

THE DIGITAL MINING PULSE

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INVESTING IN
**AFRICAN
MINING**
INDABA
● A Hyve Event

CTICC, Cape Town

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Editor's Welcome: Momentum, Impact, Transformation

Welcome to the second edition of The Digital Mining Pulse.

This issue is about impact and innovation, where bold commitments turn into tangible change and vision becomes momentum. While Issue 1 outlined the vision, Issue 2 showcases the results: partnerships unlocking capital, communities leading change, and disruptive technologies redefining safety, productivity, and sustainability.

Stronger Together: Progress Through Partnerships is now the blueprint for collaboration across all levels of the mining industry, powering Africa's transformation and positioning the continent at the forefront of the global resources landscape.

Within these pages, you will find stories of capital and courage, of technologies delivering real results, and of partnerships that go beyond promises. Partnerships are measurable outcomes, with investment commitments, policy shifts, and initiatives that place people at the core. Technologies are driving safer, greener, and more productive mines today. Communities are not waiting to be heard; they are leading, shaping priorities for an industry that serves more than profit.

This is progress you can see, touch, and measure. From quiet wins to game-changing breakthroughs, each story reflects an industry and a continent refusing to stand still. Every page is a reminder that progress is collective, purposeful, and unstoppable.

This is your invitation to witness Africa's rise, to see progress through partnerships in action, and to be inspired by the relentless drive of a continent transforming itself from within. Its mineral wealth, its people, and its vision are placing Africa at the center of global transformation.

Turn the page. Feel the momentum. Be part of the movement.

Chanel Burke

Senior Communications Manager



#MI26StrongerTogether

#MI26MakeYourMark

ONE ECOSYSTEM. ONE PLATFORM. ONE VISION.

Mining Indaba 2026 isn't just another event — it's the **heartbeat of the global mining industry**, bringing every corner of the ecosystem under one roof. From governments shaping policy, to explorers making discoveries, to investors backing the future of resources — **this is where the entire value chain connects, collaborates, and creates opportunities**.

Whether you're driving growth, innovating technology, championing ESG, or shaping the next generation of leaders, **your place is here**.

The future of mining is stronger together. Be part of it.

MINING INDABA 2026

Where the Mining Ecosystem Comes Together



GOVERNMENTS



EXPLORERS



INVESTORS



MAJORS & MID-TIERS



JUNIOR MINERS



COMMUNITIES & INDIGENOUS PEOPLE



NEXT GEN YOUNG PROFESSIONALS



DOWNSTREAM BUYERS



MINING SERVICES PROVIDERS



ESG PROFESSIONALS



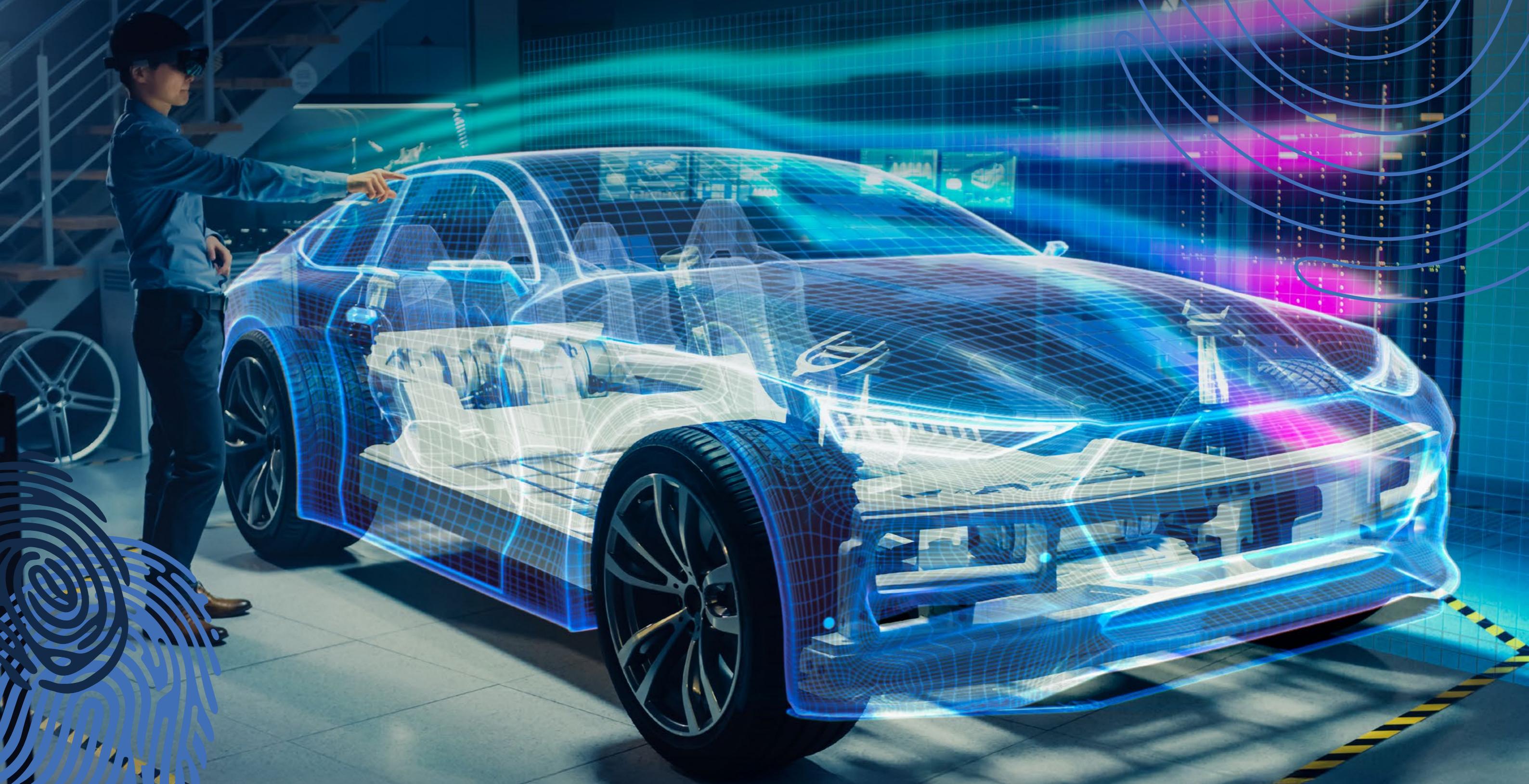
TECHNOLOGY EXPERTS

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#MI26DOWNSTREAMBUYERS

Converging industries, shaping the future





Industries Converging: Africa's Mining & Automotive Future

From minerals to EVs — how cross-sector partnerships are powering Africa's equitable growth.

From Competition to Collaboration

Mining and automotive sectors are merging lanes. The Just Energy Transition and complex supply chains demand **shared solutions that benefit industry and communities alike**.

At MI26, delegates explore how downstream buyers can work with mining operators to:

- Advance local processing and manufacturing
- Boost industrialisation and infrastructure
- Embed strong governance and ESG accountability

“

Mining companies and automakers must forge strategic partnerships that deliver sustainable, ethical, and long-term supply chains from Africa — partnerships that fuel not just vehicles, but inclusive prosperity.



Laura Nicholson,
Content and
Communities Director

“

Critical minerals are the new geopolitical currency — and Africa must be at the negotiation table as a value creator, not just a raw material supplier.



Dr Martyn Davies,
Chairman of the
Industrial Downstream
Committee, Mining
Indaba

”

“

At Mining Indaba 2025, Volkswagen Group Africa emphasised its commitment to integrating African raw materials into its manufacturing processes. Partnerships work when they move beyond transactions into shared transformation — delivering cost efficiency for OEMs, jobs for communities, and accountability for sustainability goals.

Laura Nicholson

Africa's Strategic Value

Africa is central to global critical mineral supply. MI26 empowers nations to **move from competition to complementarity**, building regional value chains and specialisation.

The automotive sector, in particular, has a vested interest in building long-term relationships with African suppliers who can deliver both the volume and the values — sustainability, traceability, and ethical sourcing — that global consumers now demand.

Tech as the Bridge

Disruptive technologies — **blockchain, AI, and traceability platforms** — ensure supply chain transparency, risk mitigation, and measurable community benefits.

“

Technology is the bridge making the 'impossible' possible.

Laura Nicholson

”

“

African minerals and energy value chains are now inseparable from the global decarbonisation agenda — opening unprecedented opportunities for innovative infrastructure financing.

Mkhululi Nkosilamandla
Ncube, Programmes
Officer African Minerals
Development Centre
(AMDC) and committee
member: Infrastructure and
Industrialisation

”

Innovation & Infrastructure

Africa's mining value chains are now inseparable from **decarbonisation and climate finance**. MI26 showcases tools and partnerships that drive **skills, investment, and industrialisation**.

Partnership in Action

The conversations at MI26 will be less about "what can we take" and more about "what can we build together." From empowering communities through skills development to co-investing in renewable-powered processing plants, partnership in action will be the hallmark of those ready to lead.

“

MI26 empowers nations to move from competition to complementarity — replacing duplication with specialisation and creating value chains that are stronger together.



Zeinab El-Sayed,
Head of Government
Partnerships,
Mining Indaba

”

Join the conversation and be part of defining an equitable mining future that benefits industries, nations, and generations to come.

REGISTER TODAY



The future of African mining lies not only in the ground, but in the hands of those who buy the products that come out of it



CMAG
THE CRITICAL MINERALS AFRICA GROUP

Dr Theo Acheampong
Research and Markets Lead, CMAG

Market demand trends from key global industries

The global transition to clean energy and electric mobility has intensified demand for critical raw materials, positioning Africa as a key player due to its rich endowments of lithium, copper, cobalt, graphite, and rare earth elements, among others.

Yet, the manner in which African countries harness these resources is shaped by a complex mix of competitive, cooperative regional dynamics, as well as the needs of downstream buyers. On one hand, many nations, including those in Africa, are pursuing nationalistic strategies to capture more value domestically by restricting raw exports and demanding local processing. On the other hand, there is growing momentum for countries and regional blocs to explore joint ventures, shared infrastructure, and integrated value chains.

Furthermore, downstream buyers of these mineral products are increasingly under pressure to ensure higher procurement as well as environmental, social, and governance (ESG) standards: guaranteeing human rights and local community engagement, implementing transparent and ethical governance, and using technology for traceability, among others. This is driven by investor interest, global demand for responsibly sourced minerals, as well as multilateral and bilateral initiatives, such as the Minerals Security Partnership (MSP) and the EU's strategic raw material partnerships.

The remainder of this article assesses the evolving role of downstream buyers in shaping responsible and sustainable African mining supply chains. It focuses on how downstream buyer behaviour, procurement standards, and ESG commitments are driving change in production, trade, and investment flows, and the implications for attracting investment into responsible supply chains on the continent.

Downstream buyers' expectations on ESG, traceability, and local value addition

Several frameworks and standards – such as the OECD Due Diligence Guidance, IRMA's Chain of Custody Standard, GRI's Sector Standard for Mining – provide guidance for companies to build sustainable supply chains, meet regulatory requirements, and enhance their reputation. However, meeting these standards, especially in an increasingly complex global supply chain, where the sourcing of mineral products by downstream buyers spans several jurisdictions, can be a challenge. There are reports of artisanally mined products, like coltan, from conflict jurisdictions entering global supply chains, posing a serious threat to the integrity and credibility of mineral traceability. For example, there are concerns about ongoing mineral (coltan, tin, tantalum and tungsten) smuggling from the mineral-rich and conflict-prone eastern Democratic Republic of Congo into neighbouring countries, and which are then mixed with local production and subsequently enters downstream supply chains.

Nevertheless, there are emerging case studies of downstream buyers and producers forging partnerships that have created shared value and improved the integrity and credibility of mineral traceability in Africa, especially within the large-scale mining sector. Automakers, battery firms, and cable/turbine OEMs are signing multi-year offtakes with ESG-linked clauses that include traceability, community engagement, and decarbonisation milestones. In 2022, global carmaker, The **Renault Group**, signed

a seven-year agreement with Morocco's **Managem** to source 5,000 tonnes per year of low-carbon cobalt sulfate with full traceability. The company's policy imposes an obligation on suppliers to verify and inform Groupe Renault whether the minerals included in the materials or parts are conflict-affected or high-risk minerals such as tungsten, tantalum, and tin.

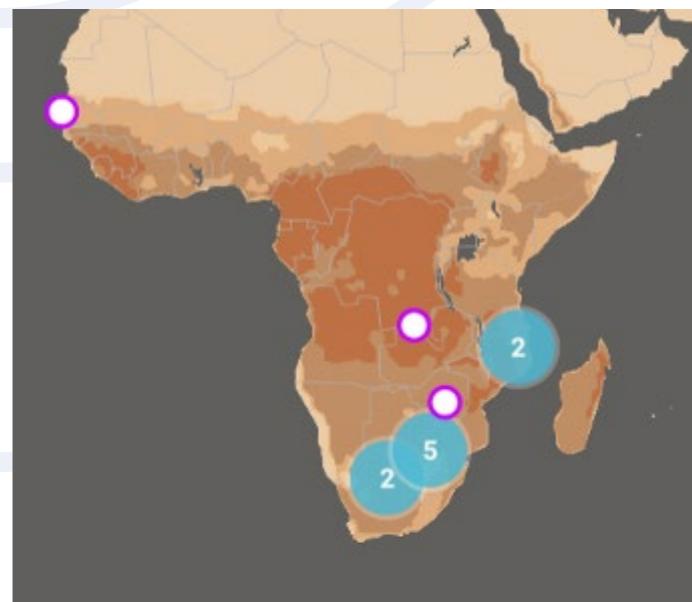
Similarly, **Tesla's** offtake with Australian graphite miner Syrah Resources Ltd (which is supported by the US International Development Finance Corporation) for output from the **Balama mine in Mozambique** has strong ESG requirements. Balama is being independently assessed against the IRMA Standard for Responsible Mining, one of the most comprehensive and rigorous mining standards – see Figure 1. Likewise, the Tenke Fungurume Mine in the Lualaba Province in the DRC, which is owned by Chinese company CMOC Group Limited (80%) and DRC's Gecamines (20%), is also undergoing an IRMA assessment. China's battery champion CATL has acquired equity with CMOC in other projects in the DRC, such as the Kisanfu copper-cobalt project, allowing them access to assured and spec-compliant supply while providing capital for de-risking African mining projects.

Figure 1: Example snapshot of Syrah's work

ESG Element	Syrah
Responsible mining assurance	IRMA independent audit nearing completion
Tailings storage assurance	ICMM GISTM alignment underway
Audited life cycle assessment (LCA)	LCA completed reviewed; GWP of ~7.3kg CO ₂ equivalent per kg AMM
Human rights and modern slavery analysis	Publish modern slavery statement and action plan

Source: Syrah Resources Limited, 2024: p.9

Figure 2: Snapshot of IRMA Independently Assessing Mines



Source: Syrah Resources Limited, 2024: p.9



These initiatives are not limited to the large-scale mining sector. Cross-industry initiatives like Cobalt for Development – backed by multinationals including **BMW, BASF, and Samsung SDI**, and implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in collaboration with non-governmental organisations—are training artisanal miners in Kolwezi, DRC, on safety and environmental practices. Approximately 12 artisanal mining cooperatives comprising more than 1,500 miners are being trained. Such moves reflect a pragmatic buyer stance: seeking to formalise artisanal and small-scale mining to raise standards to secure compliant supply rather than discourage ASM.

Strengthening negotiating power with global downstream buyers through collaboration and innovation

Ultimately, downstream buyers will continue to face increased pressure for verifiable compliance with ESG and other standards. Mining assets and products that meet stringent integrity and mineral traceability benchmarks are highly likely to command better contract terms. Downstream buyers will increasingly seek African mineral supplies that meet the following requirements: Firstly, rigorous ESG due diligence and assurance – buyers want verifiable compliance with labour rights, community impacts, resettlement, and water stewardship, among other key issues. Alignment with international benchmarks will be pivotal in demonstrating compliance. Secondly, the use of full traceability and chain-of-custody auditable control technologies, such as IoT, blockchain, and advanced mass balances, will become commonplace for assessments. Finally, while ASM will remain significant within particular mineral clusters, the use of formalisation techniques, such as establishing cooperatives, can help improve safety protocols, prevent child labour, ensure fair pricing, and establish transparent buying networks.



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Transforming Coal: An Urgent Call to Innovation and Partnership



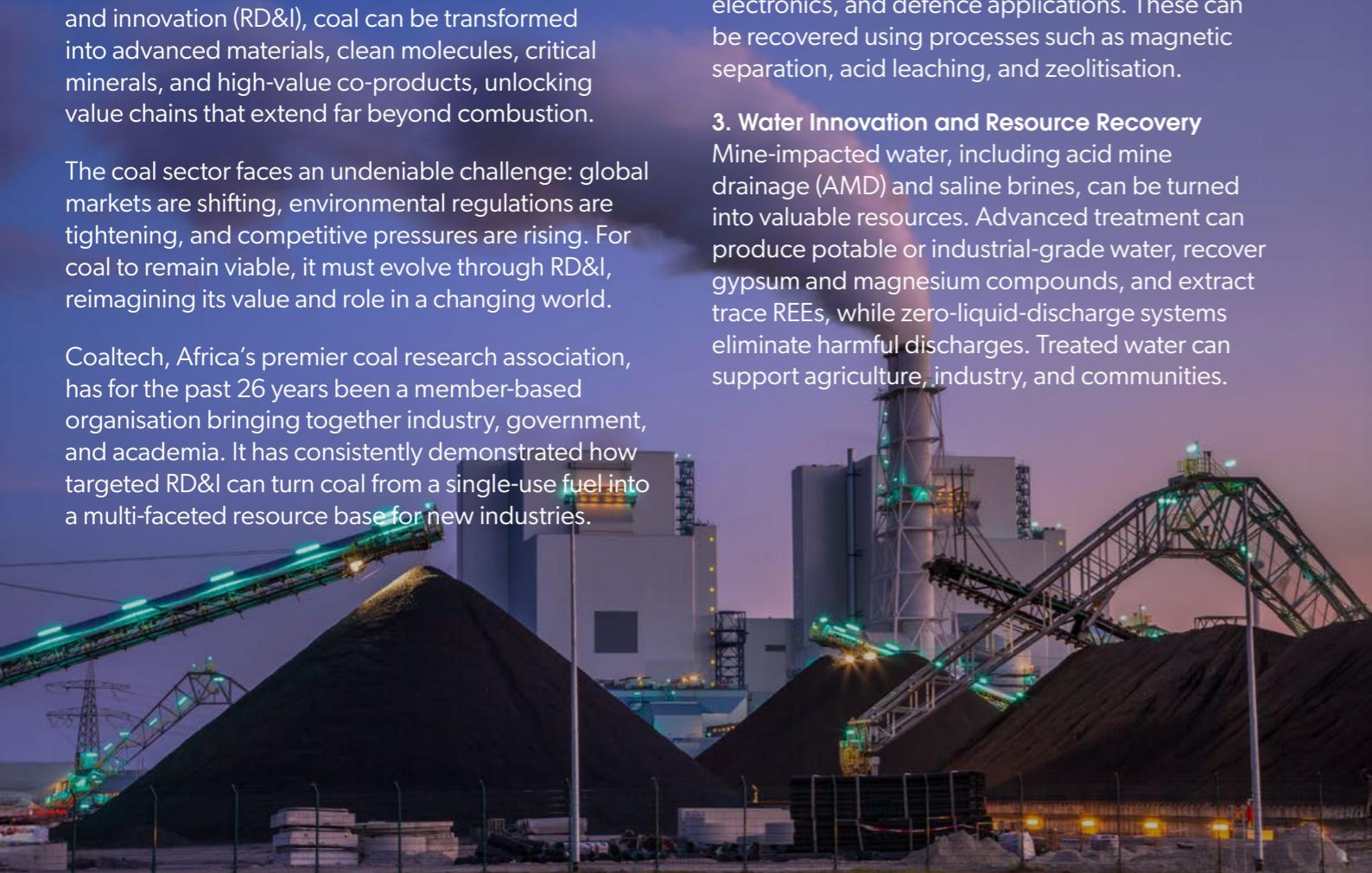
Avhurengwi
Nengovhela
Chief Executive
Officer

Coal remains the backbone of South Africa's energy system and a cornerstone of economic activity across Southern Africa. In 2024, South Africa produced approximately 235 million tonnes of saleable coal, with 65–70 million tonnes exported, generating substantial export earnings and sustaining close to 100,000 direct jobs (Minerals Council South Africa, 2024).

Yet when the conversation around coal focuses solely on its environmental liabilities, there is a risk of overlooking its potential as a strategic carbon resource. With the right research, development, and innovation (RD&I), coal can be transformed into advanced materials, clean molecules, critical minerals, and high-value co-products, unlocking value chains that extend far beyond combustion.

The coal sector faces an undeniable challenge: global markets are shifting, environmental regulations are tightening, and competitive pressures are rising. For coal to remain viable, it must evolve through RD&I, reimagining its value and role in a changing world.

Coaltech, Africa's premier coal research association, has for the past 26 years been a member-based organisation bringing together industry, government, and academia. It has consistently demonstrated how targeted RD&I can turn coal from a single-use fuel into a multi-faceted resource base for new industries.



From Fuel to Multifunctional Resource

Innovation in coal is not just about improving its environmental performance in power generation. It is also about unlocking entirely new value chains through a circular economy approach, where all materials and by-products are seen as valuable resources. Through targeted RD&I, coal can become a source of advanced carbon products, strategic minerals, clean molecules, environmental restoration solutions, and water innovation.

RD&I Pathways for Coal Transformation

1. Advanced Carbon Materials

South African coal's structure makes it an excellent feedstock for high-value carbon products. Residual materials from coal beneficiation can be transformed into activated carbon, engineered carbon pellets, and carbon nanofibers for industrial and high-technology applications.

2. Strategic Minerals from By-Product Streams

Coal ash, discard dumps, and associated shales contain rare earth elements (REEs) and other critical minerals essential for renewable energy technologies, electronics, and defence applications. These can be recovered using processes such as magnetic separation, acid leaching, and zeolitisation.

3. Water Innovation and Resource Recovery

Mine-impacted water, including acid mine drainage (AMD) and saline brines, can be turned into valuable resources. Advanced treatment can produce potable or industrial-grade water, recover gypsum and magnesium compounds, and extract trace REEs, while zero-liquid-discharge systems eliminate harmful discharges. Treated water can support agriculture, industry, and communities.



4. Clean Molecules: Hydrogen and Syngas with CCS

Gasification with carbon capture and storage (CCS) can make coal a source of low-carbon hydrogen and syngas for industrial hubs. South Africa's high-ash coals can be gasified efficiently with proper design optimisation.

5. Land Repurposing for Renewable Energy

Post-mining land can be converted into renewable energy hubs, taking advantage of existing servitudes and grid connections. China and other coal regions have shown how former coal sites can be redeveloped into solar and wind farms.

6. Powering the Digital and AI Economy

Data centres consume around 1.5% of global electricity (~415 TWh) and could nearly double by 2030. Coal, when paired with high-efficiency low-emission technology and CCS, can provide the stable baseload power needed for AI and high-performance computing. AI hardware manufacturing requires REEs, niobium, and graphite, many recoverable from coal's by-product streams.

Why Transformation Matters Now

- Economic resilience: Diversification shields against demand decline for thermal coal.
- Environmental leadership: Circular utilisation of coal-derived materials enhances economic and environmental sustainability.
- Regional positioning: Early adopters will capture new African and global markets in advanced materials, critical minerals, clean molecules, water innovation, and AI supply chains.

The Economic Prize

If the coal industry across the Southern African Development Community commits to these RD&I pathways, the benefits could be transformative:

- For the coal industry: Diversified revenues from high-value products such as carbon fibre and purified REEs, reduced dependence on thermal coal markets, and stronger sustainability performance.

- For the mining sector: New industrial clusters, technology and skills uplift, and reduced exposure to commodity cycles.
- For the SADC economies: Billions in potential export growth, new skilled jobs, revitalised rural areas through renewable and water reuse hubs, and global positioning as suppliers to the AI and renewable sectors.

Call to Action: Join the Movement

Players across the coal value chain, producers, technology innovators, research institutions, consultants, and specialist service providers have an opportunity to drive this transformation.

By collaborating and investing in RD&I, the industry can create high-value carbon products, recover critical minerals, repurpose mine water, produce clean hydrogen and syngas, redevelop land for renewables, and supply both the energy and materials for the digital and AI economy.

While producers remain central, innovation can and should come from everyone. Whether you are an equipment supplier, process developer, environmental solutions firm, or research collaborator, your expertise can reshape coal's role in a low-carbon, resource-efficient future.

For the last 26 years, Coaltech has united producers, researchers, and policymakers in shaping the future of coal through world-class research. We are a member-based association and invite you to partner with us, join our network of industry leaders, and leverage the innovation already underway. All universities and other research institutes in the SADC region are also invited to join free of charge.

Contact cbergman@coaltech.co.za to discuss membership opportunities and visit www.coaltech.co.za to see our members.

The science exists. The expertise is here. The opportunity is now. Coal's future is not about abandoning it. It is about transforming it.

Can voluntary standards anchor business in a shifting regulatory world?



Fabiana Di Lorenzo
MI26 Ambassador & Senior Director,
Impact and
Innovation
Responsible
Minerals Initiative

As global regulations on corporate responsibility evolve at an unprecedented pace, a critical question is emerging: Can voluntary standards offer the stability that businesses need to navigate the unknown?

From the European Union's Corporate Sustainability Due Diligence Directive (CSDDD) to U.S. and EU bans on goods linked to forced labor, the regulatory landscape is becoming increasingly fragmented. Meanwhile, countries across Asia and Africa are piloting new ESG disclosure frameworks. For companies, the challenge is not only to comply with a growing patchwork of laws but also to meet rising societal expectations that often outpace legislation.

In this context, voluntary standards are gaining renewed attention, not as substitutes for regulation, but as complementary, strategic tools that help navigate uncertainty.

A compass in uncharted territory

In the absence of a unified global framework, responsible business today resembles navigation without a map. Legal requirements vary widely across jurisdictions and may even conflict. What is mandatory in one country may be voluntary, or entirely absent, in another.



Voluntary standards offer a kind of compass. Developed through multi-stakeholder collaboration, they provide companies with structured approaches to ethical and sustainable practices. These standards are not static; they evolve in response to emerging risks and stakeholder input, often adapting faster than laws and anticipating regulatory trends by years.

Despite their growing importance, voluntary standards are often misunderstood. One misconception is that once a facility passes an audit, its responsibility is fulfilled. But audits are just one component of effective due diligence and continuous improvement as they are snapshots in time and limited in scope. Audits serve as an independent, retroactive review and validation of systems and practices; they are an important but targeted step in what must be an ongoing cycle of risk monitoring and management. Considering the dynamic nature of complex supply chains or high-risk sourcing, companies and standards systems must have systems to monitor risks between periodic audits.

The mining sector illustrates this well. Issues such as tailings dam safety, water contamination, and community relations require ongoing vigilance. In response, some companies are now integrating real-time monitoring tools, from satellite imagery to IoT sensors into their risk management systems. Industry reporting highlights miners linking IoT sensors to real-time maps and using AI to process those feeds for early warning. As corporate accountability shifts from retroactive reporting to real-time transparency, technology is playing a central role. For instance, IoT sensors can monitor environmental conditions in real time. AI can analyze vast datasets to flag potential labor abuses or environmental degradation. These technologies enable more proactive oversight.

Data integrity: the backbone of tech-enabled standards

As voluntary standards evolve into dynamic systems powered by real-time technologies, one element quietly underpins their credibility: data. The shift from static assessments to continuous oversight hinges not just on the tools we use, but on the integrity of the information they generate. Without trustworthy data, even the most advanced ESG technologies risk becoming noise rather than insight.

Data is rapidly becoming the backbone of credible ESG performance, but its value depends on integrity, interoperability, and trust. As companies embed IoT sensors, satellite feeds, and AI analytics into their ESG systems, the challenge is no longer just collecting data, but ensuring it is accurate, tamper-proof, and comparable across platforms. Fragmented or siloed data can erode the very trust these technologies are meant to build.

To unlock the full potential of real-time insights, companies need interoperable data platforms, and systems that align with recognized standards and enable seamless sharing across supply chains. Without a coherent data strategy, even the most advanced tools risk generating a flood of information with little accountability or impact.

At present, data interoperability remains a major gap, even for basic elements like assessment results and chain of custody information. Without alignment across systems, ESG data risks becoming fragmented, inconsistent, and difficult to verify. This undermines the very trust that digital tools are meant to build. That is why the Responsible Minerals Initiative (RMI) is advancing the UN Transparency Protocol framework, a unified ESG data architecture (not another proprietary tool) designed to define the rules for data exchange and promote transparency, comparability, and responsible sourcing across the mineral value chain, allowing users to opt-in and decide what data to share and with whom to share it. By anchoring live data streams in an interoperable, shared framework, the goal is to transform raw information into actionable intelligence and leverage voluntary standards to inform adaptive systems that can evolve with the risks they are meant to manage.

Navigating the Future

In a world where the regulatory map is still being drawn, voluntary standards offer a vital navigational tool. But they are not a panacea. A sustainable future will require both compasses and maps; voluntary frameworks complemented by effective legal systems, multistakeholder governance and the use of technology.

Yet technology has its limits. It can measure emissions, but not injustice. It can detect anomalies, but not whether a worker feels safe or a community has lost its rights. Here, voluntary standards have an important role in credibly - and collaboratively - defining criteria which translate data into an assessment of good practice. For voluntary standards to remain credible, they must integrate data and digital innovation without losing the human oversight, ethical judgment, and public reporting that underpin meaningful accountability and effective due diligence. Multistakeholder design and governance of voluntary standards are critical to ensure that industry, government, rightsholders, and other stakeholders have compasses calibrated to the same direction.

Far from being a fallback, voluntary standards should be seen as a form of strategic foresight. They allow companies to prepare for or even exceed regulatory requirements. In areas such as responsible sourcing, labor rights, and climate risk, voluntary frameworks have frequently defined good practice long before laws caught up. However, as voluntary standards typically engage only a portion of a sector, it is useful to consider the value of the relationship between voluntary and mandatory systems. The implementation and impact of standards can be expanded and expedited in an ecosystem with common sense, harmonized regulations. Together, public and private tools can create a more resilient and equitable system which rewards leadership while ensuring a level playing field.



“Without intentional strategies to include smaller players, the benefits of innovation will continue to bypass much of the sector.”



Bongi Ntsoelengoe
Disruptive Technologies Committee Member, Investing in African Mining Indaba
Executive Manager: Mining Cluster, Council for Scientific and Industrial Research (CSIR)

The time to ensure no one is excluded from Africa's mining technology revolution is now. The shift is accelerating across the continent, as digital technologies such as AI, automation, blockchain, and real-time monitoring become central to mining operations. Yet, while larger companies surge ahead with innovation, many smaller mining businesses – including women-owned operations and emerging enterprises – remain at risk of being left behind.

This challenge was brought into sharp focus during the 2025 Investing in African Mining Indaba in Cape Town, where stakeholders across the value chain emphasised the need for ethical, traceable, and tech-enabled mineral production. A clear message emerged: technology must drive inclusive, sustainable growth, particularly as global industries increasingly demand responsibly sourced critical minerals.

Africa may hold a significant share of the world's mineral wealth, but much of its mining economy remains underdeveloped and disconnected from digital systems. Many small and mid-sized operations still function manually, lacking access to modern tools or data-driven systems that could improve safety, reduce costs, and ensure compliance with environmental standards. For these companies, the shift to smart mining is not just about investment, it is about access.

If mining is to be a true economic multiplier for Africa, local tech entrepreneurs, researchers, and startups must be supported to create solutions tailored to the continent's unique realities. This means developing technologies that are affordable, adaptable, and resilient in areas with weak infrastructure. Low-cost modular systems, mobile-friendly applications, and cloud-based platforms can help level the playing field for smaller operators.



AFRICA MUST DEMOCRATISE ACCESS TO INNOVATION

Public-private partnerships are already proving their potential. In South Africa, initiatives linked to the Mandela Mining Precinct are co-developing technologies that address local challenges through practical, inclusive solutions designed to support junior miners and small-scale operators. These projects range from smart beneficiation tools and remote monitoring platforms to digital safety systems for smaller processing plants. Importantly, such tools must not remain locked within pilot projects. They should be democratised, enabling access for all and creating shared spaces where junior miners, software startups, and university researchers can collaborate across borders.

Training and skills development are equally critical. Advanced technology alone cannot transform the sector without a workforce equipped to use it. The future of African mining depends on educating the

next generation in digital skills—from coding and data science to automation and AI—and creating pathways for women, youth, and entrepreneurs to enter and thrive in a fast-changing mining economy. Meaningful inclusion is not simply about fairness. When smaller miners operate safely, efficiently, and transparently, the competitiveness of the entire industry improves. Empowering these miners also builds trust with international buyers who demand supply chain traceability and compliance with ESG standards.

Digital traceability systems are already being tested across Africa, using blockchain to verify mineral origins and ensure ethical sourcing. Real-time ESG dashboards and virtual training tools are also advancing mine planning, monitoring, and workforce safety. Without deliberate strategies to extend these benefits to smaller players, however, large segments of the industry risk exclusion from the digital economy.

Looking ahead to 2026, the Investing in African Mining Indaba will again place technology at the centre of its agenda. The Tech & Innovation Stage will showcase scalable solutions, foster cross-border collaboration, and highlight African-led innovation through local startups and digital policy dialogue. Mining Indaba offers a powerful springboard for collaboration—an opportunity to align around a shared vision that places people and purpose at the heart of digital transformation.

As Africa's mining sector moves deeper into the digital era, the question is no longer whether technology will be adopted, but who it will serve. Africa cannot afford a two-speed mining economy. Everyone—large and small, established and emerging, urban and rural—must have a seat at the table if the continent is to unlock the full value of its mineral wealth in a way that benefits all.

TURNING MINING



UPSIDE DOWN



Raksha Naidoo
MI26 Ambassador
& Chairperson -
Women in Mining
South Africa

“ At WiMSA, we've seen the power of bringing together voices that have never shared the same space before. When engineers, community leaders, policymakers, and investors unite, we move beyond conversation to real solutions. Mining Indaba gives us the stage, and partnerships give us the strength, to turn unlikely collaborations into lasting progress. ”

The Unlikely Collaborations

In mining, progress is often measured in tons, ounces, and output. But at Women in Mining South Africa (WiMSA), we know that true progress is also measured in partnerships, perspectives, and purpose.

As Chairperson of WiMSA and a Mining Indaba Ambassador, I am privileged to stand at the intersection of advocacy, influence, and action. And amplifying WiMSA as a powerful presence at Mining Indaba, brings together voices that may never have shared the same platform before. Mining Indaba 2026's theme, "Stronger Together: Progress Through Partnerships", could not resonate more deeply and allows for some very unlikely collaborations.



In an industry historically marked by rigid boundaries, be it between disciplines, sectors, and even voices, WiMSA is creating a bold space where innovators, communities, policymakers, and investors meet as equals. These are partnerships that, in the past, may never have been in the same room. Through the Indaba platform, the possibility of these partnerships is now a reality, and allows for the exchanging of ideas, building trust, and co-designing solutions that transcend traditional boundaries.

This is not collaboration for collaboration's sake, this is about harnessing diverse perspectives to solve real challenges. When a mining engineer sits alongside a community activist, when a policymaker hears directly from a young woman on site, when an investor listens to the lived experience of a miner, everyone leaves with a new lens and a shifted perspective on what's actually possible.

By curating these unlikely collaborations, WiMSA is igniting conversations that will shape the mining industry's future, one where economic growth, social progress, and environmental responsibility are not competing priorities, but shared ambitions.

Mining Indaba 2026 provides the perfect platform to achieve this, through their global reach, rich expertise, and commitment to the belief that we are, indeed, stronger together. Together, WiMSA and our partners are proving that the most extraordinary results often come from the most unexpected alliances.

Because in mining, as in life, it's the unlikely collaborations that change everything. And as WiMSA, we are ready to Step Up and Stand Out and be the changemakers.



Stronger Together: Women in PGMs Driving Africa's Mining Future



Wilma Swarts
Director of PGM
Research

The 2026 Mining Indaba theme, **"Stronger Together: Progress Through Partnerships,"** resonates deeply with the purpose and charter of the Women in Platinum Group Metals (WiPGMs) Association. Founded in 2019, WiPGMs has developed into a network of more than 200 members, united by a shared vision of inclusivity, innovation, and sustainability across the global platinum group metals (PGM) sector.

As the association approaches its seventh anniversary in May 2026, it stands as a transformative force ensuring that women not only participate but lead in shaping the future of PGMs. With over 70% of primary platinum supply—and an even greater share of other PGMs—sourced from southern Africa, WiPGMs is committed to strengthening its presence across the region and amplifying the vital role of women in Africa's mining future.

Building a Global Movement

At its core, WiPGMs embodies the principle of stronger together. Women working across the PGM value chain—from exploration, mining and refining to trading, research, and fabrication—are empowered to connect, collaborate, and lead. Membership continues to grow year on year, supported by an expanding global footprint through facilitated events hosted in each of Cape Town, London, Vienna, Singapore, Shenzhen, and New York.



These events and gatherings provide platforms for vital knowledge-sharing, mentorship, and innovation, bridging local expertise with global perspectives in each major PGM hub. They also highlight how diverse voices and inclusive leadership can strengthen the industry's resilience and long-term growth.

Partnerships as Catalysts for Change

The success of WiPGMs is driven by strong partnerships across the value chain as industry sponsors collaborate to support the association's development and fulfil its founding purpose. Key partners—including Johnson Matthey, Valterra Platinum, Metallix, Auramet, and more recently Sabin, a US family-owned business—along with governance support from the London Platinum Palladium Association, have both amplified WiPGMs' reach and impact while also lending significant authority due to the relevance, scope and scale of our sponsors.

These collaborations demonstrate the transformative power of partnerships, representing a tangible example of how business and associations can work together to deliver meaningful and enduring change.

A standout initiative has been the **cross-company mentorship programme**, developed in partnership with Moving Ahead and co-sponsored by the International Precious Metals Institute (IPMI). In 2023/24, 38 mentees were supported by 32 mentors, with 80% of participants reporting the experience as invaluable and nearly half acknowledging the new confidence gained in their career progression. Building on this success, the 2024/25 programme expanded to 52 mentees and 46 mentors, equipping another cohort of current and future women leaders to navigate the complex operating context of the global PGM sector.

Given the success of the programme we are proud to have launched our third annual programme and look forward to enabling the careers of young female talent and building deeper, wider and stronger global networks.

Driving Innovation and Sustainability

WiPGMs remains at the forefront of driving innovation and sustainable practices. By convening leaders from academia, industry, and government, the association acts as a catalyst for new solutions in green technologies, responsible mining, and market resilience.

At the London 2024 event, AP Ventures chairperson Penny Freer highlighted pioneering investments in green technologies using PGMs, while start-up leaders showcased breakthroughs in sustainable chemical production. These conversations underscore the critical role of women's leadership and cross-sector partnerships in unlocking both economic opportunities and environmental benefits.

The significant global focus on the sustainable and responsible extraction and use of natural resources results in a myriad of roles and responsibilities for producers and consumers of PGMs and a deep pool of female talent fulfils many specialist roles across this important aspect of the PGM eco system.

Stronger Together in Africa's Mining Future

For Africa, the Indaba theme carries particular significance. The continent's mining industry faces growing global challenges—an uncertain macroeconomic outlook, volatile markets, shifting geopolitics, and the urgent need for increased sustainability in business practices. Women, when empowered through networks, mentorship, and leadership opportunities, are uniquely

positioned to navigate these pressures and help drive solutions that deliver shared value for key stakeholders across the PGM value chain.

To further strengthen this focus, **Emma Townshend has recently joined the WiPGMs board**. Emma will be concentrating particularly on expanding the network's reach in Africa together with the nascent emerging PGM ecosystem in the Middle East, ensuring that women across the region are empowered, connected and supported to contribute to, and benefit from, the enduring success and sustainability of the PGM sector. This reflects WiPGMs' commitment to Africa's mining future and to amplifying women's voices where the industry has arguably some of its deepest roots.

WiPGMs is ensuring that African women in PGMs are not only included in the conversation but are at the forefront of shaping the future of the sector.

Looking Ahead

As WiPGMs celebrates nearly seven years of growth, it remains committed to building partnerships that foster resilience, innovation, and inclusive leadership. By harnessing the collective strength of its members and allies, the association is laying the foundation for a PGM industry—and a broader African mining sector—that is sustainable, equitable, and future-focused.

Stronger together, women in PGMs are proving that "progress through partnerships" is more than a theme—it is a lived reality shaping Africa's mining future.



• A Hyve Event

Join the conversation: @miningindaba | #MI26 #MI26StrongerTogether #MI26MakeYourMark

SILENCE BREEDS SHAME:

Why the mining industry needs to keep talking about (and acting upon) gender-based violence



Carly Leonida
Author of The Intelligent Miner

The mining industry is caught in a vicious circle of accusation and condemnation yet insufficient action when it comes to gender-based violence and harassment. What must change in order to break this?

Expanding the concept of safety

The global mining industry has built an impressive culture around physical safety – it's undoubtably the sector's top priority. Responsible companies have spent a huge amount of time, effort and capital to cultivate this and to implement processes, structures and tools that support safe working.

“
People assume that a policy or grievance process is enough, but that's not the case. To solve this issue requires long term, systemic action across functions and with senior level leadership.
...”

The impacts are clear in the downward trend in fatalities and injuries over the past 10-20 years at ICMM member companies (see figure 1), which represent around a third of the global mining and metals industry.

Safety is an industry level concern and it's proven that sustained industry level action can deliver positive results. The expansion of this concept to encompass psychological and cultural safety is essential in tackling pervasive forms of harassment and other forms of discrimination.



To be 'sustainable', i.e., maintainable at a certain rate, mining requires a skilled workforce. Although much focus has been placed on the shift towards mechanisation and automation of extraction in recent years, human skill, knowledge and decision making are still central to successful operation.

Without a steady pipeline of talent, miners will find it increasingly difficult, if not impossible, to meet future production targets. And with social acceptance and access to capital flagged amongst the industry's top 10 risks multiple years in a row, it begs the question as to whether the sector is leaving itself open to disruption through insufficient action.

Safety is everyone's responsibility

While cultural change must begin at the top, embedding it into organisations to ensure true safety is everyone's responsibility.

From colleagues on site who act as allies, calling out unacceptable behaviours when they occur, to membership organisations that champion female employment and stakeholders who continue to hold companies to high social standards, every person has a role to play in eradicating GBV through continued awareness and action.

Safety is an issue for which we are all responsible. Together, we can make the mining industry even safer for everyone.

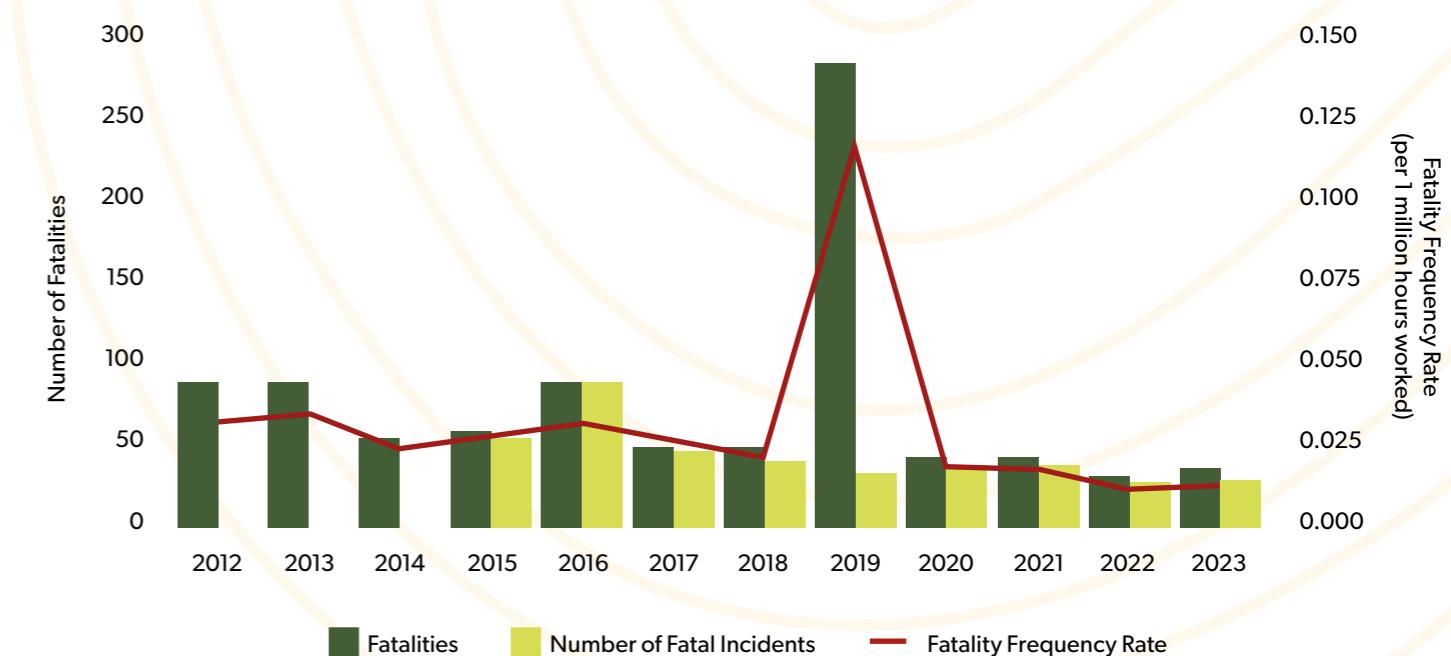


Figure 1: Fatalities and fatality frequency rates among ICMM member companies from 2012-2023. ICMM members make up approximately one third of the global mining and metals industry. Source: [ICMM](#)



Championing the cause of women in mining

In 2020, **Minerals Council South Africa**

introduced its Women in Mining programme. The aim is to identify the systemic barriers that are in place that specifically preclude women from fully participating in mining and also advocate for the increased participation of women in the sector.

GERARD PETER finds out more from **BOITUMELO NKOMO**, Women in Mining Project Specialist.

There can be no doubt that great strides have been made to ensure gender parity in the South African mining sector. This is largely underpinned by the initiatives that the Minerals Council has implemented in collaboration with its members. "We work



Gerard Peter
Editor-in-Chief,
Mining Review Africa

with our members to collaboratively develop and implement strategies that drive transformation in mining so that we can ensure a diverse, equitable and inclusive sector. We also make sure that these initiatives are sustainable so that we can tap into the human capital that is available based on the country's demographics. The spirit behind collaboration is to amplify the transformation of the mining industry at a faster rate," Nkomo states.

The work that the Minerals Council does is in line with the South African regulatory policies as well as international organisations such as the International Council on Mining and Metals (ICMM)

and the International Labour Organisation's (ILO's) Decent Work programme. The latter aims to create opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for all, better prospects for personal development and social integration. It also aims to allow freedom for people to express their concerns, organise and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men.

In order to address the challenges that women face, the Minerals Council put foundational measures in place. "Each of the foundational measures dealt with a specific objective. The main challenges that are faced include gender-based violence (GBV), the built physical environment that does not cater to women's needs, PPE and unconscious bias in the workplace that hinder women's progression at the different occupational levels, thereby negatively contributing to their experience in the workplace." Nkomo adds.

She states that, thus far, the Women in Mining initiative has been successful in amplifying the voices of women and getting the sector to understand their challenges and put programmes and measures in place to empower women.

One of the initiatives that the Minerals Council has implemented is an unconscious bias booklet. "This is a tool that our members use to increase the awareness of biases that may exist, which negatively impact women within an organisation," Nkomo states.

Addressing GBV

GBV is an ongoing concern in South Africa, and often victims feel helpless when subjected to this crime. To that end, the Minerals Council has implemented an annual 16 Days of Activism campaign. Nkomo elaborates: "The campaign has gained a lot of traction as we educate people on what GBV is and how it manifests. We also make them aware of their rights and how to get assistance both inside and outside the workplace.

"Furthermore, in 2022 we set up a national partnership with the NPA and the GBV Response Fund to assist victims who go to Thuthuzela Care Centres for help. These centres provide support in the form of medical care, counselling, legal advice and police assistance."

The organisation has also developed a Gender Diversity and Inclusion (GDI) portal where members submit data on, amongst other, GBV-related

cases. This allows the Minerals Council to identify where challenges still persist and what needs to be addressed from a policy perspective.

Another major concern is bullying and harassment in the workplace. According to Nkomo, this can only be remedied if the correct policies are in place. "In 2023, South Africa became a signatory to the ILO Convention 190. After that, we amended our code of good practice on the elimination of bullying and harassment. Since then we have been on a drive to make members aware of what is contained in the code of good practice. This has increased the obligation on the employer to deal with instances of bullying and harassment in the workplace."

In addition, the Mine Health and Safety Council has also released guidelines for the management of GBV and workplace bullying and harassment.

"We've been working closely with our members to support them and get them to understand what is contained in those guidelines as well as the roles of all employees in eradicating these issues. Most of our members have completed their implementation plans and have submitted them to the Mine Health and Safety Council and the Department of Mineral Resources and Energy (DMRE)," Nkomo states.

While GBV mostly affects women and children, men are also victims. It is for this reason that the Women in Mining programme has been redefined to incorporate males into its initiatives. "We cannot fight GBV in a vacuum. We need to include the male voice so that the awareness is across the board of what is acceptable behaviour and what is unacceptable and intolerable behaviour in the workplace," Nkomo states.

She adds that there has been significant progress in providing opportunities for women in mining. "When we started the Women in Mining programme, female representation in the sector was 12%. This has since increased to between 16 and 19%. There has also been a realisation that there's an opportunity to accelerate the progress.

"As part of the redefining process of our strategy, we have engaged CEOs and executive leadership of our member companies. They have said that there is a need for more visible leadership and have committed to integrating our objectives into company strategies and operational practices. As part of our new strategy we have added inclusive and accountable leadership. From that perspective, you can see that there is a commitment from leaders to drive transformation within their companies," she concludes.

STRONGER TOGETHER

“

When women champion one another,
the entire industry moves forward.

Laura Nicholson, Product Director, Investing
in African Mining Indaba

”



**Africa's mining story will be
written by those who dare to lead,
innovate and uplift others.**

“

The story of Africa's mining future will be written by
women who refuse to be confined by limits. Every
barrier broken opens a pathway for others to rise.

Raksha Naidoo, Chairperson, Women in
Mining South Africa

”

PROGRESS THROUGH PARTNERSHIPS



Mentorship and knowledge-sharing are not
just nice-to-haves—they are essential tools for
industry-wide growth. When women lift each
other, the benefits ripple across the sector.

Leadership Beyond the Mine

Women are reshaping mining governance and
policy. Zeinab El-Sayed, Head of Government
Partnerships at Mining Indaba, highlights the
impact of female leaders in government:

“

The next chapter of African mining
must include women at the helm.
True progress comes when
governments, industry, and
communities collaborate and
women lead those conversations.
...

Partnerships in Action

Progress is tangible. The Association of Women
in Mining in Africa (AWIMA) is championing
women's participation, representation,
and leadership across the continent.

Join the conversation in Cape Town,
9–12 February 2026.

“

Mentorship, coaching, and a network
of sisterhood have shaped my 20-year
journey in mining. By strengthening
networks and amplifying guidance,
Africa's mining story can be one of
inclusion, sustainability, and opportunity.
...

”

AWIMA's work underscores a critical truth:
collaboration and support among women are
essential to driving transformation. Women
are not just participating—they are leading,
innovating, and shaping the sector's future.

Mining Indaba 2026 will be the platform where
these conversations evolve into action. Under the
theme **"Stronger Together: Progress Through
Partnerships"**, MI26 will convene governments,
investors, corporates, innovators, and women leaders
to co-create the mining sector of tomorrow.

**"Africa's mining future and its role as an economic
powerhouse depends on bold leadership,
collaboration, and women at the heart of progress."**

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Unleashing Additive Mining

The industry's future rests on transforming from an isolated enclave into a powerful engine for development



Authored by
Marcus Courage,
MI26 Ambassador
and Daniel Thole,
Africa Practice

The narrative surrounding Africa's rich mineral endowments is dominated by a tired, extractive paradigm, rooted either in historical patterns of colonialism and exploitation or in today's critical raw materials (CRMs) framing. It is a paradigm that has limited the potential of mining to be a true engine for African development, leaving African exporting nations with a fraction of the retail value of their own resources.

We need a new formula for success. One that shifts the whole system towards more beneficial outcomes for all

It's time we recognised value addition and economic sovereignty as legitimate goals for African states. It's time we refrained from using the term "African Resource Nationalism," which stifles honest conversation and ignores the simple but profound truth that mines have a finite lifespan. They are not perpetual. This fact alone underscores the urgent need for a new approach built on a foundation of intergenerational equity, ensuring that the benefits of mining extend far beyond the life of the mine and serve the long-term development interests of African states and their citizens.



From a compliance-driven model to a model of value co-creation

An "additive mining" model goes beyond mere compliance and impact mitigation. It represents a proactive shift, transforming mining from its enclave status to a dynamic engine for national development. This model fosters integrated development, multi-use infrastructure, local processing, manufacturing, and services; creating sustainable jobs and building resilient, diversified economies that endure long after mineral reserves are exhausted.

The basic economic case for this shift is compelling. Data shows a stark price difference between raw minerals exported from Africa and their refined global value. For example, a ton of bauxite might be exported for around \$65, while the global refined price for alumina is over \$2,400. Similarly, lithium spodumene exported at \$550 per ton can be refined to a global value of \$17,000 per ton. These figures represent immense economic value currently being forfeited by producing nations. Capturing this value requires significant investment in infrastructure, particularly energy, and the development of local skills and markets.

Raw Material	Export Price (from Africa)	Global Refined Price	Potential Value Uplift
Bauxite	\$65 / ton	\$2,400 / ton	▲ ~36x
Copper Concentrate	\$4,895 / ton	\$8,800 / ton	▲ ~1.8x
Lithium Spodumene	\$550 / ton	\$17,000 / ton	▲ ~30x
Cobalt Hydroxide	\$35,000 / ton	\$67,500 / ton	▲ ~1.9x

The broader economic case is even more compelling. By embracing integrated development planning, mining projects can serve as economic multipliers, extending their commercial impact far beyond the extraction of resources. This strategy, which prioritises both upstream and sidestream linkages, is crucial for fostering broad-based economic activity across complementary industries such as agriculture, services, and trade — sectors generally more labour-intensive than mining, more prone to be high in local content and often sustainable beyond the life of the mine. Upstream, the opportunity for import substitution is significant. In 2024, South Africa, the largest importer of mining equipment on the continent, imported over \$100 billion of mining equipment.

From compliance to value co-creation

The transformation to "additive mining" requires a profound change in thinking from both the mining industry and governments. For mining companies, it means moving from a compliance-driven model to one of true value co-creation. It necessitates cultivating new skill sets in areas such as spatial development planning and local enterprise

development—competencies that extend beyond traditional mining operations. It implies a deeper, more equitable partnership where communities are not just passive beneficiaries but active participants and co-architects of their economic future.

Governments, in turn, must establish clear national development plans and integrated policies that address the four key enablers of additive mining: energy, finance, markets, and skills. We are already seeing positive movement in this direction. Countries like Zambia and Guinea are implementing ambitious policies to boost local content and require in-country processing. These are bold initiatives, and their success depends on a shared vision and a commitment to investing in the enabling infrastructure to make them a reality.

Accelerating the pace

Global climate goals compound the urgency of this shift. The greatest challenge to scaling up clean energy technologies fast enough to meet climate goals, may not be political will, but a shortage of energy transition metals. By embracing additive mining, African nations can not only secure their own economic futures but also play a critical role in meeting global demand for these essential minerals, all while retaining a greater share of the value.

We should be under no illusion that the future health and stability of Africa's mining sector rests on its ability to transform from an isolated enclave into a powerful engine for national development. It's time for mining investors and operators to recognise these goals as essential for acquiring and maintaining a social license.



Strategic Synergy: KEFI, AFC, and the Power of Collaborative Project Finance



Eleanor Laurence,
Content Producer,
The Assay

THE ASSAY
POWERED BY 121 GROUP

KEFI Gold and Copper has taken a major step forward with its flagship Tulu Kapi Gold Project in Ethiopia, following the formal ratification of the Africa Finance Corporation's (AFC) Ethiopian Country Membership by the Ethiopian Parliament. This development is more than a procedural milestone, it unlocks a key financing mechanism that will enable the project to proceed toward full launch. AFC's involvement, in partnership with the Eastern and Southern African Trade and Development Bank (TDB), forms the core of the financing syndicate assembled to fund Tulu Kapi's development.

AFC is one of Africa's leading multilateral development finance institutions, with a mandate to accelerate private sector-led infrastructure and natural resource projects across the continent. Its decision to partner with KEFI is a strong endorsement of the Tulu Kapi project's strategic importance and viability. However, before AFC could formally enter the financing agreement, its membership in Ethiopia needed to be ratified by the national parliament, a condition precedent that has now been fulfilled.

This ratification allows AFC to legally invest in the country and confirms the Ethiopian government's support for the institution's participation in key national projects.

The relationship between KEFI and AFC represents a key alignment of commercial ambition and development finance expertise. With AFC now cleared to act, KEFI is in a position to finalize the full funding package for the Tulu Kapi Gold Project. The combined financing effort, led by AFC and TDB, will provide the capital needed to transition the project from planning to production. It is estimated that Tulu Kapi will become Ethiopia's first large-scale modern gold mine, producing approximately 140,000oz of gold per year at full capacity.

KEFI maintains that a collaborative approach involving government, local stakeholders, and regional financiers is essential for project success in Ethiopia. The involvement of AFC brings both strong funding support and trusted backing to the project. It also de-risks the project from the perspective of other syndicate members and institutional investors, demonstrating that African capital markets are ready to support responsible and scalable mining operations.

Beyond the immediate impact on construction and operations, AFC's participation supports KEFI's broader strategy to generate sustainable cash flows. These will be used not only for debt

servicing but also for future exploration programmes and potential shareholder dividends. The deal structure allows KEFI to maintain control of the project while distributing financial exposure across a network of development-focused institutions.

This ratification also illustrates the Ethiopian government's broader commitment to supporting foreign investment in the mining sector. By enabling AFC to operate in the country, the government has signaled its willingness to back resource projects that align with national development goals, such as job creation, infrastructure improvement, and foreign exchange earnings.

In sum, the ratification of AFC's membership and its resulting partnership with KEFI highlights the power of strategic collaboration in driving complex resource projects forward. This alliance not only moves the Tulu Kapi Gold Project closer to financial close and construction but also demonstrates how shared commitment between government, financiers, and developers can unlock long-term value in one of Africa's most promising gold regions.



FOCUSED ON THE FUTURE

Barrick stands alone in the industry in its ability to replace the gold and copper it mines while simultaneously growing its reserves through exploration and development. With a pipeline of key growth projects, projected to increase production by 30% by the end of the decade without the need to issue new shares or take on unnecessary debt, Barrick remains focused on delivering a sustainably profitable business for the benefit of all stakeholders.



BARRICK

BARRICK MINING CORPORATION

www.barrick.com | NYSE : B • TSX : ABX

A 3D geological model of the Cortez district at the Barrick-operated Nevada Gold Mines, cut out to reveal the Fourmile-Goldrush orebody wireframes.

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#MI26

CRITICAL MINERALS

Strategic value – the African narrative



Critical Minerals – Strategic Value for Africa

Africa holds the keys to the world's green and digital future – how it uses them will shape the century.



Olimpia Pilch
Critical Minerals
Committee Member,
Mining Indaba, Chief
Strategy Officer
Critical Minerals
Africa Group

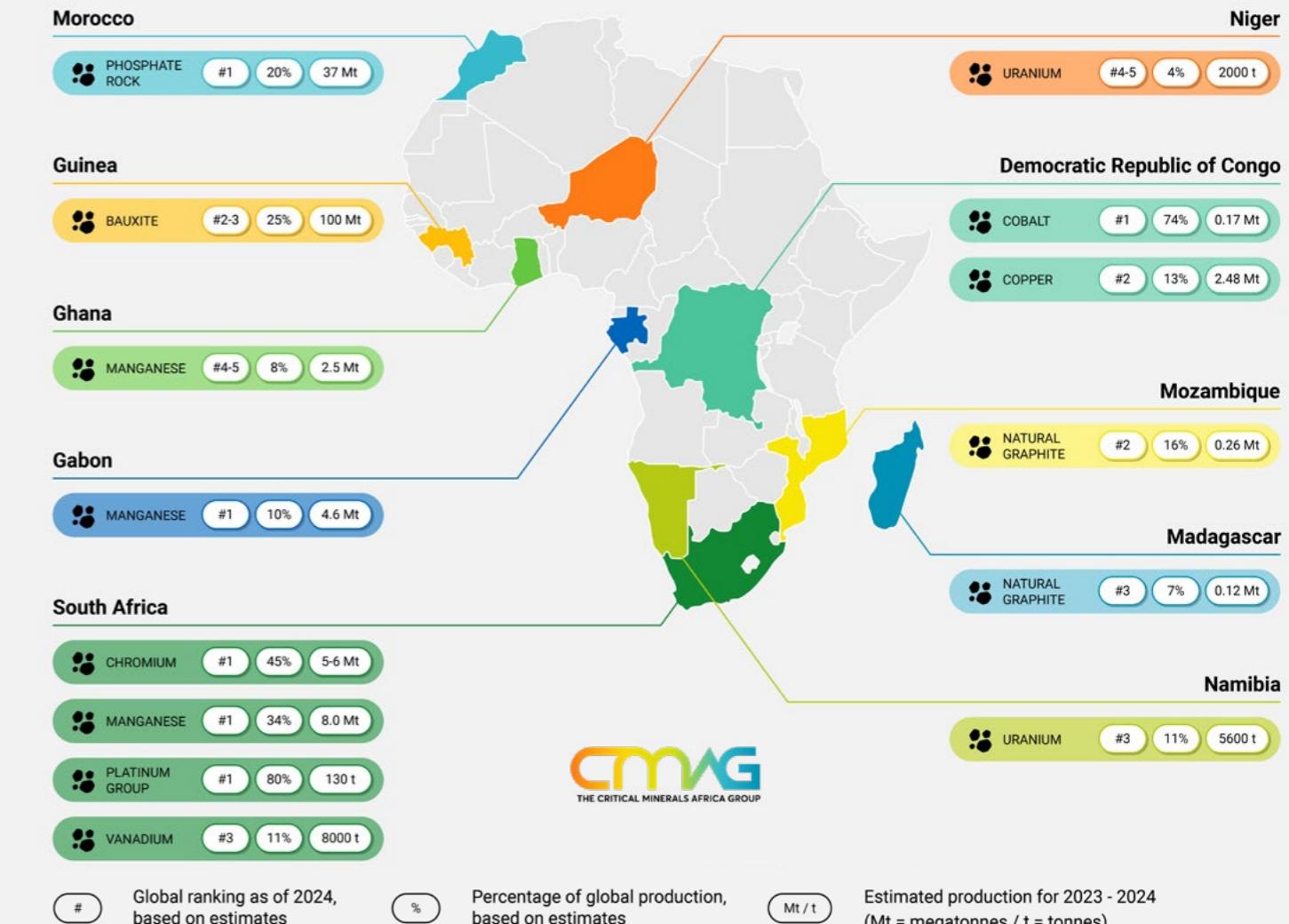
The Resource Continent is home to 30% of global mineral reserves, including cobalt, manganese, bauxite, and platinum group metals—minerals indispensable to clean energy, digitalisation, and industrial growth. But the debate is shifting from critical for whom to critical how: will Africa remain a supplier of raw materials, or leverage its resources to shape the industries of tomorrow?

Demand Outlook: A Shifting Landscape

Predicting demand is increasingly complex. Battery minerals face headwinds: lithium competes with cheaper sodium-ion batteries, though mine closures in China have temporarily supported prices. Cobalt demand is uncertain as ex-China manufacturers adopt cobalt-free chemistries, and rising copper output may keep cobalt prices depressed.



African countries in global top 5 annual Mineral Production by Critical Mineral



Geopolitics and Alliances

Africa's resources are giving nations unprecedented optionality to select partners and shape access in line with broader industrial goals. Japan is pursuing on-continent processing investments; Gulf states are securing ore for their midstream ambitions; the US is advancing commercial diplomacy and strategic MOUs along the Lobito corridor and in Chad, countering Chinese and Russian influence. Meanwhile, EU and UK initiatives remain largely policy-oriented. Those nations that make strategic choices today—and align with the right partners—stand to reap the greatest rewards a generation from now.

The Refining Question

Local refining and processing can be transformative but require cheap, reliable power; affordable finance; skilled operators; robust infrastructure; deep-water ports; and proximity to chemicals industries and customers. The Ghana lithium refinery study illustrates feasibility challenges. Success in niche metals, however, is evident: Rwanda's LuNa tin smelter shows how targeted investment can create downstream

industries even in smaller markets. However, without regional coordination, multiple countries pursuing the same minerals risk cannibalisation in already challenging-to-break-into monopolised supply chains.

Risks and Opportunities

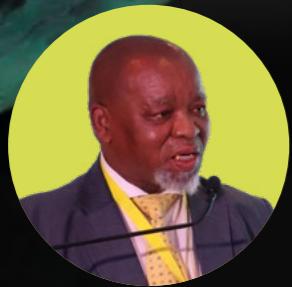
Raw exports can remain profitable, but without some downstream value addition, Africa is set to continue subsidising other nations' economic growth. Strategic reinvestment through sovereign wealth funds into infrastructure and education is key. Selective processing of the right minerals—copper, manganese, tin, or niche metals—can drive jobs, skills, and industrialisation, transforming economies and societies. But nations will have to choose wisely and make big bets that will shape their future.

The Strategic Century

Africa's minerals are indispensable to the green and digital economy. Their value lies not only in geology—but in strategy. The continent must choose whether to remain a supplier of inputs or become a decisive shaper of the century ahead.

G20 Critical Minerals: Africa at the Centre of the Global Energy Transition

The **G20 Ministerial Critical Minerals Stakeholder Engagement**, hosted by the Department of Mineral and Petroleum Resources (DMPR) with support from Investing in African Mining Indaba, went beyond policy talk: it asked how Africa can seize its once-in-a-generation opportunity to transform minerals into real development.



“
We mine, but we make other countries rich. Meanwhile, we remain poor. This discussion is about changing that reality.
”
Gwede Mantashe, SA Minister of Mineral & Petroleum Resources



Framework Pillars: Exploration, Beneficiation, Responsible Mining



Gamechanger: South Africa's model of public-private partnerships hailed as a global inspiration



Global Stakes: Energy transition supply chains depend on Africa



Africa's Challenge: Resource wealth ≠ development



Reimagined Future: Coal and fly ash now seen as potential sources of rare earths

“ Mining Indaba has consistently emphasised the need for a robust, sustainable and inclusive mining future for Africa. Today, as we focus on critical minerals, this mission becomes even more urgent and impactful.

Frans Baleni, Chairman of the Executive Advisory Board Mining Indaba

“ We're breaking down silos. Departments must work together to turn strategy into implementation.

Samantha Graham-Maré, Deputy Minister of Electricity & Energy

“ Collaboration between government, business and labour is South Africa's competitive advantage. The world is watching.

Mxolisi Mgojo, B20 Co-Chair

“ Coal and fly ash contain high levels of rare earths – sometimes richer than traditional sources. We must reimagine what's possible.

Dr Molefi Motuku, CEO, Mintek

“ We must forge a future where critical minerals drive inclusive and sustainable economic growth for all. Complex global challenges demand collective solutions.

Frans Baleni, Chairman of the Executive Advisory Board Mining Indaba



Critical Minerals: Africa Is Picking Up the Pace – and Setting the Rules



A conversation with Julien Wagner (Jeune Afrique Media Group) and Ousmane Diawara (EY Infrastructure Advisory)

Africa's critical minerals sector is no longer a passive supplier. With global demand surging for lithium, graphite, copper, platinum, and rare earths, the continent is pivoting from resource host to industry architect—defining rules, partnerships, and priorities.

Mapping the Opportunity

- 484 projects, 327 deposits, 30 countries, 8 critical minerals
- Verified, cross-referenced data—not press releases
- Enables tracking of structural shifts and emerging trends

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Africa is experiencing a true mining renaissance. The information was fragmented. We needed clarity – a shared, actionable vision for stakeholders.

Julien W

The scale of this study gives us a solid base to monitor structural shifts, not just company announcements.

Ousmane D

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African nations no longer want to simply host projects – they want to build industries.

Julien W

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Government Momentum & Mining Sovereignty

- Active state equity:
 - DRC: Gécamines 55% of Kamoto
 - Algeria: Sonarem 10% in Goulamina
 - Zambia: ZCCM-IH 20% in Mopani
- Regulatory tightening: local processing mandates, license reviews, permit suspensions
- Sovereignty is reshaping investor strategies

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This is part of a deliberate shift toward mining sovereignty.

Ousmane D

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ESG is no longer a bonus—it's a condition for financing.

Julien W

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Geopolitics on the Ground

- Mali, Niger: projects delayed due to political instability
- Western majors reassessing positions; governments redefining red lines
- Security and political risk are now integral to mining strategy

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The narrative has shifted—Africa is no longer passive; it's setting the rules.

Julien W

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Western majors are not stepping back – they're being more selective.

Ousmane D

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Investment Landscape

- China remains dominant
- Gulf capital surging: projects with >25% Gulf ownership jumped from 2 to 5 in 2025
- \$2.2 billion committed since January, securing upstream supply for Abu Dhabi and Riyadh gigafactories

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This isn't opportunistic – it's strategic.

Ousmane D

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Africa's mining sector is setting the rules. Those who don't adapt will waste time—and money.

Julien W

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Green Energy & Mining Finance

- Over 25% of projects have renewable Power Purchase Agreements
- ESG-linked "green debt" is now a prerequisite for capital access

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Opportunity favors those who understand local dynamics. Resilient, sustainable, profitable models are possible – but only if you play by Africa's rules.

Ousmane D

...

#MI26

INVESTMENT

Unlocking Africa's Mining Potential



West African gold glitters, despite risks

Land of opportunity?



Siobhan Listmore-Scott
Editor, Mining Journal

With gold tracking between \$3,300/oz and \$3,400/oz over the last six months, it is little wonder that capital market firms are highlighting investment opportunities far and wide.

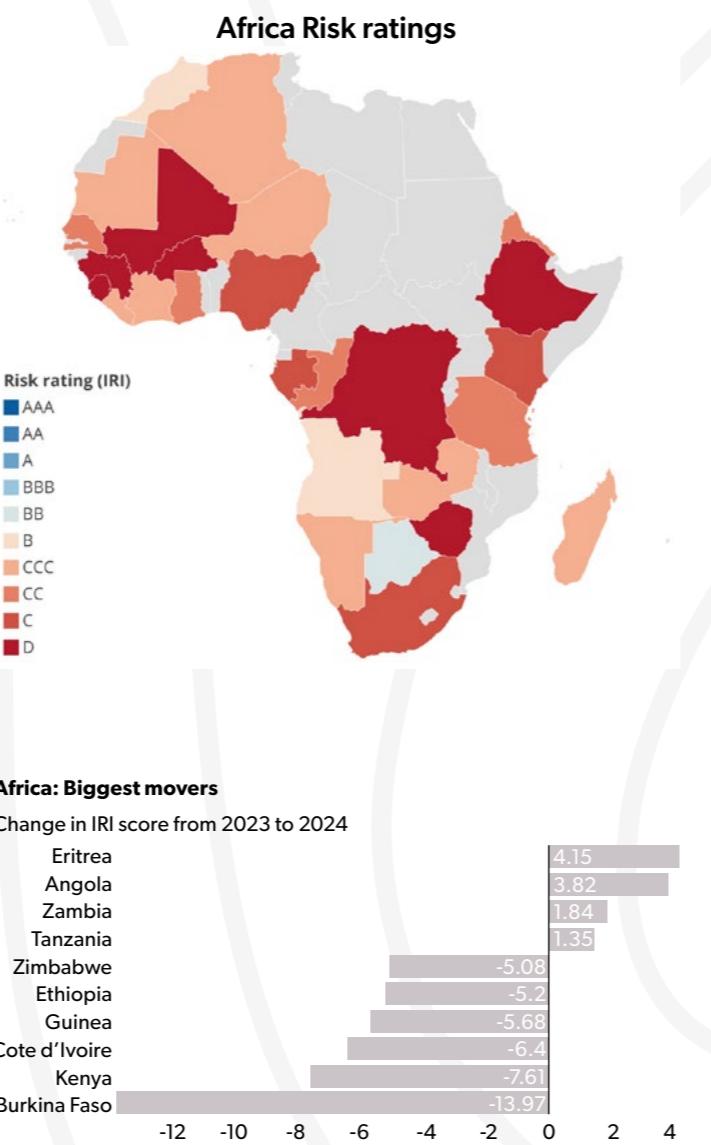
In April, Canaccord suggested West Africa is the go-to.

The region has been a multi-decade supplier of fabulous mines and finds.

Typically, though, the companies operating there have endured a market discount on account of so-called 'sovereign risk'.

From time to time, that sovereign risk has indeed reared its head. The regulatory uncertainty in Mali and Islamist activity in parts of Burkina Faso are obvious recent cases in point.

According to Mining IQs World Risk Insights 2024, Burkina Faso saw the biggest drop in IRI scores in 2024, falling around 14 points from last year. This is the joint biggest drop globally alongside New Mexico.

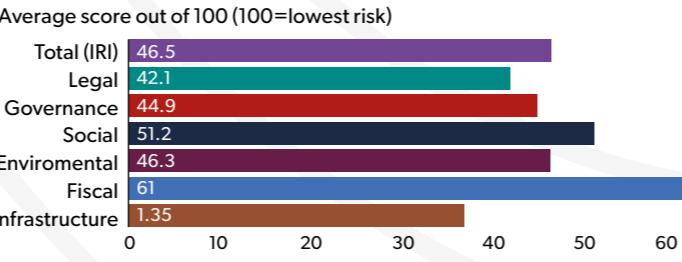


Africa as a continent meanwhile has an overall risk rating of 46.5.

This puts it above the Middle East and Asia, but below Canada, US, Australia and Central and South America.

However, given the rise of resource nationalism in South America, this may change.

Africa: Risk scores by category



Furthermore, as noted by Canaccord, "we think investors are now being compensated for country risk and that discounts being applied to West African-focused gold stocks may be too great".

Putting sovereign risk completely to one side, Canaccord said the "advantages of operating in the region include generally faster permitting times, lower capital intensities with very few capex blowouts, shorter construction lead times, as well as lower production/exploration costs".

Discoveries and M&A

In the last 20 years, circa 95Moz of gold has been discovered in West Africa, compared to Canada's 61Moz, Colombia's 59Moz, and Australia's 29Moz.

Africa has also seen an increase in M&A activity.

In 2024 M&A within Africa accounted for around \$4 billion last year compared to about \$300 million in 2023.

"In our view, investors should be up-weighting exposure to the region," Canaccord said.

Established Miners

Endeavour Mining, with a market cap of £1.98B, is one of the more established miners in the region, with five mines across West Africa. It has successfully brought online mines in Burkina Faso, Senegal, Mali and Côte d'Ivoire.

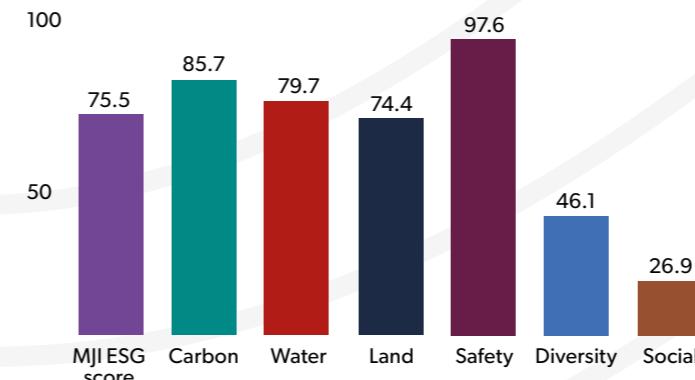
It has also scored seventh globally in the Mining IQ's ESG Mining Safety Index, with a total recordable injury frequency rate of 0.89/million hours worked, compared to the average of 4.01.

The company has previously pointed to its fruitful collaborations with host governments, telling Mining Journal that its "success in West Africa is rooted in long-term relationships and open, constructive dialogue with host governments across the region."

"We are seen as reliable partner and a significant contributor to national and regional development," the company said.

Endeavour Mining ESG ranking: 8/61

Overall ESG score plus category scores



Selected mining companies with assets in Africa

Resolute Mining

After former CEO Terry Holohan and two employees were imprisoned in November 2024, the company's share price fell off a cliff. Its shareholders threw in the towel, and it was forced to pay \$160 million to the Malian government. In May, the gold developer said it is aiming to become a plus-500,000ozpa gold producer in the next few years after unveiling a \$150 million deal to buy an advanced pre-development asset in Côte d'Ivoire from AngloGold Ashanti. Resolute aims to have Doropo in production in 2028.

Fortuna Mining

Fortuna has been in West Africa since 2021. It now holds the Séguéla gold mine in Côte d'Ivoire, which is in production, as well as exploration projects in Senegal (Diamba Sud, which it bought in 2023 and for which it has an updated mineral resource estimate) and Tongan North in Côte d'Ivoire.

Robex

Robex is developing the 3.7Moz Kiniero gold project in Guinea, West Africa, with first gold production currently slated for the December quarter of this year. With reserves of 1.41Moz at 0.97gpt gold, Kiniero is scoped as a nine-year operation producing an average of 139,000ozpa with a post-tax net present value of \$647 million.

Orezone Gold

Orezone has operated the Bombore gold mine in Burkina Faso since 2022 and is looking for cash to add an additional 5.5Mtpa hard rock facility to the existing 5.2Mtpa oxide plant. Construction is underway and is due for completion later this year. Working in tandem with the oxide plant, which has operated above its nameplate at 6Mtpa, Orezone wants to achieve production of 170,000-185,000ozpa by 2026, rising to 220,000-250,000ozpa in 2027.

Lifezone Metals

The feasibility study for its Kabanga nickel project in Tanzania, which is under S-K 1300 and involves a 3.4Mtpa underground mine, mill, concentrator, tailings storage facility, and supporting infrastructure. The mine will produce an estimated 50,000tpa of nickel at an all-in sustaining cost of US\$3.36/lb, almost 7,500tpa of copper and almost 4,000tpa of cobalt for 18 years from a reserve of 52.2Mt grading 1.98% nickel, 0.27% copper and 0.15% cobalt.

West African Resources (WAF)

West African Resources (WAF) is developing the Sanbrado, Kiaka and Toega assets in Burkina Faso. Construction of Kiaka is said to remain on track and on budget, with first gold expected to be poured early in the third quarter, at which time WAF will become a plus-420,000ozpa gold producer.

Endeavour Mining

Endeavour has mines in Burkina Faso, Côte d'Ivoire and Senegal. In 2024, Endeavour's total economic contribution to its host countries was \$2.2 billion. This year, it is focusing on bringing its tier one Assafou project in Côte d'Ivoire online. The definitive feasibility study is on track for late 2025 to early 2026.

On the frontlines: How innovation is reshaping exploration and development across Africa



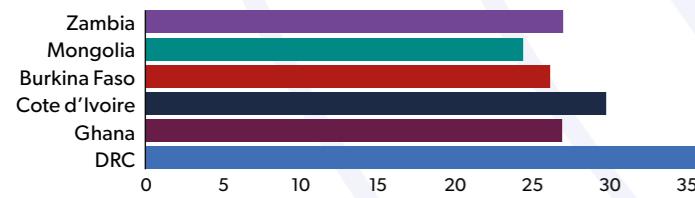
Siobhan
Listmore-Scott
Editor, Mining Journal

In the US, developing a mine from first discovery to production takes on average nearly 29 years, S&P Global found in a study released last year. Only Zambia takes longer, at 34 years.

S&P calculated development times by including the large number of undeveloped projects, rather than just the three mines that have come into production since 2023. S&P also tracked the speed of development of mines for different commodities. Copper is the slowest to develop, at 24.1 years, while gold is the fastest, at 20.8 years.

Zambia has the longest lead times

Mining lead times by country, including mines not yet in operation



Source: S&P Global

According to governments, juniors on the ground and mining services working within the continent, however, work is being done to accelerate timelines. During last year's Mining Indaba government representatives from South Africa, the DRC and Zambia assure delegates that they were working to speed up the time it takes to get a mine online.

While the risk factor is indisputable, however, that doesn't mean that there is not a flurry of activity on the ground. Mining IQ's Project Pipeline has picked out 42 projects of interest, with Aya Gold's silver expansion in Morocco scoring the highest on the list.

Closely behind is Endeavour Mining's Assafou gold project, in Côte d'Ivoire, which scored 76 on the PPI. Assafou is expected to deliver 329,000oz at AISC of \$892/oz at \$2,000/oz gold price for the first 10 years of the 15-year LOM. It holds an NPV5% of \$2.5bn and after-tax IRR of 40% at \$2,500/oz gold price.

ESG

As well as scoring highly on the PPI, Endeavour's ESG score is also high. According to the Mining IQ ESG Mining Company Index, Endeavour was the seventh globally on Safety, with a total recordable injury frequency of 0.89 per million hours worked, compared to the average of 4.01.

Overall, it ranked eighth of the 61 companies featured. This is also due in large part to the investments it makes within the communities it operates in.

Speaking to services companies working within Africa, a picture is painted of a continent which is using cutting edge technology in (sometimes) unchartered territories. They say that operating in Africa can mean faster permitting times, shorter construction lead times, lower capital intensity and fewer capex blowouts.

Services

For service providers, such as Lycopodium, geopolitical risk doesn't really factor in to the same level as it would for a mining company.

Its job is to provide the services, manage the project and deliver an end result to companies hoping to start a mine.

Lycopodium has worked on over 450 projects worldwide and has been in Africa since 1994.

According to Peter de Leo, managing director, contracting their services is seen as a way to de-risk a project.

Technology

AI is powering mining discoveries and accelerating projects in the continent.

For Botswana Diamonds, its use of AI in prospecting saw it be awarded four new prospecting licences in the country.

A noticeable trend in AI-assisted mineral exploration is the heavy reliance on the proximity to known mineralisation. While valuable, this "near-ology" approach has limitations: AI is trained to identify similar targets while potentially missing new discoveries in less explored areas.

For example, Kobold Metals' Mingomba Copper Project in Zambia, which lies between the Konkola and Lubambe Mines. While it was announced that Mingomba contains 247Mt of ore, with an average grade of 3.64 % copper, the lack of a publicly available technical report makes it difficult to verify these claims.

Mining IQ's Project Pipeline of Africa Projects

Project	Score out of 100	Jurisdiction
Zgounder Expansion	81	Morocco
Bibiani Underground	80	Ghana
Assafou	76	Côte d'Ivoire
Kobada	75	Mali
Koné	74	Côte d'Ivoire
Enchi	74	Ghana
Séguéla	73	Côte d'Ivoire
Kiaka	72	Burkina Faso
NAMDINI	72	Ghana
Egoli	72	South Africa
Meyas Sand	72	Sudan
Doropo	71	Côte d'Ivoire
West Kenya	70	Kenya
Diba	70	Mali
Diba and Lakanfla - see Diba	70	Mali
Segilola	70	Nigeria
Blanket	70	Zimbabwe
Sabodala-Massawa Expansion (BIOX plant)	69	Senegal
Theta Hill Gold Project	69	South Africa
Abujar	68	Côte d'Ivoire



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**#MI26 Communities
& Indigenous People**

People at the  Heart of Mining





Winning the MI25 Community Competition was a life-changing experience that amplified the voices of grassroots mining communities on global platforms. It revealed the immense power of collaboration—how partnerships with industry leaders and fellow advocates can turn shared challenges into actionable, community-driven solutions.

To aspiring grassroots leaders: your voice matters more than you know—step forward, the world is ready to listen.

Sonwabo Modimoeng
Director, Faded Black Innovations



Winning MI25 Community Voices Competition was a powerful affirmation that our stories and struggles matter in the Nigeria mining host communities. It brought visibility and credibility to our community's efforts and inspired new partnerships that continue to fuel our progress. A major outcome for me is the formalization of an initiative called The MOG Foundation, which has strategically brought all other winners and mining stakeholders to future-proof the mining sector in Africa.

I believe that we are stronger together when we unite through strategic partnerships. This is only when our voices can echo.

Omaajor Ogedoh
Executive Director, The MOG Foundation



Winning the Community Voices accolade in MI25 was a powerful moment for me and the women I represent. It affirmed our grassroots efforts and brought much-needed attention to the struggles and resilience of women in Zimbabwe's mining communities. I've seen how partnerships with local leaders, institutions, and fellow women miners can drive real change by unlocking resources, building capacity, and creating safer, more inclusive spaces.

To other grassroots leaders thinking of entering MI26: your voice holds power. Share your story because when we rise together, we go further.

Faith Mutete
Founder and CEO, Women in Mining (WiM) Zimbabwe



My participation in the MI25 as a representative of Artisanal and small-scale miners (ASM) affirmed the role of the sector in the mineral value chain. The opportunity to voice the need and benefits of ASM formalisation revealed the need for involvement of all players collaboratively to foster acceptance, harmony, and equitable resource sharing for bolstered community growth and environmental stewardship.

It indeed confirmed that no player in the value chain is a spectator; our roles supplement each other, hence the necessity for MI26 participation in appreciation of the recognition that "our voices matter" as mining communities.

Lawrence Ndago
Executive Director, Multiflow Geoconsult & Services Ltd



BRINGING THE VOICES OF MINING COMMUNITIES AND INDIGENOUS PEOPLE TO MINING INDABA 2026

Call for Video Submissions reflecting on the theme Stronger Together: Progress Through Partnership

#MI26StrongerTogether #MI26MakeYourMark

“



Laura Nicholson,
Product Director,
Mining Indaba

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The Mining Community Voices initiative has already proven its power to inspire, influence, and drive tangible change. At MI25, five community representatives shared firsthand accounts of the challenges and opportunities in their regions. Their words cut through the noise, transforming discussions on sustainability, artisanal mining, post-mining livelihoods, and safety into actionable solutions.

Call for Video Submissions

The **2026 campaign is now open** for short, original video submissions (3–5 minutes) on the theme **"Stronger Together: Progress Through Partnership."** We want to hear your voice – in English or French – on:

- Challenges your community faces from mining activities
- Opportunities for more equitable, inclusive engagement
- Stories of resilience, innovation, or collaboration
- Ideas for how governments, companies, and communities can work together more effectively.

Submit your video today

Deadline: Sunday, 29 September 2025, 23:59 GMT

Your voice matters. Be heard. Let's drive progress – together.

Beyond Compliance: Co-Creating a Lasting Social License to Operate in Mining

Mining plays a critical role in society by providing essential raw materials that support a wide range of industries and products. For instance, Rio Tinto extracts aluminium, copper, iron ore, and titanium—each of which has significant applications in everyday life and contributes to industrial growth. Aluminium is commonly used in construction, transportation, and packaging; copper is vital for renewable energy technologies and electronics; iron ore serves as a key input for steel production, crucial for the electricity sector and infrastructure; and titanium is highly valued for its use in aircraft and spacecraft, as well as its corrosion-resistant properties.

While mining undeniably contributes immense value to the global economy and our modern way of life, its history is also marred by negative impacts on the environments and communities surrounding mining operations. The repercussions of these impacts continue to resonate today, and there is a growing recognition that the methods by which mining is conducted must evolve to address these challenges effectively. This perspective underscores the industry's increasing awareness that securing a social license to operate—the broad acceptance and approval from society to conduct its activities—is essential for the long-term sustainability of mining projects.

Social License Defined

Securing a social license to operate is a complex and ongoing process that obligates mining companies to adapt their social strategies in response to the evolving expectations of society. The concept of social license to operate can be defined as follows:

1. "Having the approval, the broad acceptance of society to conduct its activities" (Joyce and Thomson 2000: 52).
2. "Meeting social expectations... gaining support for the project from concerned groups, or stakeholders, over and above meeting any legal requirements" (BSR 2003: 4).
3. The right of Indigenous peoples and other affected parties "to participate in decision-making and to give their free, prior, and informed consent throughout each phase of a project cycle" (Salim 2003: 21).
4. "The demands on and expectations for a business enterprise that emerge from neighbourhoods, environmental groups, community members, and other elements of the surrounding civil society" (Gunningham, Kagan, and Thornton 2003: 308).
5. "The idea that industrial facilities must comply with tacit expectations of regulators, local communities, and the public in order to continue operations" (Howard Grenville, Nash, and Coglianese 2008: 77).



Andile Sangqu
CEO & Chairperson The
Particle Group & Women
in Mining South Africa

The Evolution of Social License

In today's complex and fast-changing mining landscape, the Social License to Operate (SLO) extends far beyond regulatory permits. It is about earning and continuously renewing community trust through transparency, responsible business practices, and the creation of lasting value that benefits all stakeholders.

This premise builds upon insights from a recent breakfast dialogue hosted by Rio Tinto on the sidelines of Mining Indaba—a gathering of mining industry leaders, government representatives, and thought leaders to explore "The Evolution of Social Licence to Operate." Moderator Andile Sangqu set the tone by emphasising that, "A social license isn't something you get once—it's a commitment that must be continuously renewed." This sentiment underscores the fundamental shift in how mining companies must engage with communities: not simply as extractors of resources but as long-term partners in sustainable development.

Sinead Kaufman, CEO of Rio Tinto Minerals, reinforced this by sharing her thoughts on how major mining companies need to move beyond short-term compliance and embed sustainability into every stage of the mine's lifecycle, ensuring that host communities continue to thrive long after operations have ceased.

Balancing Immediate Needs with a Sustainable Future

Mining communities are dynamic, grappling with both opportunities and challenges, from job creation and infrastructure development to the need for education and healthcare. These realities often reveal an asymmetry of information and capacity between companies and communities. As Jacinto Rocha, President & CEO of the National Mineral Resources Agency (ANRM) in Angola, pointed out, "There is an asymmetry in information and capacity between companies and communities."

This imbalance necessitates proactive engagement and investment in capacity-building to empower communities to participate meaningfully in shaping their own futures.

Jacinto further emphasised the importance of aligning education with current industry realities, stating, "Academic institutions should review the programs that engineers and geologists undertake at university, considering the evolving expectations around the social license to operate." This forward-thinking approach ensures that future industry leaders are equipped not only with technical skills but also with a deep understanding of sustainable community engagement. Given, the finite nature of minerals, mining companies must go beyond mitigating immediate impacts and actively contribute to the long-term resilience of host communities. The challenge is not just to extract responsibly but to ensure that economic and social systems remain viable once mining activities conclude. The question is: How do we ensure that the benefits of mining outlast the life of the mine itself?

Co-Design: A New Paradigm for Community Engagement

Historically, community engagement in mining has been characterised by top-down decision-making, where solutions are imposed rather than co-created. This approach often fails to address deeper systemic needs. A shift toward co-design—where companies and communities collaborate to develop sustainable solutions—can help bridge this gap.

By embedding community voices in planning from the outset, mining companies can create living frameworks that evolve in response to changing needs. Co-design shifts the narrative from "what can we do for you?" to "how can we work together for a better future?" As one industry expert at the Indaba session highlighted, building capacity is a gradual process, requiring resilience, upskilling, and sustained investment in critical services.

Sinead Kaufman further reinforced this point, stating, "Just as life-of-mine plans evolve, so too must our approach to community development. Our ESG commitments should not change based on location." This consistency in high standards across regions ensures that mining operations are both sustainable and inclusive.

Integrating ESG: The Core of Modern Mining Leadership

Environmental, Social, and Governance (ESG) principles are no longer optional add-ons; they are central to responsible mining. Social responsibility—the "S" in ESG—is particularly critical for maintaining a social license to operate. As Jacinto Rocha noted, "A strong social license to operate is more than just addressing social issues—it's a pillar of security of tenure."

For mining companies, integrating ESG means:

- Establishing transparent communication channels regarding land use, environmental stewardship, and economic opportunities.
- Investing in social infrastructure such as education, healthcare, and local enterprise development.
- Ensuring traditional leadership structures are integral to decision-making, reinforcing cultural respect and community trust.

When ESG is embedded into corporate strategy rather than treated as a compliance exercise, it strengthens stakeholder relationships, reduces reputational risks, and ensures long-term operational success.

Trust and Traditional Leadership: The Foundations of Lasting Relationships

Trust is the bedrock of any enduring partnership between mining companies and host communities. True transparency requires more than reports and statistics—it demands ongoing, authentic dialogue and a shared commitment to mutual goals. In many regions, traditional leadership plays a central role in governance, shaping social cohesion and decision-making.

Deputy Minister Chief Sipho Burns-Ncamashe of COGTA emphasised this, stating, "Strong community relations in mining are built on a clear value proposition and a deep understanding of social dynamics. Investing in social facilitation—through continuous engagement, respect for cultural traditions, and recognition of traditional governance—ensures more meaningful and sustainable partnerships with host communities."

Recognising and integrating these leadership structures into community engagement efforts fosters trust and ensures that mining initiatives align with local customs and aspirations. This, in turn, reduces misunderstandings and helps build resilient partnerships that withstand the test of time.

"Maintaining transparency in our operations and decision-making processes is essential to keeping our SLO. That is why we take reporting on project progress, environmental impacts, and community benefits very seriously—it helps build credibility and trust with all stakeholders. Adhering to local and international regulations is vital to avoid legal challenges and project delays. Ensuring permits are up to date and other compliance considerations have been met streamline our operations and reduces the risk of impacting our SLO. These are just a few of the issues that SLO grapples with and these can shift with societal expectations and the realities on the ground" Trina Gill, ESG Director – Simandou.

Planning for a post-mining future

The best closure plans are those conceived at the very beginning of a mining project. A well-integrated social plan adapts to the evolving needs of the community throughout the life of the mine and prepares for a sustainable future post-mining. This forward-thinking strategy involves:

- Early planning for economic diversification, ensuring that communities are not solely dependent on mining.
- Ongoing investments in social infrastructure that continue to provide value beyond the mine's lifespan.
- Empowering local governance and community organizations to drive development independently.

By adopting these principles, mining companies can avoid leaving economic and social voids once operations cease. Instead, they can help establish vibrant, self-sustaining communities capable of thriving beyond the mine's life.

The legacy we leave behind

Mining companies must embrace a vision that extends beyond operational efficiency. As Sinead Kaufman stated, "The right decisions today will shape the future for generations to come." The true measure of our industry's success will not be in the resources we extract but in the enduring, positive impact we leave behind.

By co-designing social strategies with local stakeholders, embedding ESG principles, and planning thoughtfully for closure, we can create a legacy of resilience, prosperity, and shared value. Our commitment must be clear: we will forge partnerships, invest in people, and plan for a future where our legacy is one of sustainable development, not dependency.

The evolution of the social license is an ongoing journey—one that requires leadership, collaboration, and a long-term commitment to the communities we serve.



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South Africa's Kumba Iron Ore helping to lessen carbon emission in global steelmaking



Martin Creamer
Editor, Mining
Weekly

Northern Cape, is helping to lessen CO2 emissions at a time when this is the global pursuit of steelmakers. Mining Weekly can report that the iron (Fe) content of Kumba ore is typically considerably ahead of its peers by being above the Platts 62 index. Moreover, Kumba's lump-to-fine ratio is a further differentiator. For the first half of this year, Kumba's Fe was 64.1% and lump-to-fine ratio was 67:33, in contrast with a broader industry trend of declining ore quality. Some iron-ore majors have gone down to 61% Fe, and the highest lump-to-fine ratio produced being well below that of Kumba. Owing to its premium grade, the iron-ore product of the Johannesburg Stock Exchange-listed Kumba reduces the Scope 1 carbon emissions of customers. As a result, demand for it is poised to increase in the medium to long term.

Highlighting the importance of iron-ore that contributes to decarbonisation was last month's visit to Shanghai by Australia Prime Minister Anthony Albanese, which took place against the background of the iron-ore from Australia's ageing Pilbara region falling short of the quality and purity typically required. As a consequence, effective from January 2, Platts is lowering the benchmark grade of the Australian ore from 62% to 61% iron content and going forward, the closing of quality gap is going to need considerable investment in renewable energy and green hydrogen to bring about clean processing.

By contrast, at the desirable end of the Platts Index is South Africa's Kumba, an Anglo American group mining and marketing company which is earning a premium in the global market because of the ability of its quality ore to lessen CO2 emission. Kumba's standard and premium products are ideal for the blast furnace steelmaking method, with higher-grade ore not only reducing CO2 emission but also improving productivity. As a rule of thumb, each 1% increase in Fe lowers CO2 emission by 2.5%. On top of that, the use of the lump ore that is synonymous with Kumba reduces CO2 emissions by around 10%.

In addition to blast furnace steelmaking, Kumba sells some of its premium-grade to steelmaking companies that use direct reduction (DR) in direct reduced iron (DRI) production, which is a carbon light steelmaking method.

Globally, more than 70% of blast furnace capacity is less than 20 years old and most of it is thus expected to remain in service for at least another 20 years and, together with DRI-steelmaking, continue to account for more than 60% of global production.

In the six months to June 30, Kumba obtained an average realised free-on-board export price of \$91 per wet metric tonne (wmt), which was 8% above the benchmark price. The \$11/t it obtained for its Fe and lump was partly offset by marketing premium and timing effects of \$4/t, giving a net product premium of \$7/t.

Contributing in major fashion now is also the ultrahigh dense medium separation (UHDMS) that Kumba dispenses.

Remarkable, UHDMS is on the way to trebling the volume of premium-grade product produced as a proportion of the total production of Kumba's Sishen Iron Ore opencast mining operation, which will result in premium-grade volumes increasing from less than 20% to more than 50%. On top of that, the technology lowers the cutoff grade from 48% to 40%, reduces the life-of-mine stripping ratio from 4.2 to 3.6 and secures Sishen's life-of-mine to 2040.

Owing to UHDMS technology being margin enhancing, Kumba expects to earn an additional marketing premium of between \$2 and \$3 per dry metric tonne (dmt). This is because the technology allows higher volumes of premium product as a proportion of total Sishen production.

UHDMS also enables less waste stripping as Kumba is able to process in-situ C-grade material, thereby reducing mining costs by about \$2/dmt to \$3/dmt.

Without UHDMS, Kumba would need to ramp up mining equipment significantly, increasing waste mined, mining costs and capital expenditure.

UHDMS is therefore central to Kumba's strategy to maximise product premium, reduce waste, maintain cost efficiency and extend mine life.

Kumba's Kolomela iron-ore operation currently produces direct shipping ore grade quality product, but in future, UHDMS conversion similar to that implemented at Sishen could also be implemented at this younger iron-ore operation.

Mining Weekly: How many job opportunities has Kumba created outside of the mine fence, how many small businesses has Kumba created and what is a distinctive example of community development that Kumba has fostered?

Kumba: We employ 80% of our workforce from local mine communities in the Northern Cape region and 30% of our workforce are represented by women. When considering we paid R3.5-billion in salaries and benefits in the first half (H1) of this year, these jobs are critical to the local economy of the Northern



Cape. In H1 2025, we spent R8.2-billion (H1 2024: R8-billion) with qualifying BBBEE suppliers, including R1.4-billion with host community-owned businesses and 670 jobs were facilitated across several sectors outside of the mining industry, including agriculture, livestock development, hospitality, manufacturing and tourism. Since 2018, we have facilitated more than 42 000 jobs outside of Kumba's mine gate. As part of our R135-million social investment, we support community healthcare in our host communities. This year, we launched the Collect & Go Smartlockers, which improves access to chronic medication securely and conveniently. Additionally, an R11-million community bursary programme has enabled 78 young people from host communities to access further education and training, many of whom are now pursuing careers in fields such as engineering, education, and law. We also support 19 schools in the Northern Cape, benefiting 10 400 learners and 330 teachers, and contributed R1-million to the top 20 matriculants in the province to nurture future leaders. Overall, we created R25.9-billion in shared value in H1 2025, including R5.3-billion in dividends to shareholders and R1.9-billion to our empowerment partners.

What are the ideals to strive for when it comes to rail transport and port operation and how long is it going to take, and how much is it going to cost, to be globally competitive on rail and at the port?

Overall, we've seen encouraging signs of progress over the last six months. Rail performance improved to 83% of contracted volumes, which together with improved equipment availability at the Port of Saldanha Bay, resulted in a 3% increase in sales. This progress is a direct result of the partnerships that we have in place, particularly the ongoing technical support to Transnet and collaboration through the Ore User's Forum (OUF). The Ore Corridor Restoration programme is expected to unlock further improvement over time. We have finalised the Mutual Cooperation Agreement (MCA) between Transnet and the OUF. This is an important milestone. It formalises the working partnership and enables urgent maintenance work to be delivered faster, more efficiently, and with greater alignment. In

addition to the MCA, further long-term funding mechanisms are being evaluated by government. The Independent Technical Assessment completed last year found that significant work still needs to be done across the rail network, port, and rolling stock to restore the system to design capacity. A significant capital investment (including contingencies) is required to achieve this. Private-sector involvement in managing and maintaining the ore export channel remains the preferred approach to ensure efficiency, reliability, and long-term sustainability. For Kumba, this means partnering with capable logistics operators to improve throughput and reduce delays. Achieving this requires strong collaboration with government stakeholders, particularly the Department of Transport (DoT) and Transnet, to align on infrastructure investment, policy support, and operational execution. Encouragingly, regulatory reforms are underway, creating a more conducive environment for collaboration and investment. Kumba, as part of the OUF, is engaging in the government's recently announced Private Sector Partnership process, assessing its impact and exploring opportunities to strengthen the iron-ore export logistics and infrastructure. At the end of May, the OUF submitted a response to the request for information to the DoT. We now await the release of the commercial request for proposal later in the year. Despite global economic uncertainty and market volatility, Kumba continues to deliver stakeholder value. The company has made strong progress on its strategy of safely and sustainably unlocking value from its core assets, underpinned by consistent production, cost, and capital discipline. In H1 2025, Kumba delivered Ebitda of R16-billion, free cash flow of R7.9-billion, and declared an interim dividend of R16.60/share. This was supported by our ability to earn an additional premium, thereby achieving an 8% higher average realised price than the benchmark iron-ore price. We also kept our C1 unit cost flat at \$39/wmt. Our break-even price improved by \$10/t to \$64/t, ensuring Kumba is better positioned for market volatility. These results reflect the company's resilience, operational excellence, and commitment to long-term value creation.

Hydrogen, PGMs and Africa – Unlocking Potential Synergies

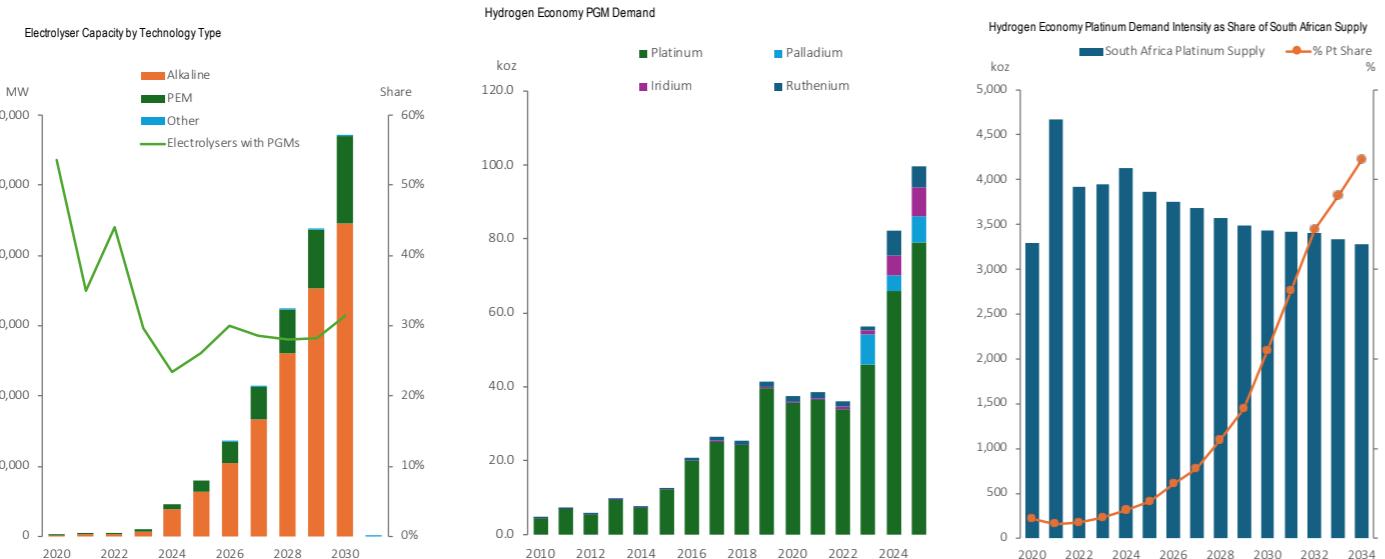


Africa stands at the crossroads of an energy transformation. While the global conversation on hydrogen often focuses on Europe, Asia, or North America, the continent has unique conditions that could allow it to play an outsized role in the hydrogen economy. This is not only an energy story, but also one about platinum group metals (PGMs).

Access to reliable electricity remains one of Africa's greatest structural barriers. The International Energy Agency estimates that nearly 600 million people in sub-Saharan Africa still live without access to power, representing more than 40% of the population. Even in urban centres, intermittent supply and load-shedding undermine economic growth, digital connectivity, and industrialisation. Renewables

such as solar and wind are scaling rapidly, while battery technology has advanced significantly. Yet the limitations of intermittent generation and short-duration storage mean that hydrogen can play a complementary role. It can provide long-term storage, off-grid power for critical applications, and a clean fuel for industries that are difficult to decarbonise.

Africa possesses substantial renewable energy resources, including some of the world's highest levels of solar irradiation and significant wind potential along its coastlines. These factors suggest that the continent could generate renewable electricity at competitive costs relative to global benchmarks, which in turn provides a basis for large-scale green hydrogen production. Several governments,



notably in Namibia, South Africa, and Egypt, have published or are drafting hydrogen roadmaps. These strategies typically emphasise two objectives: strengthening domestic energy resilience and creating opportunities for export revenues. On the domestic side, hydrogen could complement existing renewable programmes and support more reliable energy access in regions where grid infrastructure remains weak. On the international front, export pathways under consideration include conversion into ammonia or the use of liquid organic hydrogen carriers (LOHCs), both of which are being trialled in other regions as potential global transport solutions.

For Africa, hydrogen is also closely tied to PGMs. South Africa and Zimbabwe are dominant suppliers of platinum, iridium, ruthenium, and, to a lesser extent, palladium which are critical to hydrogen technologies. In production, proton exchange membrane (PEM) electrolyzers rely on platinum and iridium catalysts, and scaling electrolyser fleets worldwide will directly stimulate demand for these metals. In storage, technologies such as ammonia synthesis and LOHC systems broaden hydrogen export pathways, while hydrogenation and dehydrogenation processes themselves require both platinum and palladium. In consumption, fuel cells are already providing backup power in Africa. South African telecom towers, for example, have deployed hydrogen fuel cells to reduce reliance on diesel generators, with PEM fuel cells typically used in this environment due to their quick start-up and suitability for dynamic loads. Data centre

energy requirements in Africa is projected to nearly double from 1 GW in 2022 to almost 2 GW in the near term, and these facilities will need reliable backup where stationary fuel cells could be an important solution. Looking further ahead, hydrogen corridors to support heavy-duty trucks could transform logistics in regions heavily dependent on long-haul freight.

Hydrogen's role in Africa's energy transition is already beginning to take shape. Pilot projects are underway, governments are advancing strategies, and international partnerships are forming. At the same time, the very metals that Africa supplies to the world, particularly platinum, iridium, and ruthenium are central to scaling hydrogen technologies.

In Metals Focus' latest PGM Hydrogen Economy Report, we highlight the developments that are set to shape this market over the coming two decades. While short-term adoption faces challenges, we estimate that around 100k oz of PGMs will be required in hydrogen-related applications this year. Looking ahead, demand could rise to close to 20% of South African platinum production over the next 10 years. This trajectory underscores the overlapping opportunities: Africa's established strength in PGM mining, its abundance of untapped renewable energy and its growing interest in hydrogen technologies, which position the continent to play a pivotal role in the clean energy transition.



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