

The shortcomings of the legislative framework associated with poor rehabilitation of mines in South Africa

SEBEI MAGAGULA

Candidate Legal Practitioner & LLB Graduate, Faculty of Law, University of the Western Cape, Bellville, Cape Town

Abstract

Mine rehabilitation remains a significant environmental and governance challenge in South Africa despite the existence of an extensive legislative framework regulating mining activities and mine closure. This article examines the shortcomings of the legal framework associated with poor mine rehabilitation, with particular emphasis on the Mineral and Petroleum Resources Development Act 28 of 2002 and the National Environmental Management Act 107 of 1998. While these statutes establish obligations relating to environmental management, rehabilitation planning, financial provisioning, and mine closure, South Africa continues to experience a growing number of abandoned and inadequately rehabilitated mines. The article identifies several factors that contribute to this persistent problem. These include fragmented governance structures, overlapping institutional mandates, inadequate implementation and enforcement of environmental legislation, insufficient public participation, and weaknesses in the financial provision system. The article also considers the effects of inadequate regulatory capacity, the absence of effective environmental impact assessment follow-up mechanisms, the misuse of care-and-maintenance provisions, and the disruption of rehabilitation efforts by illegal and artisanal mining activities. Furthermore, statutory limitations concerning mine waste reuse and concerns regarding the adequacy and protection of rehabilitation funds are examined. The article

concludes that effective mine rehabilitation requires more than legislative reform. Enhanced institutional coordination, stronger enforcement mechanisms, improved financial safeguards, greater stakeholder participation, and sustainable mining practices are essential to ensuring responsible mine closure and long-term environmental protection in South Africa.

Keywords: Mine rehabilitation; environmental governance; mining legislation; mine closure; South Africa.

1 INTRODUCTION

South Africa has a vast wealth of natural resources, and is the largest producer of some of the world's most sought-after minerals, among them chrome, platinum and vanadium.¹ The mining sector thus holds a vital position in the country's economic structure, as is evident from the fact that it contributed 7.5 per cent to gross domestic product in 2022.² It is also clear that the sector has far-reaching positive socio-economic benefits, in particular through the thousands of jobs it creates directly or indirectly.³ Ultimately, however, these benefits leave a bad taste in the mouths of the many communities that once served this lucrative industry.

This bad taste stems from the substantial waste produced by the industry. Johannesburg's Witwatersrand Basin alone accounts for more than 6 billion tons of waste.⁴ The substantial waste produced combined with the industry's poor track record of rehabilitation, is without doubt a recipe for environmental disaster. Moreover, the country has nearly 6,000 mines that have been abandoned and left without proper rehabilitation.⁵ These abandoned and unrehabilitated mines have major environmental repercussions in terms of air pollution, the pollution of agricultural soil, and the pollution of underground water sources.⁶

There are various reasons for the sad state of mine rehabilitation in South Africa. While Van Druten and Bekker suggest that these relate to planning, relinquishment, legal, financial, social,

¹ Haywood LK, De Wet B & De Lange W et al. "Legislative challenges hindering mine waste being reused and repurposed in South Africa" (2019) 6 *The Extractive Industries and Society* 1079.

² Water Research Commission *Developing mine closure risks ratings and a post-closure framework for South Africa* Pretoria: Water Research Commission (2023) at 1.

³ Water Research Commission (2023) at 29.

⁴ Koovarjee B, Becker M, Von Holdt Jr et al. "Developing a mine waste atlas for the Northern Cape, South Africa" available at https://www.saimm.co.za/Conferences/files/tailings-2023/23%20601_Koovarjee.pdf (accessed 22 July 2026).

⁵ Kengni B & Nkosi V "Analysis of the current legal framework protecting the health of communities near gold mine tailings in South Africa" (2022) 37 *UNISA Press Journals* 1 at 2.

⁶ Van Druten ES & Bekker MC "Towards an inclusive model to address unsuccessful mine closures in South Africa" (2017) 117 *Journal of the Southern African Institute of Mining and Metallurgy* 485 at 486.

and scientific factors,⁷ this article will concentrate on the legal dimension. In so doing, it will argue that the relevant legislative framework is a key factor contributing to ongoing challenges in mine rehabilitation. To this end, the article unpacks the legislative framework governing the rehabilitation of mines, exposes its shortcomings, and highlights the need for a more coherent framework as well as a more focused approach to implementing and enforcing existing laws. The article concludes with a suite of innovative recommendations.

2 THE LEGISLATIVE FRAMEWORK

Historically, one of the challenges associated with South Africa's booming mining sector was the lack of measures for careful management of its environmental impacts and the protection of biodiversity.⁸ As a result, the Fanie Botha Accord between the Chamber of Mines and Minister of Water Affairs was introduced in 1975 as an initiative by the apartheid government to tackle the problem of abandoned and unrehabilitated mines.⁹ The basis of this agreement was that for all mines closed prior to 1976, the government would bear full liability;¹⁰ for mines closed between 1976 and 1986, it would bear half of the burden and the mine owner, the remaining half.¹¹ However, the agreement proved ineffective, as many companies continued pursuing careless mining practices with no consideration for environmental protection.¹²

For this reason, several laws have been enacted since the advent of democracy to promote the sustainable development and responsible management of the nation's natural resources.¹³ The relevant laws in this regard include the Constitution of the Republic of South Africa, 1996 ("Constitution"), Mineral and Petroleum Resources Development Act, 2002 (MPRDA), National Environmental Management Act, 1998 (NEMA), and National Water Act, 1998 (NWA). The primary statutes governing mine rehabilitation and mine closure are the MPRDA and NEMA.¹⁴ It is thus cogent to discuss the relevant provisions of these two laws, along with their accompanying regulations.

⁷ Van Druten & Bekker (2017) at 487.

⁸ Carrick PJ & McLean JK "Environmental management and rehabilitation under the Minerals and Petroleum Resources Development Act: A biodiversity outlook" (2007) 14 *SAJELP* 187 at 188.

⁹ Mhlongo SE & Dacosta FA "A review of problems and solutions of abandoned mines in South Africa" (2016) 30 *International Journal of Mining, Reclamation and Environment* 279 at 284.

¹⁰ Mhlongo & Dacosta (2016) at 284.

¹¹ Mhlongo & Dacosta (2016) at 284.

¹² Mhlongo & Dacosta (2016) at 284.

¹³ Carrick & McLean (2007) at 188.

¹⁴ Water Research Commission (2023) at 12.

2.1 THE MPRDA

The long title of the MPRDA¹⁵ indicates that its objective is to ensure the fair and sustainable development of South Africa's mineral and petroleum resources. This is also one of the statute's key objectives which seeks to ensure lawful social and economic progress whilst adhering to section 24 of the Constitution.¹⁶ To meet these objectives, the MPRDA confers certain powers to the Department of Mineral Resources and Energy (DMRE). The powers serve the purpose of ensuring that there is sustainable development of the country's mineral resources while also remedying the past injustices of apartheid by equalising participation in the mining sector and the distribution of its benefits.¹⁷

The statute provides that those who apply for mining and prospecting rights must be informed by the DMRE regional manager of that particular region in which the mining activity is to take place, to submit relevant reports as contemplated in Chapter 5 of NEMA, reports which could include an environmental impact assessment ("EIA report").¹⁸ This is the first step that must be complied with before the abovementioned rights can be granted.¹⁹ An EIA report is a prerequisite when proposed activities such as mining are being planned.²⁰ The essence of an EIA report is to identify the potential impacts of the proposed mining activity and present a plan to mitigate them.²¹

Furthermore, the MPRDA requires the submission of an approved environmental management programme before a lease agreement can be converted into a production right.²² The essence of an environmental management programme is to identify the applicant's rehabilitation responsibilities and the way in which the applicant plans to alleviate any environmental harm.²³ An environmental management programme ought also to include an implementation plan that makes note of the technical methods to be used in managing each environmental impact.²⁴

¹⁵ 'To make provision for equitable access to and sustainable development of the nation's mineral and petroleum resources; and to provide for matters connected therewith'.

¹⁶ MPRDA, s 2(h).

¹⁷ Carrick & McLean (2007) at 191.

¹⁸ MPRDA, s 22(4)(a).

¹⁹ Carrick & McLean (2007) at 194.

²⁰ Carrick & McLean (2007) at 192.

²¹ Laisani J, Choma H & Magoro MR "Environmental impact assessment in the context of mining in South Africa: Challenges and prospects" (2021) 1 *African Journal of Public Administration and Environmental Studies* 61 at 62.

²² MPRDA schedule 2 transitional arrangements, s 5(2)(i).

²³ Carrick & McLean (2007) at 201.

²⁴ Carrick & McLean (2007) at 201.

In addition to the provisions explained above, the MPRDA stipulates that a mine-closure certificate may not be issued unless the relevant government official gives written confirmation that he or she is satisfied that the provisions concerning health and safety management of pollution have been addressed.²⁵ This requirement attempts to prevent mine owners from escaping their mine-rehabilitation obligations (the provision is, however, ineffective, as will be shown later in this article).

2.2 NEMA

NEMA is another important piece of legislation and one which works hand in hand with the MPRDA to give effect to section 24 of the Constitution. One of the statute's principles is that development must be socially, environmentally and ecologically sustainable.²⁶ The statute provides, furthermore, that sustainable development entails taking the necessary measures to ensure that pollution and degradation of the environment is avoided or at the very least minimised and remedied.²⁷ These principles serve as a benchmark for the interpretation, administration and implementation of NEMA as well as other statutes concerned with the protection of the environment.²⁸

As mentioned, NEMA works hand in hand with MPRDA, and it is for that reason that it helps to shed light on the subject matter that must be covered in an environmental management programme. Such a programme must include provisions that outline responsibilities for addressing any environmental harm, pollution, water pumping and treatment of contaminated or extraneous water, as well as ecological degradation that may arise both within and beyond the mine's operational boundaries.²⁹ After the environmental management programme is approved and environmental authorisation granted, the holder becomes accountable for any environmental harm, pollution, water pumping and treatment of contaminated or extraneous water, or ecological degradation resulting from the operations linked to that right, permit, or authorisation.³⁰

²⁵ MPRDA, s 43(5).

²⁶ NEMA, s 2(3).

²⁷ NEMA, s 2(4)(a)(i).

²⁸ Feris L & Kotze LJ "The regulation of acid mine drainage in South Africa: Law and governance perspectives" (2014) 5 *PELJ* 2105.

²⁹ NEMA, s 24(3)(b).

³⁰ NEMA, s 24(7)(f).

Another important provision in NEMA, located in Chapter 7, states that any individual who causes or is likely to cause environmental pollution or degradation must take reasonable steps to prevent it. If the activity is legally authorised and cannot be avoided, the person must implement measures to reduce or mitigate the resulting environmental harm.³¹ Beyond this duty, NEMA imposes criminal liability, which entails holding the directors of a company criminally liable in their personal capacity for an environmental violation committed by the entity.³² This clause has a strong deterrent effect because directors of mining firms are subject to criminal prosecution if they fail to maintain responsible environmental procedures to prevent or appropriately address environmental harm.³³

3 LEGISLATIVE GAPS IN MINE REHABILITATION

Taking the laws above into account, it is clear that there have been attempts to address the issue of abandoned mines and mine rehabilitation; yet the problem persists, given that there are more than 6,000 abandoned mines in the country. Why, then, does South Africa still have so many abandoned and unrehabilitated mines? This section seeks to identify some of the shortcomings of these laws as well as other reasons for why mine rehabilitation remains elusive.

3.1 Fragmentation and lack of clearly assigned responsibilities

As mentioned, the mining regime in South Africa is regulated by several pieces of legislation, including NEMA and the MPRDA. The inevitable result of this is that different governmental agencies or departments will have different responsibilities and priorities relating to the sector, meaning that there will be a fragmentation of environmental governance, which in turn will lead to poor enforcement of environmental legislation.³⁴ MPRDA is administered by the DMRE and is focussed on economic development whereas NEMA is administered by the Department of Forestry, Fisheries and the Environment and focused on environmental governance efforts.³⁵

Despite legislative amendments aimed at improving their alignment with each other, the government has struggled to harmonise mining and environmental laws. For example, an amendment to the MPRDA retaining the Minister of Mineral Resources as the primary

³¹ NEMA, s 28(1).

³² Feris & Kotze (2014) at 2129.

³³ Feris & Kotze (2014) at 2129.

³⁴ Feris & Kotze (2014) at 2111.

³⁵ Feris & Kotze (2014) at 2111.

authority for granting environmental authorisation for mining activities conflicted with other amendments placing the environmental regulation of mines under the ministry responsible for environmental management and oversight.³⁶ This division of responsibilities and absence of clear accountability leads to confusion amongst stakeholders and undermines the effectiveness of the statutory liability framework because identifying and tracking down owners of abandoned mines is a difficult task³⁷ (this is by virtue of the mines being abandoned and practically ownerless). Consequently, the government has to carry the rehabilitation burden.

The fragmented legislative framework can also be seen in the winding up of companies. Most mining operations are sustainable for 30 years, depending on the mineral mined and the available reserves.³⁸ Although it is anticipated that mines would remain open until the end of the planned term, unplanned closures may happen.³⁹ This can occur as a result of cash flow limitations caused by the delay between the original investment in labour and services and the arrival of proceeds from the sale of commodities.⁴⁰ This can result in companies finding themselves in financial distress and opting for mine closure via the winding-up process, which complicates the mine-closure process in terms of the MPRDA.⁴¹

During the winding-up process, the liquidator assumes custody of the insolvent companies and supervises the fair and just distribution of the company's assets to its creditors. On completion, the liquidator submits a certificate to the Companies Commission allowing the company to be liquidated.⁴² By taking this action, the business ceases to exist as a legal entity and loses its ability to have legal rights and responsibilities.⁴³ This then means that laws cannot impose compliance or penalties on a dissolved corporation.⁴⁴ As a result, businesses avoid the MPRDA, which mandates that a closure certificate be obtained as soon as a business starts mining-closure procedures.⁴⁵ The latter certificate can be issued only if the Chief Inspector of Mines has verified in writing that the requirements in regard to environmental authorisation

³⁶ Feris & Kotze (2014) at 2147.

³⁷ Feris & Kotze (2014) at 2111.

³⁸ Krause RD & Snyman LG "Rehabilitation and mine closure liability: An assessment of the accountability of the system to communities" Centre for Applied Legal Studies, University of the Witwatersrand (n.d.).

³⁹ Mpanza M, Adam E & Molla R "A critical review of the impact of South Africa's mine closure policy and the winding-up process of mining companies" (2021) *Journal for Transdisciplinary Research in Southern Africa* 1.

⁴⁰ Mpanza, Adam & Molla (2021) at 3.

⁴¹ Mpanza, Adam & Molla (2021) at 3.

⁴² Mpanza, Adam & Molla (2021) at 2.

⁴³ Mpanza, Adam & Molla (2021) at 2.

⁴⁴ Mpanza, Adam & Molla (2021) at 2.

⁴⁵ MPRDA, s 43(3).

and managing water resource pollution, health and safety, pumping and treatment of excess water have all been met.⁴⁶ Ultimately, the owners of the mine escape their mine-rehabilitation responsibilities.

The delays brought on by the Mine Health and Safety Act further highlight the disjointedness of the legislative structure. Rehabilitation and post-rehabilitation land use projects are said to be delayed by the Mine Health and Safety Act, 1996 (MHSA) due to its requirements, which include obtaining a certificate of fitness, completing site inductions and licenses, and fulfilling a number of other administrative requirements.⁴⁷ These need to be finished before consultants or contractors for rehabilitation can enter an operational mine property.⁴⁸ Since a site is deemed a working mine until a mine-closure certificate is granted, the regulatory requirements apply even to locations where no mining is currently occurring.⁴⁹ Furthermore, mine workers are the only ones permitted to move freely in terms of the MHSA.

Despite the reasonableness of this law, it has a serious flaw in that if rehabilitation is not maintained, the process will need to be repeated because all of the restored land would have been damaged by the time one wants to close the mine.⁵⁰

3.2 Lack of implementation and enforcement

South Africa's ongoing mine-site abandonment highlights serious flaws in the way that current laws are applied and enforced.⁵¹ The lack of qualified personnel in both the government and the private sector – especially in relation to mine closure plans and environmental management programmes – compounds the problem.⁵² This is so because the quality of documents varies greatly and the government does not have sufficiently trained personnel to assess the quality of documents produced and to enforce existing laws.⁵³ As a result, the cycle of ineffective closure planning is maintained and little attempt is made to adhere to legal requirements.

⁴⁶ MPRDA, s 43(5).

⁴⁷ Gule NK Factors *Contributing to unsuccessful rehabilitation: A case study investigating the rehabilitation practices in opencast coal mines in the Mpumalanga Province, South Africa* (LLM thesis, University of Cape Town, 2020) at 53.

⁴⁸ Gule (2020) at 53.

⁴⁹ Gule (2020) at 53.

⁵⁰ Gule (2020) at 54.

⁵¹ Klopper D & Wessels JA “Investigation of Western Australia’s rehabilitation fund as a fiscal policy solution for South African abandoned mines” (2017) 117 *Journal of the Southern African Institute of Mining and Metallurgy* 1081 at 1085.

⁵² Gule (2020) at 56.

⁵³ Klopper & Wessels (2017) at 1085.

To add to the problem of competency in the sector, for many years posts in the regulator have been frozen, leading to a shortage of staff and the appointment of unqualified individuals.⁵⁴ A study by Van Druten and Bekker revealed that it was commonly agreed that a structured and coordinated effort should be made to educate stakeholders because a lack of skills and committed project teams was a major contributor to subpar performance.⁵⁵

In addition, there is a lack of a standard procedure for EIA follow-up. As mentioned, one of the Chapter 5 requirements of NEMA is that an EIA report must be submitted to the regional manager before a mining right may be issued. However, even though NEMA requires such a report, there seems to be a lack of a standard procedure for EIA follow-up. Laisani et al attribute this to a lack of capacity and technical capabilities to follow up on monitoring and evaluation.⁵⁶ This makes legislation a pointless tool in cases where the country lacks the capacity to implement the EIA mandate. Furthermore, the system of obtaining EIA certificates is corrupt and abused in an effort to accelerate the approval of mining projects.⁵⁷

It is cogent to point out as well that MPRDA has insufficient mechanisms for public participation. Public engagement is a key component of procedural and social justice which ensures that the proposed operation takes into account as many pertinent biodiversity factors as possible. Many stakeholders, notably community members and civil society organisations, have reportedly expressed concerns that they are excluded from public consultative forums.⁵⁸ This was a finding in a study in Limpopo by Laisani et al that sought to determine the effectiveness of the EIA process in the province.⁵⁹ As a result, approvals were granted without input from those directly affected. Additionally, the MPRDA has no means to allow interested and affected parties to evaluate each other's submissions or understand how the applicant considered, incorporated, or resolved their concerns. The statute's inability to safeguard public consultation implies that vital biodiversity matters might not be integrated in the EIA process.

⁵⁴ Watson I & Olalde A "The state of mine closure in South Africa: What the numbers say" (2019) 119 *Journal of the Southern African Institute of Mining and Metallurgy* 639.

⁵⁵ Van Druten & Bekker (2017) at 489.

⁵⁶ Laisani, Choma & Magoro (2021) at 76.

⁵⁷ Laisani, Choma & Magoro (2021) at 75

⁵⁸ Laisani, Choma & Magoro (2021) at 75.

⁵⁹ Laisani, Choma & Magoro (2021) at 74.

3.3 Lack of will by mines to rehabilitate and close mines

A lack of motivation to rehabilitate mines emanates from the fact that closure can involve addressing difficult environmental problems, such as acid mine drainage (AMD), which are expensive to manage and challenging to measure and forecast.⁶⁰ This lack of will is exacerbated by the perception that the government is reluctant to effect closures in order to limit the transfer of blame to the state and postpone the inevitable loss of jobs.⁶¹ Mining companies would rather opt for selling the mining rights to a lower-cost producer.⁶² The law permits this kind of transfer as long as the Minister of Mineral Resources gives his or her approval and the new holder is able to fulfil the duties, terms and conditions of the relevant right.⁶³ Nonetheless, the upshot is that the eventual rehabilitation and closure of these mines is left to less well-funded businesses mining now-marginal deposits.⁶⁴

Furthermore, the lack of motivation by mines to successfully close and rehabilitate is shown by the placing of mines under maintenance and care. According to regulation 16(1), a holder of a right or permission may apply at any time to the Minister responsible for mineral resources to have a mine placed under care and maintenance.⁶⁵ In this type of short-term closure, the mine is described as being in “care and maintenance wherein the holder has not stated their intention to eventually close the mine”.⁶⁶ However, for any number of technical, financial, environmental, or labour-related reasons, production has, in actuality, stopped.⁶⁷ Mining companies use this provision to escape their mine-rehabilitation obligations because the costs are significantly less than those involved in rehabilitating the mine and ultimately obtaining a closure certificate.⁶⁸

3.4 Reopening rehabilitated sites

There are documented instances where residents of nearby villages have re-opened asbestos mines that were previously shuttered in order to obtain valuable minerals that are still present

⁶⁰ Watson & Olalde (2019) at 639.

⁶¹ Watson & Olalde (2019) at 639.

⁶² Watson & Olalde (2019) at 639.

⁶³ Watson & Olalde (2019) at 640.

⁶⁴ Watson & Olalde (2019) at 640.

⁶⁵ Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations in GNR.1147 of 20 November 2015 Reg 16(1).

⁶⁶ Gule (2020) at 31.

⁶⁷ Swart E “The South African legislative framework for mine closure” (2003) 103 *Journal of the South African Institute of Mining and Metallurgy* 489 at 490.

⁶⁸ Gule (2020) at 31.

in the old mine infrastructure.⁶⁹ This phenomenon is known as illegal artisanal mining, while the miners involved are commonly termed “*zama zamas*”. Such mining is characterised by formal and informal activities conducted with little equipment or only basic technology.⁷⁰ Infrastructure of mineral processing plants, deteriorating buildings, and the instability of shaft sealing structures have all been significantly impacted by artisanal mining.⁷¹ Furthermore, vegetation in the areas surrounding the abandoned mine sites where artisanal gold mining takes place is typically impacted by the excavations. This is due to the fact that trees that have grown on abandoned mine sites throughout the years are cut down and uprooted to allow for the collection of sediments.⁷² Sediments are a mixture of stones and sand which in this context may contain bits and pieces of precious minerals such as gold.

3.5 Statutory limitations

The current legislative framework has various limitations. First, there are statutory limitations on the reuse and repurposing of mine waste. AMD and leaching are two key environmental risks associated with the storage or disposal of overburden, waste rock, tailings, and slag,⁷³ but South African waste laws do not foster an atmosphere that encourages the reuse of mine waste.

Section 17 of the National Environmental Management Waste Act 59 of 2008 (NEMWA) provides for the reduction, reuse, recycling and recovery of waste. Among other things, section 17 requires that any person undertaking the reduction, reuse, recycling or recovery of waste must first ensure that such activity uses fewer natural resources than the disposal of the waste.⁷⁴ However, the section and NEMWA as a whole do not specifically provide guidelines and incentives aimed at facilitating the beneficial reuse of mining waste materials such as tailings or waste rock. As such, the provision does not actively promote a circular-economy approach within the mining sector.

The fact that mine waste in South Africa is defined as residue, which is regarded as a resource for future re-mining, is one of the legal restrictions in this respect.⁷⁵ The DMRE considers

⁶⁹ Cornelissen H, Watson I & Adam E et al. “Challenges and strategies of abandoned mine rehabilitation in South Africa: The case of asbestos mine rehabilitation” (2019) 205 *Journal of Geochemical Exploration* 1 at 9.

⁷⁰ Mhlongo SE, Dacosta FA & Muzerengi C et al. “The impact of artisanal mining on rehabilitation efforts of abandoned mine shafts in Sutherland goldfield, South Africa” (2019) 11 *Journal of Disaster Risk Studies* 1 at 3.

⁷¹ Mhlongo, Dacosta & Muzerengi et al. (2019) at 4.

⁷² Mhlongo, Dacosta & Muzerengi et al. (2019) at 4.

⁷³ Haywood et al. (2019) at 1079.

⁷⁴ National Environmental Management Waste Act 59 of 2008, s 17(1)(a).

⁷⁵ Haywood et al. (2019) at 1082.

residue deposits and stockpiles as valuable resources on the basis that, as technology advances, future extraction of trace minerals may be possible through the re-mining of deposits or stockpiles.⁷⁶ As a result, there is resistance to promoting the repurposing of residual deposits and stockpiles. It has been suggested that the ability to make money from mine waste, or, at the very least, to cover these costs so that the waste becomes a zero cost for the mine, would be a desirable alternative, since managing and storing “waste” accounts for 1.5 per cent to 3.5 per cent of a mine’s overall operating costs.⁷⁷ In addition to profiting from the sale of waste, a mining company would be able to reduce its environmental impact.⁷⁸

Inadequate financial safeguards are a further statutory limitation. It is trite that South Africa has adopted the “polluter pays” principle, which seeks to hold the polluter liable for the financial burden of rehabilitation instead of the state or the taxpayer.⁷⁹ However, this works only when the polluter is identified and has the financial means to cover the costs of remediation. Additionally, as already noted, a significant gap is that even in the absence of a closure certificate, a mining company may be deregistered through the winding-up process. In this regard, it is unclear if financial provisions are included in the lists of assets and creditors or are shielded.⁸⁰ When it comes to its claim regarding the financial provision, the DMRE would not be a secured or preferred creditor in the event of insolvency.⁸¹

Another pertinent point is that rehabilitation funds under the custodianship of the government are open to misappropriation. For example, a former deputy director-general of the Department of Mineral Resources, was detained in connection with the misappropriation of rehabilitation monies from the coal mines of Optimum and Koornfontein; the accusations against him are related to the approval and use of R107.5 million for mine-rehabilitation money for the trust accounts of Koornfontein Mine and Optimum Coal Mine in 2016.⁸²

In addition, Lehutso notes that the estimation and efficacy of the 2005 DMRE guidelines on financial provision have their own flaws because of the substantial underestimations of sufficient financial provisions as a result of publicly unavailable independent evaluations and

⁷⁶ Haywood et al. (2019) at 1082.

⁷⁷ Haywood et al. (2019) at 1081.

⁷⁸ Haywood et al. (2019) at 1081.

⁷⁹ Feris & Kotze (2024) at 2123.

⁸⁰ Mpanza, Adam & Molla (2021) at 16.

⁸¹ Mpanza, Adam & Molla (2021) at 16.

⁸² Lekabe T & Lethabo Malatsi L “Ex-govt official arrested over ‘looting’ of Gupta mine rehabilitation funds gets R20,000 bail” (26 May 2022) *The Citizen* available at <https://www.citizen.co.za/news/south-africa/courts/gupta-mine-funds-may-2022/> (accessed 13 February 2025).

master rates that are not adjusted for inflation.⁸³ Moreover, even though the mining right-holder is supposed to evaluate and update the amount of financial provision as well as the environmental liability annually, the regulations do not specifically require the closure plan on which the financial provision made by the mine is based to be adjusted every year.⁸⁴ Examining the financial provision would guarantee that closure and rehabilitation expenses are modified appropriately to reflect the evolving situation. Therefore, reviewing the financial provisions made by the mine is a fruitless exercise if they are reviewed based on outdated closure plans.⁸⁵

4 RECOMMENDATIONS

As mentioned above, one of the problems causing poor rehabilitation is lack of implementation and enforcement. The key cause of this is a lack of skills and competency. Thus, it is necessary to start a formal, coordinated effort to train and educate stakeholders.⁸⁶ Officials must be well versed in environmental laws, rehabilitation requirements, and mining legislation both domestically and internationally. Closure plans, financial assurance procedures, and EIAs should be covered in the training.

This article also pointed out that there is a lack of a standard procedure for EIA follow-up. What needs to be done in this regard is to establish follow-up mechanisms that will make EIAs an iterative process.⁸⁷ This also speaks to an urgent need for government officials to strengthen their oversight of mining operations.⁸⁸ Standardised monitoring procedures that include key performance indicators should be established.

It was noted too that the mine-rehabilitation regulatory framework is fragmented and that there are no clearly assigned roles and responsibilities. To alleviate this disintegration, every element that can have an impact on the closure process should be included in an integrated mine-closure model.⁸⁹ All of the data, information, procedures, activities, deliverables, interactions, and choices necessary for a successful mine closure should be organised in such a model.⁹⁰

⁸³ Lehutso M *An assessment of the efficacy of South Africa's legal framework in addressing key challenges related to liability for mine closure and rehabilitation* (LLM thesis, University of Pretoria, 2018) at 32.

⁸⁴ Lehutso (2018) at 32.

⁸⁵ Lehutso (2018) at 32.

⁸⁶ Van Druten & Bekker (2017) at 489.

⁸⁷ Laisani, Choma & Magoro (2021) at 78.

⁸⁸ Kengni & Nkosi (2022) at 14.

⁸⁹ Van Druten & Bekker (2017) at 489.

⁹⁰ Van Druten & Bekker (2017) at 489.

Another finding was that there is a lack of motivation to successfully rehabilitate mines. The state needs to dissuade mine owners from the practice of selling their mining rights to smaller companies that are ultimately unable to rehabilitate these mines through regulatory reform; instead, it should incentivise efficient and well-organised closure and rehabilitation procedures. It is said that R60 billion is being held by the state in rehabilitation funds.⁹¹ The process for accessing these funds should not be excessively onerous, albeit that there should be adequate safeguards to ensure that the funds are used for their intended purpose.

It was also observed that efforts at rehabilitation are hampered by artisanal mining. Chile's successful approach shows that, when utilised properly, drones, unmanned aerial vehicles, and artificial intelligence can efficiently monitor and secure high-risk areas, lowering the incidence of illicit mining activity.⁹² Although increased security and law enforcement are necessary, sustainable miners can also devise strategies to address the underlying social and economic problems that encourage illegal mining. Increasing awareness of the dangers that a diminished "life of mine" poses to the neighbourhood, the environment, and the local economy could form part of these strategies.⁹³

In as much as mining activities cause great environmental harm, mines can mitigate these effects by re-evaluating their mining techniques. To reduce their impact on climate change, mining companies can switch to greener equipment and procedures that prioritise energy efficiency and environmental responsibility.⁹⁴ For instance, water and waste recycling systems can be implemented to conserve water resources and minimise pollution from mining activities, while at the same time promoting a circular economy. Furthermore, mines can make use of low-impact mining techniques such as *in situ* mining, which is a method in which minerals and metals from ore bodies are extracted without removing the ore from the ground.⁹⁵ Such techniques focus on reducing energy use, water pollution, and habitat degradation.

⁹¹ Mpanza, Adam & Molla (2021) at 7.

⁹² Grant A, Atuahene B & Ogunnubi O '5 ways to improve security governance and prevent future illegal mining tragedies from happening' (18 February 2025) *The Conversation* available at <https://theconversation.com/5-ways-to-improve-security-governance-and-prevent-future-illegal-mining-tragedies-from-happening-248741> (accessed 31 March 2025).

⁹³ Griffin C "Sustainable mining practices: 5 strategies to consider" (25 July 2023) *Veriforce* available at <https://veriforce.com/blog/sustainable-mining-practices-5-strategies-to-consider> (accessed 31 March 2025).

⁹⁴ Griffin (25 July 2023).

⁹⁵ Griffin (25 July 2023).

5 CONCLUSION

Tackling mine-rehabilitation difficulties involves a combination of regulatory change, stakeholder education, financial restructuring, technology innovation, and sustainable mining operations. The DMRE should tighten oversight, implement standardised procedures, and ensure that financial resources are spent wisely. Mining businesses, in turn, should embrace sustainable alternatives that limit their environmental impact. Mine rehabilitation can be transformed from an afterthought or forgotten promise to a critical component of responsible mining practices by incorporating these efforts into a cohesive, well-regulated framework.

BIBLIOGRAPHY

Journal articles

Carrick PJ & McLean JK “Environmental management and rehabilitation under the Minerals and Petroleum Resources Development Act: A biodiversity outlook” (2007) 14 *SAJELP* 187-216

Cornelissen H, Watson I & Adam E et al. “Challenges and strategies of abandoned mine rehabilitation in South Africa: The case of asbestos mine rehabilitation” (2019) 205 *Journal of Geochemical Exploration* 1-10

Feris L & Kotze LJ “The regulation of acid mine drainage in South Africa: Law and governance perspectives” (2014) 5 *PELJ* 2105-2163

Haywood LK, De Wet B & De Lange W et al. “Legislative challenges hindering mine waste being reused and repurposed in South Africa” (2019) 6 *The Extractive Industries and Society* 1079-1085

Kengni B & Nkosi V “Analysis of the current legal framework protecting the health of communities near gold mine tailings in South Africa” (2022) 37 *UNISA Press Journals* 1-20

Klopper D & Wessels JA “Investigation of Western Australia’s rehabilitation fund as a fiscal policy solution for South African abandoned mines” (2017) 117 *Journal of the Southern African Institute of Mining and Metallurgy* 1081-1087

Laisani J, Choma H & Magoro MR “Environmental impact assessment in the context of mining in South Africa: Challenges and prospects” (2021) 1 *African Journal of Public Administration and Environmental Studies* 61-81

Mhlongo SE & Dacosta FA “A review of problems and solutions of abandoned mines in South Africa” (2016) 30 *International Journal of Mining, Reclamation and Environment* 279-294

Mhlongo SE, Dacosta FA & Muzerengi C et al. “The impact of artisanal mining on rehabilitation efforts of abandoned mine shafts in Sutherland goldfield, South Africa” (2019) 11 *Journal of Disaster Risk Studies* 1-7

Mpanza M, Adam E & Molla R “A critical review of the impact of South Africa’s mine closure policy and the winding-up process of mining companies” (2021) *Journal for Transdisciplinary Research in Southern Africa* 1-21

Swart E “The South African legislative framework for mine closure” (2003) 103 *Journal of the South African Institute of Mining and Metallurgy* 489-492

Van Druten ES & Bekker MC “Towards an inclusive model to address unsuccessful mine closures in South Africa” (2017) 117 *Journal of the Southern African Institute of Mining and Metallurgy* 485-490

Watson I & Olalde A “The state of mine closure in South Africa: What the numbers say” (2019) 119 *Journal of the Southern African Institute of Mining and Metallurgy* 639-645

Legislation

Constitution of the Republic of South Africa, 1996

Mineral and Petroleum Resources Development Act 28 of 2002

Mining Health and Safety Act 29 of 1996

National Environmental Management Act 107 of 1998

Delegated legislation

Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations in GNR.1147 of 20 November 2015

Reports

Krause RD & Snyman LG “Rehabilitation and mine closure liability: An assessment of the accountability of the system to communities” Centre for Applied Legal Studies, University of the Witwatersrand (n.d.)

Water Research Commission *Developing mine closure risks ratings and a post-closure framework for South Africa* Pretoria: Water Research Commission (2023)

Internet sources

Grant A, Atuahene B & Ogunnubi O “5 ways to improve security governance and prevent future illegal mining tragedies from happening” (18 February 2025) *The Conversation* available at <https://theconversation.com/5-ways-to-improve-security-governance-and-prevent-future-illegal-mining-tragedies-from-happening-248741> (accessed 31 March 2025)

Griffin C “Sustainable mining practices: 5 strategies to consider” (25 July 2023) *Veriforce* available at <https://veriforce.com/blog/sustainable-mining-practices-5-strategies-to-consider> (accessed 31 March 2025)

Koovarjee B, Becker M, Von Holdt Jr, Petersen J & Cole M. “Developing a mine waste atlas for the Northern Cape, South Africa” available at https://www.saimm.co.za/Conferences/files/tailings-2023/23%20601_Koovarjee.pdf (accessed 22 July 2026)

Lekabe T & Lethabo Malatsi L “Ex-govt official arrested over ‘looting’ of Gupta mine rehabilitation funds gets R20,000 bail” (26 May 2022) *The Citizen* available at <https://www.citizen.co.za/news/south-africa/courts/gupta-mine-funds-may-2022/> (accessed 13 February 2025)

Theses

Gule NK *Factors Contributing to unsuccessful rehabilitation: A case study investigating the rehabilitation practices in opencast coal mines in the Mpumalanga Province, South Africa* (LLM thesis, University of Cape Town, 2020)

Lehutso M *An assessment of the efficacy of South Africa’s legal framework in addressing key challenges related to liability for mine closure and rehabilitation* (LLM thesis, University of Pretoria, 2018)