

Mine Closure: *The Elephant in the Room*

Good Morning ladies and gentlemen.

Thank you to Benchmarks Foundation for inviting me to come and share some of my research findings on mine closure in the context of South Africa.

In the past few years, I undertook a PhD research study on mine closures in South Africa.

The study was prompted by my interest in how the Mpumalanga Province, particularly eMalahleni will be impacted and affected by IRP2019, which is South Africa's Integrated Resource Plan that seeks to provide an energy mix that is not heavily reliant on coal for power generation. To reduce reliance on coal, coal power plants will be closed in favour of other power generation sources, thus triggering coal mine closures. Therefore mine closures are inevitable and it is a natural progression in the mining lifecycle.

Coal mining has been at the centre of South Africa's development and has contributed to the country's economy for over 160 years. However, mining is a temporary land use activity and mine closure is inevitable. Mining activities degrade the land and often leave behind a negative environmental legacy. The problem is that little is known about whether regulatory frameworks for mine closure facilitate the broadest range of post-closure land uses for mining communities.

Mine closure represents the completion of mineral extraction or the abandoning of uneconomical mineral reserves, including decommissioning, removal of infrastructure and followed by rehabilitation of land for post-mining uses. Yet, mining companies worldwide have a notorious history of abandoning mines without conducting proper mine closure.

In South Africa, this has left an unsightly environmental liability. The 2009/10 Auditor-General's report highlighted that approximately 6000 abandoned mines and 1730 were classified as high-risk mines requiring approximately R28,5 billion from the State. In the period 2011 to 2016 the mining regulator DMRE issued 787 closure certificates across the country.

A significant number of those closure certificates equating 81% were assigned to prospecting rights and small-scale mining permits. A further 57 closure certificates were issued for mining rights for road works associated with highway construction. Only 27 closure certificates which is 3% were assigned to mining rights relating to mining activities. The mining regulator is reluctant to close mines and issue closure certificates, particularly those classified as high-risk.

The mining regulator's failure to acknowledge that mining is temporary and that mine closure is a process in the mining life cycle is short-sighted.

There is a dearth of research on the extent to which current mine closure regulatory frameworks take cognisance of new approaches to post-mining land-use (PMLUs) outcomes. Furthermore, there is limited literature regarding what extent PMLU choices and progressive rehabilitation in the coal mining industry are driven by compliance with the legislation.

My research addresses these research gaps by interpreting and critiquing the regulatory framework that governs mine closure and post-closure of South Africa's coal mines

The research study undertook a qualitative research approach that incorporated a case study of an active mine closure at Tshikondeni Coal Mine (TCM), in Limpopo Province.

The empirical data was collected by conducting semi-structured one-on-one interviews with the research participants, which constituted a research sample, to gain an in-depth understanding of practices and processes adopted when planning for mine closures.

The findings that I will be presenting emerged from the data collected from interviews with the research participants under the themes of mine closure planning, stakeholder engagement, progressive rehabilitation, financial provisioning, compliance & enforcement and relinquishment.

1. Mine Closure Planning

Mine closure in South Africa is regulated by several legislative frameworks mainly the MPRDA, NEMA, EIA Regulations 2017 and the Financial Provision Regulations, 2015 under NEMA.

The mineral regulatory authority, DMRE has recently gazetted the draft National Mine Closure Strategy under the MPRDA. The strategy intends to provide the basis for the mining industry on developing mine closure plans. The primary object of the strategy is to plan for mine closure in a holistic approach by developing regional mine closure plans.

Sometimes, in the mine closure planning affected communities are excluded together with their inputs, which may lead to a mismatch between the planned mine closure outcomes and the communities' expectations.

Independent consultants appointed to develop closure plans conduct stakeholder engagements when developing closure plans, however, responses from research participants amplified that these stakeholder engagement platforms are mostly for providing communities with information instead of only extracting information from the communities to use as input into mine closure plans. Developing mine closure plans that are detached from the communities' post-closure desires and expectations presents a shortcoming. A consequence is a failure to achieve the desired post-closure outcomes that accomplish socio-economic objectives for communities.

This Draft National Mine Closure Strategy is a good starting point for the regulator to address mine closure. This is a framework that intends to streamline integrated mine closure planning in South Africa's mining industry.

Therefore, when developing mine closure plans, socio-economic aspects must be considered and mapped into the LoM. The stakeholder engagement process undertaken when developing mine closure plans needs to be used as a platform to further gain insight into the communities' post-closure expectations and desires. Engaging communities continuously throughout the LoM is central to understanding and managing their post-closure expectations.

2. Stakeholder Engagement

When a mine ceases to operate several stakeholders are affected to differing degrees. My research findings indicate that mining communities are the most affected stakeholders. When a mine closes, the livelihoods of communities are affected negatively. Therefore, it is fundamental for mining companies to engage communities meaningfully when planning for closure to manage the expectations of mine communities.

In the context of mine closures, South Africa's regulatory framework considers environmental factors more than social factors. But the rights of communities must also be considered and protected the same as the environment.

Therefore, the definition of '**meaningful consultation**' needs to be expanded further in the MPRDA to include social parameters for mining authorisation and mine closure planning processes.

Another finding that emerged from my research data is the need to empower communities, particularly with the knowledge to participate in planning for mine closure. It further emerged that the participation of mine communities in mine closure planning is limited, which disadvantages communities in being involved in decision-making.

When communities are empowered with the knowledge to participate, they tend to be better qualified to be part of decision-making that could be beneficial to the broader community.

However, I found that whilst it is important to empower mine communities with knowledge for meaningful engagement, just as important is the mine communities' ability to be organised and have structured internal engagement platforms. There must be structures that foster internal engagements amongst the community to facilitate meaningful participation and develop the ability to negotiate with external stakeholders.

Thus planning for mine closure in collaboration with all stakeholders including government and communities, allows for all stakeholders to influence the final closure plan, resulting in agreed post-closure goals

3. Progressive Rehabilitation

Progressive rehabilitation is fundamental to managing environmental impacts and remedying land degradation resulting from mining activities. Progressive rehabilitation is conducted over the LoM in managing environmental impacts and at mine closure when a mine operator has planned to return the land to its natural or predetermined state.

In terms of NEMA section 24N, mining operators are obligated to use the EMP as an instrument to manage environmental impacts, including rehabilitation of mine-degraded land.

Most participants from my research claimed that rehabilitation is often done to the lowest land quality and capability – either restored to the wilderness or allocated to grazing as the final land use. They further reiterated that rehabilitation is undertaken to achieve the bare minimum to comply with provisions in the regulatory framework and where

... rehabilitation is still seen as covering the black stuff with brown stuff and putting the green stuff over it.

The minimal land rehabilitation undertaken by mining companies in addition to the non-monitoring of the quality of rehabilitation by the regulator offers little confidence regarding land capability to deliver successful post-closure outcomes.

Currently, the regulator's expectation of rehabilitation is low, where it requires mine operators to rehabilitate the land to return to its pre-mining or as close as acceptable conditions.

This leads to the question: ***How does the current South African regulatory framework governing mine closure encourage innovative PMLUs options beyond the concept of the wilderness?***

Innovate PMLUs options can envisage a reimagined final land use that is aligned with the desired socio-economic outcomes.

4. Financial Provision

Financial Provision refers to financial assurance where the amount is quantified and allocated for the remedying of environmental liability when the mining operator is undertaking mine closure. To rehabilitate the land progressively and manage residual and latent environmental impacts, mining companies are required to allocate funds in terms of the Financial Provision Regulations, 2015.

The mining right holder is required by law under NEMA for financial provisioning to be provided for upfront at the mine development phase, rehabilitation, mine closure and latent or residual environmental liabilities. The financial provision can be allocated by one or a combination of methods, trust funds, cash guarantees or bank guarantees that are stipulated in NEMA Financial Provisions Regulations 2015.

A finding in my research relating to financial provisioning is the inadequate calculation of financial resources for mine closure planning. This poses a serious risk to the implementation of mine closure activities.

This finding concurs with the survey by McKay et al on the insufficient allocation of financial resources for predetermined mine closure objectives, including the rehabilitation at the end of LoM and post-closure socio-economic projects.

The survey found that it is often mine closure planning is conducted poorly and that inadequate funds are allocated towards the process.

In 2018 Intellidex, a leading research and consulting firm that specialises in capital markets and financial services conducted a survey on financial provisioning. The survey found that the information disclosed by mining companies regarding rehabilitation and mine closure is not comparative information between companies. No industry standard or template prescribes elements that must be disclosed and reported on. Thus, each mining company reports on their template. Therefore, the sufficiency of financial provisions allocated by companies cannot be confirmed based on the information disclosed in their annual integrated reports.

5. Compliance and Enforcement

The current regulatory framework NEMA obligates mining companies to comply with and consider environmental aspects of mine closures.

To some extent, the mining industry, particularly big mining companies, have demonstrated their commitment to the management of environmental impacts and their contribution to mechanisms that protect the State from incurring financial liability.

However, a finding in my research study indicates that mining companies approach compliance as a 'tick box exercise' and rather perform what is cheap, and not necessarily what is best. The finding further highlighted that mining companies usually approach mine closure planning in a minimalistic manner with the primary objective being to comply with the regulatory framework rather than aspiring for sustainable closure.

On the other hand, the enforcement of compliance is critical for regulating mining activities, including mine closure. This is the responsibility of the regulatory authorities, to enforce compliance using the regulatory framework and legislation as an enforcement tool. However, my research data bring to light that compliance enforcement is insufficient because of two reasons:

Firstly, there is a misalignment amongst the three regulatory authorities, DMRE, DFFE and DWS.

Theoretically, these three government departments responsible for regulating mining activities have been synchronised through the One Environmental System. In 2015 the One Environmental System was established to harmonise the MPRDA, NWA and NEMA under the three regulatory authorities and In an effort to integrate these three pieces of legislation for environmental management in the mining industry.

However, a finding in my research data indicates that the functionality of the One Environmental System at the implementation level has not been realised since its inception in 2015. The three regulatory authorities are still functioning in silos, which is ineffective for regulation and compliance enforcement in the mining industry.

Secondly, there is a deficiency of skills and knowledge within the regulator's office. A limited or lack of professional capacity regarding rehabilitation and mine closures was highlighted by almost all research participants. Generally, there is a capacity and skill gap regarding mine closure across the mining industry, and there is also limited competence within the regulator's office and training institutions. This leads to delays in processing mine closure applications, providing guidance on the process and decision-making on approvals.

Thus, a tedious closure application process and hesitancy to issue closure certificates by the regulator unfortunately may lead to the unintended consequence where the mining operator walks away from conducting proper mine closure, leaving the environmental liability and detrimental post-closure socio-economic conditions that will ultimately be the sole responsibility of the State.

6. *Mineral asset transfer vs mine closure*

South Africa's mining landscape is changing – big mining companies that have previously dominated are exiting the industry by transferring mineral assets to junior companies.

The data of my research study indicate that a few years before the end of LoM, mining companies tend to transfer mineral assets instead of initiating mine closure. The mineral assets are often acquired by junior mining companies as either new entrants or companies expanding their mining portfolio. The regulator favours the acquisition and transfer of mining assets to another operator, thus discouraging mine closure in favour of 'saving jobs'.

In some instances, there are legitimate reasons why mining companies choose to transfer mineral assets to other companies, where closure is not always the only or preferable option and mineral assets can be transferred to operate as late-life mines. However, the practice of transferring near-exhausted mineral assets to junior minors is not a sustainable closure strategy because acquiring mineral assets closer to the end of LoM may have an adverse impact on the acquiring company's ability to accumulate adequate financial provisions for mine closure.

7. Relinquishment

Lastly, a challenge and concern to the mining industry is relinquishment. The International Council on Mining and Metals (ICMM) defines relinquishment as '**the return of ownership to the corresponding jurisdiction following completion of closure activities**'. It is the final step to end the relationship between the mining right holder and the mining regulator.

Whilst at a broader global level, ICMM presents a framework for relinquishment that can be used at the national level by different mining jurisdictions to develop country-specific provisions for relinquishment.

My research data identified the importance of establishing a relinquishment criterion for mine closure planning in the South African regulatory framework. Highlighting that setting a relinquishment criterion is fundamental for the success of mine closure outcomes and provides clear policy direction for disengagement.

In conclusion, indeed mine closure as the elephant in the room is becoming a burning issue that can no longer be ignored but rather needs all industry players, mining companies, mining communities and mining regulators.

Legislation and guidelines need to be aligned to support unified goals and provide a clear indication to the mining industry.

The study further demonstrated that regulatory authorities with enabling legislation are a catalyst for ensuring successful mine closures. Whilst promoting economic growth and mineral resources development via the MPRDA, the regulator of the mining industry in South Africa must acknowledge that mining is a temporary land use activity and that the workforce is temporary. Therefore, discouraging mine closures and expecting mining to continue in perpetuity to preserve jobs, risk mines not being closed but rather being abandoned.

When mines are abandoned and not closed properly, the communities are left with an unrehabilitated landform that becomes a safety hazard, which diminishes any prospects of viable land-use choices post-mining.

When closure certificates are not being issued as envisaged by the legislation, particularly for large-scale mines mining companies cannot disengage from closed operations.

The Draft National Mine Closure Strategy is explicit about the holistic approach in developing regional mine closure plans but it needs to include an objective on post-closure and relinquishment criteria that obligates the DMRE as the regulatory authority to issue closure certificates.