in South Los Angeles* 17

²²⁵ Reed 2008 *Biological Conservation* 2421

²²⁶ Gray and Stites 2012 *Network for Business Sustainability* 64

²²⁷ Mohlala *Mining-led Development and Local Politics of Youth Participation in the Mokopane Traditional Authority Area in Limpopo Province, South Africa* 63

²²⁸ McCarthy 2011 *SA Afri J Sci* 1

²²⁹ Mutanga and Vengesayi 2019 *EDJ* 106.

²³⁰ Corbett and Rambaldi 2009 *Representing our Reality: Geographic Information Technologies, Local Knowledge and Change* 11.

has been used to document the spatial extent of AMD and its effects on local water sources, providing valuable data for targeted interventions.

Most importantly, the use of social media and digital platforms for stakeholder engagement has grown significantly. These tools facilitate real-time communication, information sharing, and mobilisation of support.²³¹ In South Africa, social media campaigns have been used to raise awareness about AMD and engage a broader audience, including the younger generations who are active on these platforms. Digital platforms also enable remote participation, ensuring that stakeholders who cannot attend physical meetings are still involved.

Numerous case studies demonstrate how well engagement strategies work to manage AMD. To involve stakeholders throughout the project lifecycle, the eMalahleni Water Reclamation Project, for example, used a combination of public meetings, workshops, and internet platforms.²³² This comprehensive engagement strategy was instrumental in building trust, securing community support, and ensuring the project's success. Another example is the Blesbokspruit Wetland Project, where participatory mapping and collaborative decision making were used to address AMD impacts on local ecosystems. These techniques facilitated the integration of scientific and local knowledge, resulting in effective and sustainable management practices.²³³ However, despite the benefits, several challenges with effective stakeholder engagement in AMD management persist. These include language barriers, varying levels of literacy, and limited access to digital technologies in some communities.²³⁴

4.4. Measuring and Evaluating Participation as a Strategy to Improve the Challenge of Acid Mine Drainage in South Africa

Measuring and evaluating participation helps to ensure that engagement processes are effective, inclusive, and result in meaningful outcomes. It allows stakeholders to

²³¹ Lovejoy and Saxton 2012 *Public Relations Review* 338.

²³² McCarthy 2011 *SAJS* 5.

²³³ Naidoo 2020 *Social Constructions of Water Quality in South Africa: A Case Study of the Blesbokspruit River in the Context of Acid Mine Drainage Treatment*.

²³⁴ Mutanga and Vengesayi 2019 *EDJ* 107.

assess the impact of their involvement, identify areas for improvement, and enhance accountability and transparency.²³⁵ In the context of AMD, effective evaluation can lead to better environmental outcomes by ensuring that all relevant voices are heard and that collaborative efforts are aligned with the needs and priorities of affected communities.

It would be prudent to develop indicators to measure participation for systematic evaluation. Indicators can be quantitative, such as the number of meetings held or the number of stakeholders involved, and qualitative, such as stakeholder satisfaction and the quality of interactions.²³⁶ In the context of AMD in South Africa, relevant indicators might include:

1. Inclusivity: The diversity of stakeholders involved in AMD mitigation efforts.
2. Transparency: The availability and accessibility of information about AMD issues and solutions.
3. Influence: The extent to which stakeholder input is reflected in decision making and policy changes.
4. Satisfaction: Stakeholder perceptions of the engagement process and its outcomes.

Several case studies highlight the application of participation measurement and evaluation in AMD management. One example is the eMalahleni Water Reclamation Project, which involved regular monitoring and evaluation of stakeholder engagement activities. By using surveys and feedback mechanisms, project leaders were able to assess community satisfaction and identify areas for improvement.²³⁷

Another case study is the collaborative efforts in the Witwatersrand Basin, where a multi-stakeholder forum was established to address AMD issues. Evaluation of this forum included measuring the frequency and quality of stakeholder interactions,

²³⁵ Munir and Furinto 2022 *Journal of Positive School Psychology*.

²³⁶ Bellucci *et al* 2019 *Stakeholder engagement and dialogic accounting: empirical evidence in sustainability reporting* 14.

²³⁷ Sergieko 2019 *The eMalahleni water reclamation plant in South Africa* 3

the inclusivity of the forum, and the impact of stakeholder recommendations on policy decisions.

4.4.1. *Tools and Methods for Evaluation*

Various tools and methods can be used to measure and evaluate stakeholder participation. Surveys and questionnaires are commonly used to gather feedback from participants, providing insights into their experiences and satisfaction levels.²³⁸ Focus groups and interviews can offer a more in-depth understanding of stakeholder perspectives and the effectiveness of engagement processes.

Participatory evaluation methods, where stakeholders themselves are involved in the evaluation process, can also be effective. This approach ensures that the evaluation is contextually relevant and that stakeholders have a sense of ownership of the outcomes.²³⁹ However, despite the benefits of measuring and evaluating participation, several challenges persist. These include limited resources and capacity for conducting evaluations, potential biases in self-reported data, and difficulties in capturing the full complexity of participation processes. In a nutshell, measuring and evaluating participation is essential for improving the management of AMD in South Africa. By systematically assessing the effectiveness of engagement processes, stakeholders can ensure that their efforts are inclusive, transparent, and impactful. Future initiatives should focus on developing robust evaluation frameworks, using a mix of methods, and involving stakeholders in the evaluation process to enhance the overall effectiveness of AMD mitigation strategies.

4.5. Legal and Ethical Considerations as Strategies to Improve the Challenge of AMD in South Africa

Addressing AMD effectively requires not only technical and scientific solutions but also robust legal and ethical frameworks. This literature review explores the legal

²³⁸ Arnstein 1969 *AIP Journal* 219.

²³⁹ Estrella and Gaventa 1998 *Who counts reality? Participatory monitoring and evaluation: A literature review* 34.

and ethical considerations essential for managing AMD in South Africa, examining existing regulations, ethics principles, and their implications for stakeholder engagement and environmental justice.

South Africa has established a comprehensive legal framework to regulate mining activities and address environmental impacts, including AMD. Key legislation includes the *NEMA*, *MPRDA* and the *NWA*. These laws provide guidelines for environmental protection, water resource management, and the rehabilitation of mining sites.

Under *NEMA*, mining companies are required to conduct EIAs and develop environmental management plans (EMPs) to mitigate negative impacts. The *MPRDA* mandates the rehabilitation of mine sites and stipulates that mining companies must set aside financial provisions for this purpose. The *NWA* further regulates the discharge of polluted water, including AMD, into water resources, ensuring the protection of water quality for human and ecological health.

Despite the robust legal framework, enforcement and compliance remain significant challenges. Studies indicate that many mining companies fail to fully comply with environmental regulations, resulting in continued AMD pollution. Regulatory agencies often lack the resources and capacity to monitor and enforce compliance effectively. Strengthening enforcement mechanisms, increasing transparency, and enhancing the capacity of regulatory bodies are critical for improving AMD management.

More so, ethics considerations play a crucial role in addressing AMD, particularly in ensuring environmental justice and the equitable distribution of benefits and burdens among stakeholders. Ethics principles such as the precautionary principle, intergenerational equity, and the right to a healthy environment are essential in guiding AMD management strategies.

The precautionary principle advocates for proactive measures to prevent environmental harm, even in the absence of complete scientific certainty. This principle is particularly relevant for AMD, where long-term consequences may not

be fully understood. Intergenerational equity emphasises the responsibility to protect the environment for future generations, ensuring that current mining activities do not compromise the ability of future generations to meet their needs.

In respect of ethics, ensuring the rights of communities affected by AMD is a critical ethical consideration. These communities often bear the brunt of environmental degradation and health risks associated with AMD. Legal frameworks must uphold their rights to participation, information, and a healthy environment.

Effective stakeholder engagement, as mandated by *NEMA*, requires mining companies and regulatory agencies to actively involve affected communities in decision-making processes to ensure that their voices are heard and their concerns addressed. More so, corporate social responsibility (CSR) is an ethical framework that holds companies accountable for their environmental and social impacts. In the context of AMD, CSR initiatives can include funding for community health programmes, investment in water treatment facilities, and support for local economic development. Studies show that CSR can enhance community trust and cooperation, leading to more effective AMD management.²⁴⁰

Several case studies highlight the application of legal and ethical considerations in AMD management. The eMalahleni Water Reclamation Project, for example, demonstrates how legal compliance, community engagement, and CSR initiatives can be integrated to address AMD. The project involved collaboration between government, industry, and local communities to treat AMD-affected water, providing a reliable water supply and mitigating environmental impacts.

Another example is the implementation of AMD mitigation strategies in the Witwatersrand Basin, where legal actions and community advocacy played a significant role in holding mining companies accountable and ensuring compliance with environmental regulations.

²⁴⁰ Hamann 2004 *Corporate Social Responsibility, Partnerships, and Institutional Change: The case of mining Companies in South Africa* 288.

4.6. Conclusion

Various strategies to improve or enhance participation in managing AMD in South Africa were explored. The strategies include effective communication strategies and channels, engagement techniques, collaboration frameworks, technology and tools, organisational culture and leadership, and measuring and evaluating participation, among others. The chapter also considered case studies in South Africa that highlight the usefulness of these strategies.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusion

This chapter concludes the study and presents the core findings on stakeholder participation in AMD regulation in South Africa. The current legal frameworks for stakeholder participation in AMD regulation in South Africa are hampered by challenges that undermine their effectiveness. These challenges include insufficient inclusion of marginalised communities, complex bureaucratic processes, lack of transparency in incorporating stakeholder input, inadequate feedback mechanisms, and limited access to the necessary information. Additionally, there are issues with managing conflicting interests among stakeholders and inconsistencies in enforcement across regions. The undervaluation of traditional knowledge further exacerbates these problems. As a result, the regulatory frameworks may not adequately address the concerns of all affected parties, leading to ineffective AMD management and insufficient protection of environmental and community rights. This study seeks to explore these issues and propose improvements to enhance stakeholder participation and regulatory outcomes in AMD management.

5.1.1. International Legal Frameworks

International frameworks set global standards for water management, particularly concerning transboundary water resources. Key instruments such as the United Nations Watercourses Convention (1997) and the Ramsar Convention (1971) are central to the regulation and protection of international water bodies. These frameworks emphasise principles such as equitable and reasonable use, the obligation not to cause significant harm to other states, and the protection of wetlands and biodiversity. Additionally, the UN Sustainable Development Goals (SDGs), particularly Goal 6, underline the importance of sustainable water management and sanitation as a global priority.

5.1.2. Regional Legal Frameworks

The study found that regional legal frameworks tailor international principles to the specific environmental, social, and economic contexts of their regions. For instance, the African Union's Africa Water Vision 2025 and the SADC Protocol on Shared Watercourses (2000) manage water resources in Africa, promoting cooperative management of transboundary watercourses. Similarly, the European Union's Water Framework Directive (2000) serves as a comprehensive regulatory structure for water management across EU member states, focusing on maintaining the health of aquatic ecosystems and addressing issues like water pollution and resource scarcity.

5.1.3. *National Legal Frameworks*

At the national level, legal frameworks provide specific guidelines for managing water resources in individual countries. The study highlighted several examples, such as South Africa's *NWA*, which is renowned for its progressive approach to water management, prioritising equitable access, sustainability, and environmental protection. In the United States, the Clean Water Act (1972) remains a cornerstone of water pollution regulation, aiming to protect the nation's waters. Similarly, India's National Water Policy (2012) and Australia's Water Act (2007) provide structured approaches to water resource management, emphasising sustainability, equitable distribution, and environmental stewardship.

5.4.4 *Focus on the Mining Sector*

The study specifically examined how the mentioned legal frameworks address water management in the mining sector, which is often a significant source of water pollution and environmental degradation. It found that these frameworks generally require mining companies to take responsibility for the environmental impacts of their operations, including water resource rehabilitation and pollution control. The financial provisions mandated by these laws aim to ensure that funds are available for environmental restoration, even if a mining company becomes insolvent. This requirement is critical in preventing the abandonment of polluted sites and ensuring long-term sustainability.

5.1.4. *Human Rights and Environmental Protection*

The study also highlighted the intersection of water management with human rights and environmental protection. Legal frameworks often recognise the right to water as a fundamental human right, ensuring that communities have access to clean and safe water. This is particularly relevant in mining areas, where water contamination can have severe consequences for local populations. The study found that by enforcing stringent water management laws, governments can protect vulnerable communities and ecosystems from the adverse effects of mining activities.

5.1.5. *Delimitations of the Study*

The research explored the legal frameworks for stakeholder participation in AMD regulation in South Africa. Since the study focused on South Africa, the findings of the study cannot be generalised to other countries. However, the study should be seen as an attempt to generate interesting insights into how stakeholder participation in AMD is critical for enhancing water management and environmental sustainability.

5.2. Recommendations

The study identified the following core recommendations:

- There is a need in South Africa for the revision of the legal frameworks to ensure broader and more inclusive stakeholder engagement. This includes actively involving marginalised and affected communities in the regulatory process, ensuring their concerns are adequately represented and addressed.
- Regulatory procedures should be reformed to reduce complexity and bureaucracy, making it easier for stakeholders to participate effectively. This could involve clearer guidelines, reducing administrative barriers, and implementing user-friendly platforms for stakeholder input.

- Measures should be implemented to improve transparency in how stakeholder feedback is incorporated into decision making. This includes establishing clear channels to report how input influences regulatory outcomes to ensure that stakeholders receive timely updates and feedback on their contributions.
- Legal frameworks should recognise and incorporate traditional knowledge from local communities and provide stakeholders with access to relevant information and technical expertise. This can be achieved by establishing advisory committees that include traditional leaders and community representatives, and by improving access to environmental data and decision-making processes.

To address AMD challenges effectively, community involvement and engagement are crucial. These factors are key to enhancing health and safety, disaster management in mining operations, and addressing AMD-related concerns.²⁴¹ Adom and Simatele define "stakeholder engagement" as involving stakeholders in the decision-making and policy-implementation processes, ensuring that their interests and concerns are addressed.²⁴² Along with regular consultation and engagement with communities on the potential health and environmental disasters, cooperation between all stakeholders is also essential.²⁴³ Corporations should always be responsible for their conduct to prevent negative impact on the environment and society at large.²⁴⁴

The findings of this study underscore the importance of robust legal frameworks at the international, regional, and national levels in governing water management, particularly in sectors like mining that pose significant environmental risks. These frameworks provide essential guidelines and principles that ensure the sustainable use of water resources, the protection of ecosystems, and the safeguarding of

²⁴¹ Moeng 2019 *Environment, Development and Sustainability* 2619.

²⁴² Adom and Simatele 2022 *NFR* 413.

²⁴³ Cronje *et al* 2013 *JAMBA* 10.

²⁴⁴ Cronje *et al* 2013 *JAMBA* 2.

human rights. Effective implementation and enforcement of these laws are foundational to long-term water security and environmental sustainability.

Bibliography

Literature

Adom and Simatele 2020 *NRF*

Adom RK and Simatele MD "The role of stakeholder engagement in sustainable water resource management in South Africa" 2020 *NRF* 410–427

Arnstein S 1969 *AIP Journal*

Arnstein SR "A ladder of citizen participation" 1969 *AIP Journal* 216–224

Belluci *et al* 2019 *AAAJ*

Belluci M *et al* "Stakeholder engagement and dialogic accounting: empirical evidence in sustainability reporting" 2019 *AAAJ* 1–38

Boakye and Akpor *JSD*

Boakye MK and Akpor OB "Stakeholders' participation in water management: A case study of the Msunduzi catchment management forum of Kwazulu-Natal, South Africa" *JSD* 104–112

Center for Environmental Rights 2017 *SA UPR*

Center for Environmental Rights "The threats to human rights from mining and coal-fired power production in South Africa" 2017 *SA UPR* 1–19

Center for Environmental Rights *Mining and Environmental Litigation Review*

Center for Environmental Rights *Mining and Environmental Litigation Review*
(Center for Environmental Rights Johannesburg June 2012)

Cronje *et al* 2013 *JAMBA*

Cronje F *et al* "Local communities and health disaster management in the mining sector" 2013 *JAMBA* 1–12

Crooker *et al* 2018 *ISS Southern African Report*

Crooker C *et al* "A delicate balance: water scarcity in South Africa" 2018 *ISS Southern African Report* 1–24

Du Plessis 2018 *South African Journal on Human Rights*

Du Plessis A "The promise of 'well-being' in Section 24 of the Constitution of South Africa" 2018 *South African Journal on Human Rights* 20

Estrella M and Gaventa J "Who counts reality? Participatory monitoring and evaluation: A literature review"

Estrella and Gaventa "*Who counts reality? Participatory monitoring and evaluation: A literature review*" 1998 (IDS Working Paper 70)

Feris and Kotzé 2014 *PELJ*

Feris L and Kotzé LJ "The Regulation of Acid Mine Drainage in South Africa: Law and Governance Perspectives" 2014 *PELJ* 2105–2163

Goodman *et al* 2017 *Translational Behavioral Medicine*

Goodman MS *et al* "*The science of stakeholder engagement in research: classification, implementation, and evaluation*" 2017 *Translational Behavioral Medicine* 486-491

Gray and Stites 2012 *Network for Sustainability*

Gray B and Stites JP 2012 "Sustainability through partnerships capitalizing on collaboration" 2012 *Network for Sustainability* 1–110

Haufler 2014 "Negotiating international standards for environmental management standards: ISO 14000 Standards" 2.

Humby T *Sustainable Mining: Policy and Legislative Framework*

Humby T *Sustainable Mining: Policy and Legislative Framework* (The Federation for a Sustainable Environment Wits Law School, Johannesburg 2010)

Hunter *et al International Environmental Law and Policy*

Hunter *et al International Environmental Law and Policy* 4th ed (Foundation Press New York 2011)

Kaggwa "AMD and the Mining Sector's Contribution to the South African Economy"

Kaggwa M "AMD and the Mining Sector's Contribution to the South African Economy" in Mujuru M and Mutanga SS *Mitigation and Management of Acid Mine Drainage in South Africa* (Africa Institute of South Africa Pretoria 2016)
80

Kengni *Strengthening decision-making process to promote water sustainability in the South African Mining context: The role of good environmental governance and the law*

Kengni B *Strengthening decision-making process to promote water sustainability in the South African Mining context: The role of good environmental governance and the law* (LLM-Dissertation University of Cape Town 2019)

King P and Reddell C 2015 *PELJ*

King and Reddell "Public participation and water use rights" 2015 *PELJ*
944–968

Lovejoy and Saxton 2012 *JCMCOM*

Lovejoy K and Saxton GD "Information, Community, and Action: How Nonprofit Organizations Use Social Media" 2012 *JCMCOM* 337–353

Lwabukuna O "*Interrogating and Reviewing Legal and Policy Frameworks Governing Acid Mine Drainage in South Africa*"

Lwabukuna O "Interrogating and Reviewing Legal and Policy Frameworks Governing Acid Mine Drainage in South Africa" in Mujuru M and Mutanga SS (eds) *Management and Mitigation of Acid Mine Drainage in South Africa: Input for Mineral Beneficiation in Africa* (Africa Institute of South Africa Pretoria 2016) 123–148

McCarthy and Humpries 2013 *SAJS*

McCarthy TS and Humpries MS "Contamination of the water supply to the town of Carolina, Mpumalanga, January 2012" 2013 *SAJS* 1–7

McCarthy 2011 *SA Afri J Sci*

McCarthy TS "The impact of acid mine drainage in South Africa" 2011 *SA Afri J Sci* 1–7

Maphanga 2023 *SAGJ*

Maphanga T *et al* "The state of public participation in the EIA process and its role in South Africa: a case of Xolobeni" 2023 *SAGJ* 277–305

Maphela and Cloete 2020 *Development Southern Africa*

Maphela B and Cloete F "Johannesburg's implementation of the National Water Act, 1998 in Soweto, South Africa" 2020 *Development Southern Africa* 539–540

Masindi *et al* 2022 *Ecological Engineering*

Masindi V *et al* "Challenges and avenues for acid mine drainage treatment, beneficiation, and valorisation in circular economy: A review" 2022 *Ecological Engineering* 1–24

Makua *et al* 2017 *Environmental Economics*

Makua *et al* "Harmful mining activities, environmental impacts and effects in the mining communities in South Africa: A critical perspective" 2017 *Environmental Economics* 14–22

Matsumoto *et al* 2016 *Natural Resources*

Matsumoto S *et al* "The key factor of Acid Mine Drainage (AMD) in the History of Contribution of Mining Industry to the prosperity of the United States and South Africa: A Review" 2016 *Natural Resources* 445–460

Moeng 2019 *EDS*

Moeng K "Community perceptions on the health risks of acid mine drainage: the environmental justice struggles of communities near mining fields" 2019 *EDS* 2619–2640

Mohlala P *Mining-led Development and Local Politics of Youth Participation in the Mokopane Traditional Authority Area in Limpopo Province, South Africa*

Mohlala P *Mining-led Development and Local Politics of Youth Participation in the Mokopane Traditional Authority Area in Limpopo Province, South Africa* 63 (MA dissertation University of the Witwatersrand 2017)

Mpofu *et al* 2018 *Water Policy*

Mpofu C *et al* "Governance and socio-political issues in management of acid mine drainage in South Africa" 2018 *Water Policy* 77-89

Naidoo S "*Acid mine drainage in South Africa: Development actors, policy impacts and broader implications*"

Naidoo S "*Acid mine drainage in South Africa: Development actors, policy impacts and broader implications*" (Springer Midrand 2017)

Naidoo *Social Constructions of Water Quality in South Africa: A case study of the Blesbokspruit River in the Context of Acid Mine Drainage Treatment*

Naidoo S *Social Constructions of Water Quality in South Africa: A case study of the Blesbokspruit River in the Context of Acid Mine Drainage Treatment* (Springer Midrand 2022)

Pape *A critical analysis of the evolution of public participation in environmental decision-making in the South African Mining sector*

Pape *A critical analysis of the evolution of public participation in environmental decision-making in the South African Mining sector* (LLM Dissertation University of Pretoria 2021)

Phungela *et al* 2022 *SAJS*

Phungela TT *et al* "The impact of wastewater treatment effluent on Crocodile River quality in Ehlanzeni District, Mpumalanga Province, South Africa" 2022 *SAJS* 1–8

Reed 2008 *Biological Conservation*

Reed MS "Stakeholder participation for environmental management: A literature review" 2008 *Biological Conservation* 2417–2431

Roberts 2011 *ICLQ*

Roberts A "Comparative International Law: the role of national courts in creating and enforcing international law" 2011 *ICLQ* 57–92

Sergieko 2019 *The eMalahleni water reclamation plant in South Africa*

Sergieko N "The eMalahleni water reclamation plant in South Africa" *International Water Association report* 2019 1-3

Simate and Ndlovu 2014 *JOCE*

Simate GS and Ndlovu S "Acid Mine Drainage: Challenges and Opportunities"
2014 *JOCE* 1785–1803

Van der Lind and Feris *Public Participation and Environmental Law: A South African Perspective*

Van der Linde M and Feris L (eds) *Public Participation and Environmental Law: A South African Perspective* 2nd ed (PULP Pretoria 2010)

Xala X *Ethical environmental governance, public participation and sustainable development in the EIA decision-making process: A case study of the Xolobeni Heavy Mineral Sands project*

Xala X *Ethical environmental governance, public participation and sustainable development in the EIA decision-making process: A case study of the Xolobeni Heavy Mineral Sands project* (LLM-Dissertation Stellenbosch University 2023)

Legislation

Constitution of the Republic of South Africa 108 of 1996

National Environmental Management Act 107 of 1998

National Environmental Management Amendment Act 2008

National Environmental Management Laws Amendment Act 2022

National Environmental Management: Waste Act 59 of 2008

National Water Act 36 of 1998

Case Law

Director: Mineral Development, Gauteng v Save the Vaal Environment 1999 2 SA 719 (SCA)

Harmony Gold Mining Company Ltd v Regional Director: Free State Department of Water Affairs and Others (971/12) [2013] ZASCA 206; [2014] 1 All SA 553 (SCA); 2014 (3) SA 149 (SCA) (4 December 2013)

Federation for Sustainable Environment v Minister of Water Affairs (35672/12) [2012] ZAGPPHC 128 (10 July 2012)

Minister of Water Affairs and Forestry v Stilfontein Gold Mining Company Limited 2006 (5) SA 333 (W)

Minister of Water Affairs and Forestry v Stilfontein Gold Mining Company Limited (7655/05, 7655/05) [2006] ZAGPHC 47; 2006 (5) SA 333 (W) (15 May 2006)

International instruments

African Charter on Human and People's Rights (1981)

Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters (London Convention) and its 1996 Protocol

Convention on the Trans-boundary Movement of Hazardous Wastes and their Disposal (Basel Convention)

Convention on Wetlands of International Importance (Ramsar Convention)

Kyoto Protocol on climate change as part of the United Nations Framework Convention on Climate Change (UNFCCC) framework on climate change (and its successors) (1992)

Marine Life Conservation Convention

Rio Declaration on Environment and Development (1992)

SADC Mining Protocol (1997)

SADC Protocol on Shared Watercourse Systems (1995)

Universal Declaration on Human Rights (1948)

Vienna Declaration and Programme of Action (1993)

Government Publications

Regulations on Use of Water for Mining and Related Activities Aimed at the Protection of Water Resources (GN R 704 in GG 20119 of 4 June 1999)

Government Policies and Strategies

Dept of Water & Sanitation *Mine Water Management Policy* (May 2022)

Parliamentary Liaison Office *South Africa's International Environmental Obligations Briefing Paper* (February 2002)

Internet Sources

Kengni 2024 <https://www.researchgate.net/publication/378303150>

Kengni B 2024 *Arbitration of Water Disputes in the African Mining Sector*
<https://www.researchgate.net/publication/378303150> accessed 11 August 2024

Sisilana 2019 <https://etd.uwc.ac.za>

Sisilana M 2019 *Public Participation and Environmental Law: A South African Perspective* <https://etd.uwc.ac.za> accessed 10 August 2024