Global Benchmarking of Mining Waste Rules – South Africa

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This report provides additional detail to the completed excel document.

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Executive Summary

This benchmarking report assesses the alignment of South Africa's mining waste regulations with international best practices outlined in the 'Safety First' guidelines. The assessment draws on the lessons from the Jagersfontein tailings disaster, examining legal and institutional gaps in tailings dam safety, transparency, monitoring, financial assurance, closure, and siting. Key findings indicate that South Africa falls short in nearly every guideline benchmarked, particularly around the use of upstream dams, lack of independent oversight, and inadequate public disclosures. The report calls for urgent regulatory reform to safeguard lives, livelihoods, and the environment.

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1. Ban upstream dams at new mines, and safely close existing upstream facilities (Safety First Guideline 4; p. 22)

(a) Does the jurisdiction ban the upstream tailings dam construction method for new and/or proposed facilities?

No. South African legislation does not explicitly ban upstream tailings dam construction. The use of upstream construction methods is somehow permitted, below is the examination of legislation as it concerns upstream tailing dam construction;

National Environmental Management: Waste Act, 2008 (NEMWA)

- NEMWA governs mine residue deposits (MRDs) and residue stockpiles as waste.
- GN 921 of 2013: Lists waste management activities that require licensing — e.g., construction of tailings dams — but does not specify or restrict the method of construction (upstream vs. downstream/centerline).
- There is no clause banning or even referencing upstream dam construction.

Conclusion: NEMWA governs the classification and licensing of tailings facilities but is silent on the method of dam construction.

National Environmental Management: Air Quality Act, 2004

- The Air Quality Act addresses dust emissions and ambient air quality standards.
- Tailings dams are considered a potential source of dust pollution, especially when dry or wind-exposed.
- GN 827 of 2013 and Dust Control Regulations focus on dust fallout limits and monitoring requirements.

Conclusion: While tailings facilities are regulated for air quality, the Act does not regulate or refer to upstream construction methods.

Mineral and Petroleum Resources Development Act, 2002 (MPRDA) & Regulations

- The MPRDA governs the entire life cycle of mining operations.
- It requires an Environmental Management Programme (EMPr) and a Mine Works Programme (MWP).
- The MPRDA Regulations (GNR 527 of 2004) and amendments specify general requirements for design and management of

tailings facilities, including stability, monitoring, and risk — but not the specific method of dam construction.[1]

Conclusion: The MPRDA and its regulations set performance and safety standards, but do not ban or define upstream tailings dam construction.

Summary Table

Legal Framework	Mentions Upstream Tailings?	Bans It?	Key Notes
NEMWA & GN 921 (Waste Act)	❌ No	❌ No	Requires licensing but silent on methods
Air Quality Act & Dust Regs	❌ No	❌ No	Regulates dust, not structural design
MPRDA + GNR 527 Regulations	❌ No	❌ No	Requires safety, does not specify method

Final Insight

There is no South African statute, regulation, or notice under these Acts that:

- Defines what "upstream tailings construction" is;
- Bans its use;
- Or requires disclosure of construction method during permitting.

(b) Does the jurisdiction require a halt to expansion of existing facilities using the upstream method or the closure of existing upstream facilities?

Answer:

No. There is no legislative requirement to halt expansion or mandate closure of existing upstream facilities, although recommendations have been made post-disaster for stricter oversight.

[1] 56 Principles for mine closure
In accordance with applicable legislative requirements for mine closure, the holder of a prospecting right, mining right, retention permit or mining permit must ensure that… (c) the safety and health requirements in terms of the Mine Health and Safety Act, 1996 (Act 29 of 1996) are complied with;

(c) Does the jurisdiction consider a "modified centerline" construction method equivalent to an upstream construction method?

No. South African legislation and associated regulations (including under the MPRDA, NEMWA, and National Water Act) do not provide definitions or technical classifications of tailings dam construction methods — such as upstream, centerline, modified centerline, or downstream.

The design, location, and construction method of tailings storage facilities are typically submitted as part of the Environmental Impact Assessment (EIA) and Mine Works Programme (MWP), but there is no regulatory framework requiring authorities to classify or differentiate between construction methods. This leaves significant discretion to the proponent and their engineers, with no binding guidance or oversight on the use of modified centerline techniques.

In contrast, the Safety First Guidelines make a clear distinction, warning that even modified centerline methods may pose risks similar to upstream designs. Safety First urges caution where any part of the wall is built over previously deposited tailings, especially in high-consequence areas.

"Where there is uncertainty about whether a particular facility qualifies as upstream, the precautionary principle must apply." (Safety First, p. 24)
As such, South Africa does not meet the Safety First standard of evaluating or restricting construction methods based on relative risk — nor does it recognize modified centerline designs as potentially equivalent to upstream construction in terms of hazard profile.

(d) Does the jurisdiction have provisions that are more protective or more conservative than Safety First?

Answer:

No. South Africa's current regulatory framework — including the National Environmental Management Act (NEMA), the Minerals and Petroleum Resources Development Act (MPRDA), and the Waste Act — does not exceed or match the Safety First benchmark when it comes to banning upstream tailings dam construction. These laws focus on environmental authorization, waste licensing, and financial provisioning, but they do not prohibit high-risk construction methods such as upstream or modified centerline tailings dams. There is no binding technical standard that restricts design types based on

safety performance history, population exposure, or downstream consequences.

In fact, South Africa lacks even a national tailings management standard, leaving a regulatory gap that permits unsafe and outdated practices — a gap starkly illustrated by the Jagersfontein tailings disaster.

The Bench Marks Foundation Report (2022) recommends urgent and systemic reforms, including:

- Prohibition of tailings dams built over shallow aquifers or near populated areas
- Independent oversight of tailings design, construction, and monitoring
- National standards on tailings facility design, including clear bans on risky methods
- Improved interdepartmental enforcement between DMRE, DWS, and local municipalities
- Community involvement in oversight and disaster preparedness
- Clear lines of accountability across mine ownership changes

"Jagersfontein represents a complete failure of risk management, accountability, and regulation… The disaster was foreseeable, preventable, and repeated known patterns of corporate impunity."
— Bench Marks Foundation, 2022

These recommendations go beyond South Africa's current legal standards and are more closely aligned with Safety First, which mandates precautionary design decisions and exclusion of upstream dams where human life is at risk.

(e) Are there any additional considerations in this jurisdiction that are important in relation to upstream dams?

Yes. The Jagersfontein disaster exposed deep structural issues in South Africa's mine waste governance, including poor enforcement, absence of independent oversight, and unclear legal responsibility — particularly when tailings ownership is transferred to junior entities. Beyond the findings of the Bench Marks Foundation, academic literature — such as the article "The catastrophic failure of the Jagersfontein tailings dam: An industrial disaster 150 years in the making" — highlights critical systemic failures:

- The lack of a national tailings dam inventory or classification system that flags upstream construction or high-risk sites.
- The absence of enforceable technical design standards, unlike Canada's CDA Guidelines or Brazil's ban on upstream dams post-Brumadinho.
- The failure to apply the precautionary principle, especially in populated areas with historical, legacy dams.
- Poor integration of social, geotechnical, and environmental risk factors, despite the presence of warning signs such as overtopping, spillage, and seepage.

Several scholars recommend that South Africa:

- Establish a legally binding national standard for tailings storage facility (TSF) design, with clear definitions and bans on upstream and hybrid methods in high-consequence areas.
- Create a public registry of all TSFs, with classification, ownership, design type, and risk level.
- Mandate independent third-party review of tailings dam design and performance, especially for legacy dams.
- Strengthen interagency coordination among DMRE, DWS, and municipalities, with shared emergency response authority.
- Update the SANS and related standards because even the GISTM requires attention to upstreams tailings.

In summary, South Africa's continued tolerance of upstream and related construction methods — especially near inhabited areas — reflects a gap not only in law, but in risk culture. The recommendations across academic, civil society, and international best practices strongly align with the Safety First call to ban upstream dams altogether and to apply the precautionary principle wherever uncertainty exists.

2. Mandate the use of Best Available Technologies, in particular for filtered tailings (Safety First Guideline 6; p. 25)

(a) Does the jurisdiction mandate the use of Best Available Technologies as specified by the Mount Polley Independent Expert Engineering Investigation and Review Panel?

No. South African mining law does not define or mandate Best Available Technologies (BAT) for tailings storage, nor does it incorporate the findings of the Mount Polley Panel. Instead, the

regulatory framework relies on general environmental duty-of-care principles in NEMA (Section 28) and performance-based standards within Environmental Management Programmes (EMPrs). However, these provisions lack the specificity and enforcement capacity to ensure the use of technologies that minimize failure risk.

(b) Does the jurisdiction explicitly require the use of filtered tailings?

No. There is no legal requirement for filtered tailings (i.e., dry stack or dewatered tailings) in South African law. The majority of tailings storage facilities continue to use conventional slurry deposition methods, which are more prone to stability challenges, particularly during periods of intense rainfall or poor maintenance.

(c) Does the jurisdiction require an analysis of the feasibility of filtered tailings be presented to regulators during the permitting process?

No. The regulatory process does not require an alternatives assessment comparing filtered and unfiltered tailings options. The choice of tailings method is typically determined by cost and operational feasibility, with limited regulatory oversight or safety-driven justification. This omission creates a gap compared to Safety First, which recommends full consideration of filtered tailings, especially in high-risk or populated areas.

(d) Is the structural zone, or containment structures, of filtered tailings facilities subject to relevant dam regulations in this jurisdiction?

Partially. Tailings dams are regulated through a patchwork of laws: the National Water Act (for dam safety classification), the MPRDA (for mine residue facilities), and the Waste Act (for residue stockpiles and deposits). However, enforcement is fragmented, and no legislation specifically addresses the unique structural and seepage risks associated with filtered versus unfiltered tailings. Many older facilities remain unclassified or unregistered.

(e) Does the jurisdiction require maximizing backfilling of tailings in-pit or underground?

No. There is no requirement under NEMA, MPRDA, or the Financial Provisioning Regulations to assess or maximize in-pit disposal or underground backfilling. These practices, while safer and more stable, are rarely adopted unless driven by site-specific economic benefit. This is a missed opportunity, as in-pit backfilling reduces surface tailings volumes and mitigates downstream risk.

(f) Does the jurisdiction require an analysis of the feasibility of backfilling be presented to regulators during the permitting process?

No. South African EIA and mine works programme processes do not require comparative feasibility studies between surface tailings and in-pit disposal. Decisions are left to the applicant's discretion, without public interest or long-term safety prioritization.

(g) Does the jurisdiction ban subaqueous tailings disposal (aka water covers) for tailings dams?

No. While not commonly practiced in South Africa, subaqueous tailings disposal is not explicitly prohibited. There is no binding standard or guidance document that bans or regulates water-covered tailings impoundments. In fact, some decommissioned mine sites use water covers to reduce dust and oxidation, though without uniform technical or environmental assessment.

(h) Does the jurisdiction have provisions that are more protective or more conservative than Safety First?

No. South African regulations do not match Safety First's call for mandatory adoption of BAT or filtered tailings where safety and environmental risks justify it. There are no enforceable national standards mandating dry stack methods or in-pit backfilling.

(i) Are there any additional considerations in this jurisdiction that are important in relation to BAT, backfill, filtered tailings or subaqueous tailings disposal?

Yes. The Jagersfontein disaster offers a case study in the dangers of failing to apply BAT. The dam was built on a slope, above populated areas, with no indication of filtered tailings use or in-pit disposal consideration. Excessive moisture, inadequate drainage, and steep walls led to a liquefaction event. The disaster illustrates why BAT should not be optional — and why South Africa must develop a national tailings standard with mandatory alternatives assessment and performance thresholds.

3. Appropriate monitoring systems must be in place to identify, disclose, and mitigate risks (Safety First Guideline 9; p. 30)

(a) Does the jurisdiction require Adaptive Management Plans for monitoring tailings facilities that include:

i. Numeric and measurable expected performance criteria based on predictions of engineering behavior
ii. Numeric trigger levels related to monitoring results
iii. Mitigation measures for each performance criterion
iv. An evaluation of effectiveness of mitigation
v. Reporting responsibilities and regulator responses
vi. Annual AMP reports
vii. Public access to reports and community meetings

Answer:

No. South African legislation does not require comprehensive Adaptive Management Plans (AMPs) as described. While Environmental Management Plans (EMPs) are required under the NEMA and MPRDA frameworks, these generally lack specific, enforceable engineering trigger thresholds, structured mitigation feedback loops, and guaranteed public transparency or annual reviews.

(b) Does the jurisdiction require an Independent Tailings Review Board (ITRB)?

Answer:

No. There is no requirement for ITRBs under South African law. Oversight typically relies on internal or consultant engineering sign-off, which lacks the independence and regular scrutiny called for by Safety First.

(c) **Does the jurisdiction have provisions that are more protective or more conservative than Safety First**?

Answer:

No. Monitoring regulations in South Africa fall short of the proactive, publicly accountable system recommended by Safety First.

(d) Are there any additional considerations in this jurisdiction that are important in relation to monitoring systems or ITRBs?

Answer:

Yes. The Jagersfontein disaster revealed severe weaknesses in monitoring. There were signs of instability—such as over-saturation, spillage, and slope deformation—months before the failure, but no preventive action was taken . The report recommends mandatory early warning systems, independent oversight, and full transparency with affected communities.

4. Towards safer closure with no credible failure modes (Safety First Guideline 11; p. 32)

(a) Does the jurisdiction require closure plans be developed during siting and design (e.g., as part of permitting)?

Answer:

Yes. Under Section 24 of NEMA and Section 43 of the MPRDA, closure planning is required as part of the initial application. However, these plans often lack site-specific, long-term safety analysis, and rarely contemplate perpetual care or credible failure modes. In contrast, countries like Canada and Sweden require post-closure geotechnical evaluations and contingency planning to address long-term risks associated with tailings.

(b) Does the jurisdiction define closure in a manner consistent with Safety First ("…facility requires only routine monitoring, inspection and maintenance in perpetuity or until there are no credible failure modes")?

Answer:

No. South Africa does not define closure as a condition in which no credible failure modes remain. Closure is largely financial and environmental, not structural. Brazil's post-Brumadinho reforms prohibit closure certification unless the tailings facility has been fully decommissioned or converted into a stable, non-hazardous landform.

(c) Before permit approval, do regulatory agencies perform assessments of an operating company's capacity for perpetual care and financial responsibility?

Answer:

Partially. Financial provisioning under NEMA Section 24P requires future care estimation, but this is not evaluated in relation to actual tailings risk. Third-party assessment is not required. Chile and Canada, by contrast, require long-term monitoring plans with external review and guaranteed funding.

(d) Does the jurisdiction have regulations to ensure that facilities are not constructed in locations where consequences of failure would be unacceptable?

Answer:

No. There is no explicit prohibition on high-consequence siting. The Jagersfontein dam was located directly above residential areas (Charlesville and Itumeleng), in a topographically vulnerable location. There is no regulatory requirement to avoid such siting, and the concept of "zones of influence" or consequence classification is absent from national law.

(e) Does the jurisdiction require companies to present transparent documentation of cleanup costs (closure, reclamation, monitoring, maintenance)?

Answer:

Yes. Companies are required to submit closure cost estimates and make financial provision under NEMA's Financial Provisioning Regulations. Cost estimates are provided to the Department of Mineral Resources and Energy (DMRE), however, this is not always transparently disclosed to the public, nor are they independently verified.

(f) Does the jurisdiction allow companies to declare bankruptcy or sell to junior firms to avoid closure monitoring and liability?

Answer:

Yes. Jagersfontein changed ownership multiple times, with liabilities passed from De Beers to smaller entities. South African law does not explicitly restrict transfers where closure liabilities are inadequately provisioned.

(g) Does the jurisdiction have provisions that are more protective or more conservative than Safety First?

Answer:

No. South Africa's legal framework remains underdeveloped in ensuring long-term safety post-closure.

(h) Are there any additional considerations in this jurisdiction that are important in relation to mine closure?

Answer:

Yes. Closure and post-closure responsibilities are poorly enforced, especially in older or abandoned mines. The Jagersfontein case showed how legacy tailings facilities can become orphaned or mismanaged under changing ownership, with devastating results. Closure plans must include structural stability assessments and not just surface rehabilitation. Scholars recommend a formal ban on issuing closure certificates until a dam demonstrates structural safety under worst-case hydrological and seismic conditions. Lessons from Canada's Tailings Dam Risk Reduction Program also point to the need for mandatory independent dam safety certifications post-closure.

5. Address financial risks, including proper financial assurance and insurance (Safety First Guideline 12; p. 33)

(a) **Does the jurisdiction require bonding or other forms of financial assurance?**

Answer:

Yes. Financial assurance is required under the Financial Provisioning Regulations issued in terms of NEMA (GNR 1147 of 2015, as amended). These require companies to set aside funds for rehabilitation, closure, and post-closure care. However, these are primarily designed to cover rehabilitation and not necessarily dam collapse or emergency response.

(b) Does the jurisdiction require financial assurance to be in place before operations begin?

Answer:

Yes. A financial provision must be in place before an environmental authorization or mining right is granted, as per NEMA section 24P

and its regulations. However, the sufficiency of this provisioning is not independently verified.

(c) Does the jurisdiction require any sale or transfer of ownership of the tailings facility to be conditional on the new operator retaining financial assurance?

Answer:

No. There is no requirement that assurance follows the asset. Jagersfontein's change of ownership illustrates this gap, where liabilities are transferred to smaller firms lacking capacity. In contrast, the U.S. Environmental Protection Agency (EPA) requires surety bonds to remain attached to the asset, regardless of ownership.

(d) Does the jurisdiction require financial assurance be independently guaranteed, reliable, and readily liquid, with no limitations on its use for mine-related cleanup activities?

Answer:

Partially. While the regulations aim to ensure liquidity and accessibility of financial assurance, in practice, some companies use parent guarantees or insurance mechanisms that may not be immediately available for cleanup. There's also limited transparency on accessibility and sufficiency of these funds. Although intended to be accessible, companies may use parent guarantees that do not meet the liquidity or independence requirements defined by Safety First. Canada prohibits self-bonding and requires assurance to be cash-backed or provided through third-party financial instruments.

(e) Does the jurisdiction require financial assurance undergo third-party review using accepted accounting methods, at least every 3 years or when material changes occur?

Answer:

No. While annual updates are recommended, there is no requirement for third-party review or long-term (e.g., 300-year) post-closure valuation, as called for by Safety First. Reviews are internal. The DMRE has no standing independent audit process for verifying financial provisioning adequacy. In contrast, jurisdictions like Quebec mandate independent actuarial reviews of closure provisioning every three years.

(f) Does the jurisdiction require public liability insurance to cover economic, social, and environmental damages from sudden, accidental, or gradual pollutant releases including tailings failures?

Answer:

No. There is no legal obligation for companies to carry public liability insurance specifically covering tailings failures. This represents a major regulatory gap.

(g) Does the jurisdiction require yearly updates to public liability insurance that are made publicly available and include worst-case dam break studies?

Answer:

No. South Africa does not mandate the public disclosure or annual updates of insurance coverage tied to worst-case scenarios.

(h) Does the jurisdiction allow companies to self-bond or use corporate guarantees for closure or insurance?

Answer:

Yes. The current Financial Provisioning framework allows corporate financial vehicles, including parent company guarantees, which do not meet the Safety First definition of independently guaranteed and liquid funds. This approach undermines risk preparedness and allows companies with little liquidity to hold major liabilities.

(i) Does the jurisdiction require a bankable feasibility study that considers all technical, environmental, social and economic risks of the project, including potential failure modes and cost?

Answer:

Partially. While feasibility studies are part of the mine right application process under MPRDA, the explicit inclusion of all potential tailings failure modes and associated financial costs is not mandated. Feasibility studies do not require tailings-specific risk or failure mode analysis.

(j) Does the jurisdiction have provisions that are more protective or more conservative than Safety First?

Answer:

No. South Africa's financial assurance and insurance requirements do not meet or exceed Safety First benchmarks.

(k) Are there any additional considerations in this jurisdiction that are important in relation to financial assurance, public liability insurance, or feasibility studies?

Answer:

Yes. The Jagersfontein disaster showed that unclear ownership structures, lack of mandatory insurance, and limited enforcement of financial provisioning contributed to an inadequate emergency and rehabilitation response. The lack of transparent financial responsibility across ownership transitions created accountability gaps. Experts call for a National Tailings Liability Fund backed by levies or bonding, managed independently, to guarantee funding for emergency response and long-term monitoring. This is similar to Alaska's Reclamation Trust or Chile's Fondo de Reposición.

6. Make information regarding mine safety publicly available in relevant languages (Safety First Guideline 15; p. 38)

(a) Does the jurisdiction make, or require companies make, the name, location, ownership, date of operation, footprint, and height of all tailings facilities publicly available?

Answer:

No. There is no central, publicly accessible registry that compiles or mandates the proactive disclosure of these details. Data are scattered and not accessible to affected communities. Information may be found in individual Environmental Impact Assessments (EIAs), but these are not consistently or easily available.

(b) Does the jurisdiction publicly disclose, or require companies immediately publicly disclose, the date, location, amount of tailings released, and impacts after any tailings failure?

Answer:

No. Disclosure is not automatic or immediate. In the Jagersfontein case, there was confusion over the cause and ownership of the

facility, and the company did not engage promptly or transparently with affected communities or the public .

(c) Does the regulator make, or require companies make, all safety-related documents publicly available, including the following?

i. Dam Safety Reviews (DSRs)
ii. Consequence or hazard classification decisions
iii. EIAs or ESIAs
iv. Design, maintenance, and monitoring documents
v. Stability records
vi. Closure/reclamation plans
vii. Dam break studies
viii. Environmental/Social monitoring summaries
ix. ITRB reports (where applicable)
x. AMP reports
xi. Impact & mitigation plans for communities
xii. FPIC documentation
xiii. Grievance procedures
xiv. Emergency Preparedness and Response Plans
xv. Financial assurance and insurance documentation
xvi. Governmental agency filings

Answer:

No. There is no legal requirement to publicly disclose the full list above. Some documents (e.g., EIA reports) may be accessed through formal requests, but many others — like dam break studies, ITRB reports, or insurance documentation — are rarely disclosed or simply do not exist in current practice.

(d) Does the regulator disclose environmental baseline studies, permitting and monitoring documents, and emergency preparedness data?

Answer:

No. These are not proactively disclosed. Access usually requires a Promotion of Access to Information Act (PAIA) request, which can be time-consuming and often results in partial or denied access.

(e) Does the jurisdiction require all information to be free, timely, in plain and accessible language, and in relevant local languages?

Answer:

No. There is no such legal requirement. Accessibility and language considerations are not embedded in mine permitting or reporting frameworks.

(f) Does the jurisdiction require operating companies or regulators to respond fully and transparently to stakeholder information requests, with reasons provided if requests are denied?

Answer:

Partially. While the PAIA requires regulators to respond to formal access requests, there is no obligation to provide detailed reasons for refusals or to ensure the responses are understandable or complete. There's also no mandate that responses be made in local languages or plain language.

(g) Does the jurisdiction have provisions more protective or conservative than Safety First?

Answer:

No. The regime lacks transparency safeguards.

(h) Are there any additional considerations in this jurisdiction that are important in relation to public disclosures?

Answer:

Yes. The Jagersfontein case revealed a total breakdown in communication with affected communities. There was no early warning system, and no documentation was publicly available on dam design, risks, or emergency planning prior to failure . This contributed to community distrust and worsened the social impacts. Transparency is a cornerstone of disaster prevention. South Africa needs a digital public portal with facility status, classification, and hazard maps. The Bench Marks Foundation and academic authors have stressed the need for community education and early-warning systems.

7. Climate Change (Safety First Guideline 5; p. 24)

(a) Does the legislation require that all modeling and design for floods take climate change into account — for both closed and operating facilities?

Answer:

No. South African regulations do not explicitly require climate change scenarios (e.g., increased rainfall intensity, flood frequency) to be considered in tailings dam design or modelling. Although EIAs may consider environmental risks broadly, climate change impacts are not specifically mandated in mine waste design.

Jagersfontein insight: The facility was vulnerable to increased rainfall and built over aquifers, but there was no indication that climate modeling or hydrological stress tests were included in its design or maintenance planning.

8. Ban siting of new tailings dams where inhabited areas are in the path of failure (Safety First Guideline 3; p. 21)

(a) Does the jurisdiction ban new tailings facilities where inhabited areas are in the path of a tailings dam failure?

Answer:

No. There is no legal prohibition on siting tailings facilities upstream or adjacent to populated areas. Siting assessments may be part of the EIA process, but they do not include a mandatory exclusion zone for inhabited areas.

(b) Does the legislation set out zones of influence and ban tailings dams where evacuation cannot be safely and timely achieved?

Answer:

No. South African law does not define or regulate “zones of influence” for dam failure risk, nor does it require siting decisions based on evacuation feasibility.

In Jagersfontein, the tailings dam was constructed above Charlesville and Itumeleng, two densely inhabited areas. When the dam burst, there was no early warning system and no chance for safe evacuation, resulting in deaths, injuries, and destruction .

Bibliography:

- South African legislation and regulations
- Findings from the Jagersfontein report
- Safety First: Guidelines for Responsible Mine Tailings Management V2.0
- Articles and reports-
    - Bench Marks Foundation. (2022). Report on the Jagersfontein Tailings Disaster.
    - Earthworks, MiningWatch Canada, and London Mining Network. (2022). Safety First: Guidelines for Responsible Mine Tailings Management V2.0.
    - Liefferink, M., & Van Eeden, E. (2023). Civil Society's Role in Mining Oversight: From Watchdog to Governance Partner, Journal of Environmental Law & Policy.

GLOSSARY:

Below is the list of acronyms and abbreviations for source information in this report.

No.	Abbreviation /Acronym	Full Citation	BRIEF DESCRIPTION
1.	**MPRDA**	MINERALS & PETROLEUM RESOURCES DEVELOPMENT ACT 28 of 2002	The MPRDA regulates the mining and petroleum industries in South Africa. It vests the custodianship of mineral resources on the state and regulates mineral exploitation, among others.
2.	**NEMA**	NATIONAL ENVIRONMNETAL MANAGEMENT ACT 107 of 1998.	The NEMA is the framework legislation for environmental management in South Africa. It sets out the environmental management principles and provides for the general duty of care for the environment, among others.
3.	**NWA**	NATIONAL WATER ACT 108 of 1997.	The NWA is the framework legislation for the management of water resources in South Africa**.**
3.	**WASTE ACT**	NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT 59 of 2008.	The Waste Act is the sector specific environmental management legislation, which mainly focuses on the regulation of waste management. It must be read together with NEMA.

			Tailings as a form of mining waste are subject to the Waste Act.
5.	**AIR QUALITY ACT**	NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT 39 of 2004.	The Air Quality Act is the sector specific legislation that governs ambient air quality among others. It must always be read together with NMEA.
6.	**MHSA**	MINING HEALTH AND SAFETY ACT 29 of 1996.	The MHSA provides for the regulation of mining health and safety risk incidents for mine workers and communities affected by mining.
7.	**NEMA EIA Regulations**	Environmental Impact Assessment Regulations, 2014 (GN R982).	EIA Regulations set out the process for assessing the environmental effects of proposed activities prior to authorisation by the competent authority.
	Financial Provisioning Regulations	National Environmental Management Act: Regulations: Financial provision for prospecting, exploration, mining or production operations[2]	
8.	**MRR**	Mining Residue Regulations 2014 National Environmental Management: Waste Act: Regulations: Planning and management of residue stockpiles and residue deposits from prospecting, mining, exploration or production operation[3]	
9.	**MHSA REGS**	MINE HEALTH AND SAFETY ACT REGULATIONS[4][Updated to 24 April 2015]	

[2] https://www.gov.za/sites/default/files/gcis_document/201511/39425rg10526gon1147.pdf
Government Notice No. 3841 in Government Gazette No. 49220 of 1 September 2023, extends the transitional arrangements in the Financial Provisioning Regulations, 2015
https://acrobat.adobe.com/id/urn:aaid:sc:EU:d5b91555-7fc8-44c7-ba08-5ef51358ddee

[3] https://www.gov.za/sites/default/files/gcis_document/201507/39020rg10473gon632.pdf

[4] https://www.saflii.org/za/legis/consol_reg/aor229/v
https://www.mhsc.org.za/sites/default/files/public/publications/Mine%20Health%20and%20Safety%20Act%2029%20of%201996%20and%20Regulations%20Final%20Booklet.pdf

10.	**MRD GUIDE**	Guideline for the Compilation of a Mandatory Code of Practice on Mine Residue Deposits 2000.[5]	This guideline makes implementation of a code of practice mandatory for each tailings facility with compulsory adherence to the SANS 10286, Code of Practice for Mine Residue Deposits
11.	**SANS 10286 2013**	SANS 10286, Code of Practice for Mine Residue Deposits SANS 10286[6]	This is the standard that provides for the code of practice for mine residue deposits and is also a key standard for tailings.
	GN 704	Government Notice R704 of the National Water Act dated June 1999[7]	a mine must: Ensure that contaminated water must be kept separate from clean water and must not be allowed to spill into a clean water system more than once every fifty years Operate any dam or tailings dam that forms part of a dirty water system to have a minimum freeboard of 0.8 metres above full supply level Prevent water containing any substance which is likely to cause pollution of a water resource from entering any water resource Ensure that water used in any process at a mine or activity is recycled as far as practicable

[5] https://www.ensafrica.com/uploads/newsarticles/0_20guide15.pdf
DATE FIRST ISSUED: 30 NOVEMBER 2000 EFFECTIVE DATE: 31 MAY 2001

This guideline covers the site selection, design, construction, operation, maintenance, modification, and decommissioning of all types of MRDs. The guideline is based on the fundamental requirement that hazard identification and risk assessment should play a major role in all of these phases. The guideline is applicable to planned, existing, and extensions to existing MRDs.

[6] SABS. 1998. SANS 10286. Code of Practice for Mine Residue Deposits. South African Bureau of Standards, Pretoria.
The principle management guidance document for tailings facilities in South Africa is the Code of Practice for Mine Residue Deposits published by the South African Bureau of Standards in 1998. The standard referred to as SABS 0286:1998 (later renamed to SANS 10286) contains fundamental objectives, the principles and minimum requirements for best practice, all aimed at ensuring that no unavoidable risks, problems and/or legacies are left to future generations

The SABS standard requires updating, at least to begin to address the GISTM. 11 July 2025
https://iono.fm/e/1575296

[7] https://water.cer.org.za/wp-content/uploads/2018/01/GN-704.pdf