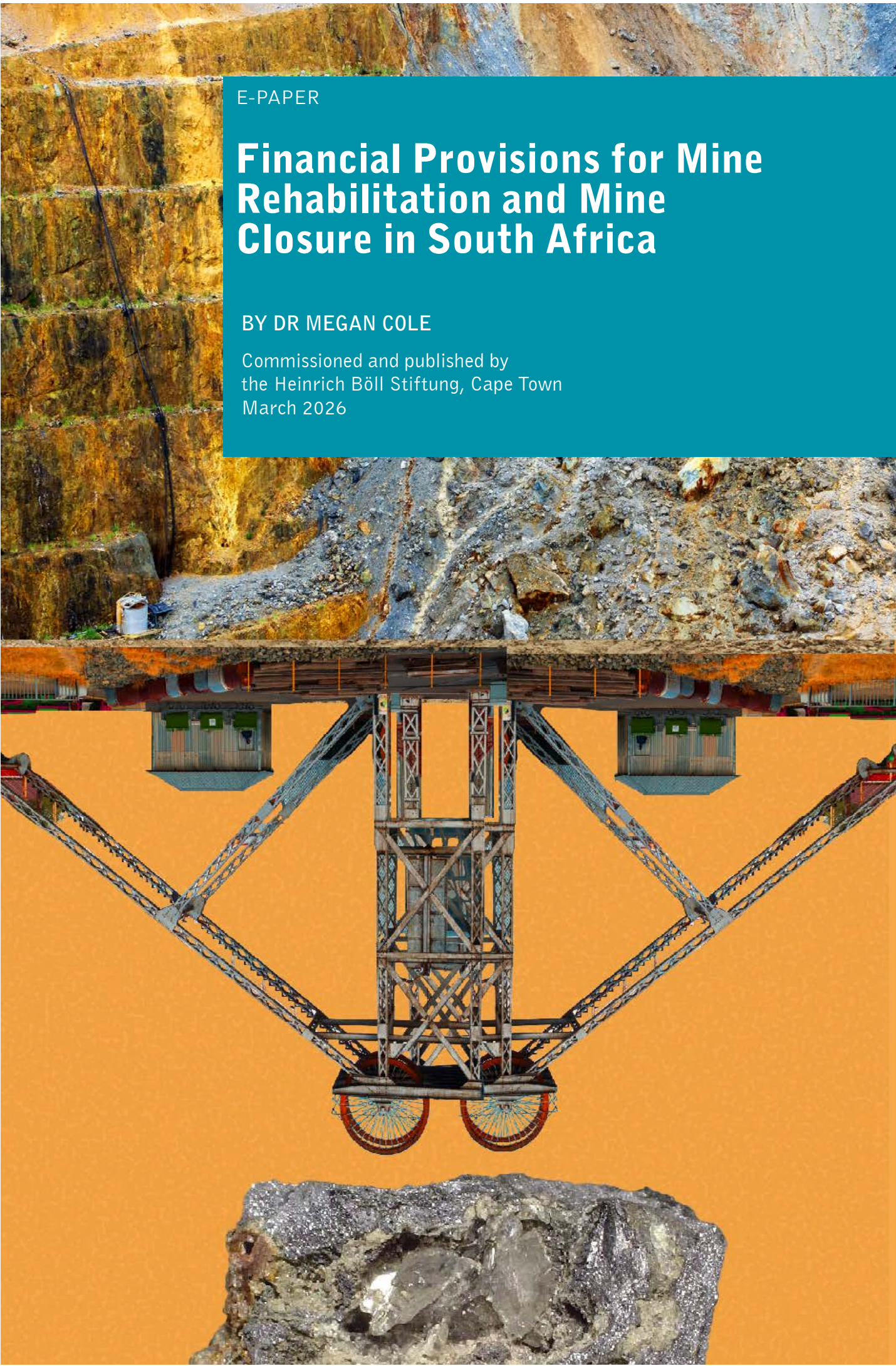


E-PAPER

Financial Provisions for Mine Rehabilitation and Mine Closure in South Africa

BY DR MEGAN COLE

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the Heinrich Böll Stiftung, Cape Town
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“Mine rehabilitated land often remains unmanaged, unmonitored and targets are often unmet. These failures have significant health and livelihood costs for mining communities.”

“International best practice on mine closure and rehabilitation now goes beyond technical fixes and considers job creation and economic diversification in communities to ensure a positive legacy.”

“Meaningful consultation on closure plans with all interested and affected parties, including local communities, is essential.”

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ABBREVIATIONS

C&M	care and maintenance
D&O	derelict and ownerless
DMPR	Department of Mineral and Petroleum Resources
EIAR	Environmental Impact Assessment Regulations
EMPr	Environmental Management Programme
MPRDA	Mineral and Petroleum Resources Development Act, 2002
NEMA	National Environmental Management Act, 1998
NEMAA	National Environmental Management Amendment Act, 2008
NEMLAA	National Environmental Management Laws Amendment Act, 2022
NWA	National Water Act, 1998
SLP	Social and Labour Plan
TLP	Tshikondeni Legacy Project

GLOSSARY

Words **bolded** in the main text are explained below.

Care and maintenance (C&M) refers to the temporary suspension of mine production while maintaining the site for a potential future restart. In terms of the Financial Provisioning Regulations of 2015 companies must submit a formal C&M plan to the Department of Mineral and Petroleum Resources (DMPR). This replaces the Environmental Management Programme (EMPr) for the suspension period and aims to ensure ongoing site security and environmental, health, and safety.

Concurrent/progressive rehabilitation is a strategy to restore disturbed land incrementally – rather than all at once – by integrating restoration into ongoing operations, thereby reducing final burdens, managing risks and ensuring sustainable recovery or land use.

Environmental risk threshold is a determination of the environmental risk resulting from a mining operation, which is regarded as being acceptable after the closure objectives have been implemented and the latent environmental impacts have been calculated and included in the environmental risk assessment report.

Financial assurance/provision is a form of security that ensures that the polluter pays. Before they begin their operations, mining companies must first assess the cost of rehabilitating their impact on the environment. Funds must be set aside and secured until the mine reaches its end of life, when it can be used for rehabilitation.

Historic residue stockpiles refer to tailings, waste rock, slimes, and other debris created by mining operations before the Mineral and Petroleum Resources Development Act (MPRDA) came into effect on 1 May 2004. Under the original MPRDA, these dumps were often not regulated because they were considered movable property and did not fall under the Act's definition of "minerals".

For **latent / residual** risks see the following.

Remediation is the removal, reduction, or neutralisation of waste or hazardous material from a site to prevent or minimise any adverse effects on the environment now or in the future. It is part of progressive and final rehabilitation but can also be required after closure when residual or latent risks produce environmental damage.

Relinquishment criteria are site-specific standards, agreed with regulators, that specify when rehabilitation will be considered complete, allowing the operator to transfer its land responsibility to the government or the next owner. They focus on achieving a sustainable end state for both environment and community, covering physical stability, water and air quality, land use and socio-economic aspects, with robust monitoring and financial provisions in place to ensure that residual risks are managed post-closure.

Residual / Latent risks are environmental risks that remain after all planned, reasonable mitigation measures, rehabilitation, and closure activities have been implemented. They require monitoring and financial provision under the Financial Provisioning Regulations of 2015. Latent risks generally refer to environmental impacts that are not anticipated or known during the operational and closure phases but may appear later, requiring remediation. Residual risks generally refer to anticipated risks. Given the detailed assessments that legislation requires, it is likely that all post-operational risks can be called residual.

1. INTRODUCTION

Mining is deeply embedded in the history of modern South Africa and has played a major role in the country's geopolitical and deeply unequal socio-economic development since the 1850s.¹ In 2024, the sector contributed 6% of GDP, employed 474 876 people and paid company tax of R43.6 billion (USD 2.4 billion), royalties of R16 billion (USD 874 million) and employee earnings of R195 billion (USD 10.6 billion).² South Africa is the world's biggest producer of the critical metals platinum, chromium and manganese. The country is a top-ten producer of vanadium, coal, iron ore, diamonds, fluorspar, zirconium and titanium mineral concentrates, and also produces gold, copper, nickel, lead, zinc, phosphate, rare earth elements and lithium.

These commodities are extracted at 250 mines operated by 105 private mining companies. Nearly a third are coal mines, largely in Mpumalanga and KwaZulu-Natal provinces, while a quarter are platinum and/or chromium mines in North West and Limpopo provinces.³ These operations are supported by more than 400 communities, including cities, towns, townships, mine villages and rural villages, home to over six million people. These communities are located across three metropolitan municipalities and 58 local municipalities, with a population of 26 million.⁴

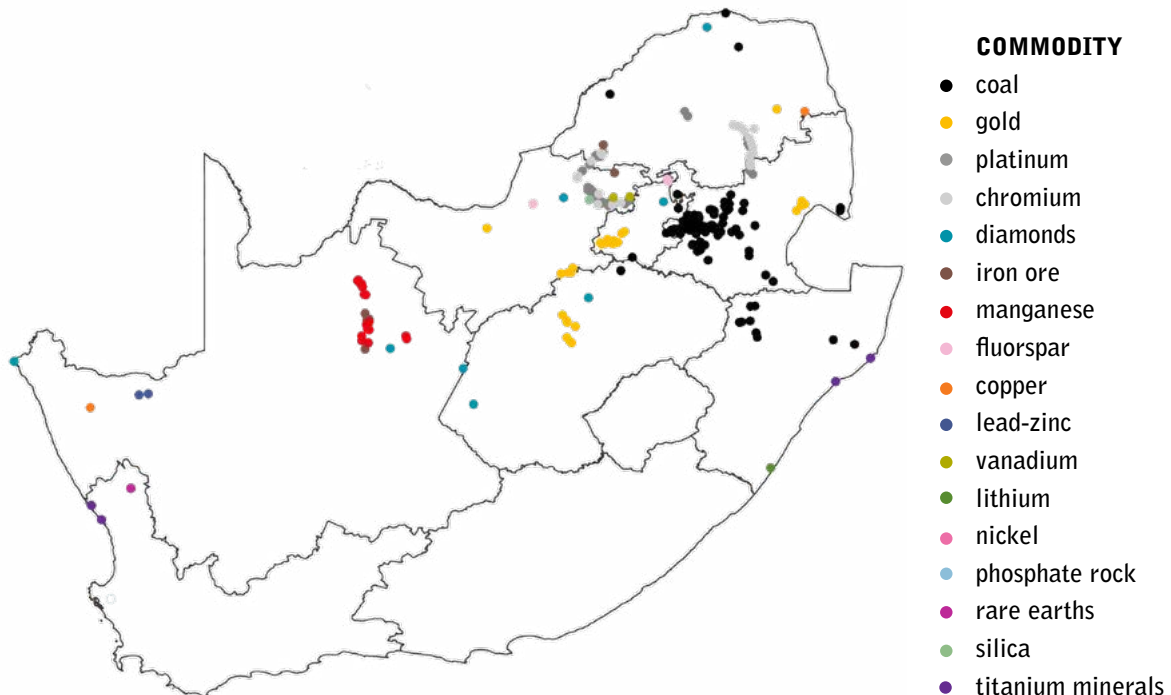


Figure 1. Operating mines in South Africa ³

The mining sector also has a legacy of abandoned and unrehabilitated mine sites with environmental and social challenges related to water pollution, biodiversity loss, land degradation and human health and safety.⁵ Acid mine drainage in the gold and coal fields has had particularly damaging effects over many years. Surface mining, both open pit and strip, disturbs a much larger area of land than underground mining does and thus requires much more rehabilitation.⁶ For example, coal mining had disturbed 3 260 square kilometres of agricultural land in South Africa (about twice the size of Johannesburg) by 2014.⁷ Dust from waste dumps and tailings dams has negatively affected respiratory health in many local communities.⁸

However, the rehabilitation of mining sites is not only an environmental and social challenge; it is also political and developmental. More often than not, the establishment of mines disrupts existing livelihood practices and the socio-economic systems that sustain them. Decades later, in dramatically different economic and technological contexts, environmental restoration is a necessary yet insufficient prerequisite to enable 'life after mining'. Genuine rehabilitation of post-mining regions requires ongoing investments in human and physical capital alongside the task of ecological restoration. This is particularly the case in postcolonial and post-apartheid settings where mineral extraction thrived on the exploitation of land and people.

Despite significant progress in mine-closure regulations and practices around the world, even the narrower goal of effective environmental rehabilitation of degraded land and waste facilities is hard to achieve.⁹ With about 750 mine-site features in South Africa needing rehabilitation,¹⁰ the general view – from both state institutions and experts – is that the government and industry are not meeting their responsibilities to protect the environment and affected communities.¹¹ Civil society organisations have raised concerns that insufficient funds are being set aside for rehabilitation,¹² as well as the government's reluctance to issue closure certificates to large mines to avoid financial liability.¹³ With over 60 of the country's mines expected to close in the coming decade,¹⁴ it is essential to consider the full cost of mine rehabilitation to protect affected communities and ecosystems.

This technical report aims to provide an in-depth understanding of the financial provisions system for environmental rehabilitation in South Africa. It employs a mixed methods approach using literature review, data analysis and case studies. The structure of the report is as follows: a) overview of mine rehabilitation practices and regulations, b) an overview of financial provisions to fund rehabilitation and regulations, c) quantitative analysis of all available data on financial provisions, d) a case study of a large coal mine undergoing closure, e) a case study of a large gold mine expected to close in the next 3 years and f) key insights and recommendations.

2. WHAT IS MINE REHABILITATION?

Mine rehabilitation is the restoration or transformation of land disturbed by mining to a safe and productive condition. It aims to minimise environmental harm such as pollution, land degradation and biodiversity loss and leave a positive legacy. Rehabilitation is legally required in most countries and must be performed before a mine closure certificate can be issued and the land transferred to another owner.

In South Africa and around the world, mine rehabilitation has historically been a once-off intervention that involves low-cost land revegetation (see Figure 2). The past decade has seen a global shift in the recognition that mine rehabilitation needs to be an ongoing process that begins at the start of mining operations and goes beyond technical fixes to consider job creation and economic diversification. While preventing long-term water and land pollution, it should support sustainable alternative land uses that benefit and protect communities.¹⁵

Mine rehabilitation thus has three stages: firstly, **concurrent/progressive rehabilitation** during operations; secondly, rehabilitation and decommissioning at mine closure; and thirdly, monitoring, maintenance and mitigation of residual and latent risks to ensure sustainable land use.



Figure 2. Rehabilitation of Doornkop tailings dam in Gauteng¹⁶

To support and enhance the process, best-practice guidelines and toolboxes have been established globally by government agencies, non-profit organisations and mining companies (see Figure 3 for a summary of widely adopted practices).¹⁷ However, they largely focus on the technical and environmental aspects of rehabilitation, with limited community benefits. In practice, most large-scale mines in South Africa do revegetate land, waste dumps and tailings dams to create stable surfaces (as in Figure 2), but they are often unmanaged and unmonitored and their technical targets, such as stability, water drainage, soil fertility and plant health, are often unmet.¹⁸ These failures have significant health and livelihood costs for mining communities. Of particular concern are mines that stop operating and go on **'care and maintenance' (C&M)**, usually for financial reasons, as they cannot legally undertake the final rehabilitation of the mine site.


-  Early and continuous engagement with stakeholders, including local communities, government agencies, and environmental organisations,
-  Comprehensive mine closure plans tailored to the unique environmental and social conditions of each site,
-  Sufficient financial provisions that are reviewed regularly to cover rehabilitation costs, including ongoing monitoring and maintenance,
-  Progressive rehabilitation measures during the operational phase, to minimise erosion, protect water quality, and foster natural ecosystem recovery,
-  Effective erosion control measures to safeguard water quality during and after closure,
-  Sustainable plant species for revegetation and innovative techniques like bioremediation and ecological engineering to restore ecological functionality,
-  Monitoring and evaluation programmes to evaluate rehabilitation effectiveness and adjust activities based on findings,
-  Training and awareness programmes for mine workers on rehabilitation best practices to ensure their commitment to the process,
-  Collaboration with research institutions to share knowledge of and innovate mine rehabilitation practices.

Figure 3. International best practices for mine closure and rehabilitation¹⁹

2.1 South African regulations relating to rehabilitation

Mine closure planning in South Africa was introduced in the Minerals Act of 1991 but was replaced by the Mineral and Petroleum Resources Development Act (MPRDA) of 2002 and the National Environmental Management Act (NEMA) of 1998. MPRDA and NEMA legislation and regulations include international best practices and require mining rights holders to progressively and fully rehabilitate mines before the Department of Mineral and Petroleum Resources (DMPR) can issue a **closure certificate** (see Figure 4).

During mining operations, mining rights holders are required to develop and update three documents annually that must be reviewed and independently audited, as well as incorporate issues that arise from meaningful consultations with stakeholders.

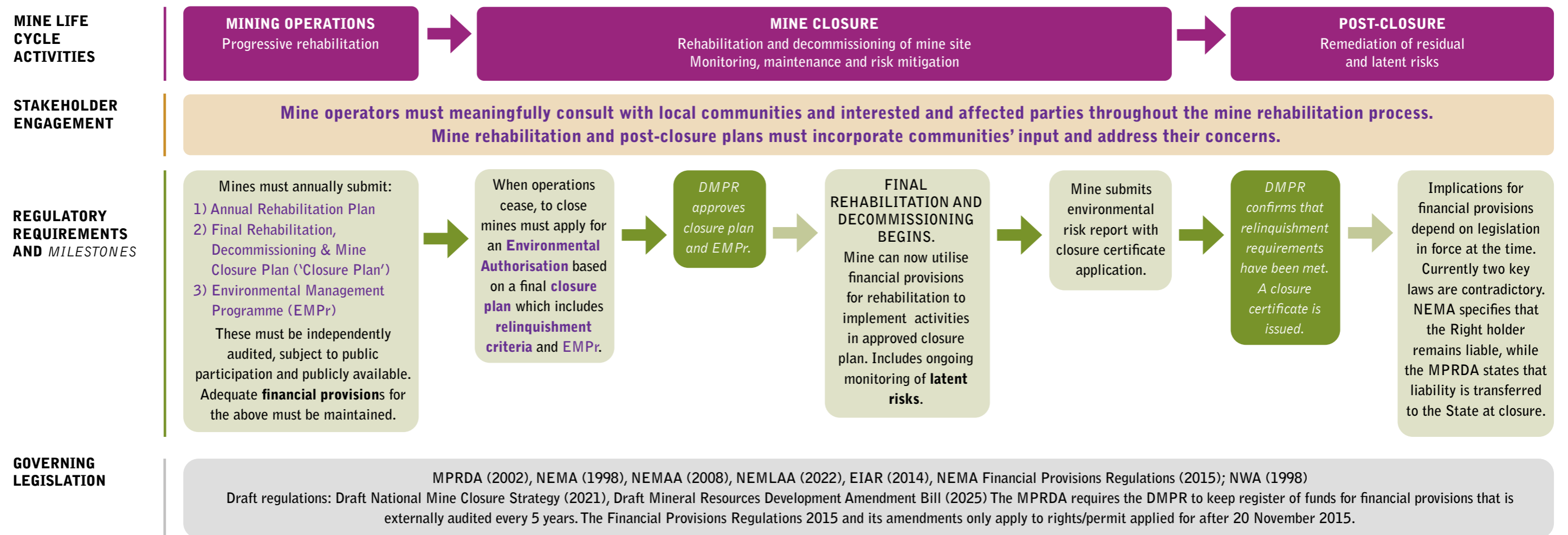
These include:

- Annual rehabilitation plan, with costing
 - Final rehabilitation, decommissioning and closure plan (the 'Closure Plan')
 - Environmental Management Programme (EMPr)
- Must include an overview of the environmental and social context, stakeholder concerns, environmental risks, planned final post-mining land use, closure and rehabilitation actions, site relinquishment criteria, closure cost-estimation procedures and monitoring, auditing and reporting.
- Must define closure objectives that include future land-use goals and associated closure costs and include a risk report.

The difficulties of predicting the forms of land use that will be viable at the end of a mine's life lead to frequent amendments of the EMPr during operations and require meaningful public participation.

Figure 4. Overview of the mine rehabilitation process and legal requirement

REHABILITATION STAGES AND REGULATIONS



Environmental risks and rehabilitation must be managed in terms of the NEMA and its subsequent amendments (National Environmental Management Act, NEMAA, 2008; National Environmental Management Laws Amendment Act, NEMLAA, 2022) and supporting acts on waste, biodiversity and air pollution, the 2014 Environmental Impact Assessment Regulations (EIAR) and the 1998 National Water Act (NWA).

In 2014, the government created the One Environmental System (under the NEMAA) to minimise and manage mining impacts by integrating and streamlining environmental regulations through collaborative governance between the DMPR, the then Department of Environmental Affairs and the Department of Water and Sanitation. This resulted in the DMPR becoming the responsible authority for all environmental matters related to mining – a clear conflict of interest that has negatively affected environmental compliance.²⁰

In May 2025, the draft Mineral Resources Development Amendment Bill – the most substantial proposed reform of the MPRDA to date – was gazetted for public comment by 18 August 2025. It has not yet been introduced to parliament. The amendment aims to separate mineral resources and petroleum, address artisanal and small-scale mining issues, enhance beneficiation, improve public consultation, establish regional mining development and environmental committees, and regulate **historic residue stockpiles**. In their submissions, civil society organisations expressed concerns that the Bill does not go far enough to ensure the free, prior and informed consent of affected communities, that indirectly affected parties are not adequately considered, that proposed regional committees do not include community representatives, and that the DMPR does not have the capacity to enforce environmental compliance.²¹

3. FINANCIAL PROVISIONS

3.1 International good practice

Rehabilitation is expensive, and the state requires financial provisions or assurance to guarantee that sufficient funds will be available for mine rehabilitation during operations, at mine closure and post-closure, particularly for residual and latent risks.

International best practice involves cost estimating tools, review periods ranging from one to five years and approved financial instruments such as cash deposits, bank guarantees, surety bonds, trust funds, company guarantees and government rehabilitation funds.²² The choice of instrument depends on several factors, including national legislation (which should take into account the state's ability to finance rehabilitation), the financial standing and capabilities of the mining company, the scale of the environmental liability and the time period over which the liability is to be managed or mitigated. Closure cost estimates are based on a well-defined and documented methodology and comprise a project-specific work breakdown structure, general and site-specific cost assumptions and site uncertainties, risks and inherent sensitivities.²³

High-income countries like Australia, Canada and the United States have financial provisioning schemes that set industry levies or pooled funds to encourage progressive rehabilitation during mining operations and provide the government with funds to rehabilitate abandoned mines.²⁴ These schemes define risk categories, pool finance, convene advisory panels, create expanded forms of surety and fund research. For example, the US Environmental Protection Agency charges fees to operating coal mines based on their production tonnage and type of mine to finance abandoned coal mine reclamation.²⁵ In the state of Western Australia, mining operations pay an annual non-refundable fee (based on land disturbance) into a pooled mining rehabilitation fund held and managed by the state, separated from general revenue and budgets.²⁶ By moving away from requiring every operation to maintain full financial assurance, this scheme reduces companies' capital requirements during operations while ensuring that rehabilitation is a collective task. Other Australian states have implemented similar funds, but still demand financial guarantees at individual operations until the fund has sufficient capital.²⁷ In Canada, abandoned mine rehabilitation is funded directly by government general revenues or mining taxes and royalties with federal and provincial cost-sharing arrangements, while operating mines are responsible for financing their rehabilitation.²⁸ South Africa does not have pooled funds or industry levies, but it does have regulated financial provisions.

3.2 South African regulations for financial provisions

The MPRDA and the NEMA require that the mine holder put financial provisions for rehabilitation in place before the DMPR can approve or issue prospecting rights, mining permits or mining rights (see Figure 5 for details). The MPRDA mandates that the DMPR manage and rehabilitate mines that had been abandoned prior to 2002, known as derelict and ownerless (D&O) mines. In 2022 the Auditor-General South Africa reported very slow progress on the rehabilitation of D&O mines and concern of insufficient funding from the National Treasury.

Prospecting Rights	Mining Permits	Mining Rights
Required to investigate an area to identify a mineral deposit; i.e. sampling, digging trenches, drilling boreholes. Valid for 5 years and may be renewed once for 3 years.	Required for small-scale excavations on an area of 5 hectares or less. Valid for 2 years but may be renewed three times for 1 year each.	Required for large-scale excavations. Valid for up to 30 years but may be renewed for further periods of up to 30 years each.

Figure 5. Types of rights and permits issued for mining and quarrying activities

The General Notice Regulation (GNR) 1147 pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations under NEMA (called the Financial Provision Regulations 2015) was published and came into force on 20 November 2015 to address significant legislative gaps in the MPRDA that led to poor rehabilitation, notably:

- comprehensive planning by mandatory specific plans
- standardisation and clarity in costing calculations
- improved accountability through third-party expertise and annual audits
- proactive risk mitigation through guaranteeing funding for residual and latent risks.

Currently, the GNR1147 regulations only apply to right/permits approved after 20 November 2015. The compliance date for rights/permits applied for before 20 November 2015 has been repeatedly amended and deferred in 2017, 2019, 2021, 2022 and 2023. In February 2024 the Minister of the DFFE granted a further extension to a date to be published in the Government Gazette, after the finalisation of the amendments to the Financial Provisioning Regulations 2015. Therefore, the pre-November 2015 rights/permits are still regulated by the MPRDA. The DFFE is planning another round of consultations on the Financial Provisioning Regulations 2015

One reason for the delays is the vastly different land footprints and environmental impacts of different commodities and types of excavations, as the term 'mining' includes large-scale mining, small-scale mining and quarrying, and 'borrow pits' where soil, gravel or rock is excavated for use as fill or construction material in road construction and other civil engineering projects. There is also disagreement on where final financial liability will reside after closure, with the MPRDA placing it on the State and the NEMA placing it on the right/permit holder.

The latest draft of the financial provisions regulations, from 2022, requires the final closure plan to cover activities for both environmental rehabilitation and post-closure socio-economic development. This significant change aligns with the Draft National Mine Closure Strategy 2021, which is still under consultation. In addition, mining companies must maintain and retain financial provisions until a closure certificate is granted, subject to the rights holder reaching an acceptable **environmental risk threshold**.

The regulations mandate that financial provisions can be set aside in three forms – cash, bank guarantees and trust funds – to cover mine closure costs (see Figure 6). Cash is deposited into an account administered by the DMPR to cover defaults in mine closure. This is most suitable for junior miners who may not meet the criteria for a bank guarantee. Financial guarantees are fixed-term agreements between a financial institution and a company with a sufficient credit rating to provide funds to the government to finance an approved closure plan if the company is unable to. These are appealing to companies as they do not tie up capital, but may not be sufficient for high-risk operations. Trust funds are agreements between a trust company and a mining company to manage the investment and use of rehabilitation and closure funds. The funds grow from annual contributions and interest and may prove insufficient if closure is premature or overfunded if closure costs are lower than expected. Multiyear insurance programmes have recently been offered as an alternative to trust funds, but they can only be used as financial guarantees.²⁹



Figure 6. Vehicles of financial provisions

The financial provisions for rehabilitation are limited to addressing environmental issues and cannot be used for purposes other than the approved closure activities. Failure to comply with these financial provisioning requirements can result in criminal offences.

The funds can only be withdrawn by a rights/permit holder to undertake rehabilitation and closure activities when they have received approval from the DMPR. Once rehabilitation, decommissioning and closure are completed, the company applies for a closure certificate. If the DMPR assesses the **relinquishment criteria** to have been met, it issues the certificate, which transfers responsibility for, and the costs of, environmental damage back to the state.

In theory, the DMPR has the right to claim financial provisions from a company to effect rehabilitation if it has not been done adequately, as is the case in liquidation and business rescue. The DMPR is required to keep a register of funds for financial provisions, and external audits are required every five years.

In practice, the limited rate of closure certificates shows that rehabilitation and closure regulations are often bypassed or delayed. Reasons include failure to meet the **relinquishment criteria**, the state's reluctance to avoid liability, or capacity constraints. Consequently, it is easier to place mines in indefinite C&M, or sell them on to smaller operators, leaving closure to the less resourced. Although new owners should provide the same financial provisions, this is often not the case.³⁰

3.2.1 Financial provisions for local socio-economic development

While the rehabilitation financing discussed in this report is limited to environmental aspects, the MPRDA also requires mining companies to support broad-based black economic empowerment, as outlined in the Mining Charter, and to make financial provisions for social and economic development of mineworkers and communities as described in the Social and Labour Plans (SLP) Guidelines. SLPs must address six aspects:

- human resource development for mineworkers
- mining community local economic development
- improved housing and living conditions of mineworkers
- employment equity
- enterprise and supplier development in local communities
- management of downscaling and retrenchment, including the establishment of 'future forums' with workers and labour unions to minimise job losses and economic impacts.

The SLPs must be developed in consultation with local communities and local government, and they must align with the host municipality's local integrated development plans. Mining companies must convene at least three meetings each year with mine communities and interested and affected persons to discuss the plan's content and implementation. The Act does not specify how much financial support should be invested in SLPs, but the DMPR is meant to evaluate the financial commitments and determine whether they are reasonable in relation to the scale of the operation.

In practice, the SLPs are widely seen to have failed to ensure that mining regions receive ongoing investments in human and physical capital. Research shows that their

development is usually outsourced to consultants, with communities often unable to even access the final documents, and their commitments are rarely fulfilled.³¹ SLP investments have been of poor quality, resulting in dilapidated clinics or empty sports facilities. Poor governance and inadequate capacity at the municipal level also undermine their potential. Although mining licences are conditional on the full implementation of the SLP, the Department has yet to revoke a licence for failure to do so. Thus, the mechanism meant to ensure economic diversification and human development in mining regions – conditions that would allow for their genuine rehabilitation – have proven inadequate.

The Draft Mineral Resources Development Amendment Bill (2025) proposes to strengthen SLP regulations and it mandates meaningful consultation, greater sanctions for non-compliance and increased obligations for SLPs, including local beneficiation.

3.3 How are financial requirements for rehabilitation calculated?

In line with international best practice, South African regulations require rehabilitation cost estimates to be updated annually, based on the progress in **concurrent/progressive rehabilitation**, new areas of disturbance and any changes to the mine plan. Financial provisioning is therefore an iterative process of impact assessment and risk profiling to meet closure objectives and a sustainable end state.³² Costs include rehabilitation, water treatment, demolition, maintenance and long-term monitoring.

All applicants must appoint an independent competent person to develop the design and determine the quantities. They also complete a screening questionnaire to determine their risk level, which determines how they calculate their financial provisions.

Applicants fall into two risk categories. The low-risk category includes those who are prospecting but not removing minerals and those mining commodities with a low latent environmental risk, as listed in the regulations. These applicants use prescribed DMPPR input sheets to cost their labour, plant and equipment, materials and fuel expenses, using master rates (with links to StatsSA and the AA) and a costing template for their rehabilitation activities. A summary of the process is shown in Figure 7.

The high-risk category applies to those with permission/rights to both prospect and remove minerals and those mining high-risk commodities. Instead of using a template and master rates, they must itemise all activities and base their costs on market-related rates. As market rates change every year, their financial provision calculations will change even if mine closure plans do not. A review of 12 financial-provisions models for large-scale mines in South Africa indicates the complexity of the task. Although the overall average was 404 line items totalling R377 million, the largest case had 1 755 line items totalling R1.5 billion.³³

Many companies do not fully capture their rehabilitation costs, whether by using sub-standard specifications based on generic guidelines and cost estimates or not adequately accounting for uncertainties in future costs and hard-to-measure environmental risks.³⁴ Such shortcomings should be ameliorated through oversight by the DMPR, which can request review and revision when not satisfied with the calculations.

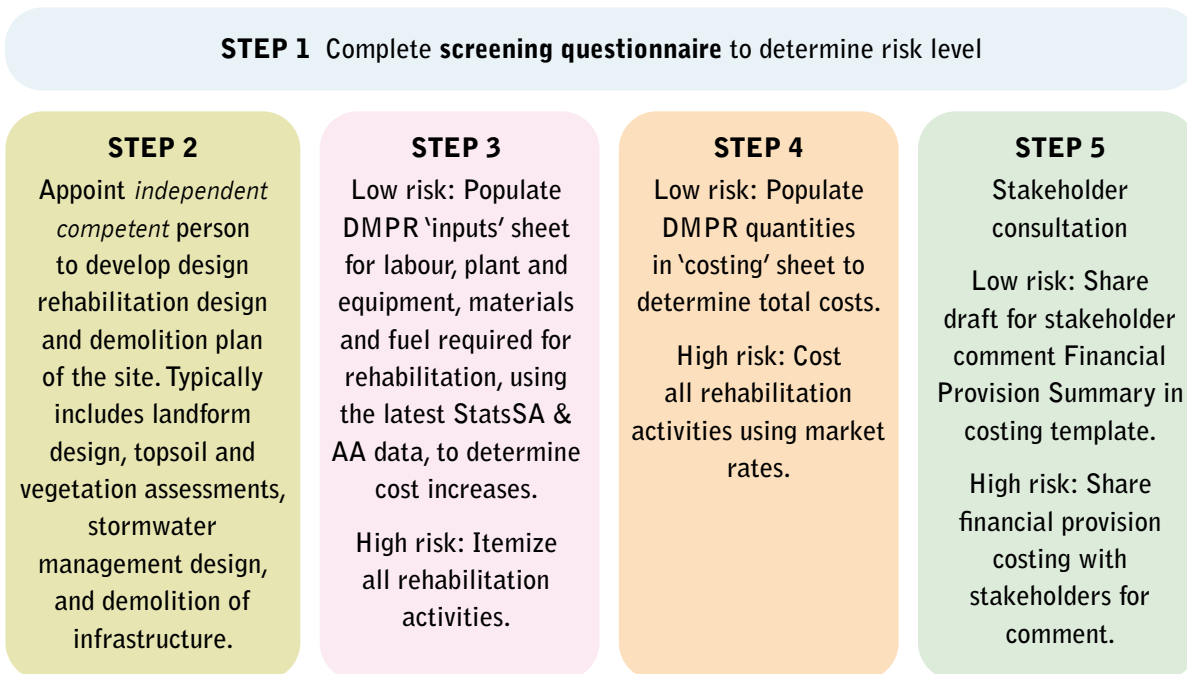


Figure 7. Process for costing financial provisions

The degree of accuracy in costs will vary greatly, depending on the expected time until closure, and this must also be reported as per the regulations (see Figure 8). If the mine closure is more than 30 years away, the closure design only needs to be pre-conceptual, with a plus-minus 50% degree of accuracy. However, if closure is less than five years away, a detailed design is required with cost-estimation accuracy of +/- 10%. This uncertainty means that the financial provisions may be inadequate when the time comes to implement closure, particularly if closure is premature. To address this, closure costing can now use models that calculate the measure of uncertainty in the cost.³⁵ Further work is needed to define and quantify the costs of potential hidden risks,³⁶ and greater oversight is needed to check the level of accuracy.

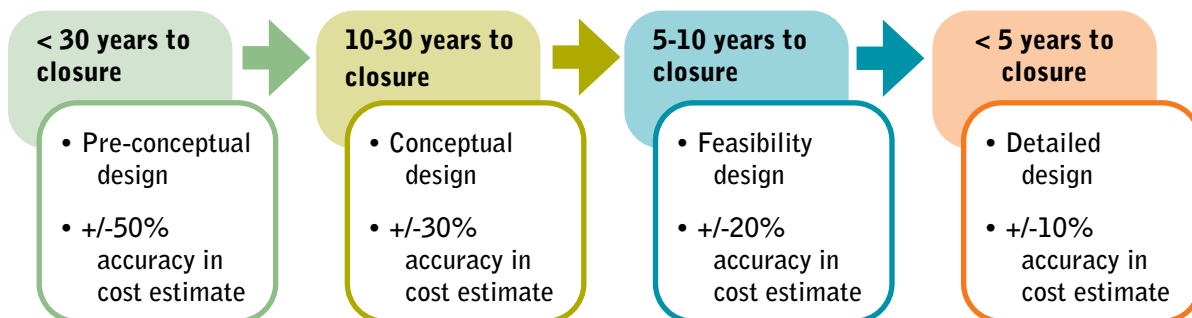


Figure 8. Degree of accuracy in rehabilitation cost estimates in regulations

4. HOW MUCH FUNDING FOR REHABILITATION IS THERE?

The DMPR is known to be non-transparent and non-responsive in matters of compliance, licensing and reporting.³⁷ In early 2025, the department presented a high-level overview of current financial provisions for mine rehabilitation, which showed that almost R100 billion (USD 5.8 billion) of financial provisions are held in trusts (53%), bank guarantees (46%) or cash (1%).³⁸ Mining rights for large-scale mines make up the vast majority (98%) of the value of financial provisions, with prospecting rights, mining permits and borrow pits holding relatively small provisions (see Table 1). Provincially, Free State and Mpumalanga each hold 32% of the financial provisions, while Limpopo and North West hold 12% each, and Gauteng holds 9% (see Figure 9).

Table 1. Financial provisions for rehabilitation by type of rights, 2025

TYPE OF RIGHT	CASH (R MILLION)	GUARANTEE (R MILLION)	TRUST (R MILLION)	TOTAL (R MILLION)	% OF TOTAL VALUE
Prospecting rights	121	1	2	1 244	1.25
Mining permits	137	715	0	852	0.85
Mining rights	157	44 052	53 295	97 504	97.86
Borrow pits	11	21	0	33	0.03
Total	426	45 909	53 297	99 632	100

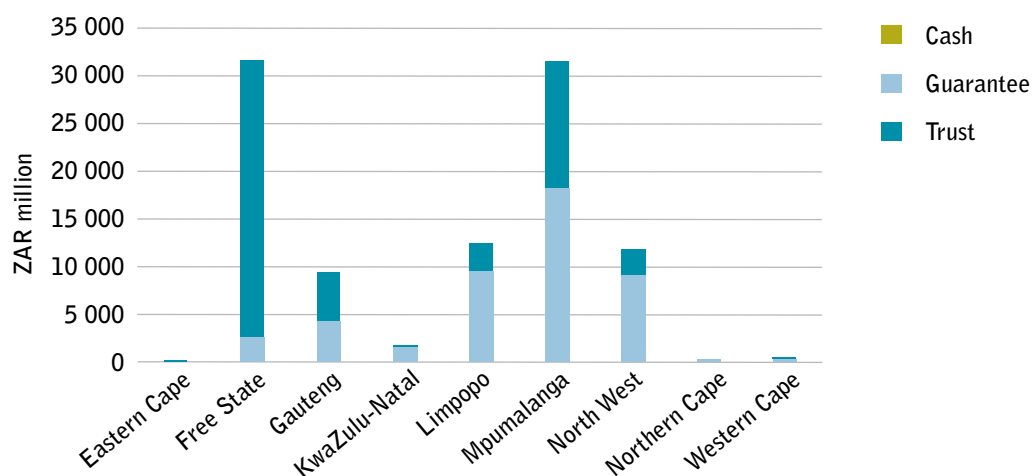


Figure 9. Financial provisions for mine rehabilitation by province

The DMPR does not provide any further detailed data on financial provisions. The data needed to explore specific commodities, companies or mines must be requested under the Permission for Access to Information Act or through questions in Parliament. Between 2015 and 2017,³⁹ the Oxpeckers investigative journalism unit used such methods to gather extensive data and made it publicly available. Analysis of this data for this report is provided in the tables below, and establishes several important points:

1. The largest financial provisions by value are held by major mining companies operating large-scale coal, gold, platinum, chromium, iron ore, manganese and diamond mines (see Figure 10), with provisions an order of magnitude larger than those held by junior mining companies. These would be categorised as high risk.
2. The largest number of financial provisions are for quarries and borrow pits, but these are of low value, with less than R1 million in cash and/or guarantees. Rights holders include the South African National Road Agency, the Department of Public Works, Roads and Transport, Transnet, Eskom and municipalities. These would be categorised as low risk.
3. Several large provisions are held by mining projects where no mining has yet been undertaken. Therefore, the financial provisions are much larger than would be required if the mine did not open. This means that the amounts declared by the DMPR may not actually be available for rehabilitation and they could be overstating the provisions.
4. Large provisions are held by mines that have been on care-and-maintenance status for many years. They may be reopened when metal prices rise or they may close when a certificate is issued.
5. Each provincial office records and/or reports data differently. Some offices do not identify the type of financial provision or type of rights, which must be deduced from file names.
6. The total financial provisions in 2015 were R60 billion, which is 60% of the total of R100 billion in 2025, ten years later. While this increase is encouraging and indicates that the regulations are having the right effect, it is likely still insufficient.

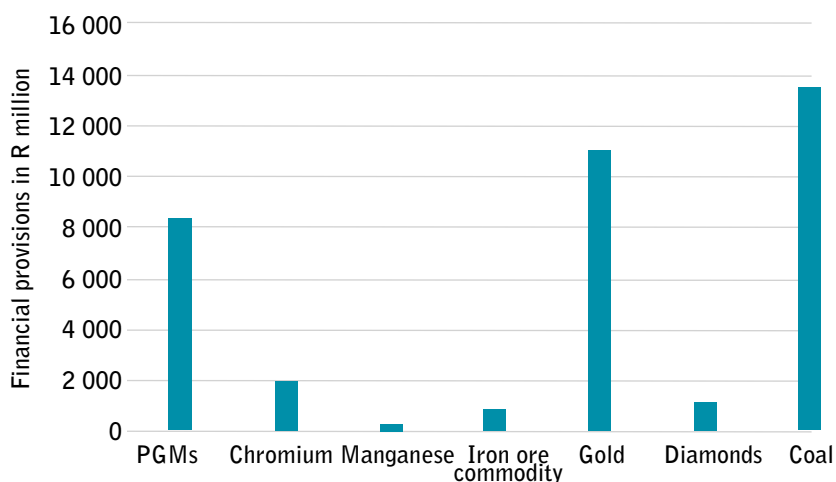


Figure 10. Financial provisions for major commodities, 2015

4.1 Rehabilitation funds for manganese and iron ore

The Kalahari Manganese Field in the Northern Cape is the world's largest land-based manganese resource, generating 37% of global production.⁴⁰ While iron ore has been mined at large open pits in the area since 1947, manganese mining began in 1975. The mines are both open-pit and underground operations. In the past decade, approximately 15 new manganese mines have opened to capitalise on recent global demand for use in steel, batteries and alloys.

In 2015, financial provisions in the form of bank guarantees of R297 million were held by seven manganese mines (average R42 million) and R872 million was held by three iron ore mines (see Table 2). The current financial provisions for manganese should be much higher.

Table 2. Financial provisions for manganese and iron ore mines in the Northern Cape, 2015

CRITICAL MINERAL	MINE NAME	HOLDER/OWNER	LIFE OF MINE	FINANCIAL PROVISIONS IN R MILLION
Manganese ore	Black Rock	Assmang	2050	76
	Mamatwan and Wessels	Hotazel Manganese Mines (Anglo American, South32)	2082	12
	York	Kudumane Manganese Resources	2053	60
	Salene	Thari Resources	?	10
	Tshipi Borwa	Tshipi E Ntle Manganese	2044	52
	UMK	United Manganese of Kalahari	2038	60
	Lomoteng	Huatian SA Mining & Investment	?	26
	Iron ore	Sishen	Anglo American (Kumba)	2036
Kolomela		Anglo American (Kumba)	2036	324
Sedibeng		Sedibeng Iron Ore	?	20

4.2 Rehabilitation funds for platinum and chromium

South Africa's Bushveld Igneous Complex is the world's largest platinum and chromium resource. More than fifty mines produce almost 71% of the world's platinum and 45% of global chromium.⁴¹ Platinum has been mined in the Rustenburg area in North West province since the 1920s, but has expanded rapidly in Limpopo in recent decades, particularly around Burgersfort and Steelpoort. While almost all mines are underground with relatively small surface footprints, the Mogalakwena mine near Mokopane is a complex of large open pits and waste dumps. The ore is concentrated at several processing plants in both provinces, which produce tailings and require financial provisions.

These mines and plants hold a large share of the financial provisions in North West and Limpopo: 46 platinum mines (individual shafts or pits) held R8.3 billion (average R174 million per mine) in 2015, and 18 chromium mines held R1.95 billion (average R108 million) (see Tables 3 and 4). The largest provisions are held for older mines in the Rustenburg area. Not all currently operating mines appear in the financial-provisions dataset, and the figure is likely to be higher in 2025. None of the mines are expected to close in the next 10 years, but some high-cost operations may be forced to stop operations if platinum prices drop further. Three underground mines are under care and maintenance due to high operating costs and fluctuating platinum prices, but may be reopened in the future.

Notes below for table on p21:

*Note: Holder is the company/organisation that held the provision in 2015 according to the DMPR. Owner is the current owner of the mine/plant/project.

**Note: Projects are mines that are under different stages of development but have not begun operating yet. They do not have a life of mine.

Table 3. Financial provisions for platinum mines in 2015

PROVINCE	MINE NAME	HOLDER IN 2015 / OWNER IN 2025 *	LIFE OF MINE	FIN. PROVISIONS (2015, R MILLION)
North West	Marikana (5 shafts)	Eastern Platinum / Sibanye Stillwater	2032–2069	433
	Rustenburg (5 shafts)	Anglo Platinum / Sibanye Stillwater	2053	2 565
	Bafokeng Rasimone (2 shafts)	Royal Bafokeng	2062	298
	Impala Rustenburg (11 shafts)	Impala	2050	1 067
	Kroondal	Aquarius / Sibanye Stillwater	2037	755
	Eland	Eland Platinum / Northam	2055	282
	Crocodile River	Barplats / Eastplats	2038	94
	Pilanesberg	Pilanesberg Platinum /		
	Sedibelo Resources	C&M	617	
Limpopo	Bakgatla/Union (3 shafts)	Anglo Platinum / Siyanda Resources	2033	183
	Amandelbult (Tumela, Dishaba)	Anglo Platinum / Valterra Platinum	2048	528
	Mogalakwena (3 pits)	Anglo Platinum / Valterra Platinum	2098	505
	Platreef	Ivanplats	2060	45
	Modikwa	Anglo Platinum / Valterra Platinum	2046	127
	Twickenham	Anglo Platinum / Valterra Platinum	C&M	140
	Marula (2 shafts)	Impala	2038	153
	Mototolo Lebowa Shaft	Anglo Platinum / Valterra Platinum	2052	158
	Mototolo Der Brochen	Anglo Platinum / Valterra Platinum	2052	96
	Bokoni (Atok)	Anglo Platinum / African Rainbow Minerals	C&M	268
	Two Rivers	Anglo Platinum / Valterra Platinum	2048	58
	Zondereinde	Northam	2047	67
	Booyseindal	Micawber / Northam	2050	91
	Zijin Garatau	Nkwe Platinum	2053	5
	Dwaalkop project	Western Platinum / Sibanye Stillwater & Northam	N/A	38
	Baobab project	Sibanye Stillwater & Northam	N/A	77

Table 4. Financial provisions for chromium mines, 2015

PROVINCE	MINE NAME	HOLDER/OWNER	LIFE OF MINE	FINANCIAL PROVISIONS (2015, R MILLION)
North West	Western Chrome Mines	Samancor	2045	209
	Marico Chrome	Marico Chrome	unknown	14
	Rustenburg plants	Glencore / Merafe Resources	N/A	828
	Tharisa	Tharisa Minerals	2050	369
Limpopo	Thaba	Cronimet	unknown	118
	Sefateng Chrome	Sefateng	2050	49
	Dwarsrivier	Assmang	2060	34
	Western Chrome Mines	Samancor	2035	35
	Haakdoorndrift			
	Eastern Chrome Mines (7 mines)	Samancor	2030–2044	175
	Thorncliff	Glencore, Xstrata	2050	120
	Moeijelijk & Naboom	Bauba a Hlabirwa	2035	11

4.3 Rehabilitation funds for gold mines

The Witwatersrand Basin hosts the world’s largest gold deposit. Gold mining began in South Africa in the 1880s around what is now Johannesburg, expanded rapidly, peaked in the 1980s and has been in decline since, although the country is the world’s twelfth-largest producer.⁴² Mine closure was a gradual process stretching over decades in the late 20th century as shafts closed based on their profitability.⁴³ Underground gold mining currently continues in various sites across Gauteng, Free State, North West and Mpumalanga provinces. Simultaneously, many tailings dams from past and present gold mines are being retreated to benefit from the record-high gold prices. Gold mining is a major source of acid mine drainage, which pollutes water resources and negatively impacts human and ecosystem health.

There was more than R11 billion in financial provisions for gold mines in 2015, with an average of R291 million per mine (see Table 5). Provisions of R271 million were held by rehabilitation trusts for old mine tailings storage facilities that were revegetated but are now being, or will be, reprocessed to extract gold. Twelve gold mines (16 shafts) are expected to cease operations in the coming decade, and it remains to be seen how the billions in financial provisions will be used and whether they will be sufficient.

Table 5. Financial provisions for large gold operations, 2015

PROVINCE	OPERATION NAME	HOLDER IN 2015 / OWNER IN 2025	LIFE OF MINE	FINANCIAL PROVISIONS (2015, R MILLION)
Gauteng	Kloof (5 shafts)	Goldfields / Sibanye Stillwater	2033	1 430
	Driefontein (10 shafts)	Goldfields / Sibanye Stillwater	2034	1 700
	Mponeng, Savuka, TauTona	AngloGold / Harmony	2044	1 086
	Kusasaletu (2 shafts)	Harmony	2028	280
	Doornkop (1 shaft)	Harmony	2042	51
	Cooke) (tailings retreatment)	Cooke Rehabilitation Trust, Sibanye Stillwater	2027	398
	South Deep (4 shafts)	Goldfields	2101	935
	ERGO (tailings retreatment)	AngloGold, Crown Rehabilitation Trust, Grootvlei Rehab Trust, Central Rand / DRDGold	N/A	682
	Blyvoor	Blyvooruitzicht Trust / Aurous Resources	2059	52
	Modder East	Gold One	2035	105
Free State	Beatrix	Sibanye Stillwater	2026	547
	Joel	Harmony	2030	81
	Masimong	Harmony	2026	1 031
	Target 1	Avgold / Harmony	2029	560
	Tshepong	Harmony	2031	408
	Bambanani	Harmony	closure underway	501
	Wits Gold project	Wits Gold	N/A	27
North West	Moab Khotsong	Harmony	2044	2 192
	Buffelsfontein	DRDGold	liquidated	275
Mpumalanga	Evander	Pan African Resources / Taung Gold	2036	314
	Fairview, Sheba, Consort	Pan African Resources	2039	1
	TGME project	Theta Gold	N/A	18
	Burnstone project	Sibanye Stillwater	N/A	31

4.4 Rehabilitation funds for coal

South Africa is the world's seventh-largest coal producer with approximately 90 operating coal mines and many abandoned ones. Most are in Mpumalanga, but others are found in KwaZulu-Natal, Free State, Gauteng and Limpopo. With the transition away from thermal coal, major mining houses have sold operations to junior mining companies with less capacity to close mines properly, which is a major concern for affected communities. Coal mining is a major source of water and air pollution and harmful impacts on human and ecosystem health.

Financial provisions for coal-mine rehabilitation were almost R17.5 billion in 2015 (see Table 6). Several mines that have ceased operations (they cannot be recognised as closed mines until they receive a closure certificate) held R1.5 billion provisions, which were used for rehabilitation. Of most concern are the two mines that have ceased operations and entered a business rescue process (Optimum and Woestalleen), as it is unlikely that adequate rehabilitation was done. At least 11 coal mines are expected to close in the coming decade, with financial provisions of R5.6 billion. Vele is on **care and maintenance** for financial reasons. Tshikondeni is undergoing closure.

Table 6. Financial provisions for coal mines, 2015

PROVINCE	MINE NAMES	HOLDER IN 2015 / OWNER IN 2025	LIFE OF MINE	FINANCIAL PROVISIONS (R MILLION)
Free State	Sigma Mooikraal	Sasol	2042	75
	New Vaal	Anglo Coal / Seriti	2039	657
Limpopo	Grootegeeluk	Exxaro	2057	1 247
	Tshikondeni	Exxaro	closure underway	90
	Thabametsi project	Exxaro	N/A	885
	Vele	MC Mining	C&M	71
	Makhado project	MC Mining	N/A	112
	Mpumalanga	Secunda complex (5 mines)	Sasol	2032–2053
	Tweefontein	Xstrata / Glencore	2032	547
	Magareng, Douglas, Klippoortjie, Spitzkop	Xstrata	rehabilitation uncertain*	431
	Isibonelo	Anglo Coal / Thungela	2026	491
	Goedehoop	Anglo Coal / Thungela	2028	200
	Greenside	Anglo Coal / Thungela	2032	334
	Mafube / Nooitgedacht	Anglo / Thungela, Exxaro	2032	439
	Khwezela / Landau	Anglo Coal / Thungela	2028	482

PROVINCE	MINE NAMES	HOLDER IN 2015 / OWNER IN 2025	LIFE OF MINE	FINANCIAL PROVISIONS (R MILLION)
MMS	Anglo Coal / Seriti	2052	652	
	New Denmark	Anglo Coal / Seriti	2040	148
	Kriel	Anglo Coal / Seriti	2030	783
	Khutala	Anglo Coal / Seriti	2031	321
	Douglas	BHP / Seriti	rehabilitated	1 044
	Klipspruit	BHP / Seriti	2040	82
	Optimum	Liberty Coal	business rescue	1 697
	Leeuwpan	Exxaro / Overlooked	2029	373
	Matla	Exxaro	2051	18
	New Clydesdale	Exxaro / Ndlamo	2032	240
	North Block Complex	Exxaro / Ndlamo	2035	55
	Inyanga	Exxaro	rehabilitated	218
	Strathrae	Exxaro	dump remined	127
	Iyanga	Iyanga / Beryl Coal	unknown**	10
	Forzando	Overlooked	2037	56
	Dorstfontein	Overlooked	2036	46
	Mbali	HCI	unknown	56
	Kiepersol	Jindal	2040	49
	Kleinfontein, Grootpan, Doornrug	Umcebo	rehabilitation uncertain	178
	Taaiboschspruit, Welgedacht	Kangra Coal	rehabilitation uncertain	184
	Leeuwfontein, Graspan	Shanduka	rehabilitation uncertain	111
	Koornfontein	Ingwe	2042	473
	Woestalleen	NuCoal / Kego Mining	business rescue	5
	Nkomati	Nkomati Anthracite	2042	18

* Note: These mines have ceased operations but it is uncertain whether they were rehabilitated. A mine cannot be termed 'closed' until it receives a closure certificate from the DMPR.

** Note: Unknown life of mine means the mine is still operating but has not published an SLP or life of mine.

4.5 Rehabilitation funds for other commodities

Other commodities in South Africa with significant financial provisions include copper, diamonds, and phosphate rock (see Table 9). Copper was mined on a large scale in the Northern Cape from 1852 and in Limpopo from 1950, while diamonds have been mined since 1869, with large open pits being extended with underground operations.⁴⁴ More than R1.2 billion in financial provisions were held in 2015 for diamond mines.

Table 7. Financial provisions for copper, diamond and phosphate mines, 2015

PROVINCE	MINE NAME	COMMODITY	OWNER	LIFE OF MINE	FINANCIAL PROVISIONS (R MILLION)
Gauteng	Cullinan	diamonds	Petra Diamonds	2031	348
Northern Cape	Star	diamonds	Star Diamonds	unknown	15
	Finsch	diamonds	De Beers	2037	123
Free State	Koffiefontein	diamonds	Petra Diamonds / Stargems	C&M	
	Lace	diamonds	Diamond Corp	2041	8
Limpopo	Venetia	diamonds	De Beers	2046	682
	Palabora	copper	Rio Tinto, Anglo American	2048	826
	Phalaborwa	phosphate	Foskor	unknown	545

5. CASE STUDY: TSHIKONDENI COAL MINE, LIMPOPO

5.1 Mining and socio-economic context

Located in a remote corner of north-east Limpopo (Figure 11), Tshikondeni coal mine sits within the Thulamela Local Municipality and was established in 1984 by the state-owned Iscor company to supply metallurgical coal to its steelworks. Due to the unspoilt natural beauty of the area and the concerns of conservationists, environmental impacts were taken seriously from the beginning: a processing plant to treat tailings was built, and part of the mining lease area was allocated as a nature reserve.⁴⁵

The mine became part of Kumba Resources in 2001 and later of Exxaro, a South African mining and renewable energy company. Tshikondeni mine operated six underground shafts and three mini open pits until 2014, when it closed due to resource depletion, with downscaling and closure planning starting in 2011.⁴⁶ The mine, which had employed 770 people in 2010, was reduced to seven permanent employees, 18 temporary employees and 133 contractors in 2017,⁴⁷ and further reduced to 61 workers (six permanent and 55 contractors) in 2022.⁴⁸ Based on coal production and company financial results, the mine earned an estimated R20 million (before interest, tax, depreciation and amortisation) in 2010 and R118 million from 2010 to 2014.⁴⁹



a



b

Figure 11. Tshikondeni mine: **a.** location map; **b.** satellite image

The workers lived in Exxaro’s Tshikondeni mine village and single quarters, which housed 530 people, and in rural villages situated 5–15 kilometres from the mine. With an average population of 800,⁵⁰ these are located in the former homeland of Venda, which was severely under-resourced during apartheid. Mining brought some employment to the area and reduced poverty,⁵¹ but without wider economic development, unemployment in the villages remained very high, ranging from 50% to 76% in 2011.⁵² Only the mine village received basic services provided by Exxaro – piped water, toilets and refuse removal – while the villages have remained largely unserved (see Table 8). For example, only 1% had water in their homes, and only 60% met the RDP standard of piped water within 200 metres of their home.⁵³ Exxaro funded and constructed a 1.2-mega-watt solar photovoltaic plant at the mine site to support operations and the employee village, and handed it over to the municipality in 2022.⁵⁴

Table 8. Social indicators of villages near Tshikondeni mine

Note: Data is from the 2011 census. Village-level data from Census 2022 is not yet available.

VILLAGE	POPULATION	% FEMALE	% TAP WATER IN DWELLING OR YARD	% REFUSE REMOVAL	% ACCESS TO TOILET	% ELEC-TRICITY	% UNEMPLOYED
Tshikondeni	429	43	100	100	100	100	6
Sanari	975	52	1.5	0	1	97	66
Thondoni	423	51	0	0	3	97	53
Mukomawabane	390	50	0	0	0	96	51
Madangani	708	53	79	0	0	92	50
Ha-Makuya	1179	55	6	1	1	93	72
Mutele	726	51	3	0	0.5	97	63

5.2 Mine closure and rehabilitation

Mine closure began in 2011 with the downscaling of operations and initiation of the retrenchment process in terms of Section 189(1) of the Labour Relations Act. An EMPr was submitted to the DMPR in 2016 and approved in 2017, allowing rehabilitation to begin with infilling of pits, topsoil dressing and revegetation. The processing plant was decommissioned and dismantled, and the area was covered with topsoil.⁵⁵ Rehabilitation of 139 of the 198 hectares of disturbed land (which includes all buildings, roads and mining areas) was completed by 2019, according to the mine’s EMPr and the final land use plan, with maintenance on waste dumps remaining.⁵⁶ Water withdrawals from the river and dam reduced steadily from 1 218 megalitres in 2012 to zero in 2018. Additional rehabilitation was undertaken in 2022. It appears that the rehabilitation work was undertaken by Exxaro employees and contractors who had worked for the company prior to closure. Exxaro has not yet applied for mine closure as it aims to gradually relinquish the site to the Makuya Tribal Council through the Tshikondeni Legacy Pro-

ject (TLP). Public participation in the EMPr involved annual meetings with the mine’s interested and affected parties: government departments and agencies, local traditional leaders, tribal councils (Makuya, Mukomawabane, Mutele and Tswera), Kruger National Park, Makuya Park, the local council, the Makuya Management Forum and the Wildlife Society.⁵⁷

Rehabilitation was funded from a trust fund, the Exxaro Environmental Rehabilitation Fund, which provides for most liabilities, while a bank guarantee of R49 million was taken out in 2017 to cover any shortfalls.⁵⁸ In 2009, R90 million in financial provisions for rehabilitation was held for Tshikondeni mine.⁵⁹ This increased to R158 million in 2016 in preparation for closure, which was estimated to cost R128 million in 2016. The estimated immediate closure costs reduced each year as rehabilitation was undertaken; while the estimated residual cost (for ongoing and long-term impacts) increased to R30 million in 2019 until they were addressed in 2020 and decreased to R4 million (Figure 12). The trust fund grew to R271 million in 2024, while the bank guarantee remained constant. This means that there are likely to be sufficient funds for unexpected rehabilitation expenses.

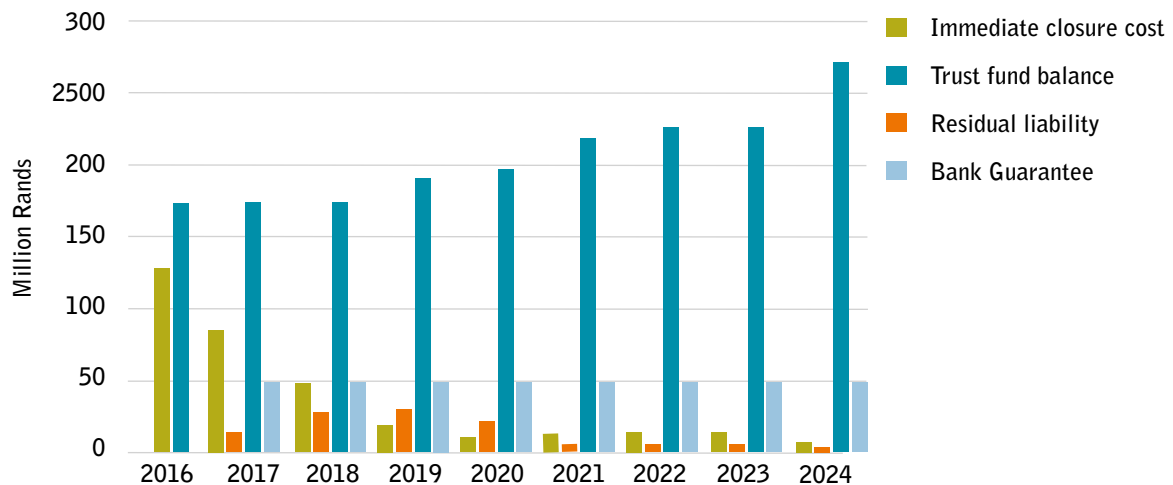


Figure 12. Closure costs and financial provisions at Tshikondeni

Exxaro developed a post-closure economic strategy to transform the area from mining to eco-tourism by taking advantage of its proximity to the Kruger National Park. The company repurposed its mine village and handed it over to the non-profit Makuya Tshikondeni Development Foundation, owned by the Makuya traditional community. The TLP is administered by the Foundation, with representations from the Makuya Tribal Council, Exxaro and ArcelorMittal, and funded by the two companies. It forms part of the Post-mining Investment Programme within Limpopo, valued at R228 million. Proposed projects under the TLP are meant to align with the government’s National Biodiversity Economy Strategy, which has demarcated the Tshikondeni Biodiversity Economy Node within the Makuya Nature Reserve, adjacent to Kruger National Park, supported by government departments and the Peace Parks Foundation. Economic activities are expected to include wildlife hunting, taxidermy and the sale of animal products.

5.3 Community development and impacts

Although the former mineworkers were informed about the impending closure and the mine adopted a phased closure approach, many struggled to envision their livelihoods beyond mining. Many had worked for the mine for more than twenty years and found the employment termination experience very painful. This was exacerbated by the lack of job opportunities around Tshikondeni. Residents have experienced poverty, depression, hopelessness, family breakdown, school dropout and disillusionment with the state due to the mine closure.⁶⁰ Tshikondeni's social and labour plans related to mine closure were committed to zero external recruitment, redeployment of employees to vacancies in Exxaro, a severance package of two weeks' pay for each completed year of service, reskilling with basic life skills, financial skills and training for small enterprise training, and short-term incentive payments for retrenched workers.⁶¹

The SLP budgets for human resource development covered portable skills training for 32 employees and community members; establishing a community computer centre at Ha-Makuya Village to train 100 people over three years; offering 10 community members an accredited 12-month learnership programme in conservation at the Wildlife College; and three bursaries to community members to study at universities or technical colleges. The SLP local economic development projects included Rotangiwa (Musunda) citrus farm, Makuya cattle lot, Sanari Skills Development Centre, three creches, Mukumawabane community hall, 56 houses (in Mukumawabane, Sanari and Mutele), a water supply project, and enterprise development (training, mentoring and coaching, business support, and funding support) for three small and medium enterprises in the local community over four years.

Exxaro's Tshikondeni mine SLP budget for 2018–2027 was R9.9 million, almost R1 million per year. While these are welcome contributions to the local communities, they are far too little in this remote area with its levels of poverty and unemployment. Significantly more effort is required from the government to improve the basic services, education, healthcare and livelihoods of the people most affected by mine closure.

6. CASE STUDY: KUSASALETHU GOLD MINE, GAUTENG

6.1 Mining and socio-economic context

Kusasaletu is a mature, deep-level gold mine reaching 3 388 metres below surface, 90 kilometres west of Johannesburg in Merapong City Local Municipality,⁶² where the 2011 census found that one-quarter of workers were employed in mining.⁶³

The mine complex comprises two sections: the currently operational Kusasaletu (formerly Elandsrand), which is expected to cease operations in 2027; and Deelkraal, which ceased operations in 2004 due to high operating costs, although it still provides ventilation underground. Gold ore is treated at the nearby Mponeng plant and refined at the Rand Refinery in Germiston. The Kusasaletu waste rock dump is being reclaimed and deposited on the tailings dam, while Deelkraal's waste rock dump was reclaimed and processed through the Kusasaletu Plant.⁶⁴



a **b**
Figure 13. Kusasaletu mine. **a.** location map;⁶⁵ **b.** satellite image with settlements and nearby mines

Anglo American opened the mine in 1957, and Harmony Gold acquired it from AngloGold in 2001. Harmony, a major South African mining company, has broadened its shareholding to include 56% ownership in terms of broad-based black economic empowerment policy, including the Harmony Gold Community Trust (1%) for the community and the Harmony ESOP Trust (1.5%) for employees.⁶⁶ Kusasaletu employs 3 968 people and paid R72 million in royalties in 2024.

Like all the neighbouring settlements – including the town of Carletonville, Wedela township and other villages for mine employees – Kusasaletu’s Deelkraal village and hostel were established to support gold mining in the far West Rand. Deelkraal village was sold to another owner but never proclaimed as a township as intended. Harmony still provides essential services to the village. Due to the support of the mining industry, the settlements have very high levels of service provision and low unemployment levels in the South African context (see Table 9).

Table 9. Social indicators of settlements near Kusasaletu mine

Note: Data is from the 2011 census. Village-level data from Census 2022 is not yet available.

Settlement	Population	% female	% tap water in dwelling or yard	% refuse removal	% access to toilet	% electricity	% unemployed
Elandsrand mine village	2 191	7	88	100	100	100	2
Wedela township	17 928	49	98	100	100	100	36
Deelkraal mine village	1 530	46	98	98	98	99	14
Elandsridge mine village	2 490	45	100	100	100	100	17
Mponeng mine village	2 892	4	95	100	100	100	3
Carletonville town	23 000	49	97	96	97	97	18

6.2 Mine closure and rehabilitation

Harmony published Kusasaletu’s first independent mine closure plan (drafted by Digby Wells Environmental) in 2024, after a public commentary period from August to September 2023. It includes an annual rehabilitation plan and builds on its 2010 EMPr of 2010 and 2014 EIA/EMPr.⁶⁸ The closure plan vision is ‘to leave behind a mine site which is safe, stable and non-polluting. The post-mining landscape must be sustainable over the long term and achieve the desired end land use as agreed with the relevant authorities.’⁶⁸

The plan focuses on environmental aspects, viewing sustainable land use as a support for future socio-economic development. The rehabilitation plan for 2023/24 included back-filling the remaining waste rock at Deelkraal shaft, followed by the demolition of three Deelkraal shafts and footprint rehabilitation. Deelkraal shaft-support infrastructure, ore silos, hostels, the smaller village area and most of the Deelkraal Gold Plant were demolished after operations ceased in 2004, while the sewage treatment plant was sold. As the Kusasaletu waste rock dump will be reclaimed in full (under operational costs), only the footprint will require rehabilitation. Planned decommissioning of the tailings dams involves shaping slopes and upper surfaces, removing infrastructure and constructing down-drains to ensure stability and drainage. Decommissioning is expected to take five years, followed by monitoring and maintenance for three years, or until the site **relinquishment criteria** are met and a closure certificate is issued by the DMPR.

The closure plan proposes the establishment of a multi-disciplinary closure committee in line with international best standards, to ensure that closure planning is carried out correctly. It would include a community liaison and development officer to engage with stakeholders through a dedicated forum. The plan also includes a public participation process in accordance with the NEMAA which identified stakeholders and disseminated project information through a background information document, announcement and notification letters, newspaper advertisements and site notices. The plan is digitally accessible on the Digby Wells website, while hard copies are available at the Merafong Local Municipality and Kusasaletu Mine.

The deep-level gold mines in the far West Rand are all interconnected with neighbouring shafts, and intersect two aquifers. Mine closures therefore have significant implications for other mines and water quality in the area. This has been an important reason why some non-operational mines have not been able to obtain a closure certificate.

Kusasaletu is connected to the Savuka mine (formerly Western Deep Levels, which ceased operations in 2017), which is connected to the Driefontein mine to the east and the old Blyvooruitzicht mine shafts (which include Blyvoor) to the north (see Figure 13). Savuka mine has no pumping capacity. If Driefontein and/or Blyvoor mines stop pumping water out of their shafts, Kusasaletu could be flooded. At Kusasaletu, the tailings dams pose the greatest environmental risk through groundwater contamination and airborne dust, which would impact local water quality, agriculture and human health. The closure plan recommends developing a detailed hydrogeological model and a water monitoring programme for the existing four surface water and 13 groundwater points.

Merafong City's 2018 Integrated Development Plan analysed its mining areas to determine which should be designated for rehabilitation and which should be adapted for reuse in line with the overall development strategy. A viability scoring system considered accessibility, economic potential and municipal financial viability. Deelkraal and Kusasaletu had the lowest viability scores, and the plan recommended their demolition and rehabilitation. Because of this, the Kusasaletu closure plan assumes the demolition of all infrastructure and the development of a post-closure land use in line with the plan.

Harmony updates the closure cost assessments for all operations on an annual basis using rates based on third-party contractor Digby Wells' extensive database. The total closure cost assessed in 2022 was R262 million, with the largest amount pegged for the demolition of infrastructure that is deemed a financial liability and safety risk, shown in Figure 14.

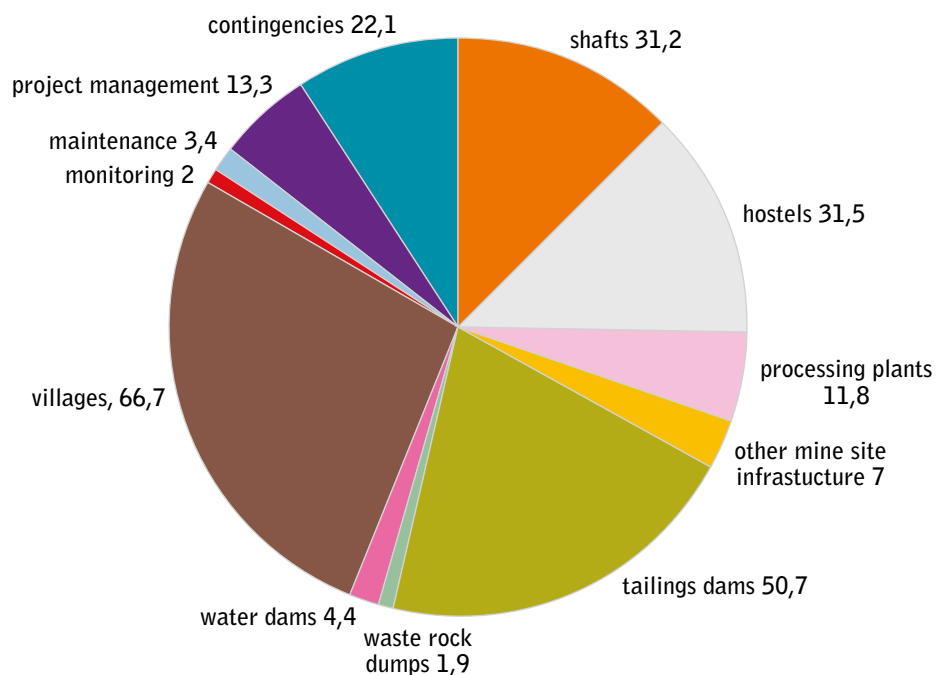


Figure 14. Mine rehabilitation, decommissioning and closure costs in million Rands for Kusasaletu

6.3 Community development and impacts

Harmony has committed to involving local communities in their rehabilitation programmes to increase social benefits. They have piloted this approach in the Welkom area, where 38 local people were employed in revegetation of a tailings dam,⁶⁹ and in Soweto, where 22 employment opportunities were created for local community members during the revegetation of the Doornkop tailings dam.⁷⁰ At Kusasaletu, a labour-intensive project to remove alien and invasive vegetation was begun in 2016 to support socio-economic development.

Kusasaletu has an operational future forum comprising representatives from mine management and unions or association branch committee members. The forum deals with productivity improvement issues, minimising job losses and limiting the impact of downscaling and retrenchments where these cannot be avoided. The forum is challenged by inefficiencies and discontinuity due to regular changes in the union representation. Harmony conducts annual audits.

Financial provisions in the Kusasaletu SLP for 2023–2027 are R6.4 million each for human resource development and local economic development, R300 000 for enterprise and supplier development, R840 000 for housing and living conditions, and a minimum of R400 000 for downscaling and retrenchment (to be assessed at closure), which averages to R2.9 million per year. With almost 4 000 workers expected to lose their jobs in 2027 when operations cease, the cost of retrenchment is likely to be significantly higher.

7. KEY INSIGHTS

Several key insights can be taken from the literature review, data analysis and case studies in this report:

1. Mine rehabilitation focuses on the technical and environmental aspects of decommissioning a mine, and financial provisions are dedicated to these tasks. Social and economic aspects are meant to be addressed through the Mining Charter and social and labour plans but their implementation is inadequate. The draft amendment bill is seeking to incorporate post-closure economic development into mine closure plans and funds. Recently, major mines have contracted SMMEs in local communities for rehabilitation projects to increase societal benefits.
2. Employing local communities members in rehabilitation and closure activities is beneficial, but only a small number of short-term jobs can be created. This indicates that the socio-economic focus of mine closure should be to create an environment that supports alternative economic and livelihood activities – which is the responsibility of both the mining company and the government.
3. A mine closure plan, environmental management programme and the related financial provisions can change each year with changes to mine design, new data and analysis and stakeholder engagement. Predicting viable land use at the end of a mine's life is challenging and requires meaningful public participation.
4. Many mines do not fully capture rehabilitation costs as they use substandard specifications based on generic guidelines and closure cost estimates, or they do not adequately account for uncertainties in future costs and environmental risks that are hard to measure. Despite this, more than R100 billion is held for mine rehabilitation in South Africa.
5. After mine operations cease, it can take more than a decade for the company to be able to apply for a closure certificate, although the rehabilitation funds can be accessed within a year or two if planning is adequate, following approval by the DMPR.

8. RECOMMENDATIONS

The outcomes of mine rehabilitation significantly affect mining communities, and interventions are needed to ensure that the financial provisioning framework adequately contributes to socio-economic development. This involves strengthening national and local governance through monitoring and compliance; meaningful community consultation through enhancing transparency; adequate funding through a reformed financial contributions framework; and mapping a pathway to a just transition that effectively uses rehabilitation funds and stewards land disturbed by mining.

8.1 Monitoring and compliance

Inadequate governance capacity and interdepartmental coordination across the various responsible departments, and related institutions are major barriers to achieving successful mine closure and rehabilitation outcomes that benefit affected communities. The government must enforce the financial provision regulations and monitor their implementation, and Parliament, Chapter 9 institutions and civil society need to ensure that these functions are adequately implemented. Measures to address existing governance shortcomings could include the following:

- Communities and civil society need formalised spaces to monitor and co-govern rehabilitation processes. This should be included in the financial provisioning regulations. Multi-stakeholder oversight forums could be convened at district and provincial levels, including representatives from local municipalities, communities, labour and civil society.
- If the DMPR is unable to adequately monitor and enforce closure compliance, alternative mechanisms need to be identified, such as establishing an independent mining regulator or moving responsibility to functional governing bodies.
- In particular, the DMPR, Parliament and Chapter 9 institutions must ensure public participation requirements are adhered to, and create meaningful spaces for engagement.

8.2 Enhancing transparency

Major barriers to adequate financial provisioning for mine rehabilitation are poor transparency, limited auditing and disclosure, and the inconsistency and questionable reliability of information provided by rights holders and the DMPR. While there has been a steady improvement in the reporting of closure costs and rehabilitation over the past decade, it varies greatly across companies. While the DMPR does not seem to adequately monitor the accuracy of costings, whether sufficient funds have been set aside, or if rehabilitation is actually occurring, the overall lack of transparency makes it impossible for the public and civil society to assess these and raise concerns. Proposed solutions include:

- South Africa should consider creating an online national mine rehabilitation transparency portal that would publish data on each mine's financial provisions, EMPs, expected closure date, affected communities, implementation status and beneficiaries. This should be updated annually and be freely available to the public. It could include a GIS-enabled web map to visually link the data to the mining lease areas and mines.
- Mining companies should be encouraged to disclose comprehensive information on all of their tailings storage facilities to the Global Tailings Portal and commit to the Global Industry Standard on Tailings Management.
- Parliament and other oversight arms of the state should hold DMPR accountable for its implementation and transparency failures.

8.3 Financial contributions framework: ensuring adequate finance

The current system of financial provisions does not ensure that sufficient funds have been set aside for environmental rehabilitation, or that mines adequately or meaningfully contribute to socio-economic development in communities affected by mining. SLPs are insufficient to support a post-mining economy, even if they were all properly implemented. The financial provisions framework should rethink what rehabilitation means, how they should be collected, who can access them and on what terms, as well as what they are used for. Recommendations regarding the collection of financial provisions could include:

- Regulations that govern how financial provisions are managed when mines are sold need to ensure that mine closure and rehabilitation do not depend solely on less-resourced operators. For example, the funds set aside by the seller – as cash, guarantees or in a trust fund – should be transferred to a reliable institution.
- The separation between funding for socio-economic development (as provided for by SLPs) and environmental rehabilitation could be reconsidered in the late stages of mining.
- Minimum contribution levels should be considered. If operators fail to implement SLPs, their licence could be suspended and/or the cash equivalent levied.
- National Treasury must ensure that adequate finance is available to the DMPR to speedily and satisfactorily rehabilitate abandoned mines.

8.4 Financial contributions framework: access

At the moment, only the DMPR, the trust funds or the mining companies, can access the financial provisions set aside for rehabilitation. While strict access is essential for good governance, this could be reconsidered with the intention of strengthening local governance and institutions, as well as ensuring successful outcomes.

- Local municipalities' constitutional mandates mean that they must be involved in the planning, oversight and implementation of mine closure and rehabilitation projects. In well-governed municipalities that have received clean audits, a portion of rehabilitation funds could be channelled through the municipality or municipality-led special-purpose vehicles. Capacity to improve municipal governance could be funded by mining companies, as is already being achieved by Anglo American through the Municipal Capacity & Partnership Programme (<https://www.mcp-programme.co.za/>).
- Augmentation of existing and well governed public funding streams, such as the Municipal Infrastructure Grant, can be explored, and the Just Energy Transition Funding Platform could be utilised for sourcing new funding.

- Establishing community-governed rehabilitation trusts should be explored. South Africa can learn from international models of participatory rehabilitation governance that link rehabilitation funding to community economic reinvestment, as found in Canada, Colombia and the Philippines. These would ensure that they are used to build local productive capacity, community-owned enterprises and ecosystem restoration.

8.5 Financial contributions framework: uses of funds

As outlined above, international best practice has seen significant shifts in the past decade. Mine closure and rehabilitation considerations now include job creation and economic diversification. This has the potential to support a just transition that builds a post-mining economy that is ecologically regenerative, socially inclusive and democratically governed. Future mine land uses must consider technical, environmental, social, economic and governance factors.⁷¹

- Better mechanisms are needed to ensure that rehabilitation plans align with integrated development plans and district development models.
- In line with international best practice, greater investment in research is needed to understand the key factors for a successful transition to a post-mining economy and to assess how post-mining land can be repurposed for renewable energy, food security and ecological restoration. Research should also explore how gendered impacts and leadership are addressed in mine closure and rehabilitation, ensuring women's participation and benefit.
- Considerations should be given to whether provisions can be utilised to support the building of locally owned assets and the establishment of local enterprises. For example, provisions could support land rehabilitation cooperatives owned by mine-affected residents, agroecology and renewable energy projects on post-mining land, and skills development and social infrastructure investment in partnership with municipalities.
- Provisions could also include seed funding for economic development in the affected communities that would attract businesses, investors and donors (as the Tshikondeni Legacy Project aims to do).
- Lastly, rehabilitation activities should align with Just Energy Transition Partnership projects to create synergistic transition zones for post-mining regeneration. Mine rehabilitation and closure planning should be integrated with national and local just transition principles and initiatives, to enable communities to benefit from Just Energy Transition investments rather than bear the costs of mine closure.

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