CROWN PUBLICATIONS

MODERN MINING

FEBRUARY 2026 | Vol 21 No 2

For people who are serious about mining

Driving smart mines – MTN leads the way

IN THIS ISSUE

INVESTING IN AFRICAN MINING INDABA
A Hyve Event

HITACHI

Reliable Solutions

Hitachi Construction Machinery Group
LANDCROS
Japanese Excellence—Reliable Solutions

Discover the Revolutionary EH4000AC-5.

Hitachi Construction Machinery Africa supplies an extensive range of Hitachi products, associated parts and innovative services throughout Southern Africa.

All Hitachi products are known for reliability, performance and cost efficiency in their specific applications and carry quality assurance to international standards. Built on the foundation of superb technological capabilities, Hitachi Construction Machinery Africa is committed to providing leading-edge solutions and services to contribute as a reliable partner to the business of customers across Africa.

Visit us at the Mining Indaba 9-12 February 2026 at Stand 1N25, Cape Town International Convention Centre (CTICC).

Stronger Partnerships. Smarter Mining.
Building Progress that lasts.

CONTENTS

ON THE COVER

MTN is redefining the future of mining through its next-generation 5G private networks **Pg 12**.

COMMENT

BRICS and mo, ta!

Nelendhre Moodley.

Editor: Nelendhre Moodley
e-mail: mining@crown.co.za
Advertising Manager: Rynette Joubert
e-mail: rynettej@crown.co.za
Design & Layout: Ano Shumba
Publisher: Karen Grant
Deputy Publisher: Wilhelm du Plessis
Circulation: Brenda Grossmann and Shaun Smith
Published monthly by: Crown Publications (Pty) Ltd
P O Box 140, Bedfordview, 2008
Tel: (+27 11) 622-4770
Fax: (+27 11) 615-6108
e-mail: mining@crown.co.za
www.modernminingmagazine.co.za

Printed by: Tandym Print

Average circulation
Jan-Mar 2024: 10 696

What a time to be alive – front row seats as geopolitical tensions reshape the world economy. In all this mayhem, the BRICS alliance has done the unthinkable – introduced an alternative currency to the dollar – for more than five decades, the world has been forced to rely on the dollar as a reserve currency, but not for much longer.

At the end of October last year, Brazil, Russia, India, China, and South Africa (BRICS) launched the Unit, a gold-backed prototype released on a pilot programme. The Unit aims to reduce dollar reliance through a basket of gold and member currencies for trade settlement. The recent pilot marks a tangible early stage move towards an alternative financial system within the expanded BRICS+bloc.

Unlike the dollar, a fiat currency, backed only by government decree and public trust, which allows the US government to print dollars on demand, the Unit, a digital trade currency for direct settlements, consists of a mix of 40% physical gold and 60% national currencies. The Unit is designed for cross-border trade and investment among BRICS+ countries, not as a physical currency for public, daily use. Full implementation is a long-term goal – significant adoption is unlikely before 2030.

> “The drama playing o ut on the global stage is better than any movie script, with leaders delivering performances worthy of Golden Globe awards. US President Donald Trump is the catalyst stirring global tensions, upheaval and market uncertainty.”

Global drama driving demand for precious metals

The drama playing out on the global stage is better than any movie script, with leaders delivering performances worthy of Golden Globe awards. US President Donald Trump is the catalyst stirring global tensions, upheaval and market uncertainty.

This action thriller crime drama is the impetus sending the price of gold and silver skyrocketing – by mid-January gold breached the $4600 /oz mark with silver sending shivers across markets as it soars to become the belle of the ball.

Silver prices have seen a massive surge over the past year with significant gains, potentially over 100%, from early 2025 to January 2026, driven by strong demand as a safe-haven asset amid global economic shifts, reaching record highs of around $84.30/oz compared to the lower levels a year prior (around $30-40/oz range).

Platinum group metal (PGM) prices are also rising rapidly due to a combination of multi-year supply deficits, severe production constraints in SA, and a resurgence in industrial and investment demand.

Trump’s aggressive and bullying stance continues to anger nations, forcing increased investment in military and defense.

Armed with a military budget of roughly $901 billion for defence (close to a trillion dollars), the US aims to address intensified global security challenges and modernise weapons systems and to be well positioned to compete with China and Russia in military might. Obviously, such an excessive budget is not aimed at world peace but rather at instigating wars – Venezuela, Iran and the play for Greenland.

Good news for mining as this means increased demand for critical minerals, including rare earth elements, tungsten, titanium, cobalt, lithium, gallium, germanium, and graphite, all essential for high-tech systems, armour, electronics, and energy storage. NATO also listed aluminium, beryllium, manganese, and platinum, as crucial for advanced weaponry, defence and national security.

Africa possesses roughly 30% of the world's total mineral reserves, including global shares of PGMs, cobalt, manganese, diamonds and gold, and remains well-placed to reap financial rewards associated with soaring metal prices.

BRICS nations also dominate in critical materials like rare earths (China), platinum (SA), manganese (SA, China, Brazil), and coal (SA, China, Russia).

In this issue

This edition provides insight into the outlook for key commodities - gold (pg 20), PGMs (pg 22), coal (pg 24) and copper (pg 26). We also report on some of the latest developments in the gold space - Resolute (pg 28), Qala (pg 31), Newcore (pg 32) and Ankh (pg 34) as well as critical metals (Ionic pg 38) and junior mining (pg 36).

Check out our cover story, MTN, which is leading the way in driving smart mines (pg 12).

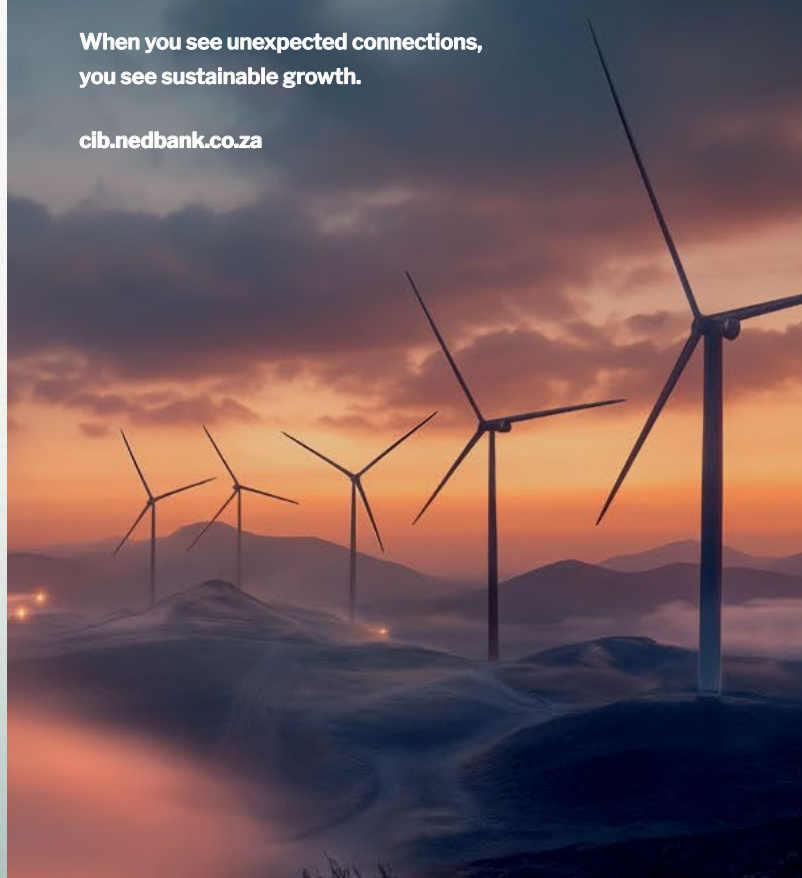
NEDBANK CIB

To drive the green energy transition, you need to dig deeper.

Mining is essential to the green energy transition because it provides the critical minerals needed for renewable energy. To navigate the complexities of mining finance, partner with Nedbank CIB – the leaders in mining finance.

When you see unexpected connections, you see sustainable growth.

cib.nedbank.co.za



see money differently

Orezone delivers first gold from Bomboré hard rock expansion

West African gold producer, Orezone Gold has completed the first gold pour from the company's new 2.5 mtpa hard rock expansion.

Patrick Downey, CEO stated, "Commissioning of this plant is now complete, with mill throughput averaging 78% of nameplate capacity for the first 5 days of operations, resulting in first gold on December 15. I want to extend my sincere gratitude to all involved in the construction and commissioning of the Bomboré hard rock expansion. Their dedication, hard work and commitment to excellence have safely delivered the Stage 1 expansion on time and on budget over a construction period of approximately 12 months. This is a commendable achievement, reflecting an industry-leading level of project delivery. Commercial production is expected to be declared in early Q1-2026, and will represent a major milestone for Orezone, with overall gold production at Bomboré set to increase by 45% to 170 000-185 000 oz in 2026. This will mark a significant cash flow inflection point, underscored by the company's solid balance sheet and record high gold prices." ■

Bomboré hard rock expansion project.

First equipment shipment into UAE arrived for Anode facility


Hanré Rossouw, CEO of NextSource Materials.

TSX-listed NextSource Materials has announced that the first shipment of equipment for its proposed Battery Anode Facility (BAF) arrived in Abu Dhabi in the United Arab Emirates (UAE). The shipment consists of longlead items for anode processing which the company previously procured. The procurement of key processing equipment and delivery of the components are critical in demonstrating the company's proactive approach and ability to deliver, ensuring that key equipment is secured ahead of installation and commissioning. The equipment will be installed in the preexisting industrial building selected by the company within the Industrial City of Abu Dhabi (ICAD). The company also reports significant progress in the FrontEnd Engineering and Design (FEED) phase. The FEED work has progressed to schematic design, providing further definition on plant design, capital requirements, and execution planning. This growing level of technical and cost certainty will form a key input into the Final Investment Decision (FID). Following a successful FID, the company will proceed with full equipment procurement, installation, commissioning, and rampup in accordance with its phased development plan. Hanré Rossouw, CEO of NextSource, commented: "The arrival of long-lead equipment in Abu Dhabi is a tangible demonstration of continued progress on our Battery Anode Facility. Securing these items proves logistical supply chains into the UAE. With the ICAD building secured, we are strengthening the foundations for a disciplined and efficient development phase." ■

Critical Metals Board changes

LSE-listed Critical Metals, currently developing the Molulu Copper/Cobalt Project in the Democratic Republic of Congo, announced two changes to its Board of Directors.

Ali Farid Khwaja has resigned as CEO, with immediate effective. Danilo Lange has been appointed as interim CEO of the company while the Board carries out an executive search process in the coming months. The Board is confident that Lange has the skills and experience to continue the company's development. Lange is an experienced international executive with over 25 years of leadership experience across mining, consumer goods, and marketing sectors. He has a proven history in corporate turnaround, business expansion, and cross-cultural team management in Europe, the Middle East, and Eastern Europe. He previously served as CEO of a NASDAQ OMEX listed gold producer and exploration company in Sweden. ■

BORN IN THE REPUBLIC OF SOUTH AFRICA

Did you know Bell Equipment's range of Articulated Dump Trucks and Motor Graders are designed by South African engineers and locally manufactured in Richards Bay, KwaZulu-Natal?

As a homegrown, South African family company, we understand the critical importance of growing local business, contributing to our local economy and creating employment for South African people.

Ashley Bell, Group CEO

WITH LOCAL CONTENT OF OVER **70%**, THEY CREATE SIGNIFICANT JOB OPPORTUNITIES AT BELL AND THE OVER **1 000 SOUTH AFRICAN** SUPPLIERS FEEDING INTO THE BELL FACTORY DAILY.

PERHAPS MORE IMPORTANTLY FOR CUSTOMERS, THESE MACHINES COMPETE GLOBALLY AND ARE WORLD CLASS FROM A PERFORMANCE, ERGONOMICS, DURABILITY, AND QUALITY PERSPECTIVE.

FOLLOW US ON

Tel: +27 (0)11 928 9700
E-mail: sales@bellequipment.com
www.bellequipment.com

Strong Reliable Machines
Strong Reliable Support

BELL

Continued drilling builds scale at Blaffo Guetto

ASX-listed African Gold recently reported further drilling success at the Blaffo Guetto deposit within the Didievi Gold Project in Côte d'Ivoire, with recent results continuing to confirm the scale, continuity and growth potential of the mineralised system. Current drilling has focused on aggressive step-outs from the existing MRE, which successfully extended mineralisation to the east, along strike and at depth. These results confirm continuity of mineralisation and indicate the system remains open, informing ongoing work towards a future resource update. The combined outcomes of consistent drilling success, encouraging metallurgical performance and advancing technical studies mark a further step in systematically de-risking the Blaffo Guetto deposit. Environmental baseline programmes and supporting technical work are progressing in parallel, ensuring the project continues to move forward in a disciplined and development-focused manner. African Gold Chief Executive Officer, Adam Oehlman, said: "Blaffo Guetto continues to demonstrate its quality and scale, with recent drilling extending mineralisation more than 150 metres from the last MRE and confirming continuity across the system. These results also indicate potential for additional near-surface high-grade mineralisation, informing ongoing evaluation of open-pit-constrained resource growth. In parallel, the acquisition by Montage Gold represents a compelling outcome for African Gold shareholders, crystallising value while retaining exposure to the upside of Didievi within a larger, well-capitalised development platform." ■

African Gold reported further drilling success at the Blaffo Guetto deposit in Côte d'Ivoire.

Cennergi Holdings is the preferred bidder under Bid-Window 7 of the REIPPPP

Diversified mining and energy group Exxaro Resources recently announced that its wholly owned subsidiary Cennergi, in collaboration with ENGIE, is the preferred bidder under the seventh Bid Window of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) for the 240MW Corona Solar Project located in the Free State. Achieving financial close on the Corona solar PV facility will add 112MW to Cennergi's capacity, resulting in total assets under construction and operation of 607MWnet (890MWgross). Ben Magara, CEO of Exxaro, said: "We are excited to have been successful in this competitive bidding process that further extends our footprint across South Africa as we work towards realising a just and inclusive energy transition." ■

Cennergi, in collaboration with ENGIE, are the preferred bidder for the 240MW Corona Solar Project.

Barrick completes Tongon transaction

Leading global miner, Barrick Mining, has divested of its interests in the Tongon gold mine and certain of its exploration properties in Côte d'Ivoire to the Atlantic Group for total consideration of up to $305 million. The consideration is composed of cash consideration of $192 million, inclusive of a $23 million shareholder loan repayment within six months of closing, and contingent cash payments totalling up to $113 million payable based on the price of gold over 2.5 years and resource conversions over 5 years. ■

Ivanhoe Mines announces first anode production from Kamoa-Kakula copper smelter

Ivanhoe Mines produces first copper anodes at Kamoa-Kakula's copper smelter.

TSX-listed Ivanhoe Mines Executive Co-Chairman Robert Friedland and CEO Marna Cloete announced that the first copper anodes were produced by Kamoa-Kakula's on-site, state-of-the-art 500 000-tonne-per-annum direct-to-blister copper smelter on 29 December 2025, about five weeks after the commencement of the smelter's heat-up and one week after the first feed of concentrate. Friedland commented: "The first production of copper anodes from our world-class smelter is a defining moment for Kamoa-Kakula... This achievement is the culmination of a $1.1 billion investment, 18 million man-hours of disciplined execution, and an outstanding health and safety record that reflects the professionalism and commitment of everyone involved. This facility will deliver the highest-quality Congolese copper anodes to the international markets, setting a new global benchmark for scale, efficiency, and sustainability." ■

Sibanye-Stillwater reaches a three-year wage agreement at its SA gold operations

JSE-listed Sibanye-Stillwater has announced the successful conclusion of wage negotiations at its South African (SA) gold operations, which began in July 2025. A three-year agreement has been reached with the representative unions — the Association of Mineworkers and Construction Union (AMCU), the National Union of Mineworkers (NUM), UASA, and Solidarity — regarding annual wage and benefit increases for the SA gold employees. The agreement is effective for three years from 1 July 2025 to 30 June 2028, with the estimated average three-year basic wage increase for the total bargaining-unit wage bill, including all benefits, approximately 5.4% per annum. Category 4- 8 employees will receive an increase on the greater of the standard rate of pay of R850 or 4.5% in year 1; R900 or 4.8% in year 2; and R1,000 or 5.0% in year 3 while miners, artisans and officials will receive increases of 4.5% in year 1, 4.8% in year 2 and 5.0% in year 3 of the agreement. ■

Sibanye-Stillwater reaches a three-year wage agreement at its SA gold operations.

SRK Consulting opens new office in Bloemfontein

After running a solo operation in the Free State for several years, SRK Consulting South Africa's Dr Herman Booysen, associate partner and principal scientist in disaster and risk management, is now heading up a three-person team with new offices in Bloemfontein. Supported by Mareli Hugo in the risk management field and Louis de Villiers, dealing with environmental matters, Booysen is now able to start developing a regional client base in the Free State and Northern Cape. His projects to date have taken him all over the country, but with the new office structure, he will now be able to focus closer to home. In addition to mining projects, Booysen is looking to expand the sectors in which he can apply his specific skill set and is looking first to the agriculture sector. "There are significant opportunities to use the same methodologies, modelling and expertise in agriculture as we do in mining," he says.

These opportunities include disaster and risk assessment, mainly relating to climate change, specifically water stewardship, flood risk assessment and water safety plans. Booysen is currently busy with a research project around flood risk. There are many institutions, including the Department of Water Affairs and Sanitation, and the National Disaster Management Authority who have a need for predictors and risk mitigation measures in the event of flooding, making Booysen's work and expertise on the ground invaluable. ■

SRK Consulting South Africa's Dr Herman Booysen.

Seriti Green and Eskom mark handover of Vunumoya Main Transmission Station

Seriti Green, together with Eskom and its subsidiary, the National Transmission Company South Africa (NTCSA), recently announced the formal handover of the Vunumoya Main Transmission Station (MTS) by Seriti Green to Eskom. This investment of more than R1 billion, delivered over 18 months, represents a major grid-enabling asset that will support one of South Africa's largest renewable energy developments.

The handover confirms that the Vunumoya MTS is fully energised, operational and integrated into the national grid. It also enables the first 155MW of wind energy from Seriti Green's Ummbila Emoyeni One Wind Energy Facility to be fed into the system ahead of schedule, marking the beginning of a 900MW programme that will progressively add further renewable capacity.

Speaking at the handover ceremony, Seriti Group CEO Mike Teke said the milestone demonstrates what coordinated delivery can achieve for South Africa's evolving energy landscape. "The handover of the Vunumoya Main Transmission Station demonstrates what effective partnership can achieve. This is a meaningful milestone for South Africa's energy transition and for Mpumalanga's future as a renewable energy hub. Seriti is proud to be playing a role in building the infrastructure that supports a more secure and sustainable national energy system," Teke said. ■

Seriti Green and Eskom handed over the Vunumoya Main Transmission Station.

Aurum advances Boundiali toward development

ASX-listed Aurum Resources has reached a significant regulatory milestone at its flagship Boundiali Gold Project in Côte d'Ivoire. Following the recent lodgement of two applications in December 2025, the company now has three mining exploitation licence applications on foot with the Côte d'Ivoire Ministry of Mines, Petroleum and Energy. The lodgement of applications for the BD (130.38km^2) and BM (274.93km^2) mining licences in December 2025 joins the existing BST (167.36km^2) application submitted in March 2025. This comprehensive application footprint underscores Aurum's confidence in Boundiali's potential as a large-scale, modern open-pit mining operation. Aurum's Managing Director Dr. Caigen Wang said: "The rapid transition from exploration to mining licence applications across our entire Boundiali footprint is a testament to the quality of our assets and the efficiency of our team. In 2025, we grew our resource from 1.59 moz to 2.41 moz and completed over 108 000m of drilling at Boundiali. With $40m in the bank and a clear pathway to a Definitive Feasibility Study (DFS) in late 2026, we are perfectly positioned to deliver significant value this year." ■

Andrada Mining delivers sustained production growth

AIM-listed Andrada Mining, an emerging African miner with assets in Namibia, announced its interim financial results for the six-months ended 31 August 2025 (H1 FY2026). The results reflect the benefits of sustained capital investments and processing improvements across the company's asset base.

"Following a period of engineering investment and corporate restructuring, we are now transitioning from capacity build-up into a scaling phase. Our growth potential far surpasses our current operational footprint. The results for the period demonstrate meaningful improvements in cost performance, cash discipline, and operating leverage, which collectively support the delivery of our growth strategy. The combination of developmental and operational assets featuring a suite of critical minerals including tin, tantalum, lithium, tungsten and copper, located in an investment-friendly jurisdiction, position the group as a strategic source of future supply," said Anthony Viljoen, CEO.

Highlights

- **Ore processed:** increased by 10% Year-on-Year (YoY) to 527 583 tonnes (H1 FY2025: 481 504 tonnes).
- **Tin concentrate:** increased 14% YoY to 858 tonnes (H1 FY2025: 752 tonnes).
- **Tantalum concentrate:** increased by 12% to 27 tonnes (H1 FY2025: 24 tonnes).
- **Revenue:** increased by 12% to £12.2 million (H1 FY2025: £10.8 million).

Projects & Partnerships: primed for rapid expansion

- **Growth platform:** engineering investment over last 12 months provides a foundation for accelerated growth.
- **Uis Mine Ore Sorter project:** reengineered the pre-concentration circuit for tin and tantalum ready for final construction phase.
- **Uis Mine lithium expansion project:** projected to enter DFS phase during 2026.
- **Uis Mine exploration upside:** multiple notable drilling results for targets proximal to the current mining pit with high-grade intersections of up to 1.13% tin and 1.76% lithium oxide.
- **Lithium Ridge:** lithium exploration programme commenced at Lithium Ridge for potential mineral resource development, in partnership with SQM Australia. ■

Rainbow Rare Earths pilot plant commences operations

Rainbow Rare Earths has successfully built, commissioned and commenced pilot scale operations as the final phase of process test work for the Phalaborwa project in South Africa. The project will be the first commercial recovery of REE from phosphogypsum, a waste product from phosphoric acid production, which means that many of the costs, risks and long timescales associated with traditional mining projects are eliminated. The large-scale pilot operation will run the optimised primary flowsheet with a leach process producing sufficient volumes of PLS to allow for optimisation of the CIX and impurity removal processes, as well as delivering the bulk feed sample for off-site SX test work. It will also provide the data that underpins the DFS, including process flowsheet development, mass balance, equipment sizing and capital and operating costs, and will be used as the basis for third-party validation for project finance.

The pilot plant will deliver the bulk feed sample for off-site SX test work. This will allow Rainbow to finalise the product specifications for the planned separated NdPr oxide and SEG+ products, which is an important component of concluding offtake agreements for these in-demand products.

This final pilot campaign will continue through H1 2026 whilst the work to finalise the DFS runs concurrently to enable the study to be completed this year, as planned.

George Bennett, CEO, commented: "This new piloting operation is the final phase of process test work for Phalaborwa, as it will demonstrate the project flowsheet that has been considerably updated over the past 18 months via several key optimisations. These efficiencies further reinforce the project's position at the bottom of the industry cost curve to deliver high-purity (>99.5%) separated NdPr oxide and SEG+ products. The pilot operations are important to the finalisation of the DFS this year and ensure the long-term success of the Phalaborwa project. The outlook for the REE market remains strong going into 2026, with pricing for the light REE NdPr having effectively doubled since the lows of 2025 to over US$100 /kg, following the major price rises we have seen already for the medium and heavy REE that are subject to Chinese export controls. Phalaborwa is a unique project in that it will produce the full range of economically and strategically important REE, which is why it has been backed by the US International Development Finance Corporation as a key contributor to supply chain resilience." ■

First production of mixed rare earth sulphate.

Bleak New Year looms for smelter as Transalloys warns of large-scale job cuts

South Africa's last remaining manganese smelter has issued a warning of possible large-scale retrenchments.

A bleak New Year looms for hundreds of workers at Transalloys, South Africa's last remaining manganese smelter, after the company issued a Section 189 notice warning of possible large-scale retrenchments that could take effect in the weeks ahead.

Transalloys chief executive Konstantin Sadovnik said that the smelter has no choice in the matter. "We regret placing this level of uncertainty on our employees and their families at this time, but the ongoing lack of clarity around our operating environment leaves us with no responsible alternative, "he said.

The notice places around 600 well-paid direct jobs at risk and threatens an estimated 7 000 livelihoods linked to the smelter and the broader eMalahleni economy via its supply chain and various dependencies. "This is an extraordinarily difficult announcement to make as we approach the New Year," said Sadovnik.

The company cannot sustain operations presently, Sadovnik said. "Energy is our biggest cost driver," Sadovnik said. "At current NERSA-approved tariff levels, we are competing against international smelters whose electricity costs are roughly half of ours. That gap makes sustained operation impossible."

Throughout 2025, Transalloys operated intermittently as negative operational margins and sustained cash-flow pressure made continuous production impossible. The plant is currently running only two of its five furnaces. "This is a reflection on how things have deteriorated," he said.

Sadovnik added that manganese beneficiation faces harsher conditions than the ferrochrome sector, which has dominated public discussion in recent months. Manganese smelting, he said, is significantly more energy-intensive, and Transalloys' position is further weakened by the fact that it is not an integrated producer and cannot cross-subsidise beneficiation from primary ore production.

> The notice places around 600 well paid direct jobs at risk and threatens an estimated 7 000 livelihoods linked to the smelter and the broader eMalahleni economy.

According to Sadovnik, current market conditions, including exchange-rate pressures against the US dollar and euro, manganese beneficiation in South Africa has become fundamentally unsustainable. Manganese ferroalloys are bulk commodities sold into highly price-sensitive global markets, where electricity costs are the single most decisive competitiveness factor.

While Transalloys has previously welcomed government's efforts to develop a sustainable energy pricing framework for energy-intensive smelters, Sadovnik said the absence of certainty has now become the opportunity cost that threatens the business in totality. Based on the information available, he said the proposed blueprint solution for ferrochrome smelters, at preferable pricing levels, would also be the correct solution for Transalloys. "This could preserve what remains of manganese beneficiation in South Africa, with the potential to stabilise and even grow employment," he said.

However, he also warned that uncertainty around implementation, timing and the current exclusion of manganese smelters in discourse is eroding the company's ability to protect jobs. "Transalloys is hopeful that the issue will be resolved in the next two months and that implementation will be swift. Without that certainty, the company will have no option but to proceed with restructuring around February," Sadovnik said.

Despite the challenges, he noted that as a global manganese ferroalloys producer Transalloys will continue to explore every possible avenue to preserve jobs, maintain social programmes and meet its supply obligations. He said that the company remains ready to work urgently with government, Eskom, NERSA and trade unions to find a sustainable solution. "Time is the critical factor now," he said. ■

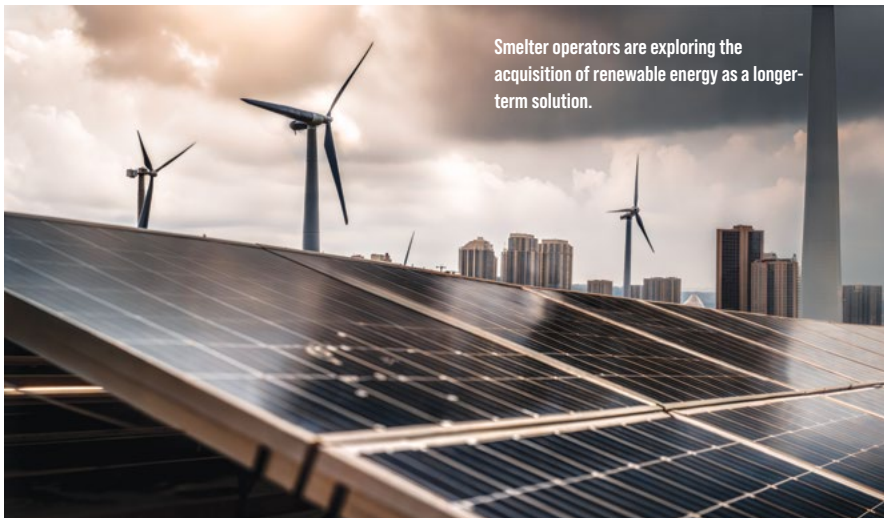
Chrome producers and ferrochrome smelters reject a proposed chrome ore export tax

Chrome ore producers, including primary miners and those generating chrome ore from their platinum group metals mines and integrated producers, which mine chrome ore and produce ferrochrome, represented by the Ferro Alloy Producers Association (FAPA), are aligned on the fundamental need for globally competitive electricity prices as the primary intervention required to restart idled smelters.

The industry remains united in its commitment to safeguard the ferrochrome and broader ferroalloy sector, to continue adding value to South Africa's mineral endowment, and to support domestic manufacturers. Any interventions in addition to an electricity tariff adjustment must be balanced, equitable and supportive of the competitiveness of both chrome mining and ferrochrome beneficiation.

Both groups are clear that the price and availability of chrome ore is not the cause of South Africa's ferrochrome smelter closures or suspensions. Instead, the more than 900% increase in electricity tariffs since 2008 has rendered domestic smelters uncompetitive and unprofitable.

Without an intervention that directly addresses the electricity cost burden, no trade measures, including a chrome ore export tax or quotas, will restore meaningful viability to the country's ferroalloy smelters. Both miners and smelters, therefore, reject recently mooted calls for an export tax or restrictions, as these would harm chrome ore producers without materially assisting smelter recovery.



Smelter operators are exploring the acquisition of renewable energy as a longer-term solution.

The solution for restarting ferrochrome, silicon and manganese smelters is clear: the sustainable provision of electricity at globally competitive tariffs, not measures that disadvantage non-integrated chrome, manganese and silica producers. Glencore and Samancor Chrome, both operators of ferrochrome smelters, have already proposed a solution requiring no subsidies from government, Eskom or other mining companies.

Smelter operators are exploring the acquisition of renewable energy as a longer-term solution. While this will take time to implement, it will reduce reliance on Eskom and position South Africa's ferroalloy producers to minimise exposure to Carbon Border Adjustment Mechanism (CBAM) penalties.

Additional measures that could support ferroalloy production include a reduction or temporary suspension of the domestic carbon tax applied to smelters.

FAPA and non-integrated chrome producers also agree on the urgent need to eradicate illegal chrome mining, which generates an estimated R8 billion per year and accounts for roughly 10% of South Africa's chrome ore exports. This requires comprehensive intervention by law enforcement agencies, enhanced border controls and stricter, consistently enforced regulations.

The Minerals Council, its members and FAPA, with its members, propose jointly developing a beneficiation roadmap with the Government to fully understand and enact the measures that will encourage industrialisation, incentives and a conducive regulatory environment that encourages and sustains investment in exploration, mine development, existing mines as well as downstream industrialisation using minerals and metals. ■

The industry remains united in its commitment to safeguard the ferrochrome and broader ferroalloy sector.

Driving smart mines – MTN leads the way

By Nelendhre Moodley

African multinational telecommunications giant MTN is redefining the future of mining through its next-generation 5G private networks—providing the foundation for mines to transition into fully connected, intelligent operations.

MTN's private 5G networks enable major leaps in safety, operational efficiency, and automation.

Mining is one of MTN Business's five key growth sectors, and the company continues to accelerate the rollout of private network coverage across Africa.

Speaking to *Modern Mining*, Farah Abdulahi, General Manager: Large Enterprise at MTN Business, explains the company's vision: "As a technology leader, MTN plays a pivotal role in bringing cutting-edge solutions, including 5G private networks, to Africa's mining industry—a critical economic sector poised to unlock enormous value through digitisation."

MTN's private 5G networks enable major leaps in safety, operational efficiency, and automation. Several mines are already deploying the technology, delivering measurable improvements across their operations. The company is firmly positioning itself as the leading enabler of digital transformation in mining through private 5G, IoT, cloud, and managed services—all underpinning safer, more sustainable mining.

"We collaborate with leading technology providers and forward-thinking OEMs to deliver fully integrated solutions," Abdulahi adds.

Tangible results: The numbers tell the story

Blessing Mdladla, Head of Enterprise Business Industry Vertical at MTN Business, says the mining industry is rapidly embracing digital tools such as IoT, AI, automation, and real-time analytics.

"Smart mining enables autonomous vehicles, remote operations, predictive maintenance, and improved safety through unified, real-time data," he explains. "Smart equipment and intelligent software support optimised production."

By adopting these technologies, mines significantly reduce downtime while enhancing productivity and worker wellbeing—an overriding priority across the industry.

According to Abdulahi, the impact adopting technology is striking. Accident response times have decreased by up to 50%, energy consumption by 10–15%, and productivity has risen 20–30%. Collectively, these improvements deliver around a 2% uplift on the bottom line—a substantial gain for an industry operating on tight margins.

Safety, compliance, and predictive maintenance

Safety and sustainability are central to mining operations. Strict regulatory requirements mean that lapses can result in severe penalties, including substantial fines or even the suspension of mining rights. This has driven strong uptake of technologies such as real-time tracking and predictive maintenance.

"As part of the industry's zero-harm objectives, mines are increasingly adopting real-time monitoring technologies to enhance employee safety, such as systems for detecting worker fatigue and missing-person locator," explains Mdladla.

Moreover, instead of relying solely on scheduled

What is a connected mine?
A connected mine is a digitally transformed operation that integrates IoT, cloud technologies, sensors, and real-time analytics across the entire value chain—from exploration to processing.

By linking IT and OT systems, connected mines enable real-time monitoring, automation, predictive decision-making, and enhanced safety, ultimately driving more efficient, sustainable, and profitable operations.

maintenance—which often leads to unnecessary work—mines are adopting predictive maintenance. By using real-time data to identify only the interventions that matter, they can reduce downtime, eliminate redundant tasks, and extend asset life.

Innovation at scale: 6 POCs and counting

In enabling smart mining, MTN Business is supporting the transition through multiple proof-of-concept (POC) initiatives across the continent.

MTN Business, in collaboration with miners and technology partners, has already run six innovation POCs, including collision-avoidance systems.

"To gauge a mine's digital readiness, we partner with it from the POC stage. We find that once the results align with its long-term strategy, management secures approval and budgets for full deployment of new technologies," says Abdulahi.

One such innovative project is a smart helmet POC, set for rollout in Q1 2026, developed in partnership with two major South African mining houses. The helmet integrates sensors and a missing-person locator—now a regulatory requirement for all mines.

"As part of our strategy to drive digital transformation in mining, this technology will be a game changer—not just for MTN, but for South Africa and our customers," Abdulahi notes.

To date, MTN has partnered with more than 50 mines across Africa— with most eager to trial the latest technologies prior to commercial rollout.

Mining is one of MTN Business's five key growth sectors.

Beyond this, mines are adopting technologies that strengthen their connected supply chains. "We also offer fleet-management solutions within the transport and logistics vertical, providing end-to-end visibility from pit to port. This allows customers to track their goods in real time throughout the entire route," advises Mdladla.

Further to this, AI and digital twins are gaining traction as mines look for ways to simulate operations, predict failures, optimise drilling and blasting, manage environmental impacts, and enable remote inspections.

According to Mdladla, with rising cybercrime, cybersecurity has also become top of mind, prompting mining companies to strengthen safeguards around operational and personal data.

Driving community and workforce development

Beyond operational benefits, MTN's private networks also support local communities as part of mines' social and labour commitments. In 2025, a major mining house invested R60 million to expand its private network infrastructure—highlighting the importance of digital capability in host regions.

As mining becomes more digital, workforce readiness is essential. Mines are increasingly focused on upskilling employees and local communities in areas such as remote operations, drone handling, troubleshooting, and equipment monitoring.

"Mines must provide continuous learning—tracking how often each employee is trained, retrained, and resensitised," says Mdladla.

Skills development is a critical priority for companies to ensure operational efficiency, improve safety, and maintain a social license to operate.

Concludes Abdulahi, "We entered this space long before it became a trend, positioning ourselves at the forefront of digital transformation in mining. By anticipating the direction of the industry, we've established ourselves as a thought leader—ensuring our platform not only enhances safety today but also supports sustainable growth for the future." ■

By the end of 2025, gold was trading at a record high of just under $4 300 per ounce.

The hand that rocks **the gold cradle**

How often does a leader come along whose policies are so divisive that they cause global market mayhem, forcing nations to reconsider alliances and allegiances? Here we are in 2025, with the Trump effect wreaking havoc and creating market uncertainty – good news for gold though, a safe-haven investment, which has outpaced all other stocks. By the end of 2025, gold was trading at a record high of just under $4 300 per ounce. The gold bull run is set to continue into 2026 with the precious metal set to reach new highs, John Reade, World Gold Council Market Strategist for Asia and Europe, tells *Modern Mining*.

John Reade, World Gold Council Market Strategist for Asia and Europe.

"We were expecting modest upside for gold this year and underestimated the political impact that US policies would have on the market. Uncertainty is rife in today's world and that uncertainty makes gold attractive. The fact that gold is up more than 50% year to date, I think, reflects the unusual times we're living in." The unusual times look set to continue with many of the stresses that have driven gold this year expected to intensify in 2026.

By the first week of November, gold had appreciated by roughly 54%, compared with an 18% gain in US equities and an 8% increase in US bonds. "Investors with these three assets - US equities, US government bonds and gold – have noted the impressive gain made by gold in their portfolio, which could trigger profit taking."

Announcements from the White House and new US policies have been two of many catalysts for the soaring gold price. If 2025 is anything to go by, then the next three years are certainly set to be mighty interesting for the global economy.

Western investors return to the gold fold

In the last six months Western investors have woken up to the attractiveness of having gold in their portfolios, which has also contributed to the higher gold price. Prior to this, central banks, emerging market investors and emerging market jewellery buyers were the key consumers of the precious metal.

"The return of the Western investor, together with the robust demand for ETFs, has driven the price of gold to its recent highs. Since March last year, the higher gold price has had few corrections, and these have not lasted long. This time though, the buying of gold largely from Western investors, who are regarded as fickle consumers and sellers of the precious metal, is set to see more price volatility going into 2026."

Reade remains optimistic about the performance

of gold in 2026, explaining that the prospects for gold in 2026 are good "because most of the drivers that have helped gold this year will continue.

"The factors that have encouraged investors and central banks to purchase gold will continue; however, I don't expect the price of gold to increase as much in 2026 as it did in 2025. We do recognise that there will likely be more corrections next year than experienced in this one."

Gold's performance in 2025

In 2025, the markets noted steady central bank buying, "maybe a little bit weaker than 2024, but still quite strong". On the flip side though, the robust gold price has led to weaker jewellery demand.

"Jewellery demand has fallen because the price of gold is high - the amount of money spent on jewellery has increased though and remains healthy. Further to this, we have seen a huge increase in investment demand, particularly from ETF holders," Reade continues.

As expected, gold producers and countries with significant quantities of the precious metal have benefited substantially from the higher prices. US dollar gains have been reflected in almost every currency in the world.

The top ten gold-producing countries in 2025 are China, Russia, Australia, Canada, the US, Ghana, Peru, South Africa, Indonesia and Uzbekistan.

"At the beginning of 2025 gold mining companies made healthy margins producing as much gold as they could. However, further increases in the price of gold will have little effect on production as gold miners are finding it increasingly difficult to boost production given that new deposits are hard to discover, costly to prove, and slow to permit and develop. As a result, the industry has faced challenges scaling up at pace to fully capitalise on today's high prices."

Although Reade expects slim growth in mine production this year, he admits that mine production could increase slightly by about two or three percent and "might even break the previous, annual record we saw in 2018". The broader picture, though, is one of static mine production.

Given that the pipeline of new projects is scarce, with the gold mining industry struggling to grow production meaningfully, miners are evaluating reactivating old mines that have become viable because of high gold prices.

With gold recycling supply also being slower than expected the amount of gold available to the market remains largely unchanged.

"The only way that investors can get more gold is by pricing out the jewellery sector, which we note is already purchasing less gold."

On a more positive note, the higher gold price has paved the way for increased availability of funding for smaller gold and exploration companies seeking new gold finds.

According to Reade, over the recent past, several Canadian mining companies looking to invest in gold projects, have received funding to advance their projects up the value curve.

"Exploration and development companies are certainly finding it easier to access funds. However, even if there are gold finds, they are unlikely to lead to increased production in the near term, given the long lead times from proving up a resource to mine development and production, which often takes between five years and a decade."

Impact of high gold price on other precious metals

Interestingly, the robust demand for gold has positively impacted demand for other precious metals such as platinum group metals (PGMs) and silver.

Higher gold prices have prompted consumers to favour PGMs and silver. The Indian market is seeing robust silver jewellery demand and, in China, the platinum jewellery segment is recovering as platinum continues to offer a cost-effective alternative to gold.

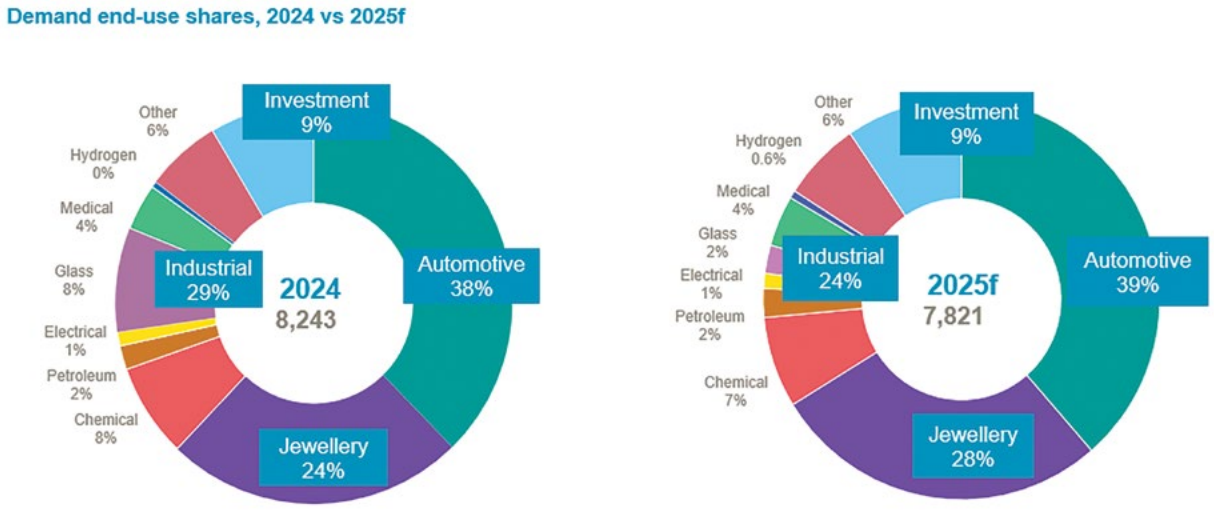
"All the precious metals prices have performed well this year, because when gold goes up, it tends to drag the other precious metals with it."

With heightened investor interest in the commodity, experts in the field have 'never been busier'.

"We continue to meet with both existing and prospective investors who are eager to gain exposure to the market. The sustained strength of gold over the past few decades is now firmly entering the financial mainstream. It is no longer viewed as a niche asset reserved for specialists or banks; the message is clear: gold is a sound asset class that can enhance portfolios in both stable periods and times of crisis." ■

Higher gold prices have prompted consumers to favour PGMs and silver.

Gold, a safe-haven investment, outpaced all other stocks in 2025.



Source: Metals Focus prepared for World Platinum Investment Council

PGM Outlook for 2026

by Edward Sterck, Director of Research, World Platinum Investment Council

Overview: In 2025, platinum broke out of its post-pandemic trading range to be one of the year's top-performing commodities. Its price rose dramatically from May, and in December it reached a high of US$ 2,491.20. The price of ruthenium, palladium – and to a lesser extent – rhodium also benefited from increased investor interest in real assets against a backdrop of geopolitical and macroeconomic turbulence. Despite higher prices, market tightness prevailed in 2025, as evidenced by historically elevated lease rates and deep backwardation in the London over-the-counter forward market.

Edward Sterck, Director of Research, World Platinum Investment Council.

The price action reflected platinum's strong fundamentals, with multi-year deficits eroding above ground stocks, including the platinum market recording its third consecutive significant annual deficit in 2025, estimated at 692 koz (final numbers will be released on 4 March at www.platinuminvestment.com). Only five months of demand cover from above ground stocks remained at the end of 2025. Meanwhile, WPIC's two-to-five-year platinum market forecast anticipates that above ground stocks will be fully depleted by the end of the decade, as diverse and resilient demand continues to outstrip constrained supply.

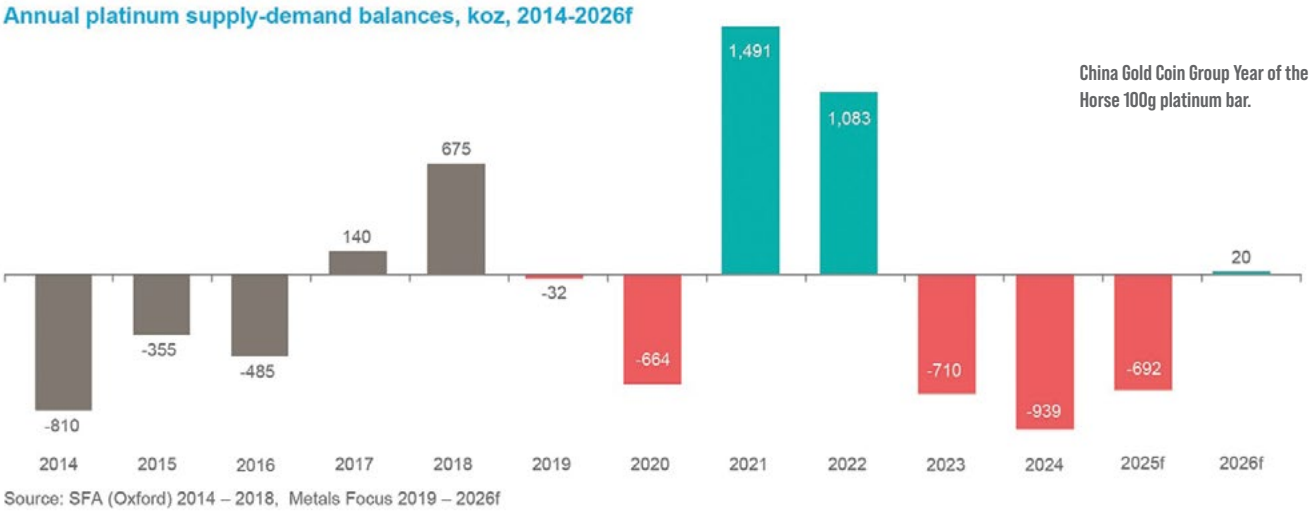
Last year, the uncertainty caused by the US government's evolving trade policy saw volatility in investment flows as the threat of tariffs rose, receded and rose again. As a result, our estimate for 2025 includes a net 150 koz inflow of platinum exchange stocks into CME warehouses in the US (noting that this article was prepared prior to the end of 2025 so these numbers are still estimates not actuals). Meanwhile, platinum exchange traded fund (ETF) holdings are estimated to have been net positive in 2025, driven by improved sentiment following the price breakout, robust underlying fundamentals, and platinum's sustained discount to gold.

Our initial forecast for 2026 suggests a balanced platinum market, with a small 20 koz surplus. This is dependent upon an easing of trade tensions allowing a forecast 150 koz outflow from CME warehouses to more normalised levels, and the higher platinum price prompting 170 koz of profit taking from ETFs. Should trade tensions fail to abate, then 2026 could become another year where we see platinum supply again fall short of demand as these investment outflows do not materialise. In any event, the forecast market balance this year will not remedy the depletion of above ground stocks, meaning tight market conditions are likely to persist.

Meanwhile, palladium (where around 80% of demand is automotive) also remained in deficit in 2025, with total supply of 9,368 koz falling 395 koz short of demand at 9,763 koz (including exchange stock movements which were net positive by 135 koz).

Supply and demand in 2025

In 2025, total supply declined 2% year-on-year to an estimated 7,129 koz, its lowest level in five years, with mining supply falling 5% to 5,510 koz, also its lowest level in five years, as producers were unable to repeat the drawdown of work-in-process inventory seen in 2024. All major regions recorded lower output. Recycling supply recovered by 7% to 1,619 koz, as the increase in the platinum group



China Gold Coin Group Year of the Horse 100g platinum bar.

metal basket price supported both the flow of spent autocatalyst material and higher jewellery recycling, especially in China.

The estimate for total demand in 2025 is 7,821 koz, a 422 koz reduction on the previous year. This is principally due to the absence of substantive, cyclical glass manufacturing capacity expansions resulting in weakened industrial demand, which fell 22% to 1,902 koz.

Automotive demand for platinum reduced 3% to 3,020 koz as demand from catalysed vehicles (i.e. internal combustion engine and hybrid powertrains) declined in both light and heavy-duty segments. Nevertheless, automotive demand was 10% above the prior five-year average. Automotive demand for palladium was 7,740 koz, down 4% on 2024 due to lower internal combustion engine (ICE) vehicle production and substitution in favour of platinum.

In 2025, platinum jewellery demand rose 7% to 2,157 koz, its highest level in seven years, propelled by growth across most markets as platinum continued to take share from gold jewellery on the basis of its price discount relative to gold. Notably, China saw exceptionally strong growth, up 44% to 594 koz, following a spike in stock building by wholesalers during the first half of the year. Demand in North America saw its fifth consecutive year of growth. In India, the market faced headwinds as US tariffs negatively impact demand from platinum jewellery exports. Here, demand is estimated to have declined by 30% to 186 koz, nevertheless achieving the fourth highest annual total on record.

Total platinum investment demand grew by an estimated 6% to 742 koz. Total bar and coin demand increased 47% to a four-year high of 522 koz, driven by China, which reached 418 koz. Estimated net investment inflows (150 koz exchange stocks and 70 koz ETF holdings) added a further 220 koz to the total.

Outlook for 2026

Total platinum supply growth of 4% is anticipated this year, reaching 7,404 koz. Mine supply will remain constrained, with growth of only 2% expected, underpinned by work-in-progress inventory releases. Where new supply is expected to be commissioned, this is largely to replace depleted operations following prior years of underinvestment. Recycling supply is projected to continue its recovery, increasing 10% to 1,782 koz, as higher prices incentivise the processing of spent autocatalysts and more selling of old jewellery, particularly in China.

Total platinum demand is expected to decrease by 6% to 7,385 koz in 2026, largely due to an approximate halving of investment demand – a reduction dependent upon both an easing of tariff fears allowing an outflow from stocks held on exchange, and a higher platinum price prompting ETF profit taking. Encouragingly, industrial platinum demand is expected to grow in 2026, rising 9% to 2,076 koz, as glass demand growth returns.

Platinum automotive demand is expected to erode by 3% to 2,915 koz due to ongoing drivetrain electrification, somewhat offset by firm heavy-duty automotive demand and growing off-road catalysation. Conversely, for palladium automotive demand, we expect the platinum-for-palladium substitution trend to begin reversing in 2026, offsetting falling ICE vehicle production and supporting automotive demand for palladium at roughly current levels through the rest of the decade. However, increasing recycling supply, supported by higher prices, improved scrap availability and the vehicles being scrapped being palladium heavy, means palladium is expected to trend towards a surplus within the 2026/2027 time period. Should recycling supply not increase as expected, then palladium will remain in a deficit for the foreseeable future.

This year, platinum jewellery demand is expected to contract by 6%, to 2,036 koz. In China, the underlying trend is one of growth and, while a 14% year-on-year decline is projected, this is exaggerated by the one-off, exceptionally high levels of inventory-build seen in the first half of 2025. In North America growth of 1% is anticipated, as platinum's price discount to gold continues to support platinum jewellery, albeit the absolute cost of platinum jewellery is set to rise. Demand in Europe is expected to be flat, while in India, demand is projected to decline 15% year-on-year as challenging conditions persist.

In 2026, investment demand for platinum is forecast to reduce by 52% to 358 koz, with outflows of 150 koz and 170 koz from exchange stocks and ETFs, respectively. These flows are contingent on both an easing of tariff uncertainties and an assumption that ETF profit taking will occur. With regard to ETFs, it is worth bearing in mind that net holdings increased in 2025 despite higher prices. Meanwhile, total coin and bar investment is projected to strengthen by 30% to a six-year high of 678 koz. All key markets are expected to achieve higher totals, led by Japan and North America, while China will see growth for the seventh consecutive year. ■

Khanye Colliery's coal processing plant in Bronkhorstspruit, Gauteng province.

When AI comes to claim its pound of flesh, coal power will be there

By Vuslat Bayoglu, Managing Director of Menar.

The list of reasons for the world to generate more electricity is growing at a faster pace than energy supply can be scaled up. With the exponential rise of data centres driven by Artificial Intelligence (AI), it has become apparent that the world should expect an even greater increase in electricity demand going forward.

The International Energy Agency (IEA) projects that data centre electricity consumption will more than double to almost 1000 TWh within less than a decade from now. In leading data centre markets, especially in the US, grids are already strained. Now more than ever, the world needs to double down on securing reliable power and affordable resources.

To function, data centres require large amounts of electricity to be available around the clock. Shortly after assuming office, US President Donald Trump signed an executive order, declaring the return of "Beautiful Clean Coal" to the country after years of declining use. He also instructed federal agencies to use coal to power AI data centres.

Commenting on America's energy trade relations with neighbouring Canada, in a television interview with Fox Business, entrepreneur and venture capitalist Kevin O'Leary emphasised that energy security was key to maintaining America's AI dominance. "It's all about AI and data centres. The country that has energy, has AI, has the economy, has productivity, and eventually is superior in warfare," O'Leary stated.

> "It's all about AI and data centres. The country that has energy, has AI, has the economy, has productivity, and eventually is superior in warfare."

China has developed sophisticated AI ecosystems not only to catch up with the US, but to ultimately surpass its Western rival as the global leader in AI. Beijing has invested heavily in coal power while increasing its renewables capacity. In the first half of 2025, 21 GW of new coal power was commissioned in China, which is the highest since 2016. The global AI race is directly connected to the electricity supply. India, ranked among the world's top ten countries in the global AI race, is also the world's

A mound of freshly mined coal at Kangra situated in Mkhondo in Mpumalanga province

Some of the Bronkhorstspruit community members who received yellow machine training at Khanye Colliery.

Members of the Kangra team at the mine's Uthingo Shaft in Mpumalanga.

A birdseye view of blasting preparations at Gugulethu Colliery's North Pit.

second-largest consumer of thermal coal after China.

The data centre boom in Africa is not as pronounced, but it is quietly taking shape in the background. The continent's energy woes extend beyond concerns about meeting the future energy needs of computers, when most of its economies are barely industrialised. Those that have achieved some level of industrial capacity, like South Africa, Morocco, Egypt, and Nigeria, still have a long way to go in realising their full potential.

Electricity shortages have been a key contributor to limited growth in African economies. Sub-Saharan Africa needs at least 1 000 MW of new electricity capacity to meet current data centre demand, according to the Africa Data Centres Association. At the same time, 600 million people in the region have no access to electricity.

South Africa (SA), the continent's economic powerhouse, hosts an estimated 56 data centres with a combined capacity of 530 megawatts, and more developments are in the pipeline. This is likely to add more strain on the country's already fragile grid, as SA grapples with supplying affordable power to its ferroalloys sector. Yet SA's Electricity Ministry published the 2025 Integrated Resource Plan (IRP) that excludes the development of new coal power in the future.

According to the latest version of the IRP, the government aims to add 105 000 megawatts of new generation capacity by 2039. This includes 34 GW of wind energy, 25 GW solar photovoltaic, 16 GW of gas, and 5 GW of additional nuclear capacity. The plan does not correspond with the country's industrial needs and places the economy at risk. This is also in stark conflict with SA's Critical Minerals and Metals strategy, which ranks coal among the country's top five critical minerals.

As SA plans its massive coal phaseout, one begins to wonder how the country's government intends to meet existing and future needs with less coal power as the anchor. Other emerging economies, especially in parts of Asia, have been intentional about doubling down on coal amid anticipated electricity demand. These nations, including China, India and Indonesia, have been at the forefront of increasing global coal consumption as they pursue stronger economic performance. ■

Shortfall in copper supply widens as race for AI and growing defence spending

A looming copper supply gap is poised to widen as electricity demand accelerates and new vectors—such as the race for artificial intelligence and surging defence spending—add to the call on copper. According to Copper in the Age of AI: The Challenges of Electrification, a comprehensive new study by S&P Global (NYSE: SPGI), the emerging supply deficit constitutes a "systemic risk for global industries, technological advancement and economic growth."

Primary production—mining—remains the irreplaceable foundation of copper supply.

The study finds that the "accelerating pace of electrification" is projected to swell copper demand to 42 million metric tons by 2040, a 50% increase from current levels. Yet, existing supply is currently poised to decrease in coming years as the mining sector faces challenges across the copper value chain.

The study projects that global copper production will peak in 2030 at 33 million metric tons. Unless significant adjustments are made, the widening disconnect will result in a supply deficit of 10 million metric tons by 2040—25% below projected demand.

This "substantial shortfall" occurs despite what the study expects will be a more than doubling of recycled copper scrap, from 4 million metric tons today to 10 million metric tons by 2040.

"Here, in short, is the quandary: copper is the great enabler of electrification, but the accelerating pace of electrification is an increasing challenge for copper," said Daniel Yergin, Vice Chairman, S&P Global who co-chaired the study. "Economic demand, grid expansion, renewable generation, AI computation, digital industries, electric vehicles and defence are scaling all at once—and supply is not on track to keep pace. At stake is whether copper remains an enabler of progress or becomes a bottleneck to growth and innovation."

The study leverages S&P Global expertise and proprietary data across the company's Energy and Market Intelligence divisions. Projections are based on a detailed bottom-up, technology-by-technology approach to quantify demand at its point of consumption, as opposed to production. This enables a better estimate of the embedded demand for the metal and the potential shortages or surpluses countries could face due to disruptions across the supply chain.

"Several countries have deemed copper a 'critical metal' over the past half decade, including, in 2025, the United States. And with good reason," said Carlos Pascual, Senior Vice President, Geopolitics and International Affairs, S&P Global Energy and study co-chair. "Copper is the connective artery linking physical machinery, digital intelligence, mobility, infrastructure, communication and security systems; the future availability of copper has become a matter of strategic importance."

The future of copper demand

S&P Global Energy projects global electricity demand will increase by almost 50% by 2040. Meeting this demand will require adding the equivalent of roughly 330 Hoover Dams, or over 650 one-gigawatt nuclear reactors, each year between now and then.

The new study finds demand for copper—as the enabling material for this massive growth in power demand—accelerating

Global copper production is expected to peak in 2030 at 33 million metric tons.

The future is not just copper-intensive, it is copper-enabled.

Copper is the great enabler of electrification, but the accelerating pace of electrification is an increasing challenge for copper.

across four key vectors, two of which are:

Core economic demand—from construction, electric appliances, internal combustion engine vehicles, rail, shipping, aviation, power generation, and more—constitutes the largest overall share of demand, reaching 23 million metric tons (53% of global demand) by 2040.

Energy transition and addition demand—from electric vehicles, battery storage, renewable power capacity and power transmission and distribution, as well as electrification in developing countries—commands the largest amount of total growth, increasing by more than 7 million metric tons to a total of 15.7 million metric tons over the same period.

Demand from just these two categories will exceed copper supply by more than 7 million metric tons in 2040, the study finds. The gap widens further when you consider additional areas that have emerged in just the past few years, namely the rapid growth in AI and data centers and rising defense spending.

S&P Global expects total installed capacity for all data centers to be roughly 550 gigawatts by 2040—more than 5 times what it was in 2022. At the same time, global defence spending could double to $6 trillion by 2040 amid increased international tensions and the emergence of new threats, the study says.

AI & Data Centre demand and Defence demand—these two emerging vectors are each expected to roughly triple by 2040, representing a combined 4 million metric tons of additional demand.

The study also identifies a potential fifth vector of demand—humanoid robots. While the technology remains in the early stages, some project that there could be 1 billion to 10 billion humanoid robots in operation by 2040. One billion humanoid robots in operation by 2040 would mean about 1.6 million metric tons of copper required annually, or 6% of current copper demand, the study says.

Closing the supply gap

Overcoming the impending supply shortfall will ultimately depend on the development of new mines and the expansion of existing assets. The study estimates that an additional 10 million metric tons of this “primary supply” will be required by 2040, on top of increased recycling. However, absent significant investment, global primary supply could produce just 22 million metric tons by 2040—1 million metric tons less than today.

Reversing the current supply trajectory will be no small task, the study says. The copper sector faces a host of challenges above and below ground, ranging from declining ore grades; rising costs for energy, labor and other inputs; increasingly complex and difficult extraction conditions; environmental opposition, lengthy judicial reviews, and pressures from investors and governments. It takes 17 years, on average, for a new copper mine to go from discovery to production.

“Primary production—mining—remains the irreplaceable foundation of copper supply,” said Eleonor Kramarz, Global Head of Critical Minerals and Energy Transition Consulting, S&P Global Energy. “Bridging the impending supply gap depends not only on geology, engineering, and logistics and investment, but also on governance and policies. That translates into timeliness in permitting and consultation, a time clock on litigation and stability in governance and regulation. The alternative is uncertainty, and uncertainty comes at a hefty cost.”

Concentration of the supply chain presents another challenge, the study finds. Six countries are responsible for roughly two-thirds of mining production. Processing capacity is even more concentrated, with a single country—China—commanding roughly 40% of total smelting capacity and 66% of the imports of the main input, mined copper concentrate. Such concentration makes global supply and pricing vulnerable to disruptions, policy shocks and complex trade barriers, the study says.

“The future is not just copper-intensive, it is copper-enabled. Every new building, every line of digital code, every renewable megawatt, every new car, every advanced weapon system depends on the metal,” said Aurian De La Noue, Executive Director, Critical Minerals and Energy Transition Consulting, S&P Global Energy. “Multilateral cooperation and regional diversification will be crucial to ensure a more resilient global copper system—one commensurate with copper’s role as the linchpin of electrification, digitalization and security in the age of AI.” ■

The Syama Sulphide Conversion Project (SSCP) will increase sulphide processing capacity from 2.4 mtpa to 4 mtpa.

Resolute targets 500 000 gold ozpa from 2028

By Nelendhre Moodley

Since formally assuming leadership in February 2025, CEO Chris Eger has launched a multi-pronged growth strategy that positions Resolute Mining to boost annual output from 300 000 oz to a targeted 500 000 oz from 2028.

The Africa-focused gold miner's growth strategy centres on advancing the Doropo project in Côte d'Ivoire, where it is updating the definitive feasibility study (DFS), accelerating exploration across its portfolio, and securing replacement tonnes for its existing producing operations.

Resolute has over $244 million in liquidity and plans to finance $600 million in growth initiatives through existing cash and future cash activities.

"We are investing heavily in exploration, with exploration costs set to rise to $35 million annually as we focus on unlocking value from green fields assets in Cote d'Ivoire and Senegal," says Eger.

Replacement ounces at existing operations

The gold miner has three key assets in three jurisdictions – the Syama gold mine in Mali and the Mako gold mine in Senegal, along with the development-stage Doropo project in Côte d'Ivoire. Syama, the flagship asset is a consistent cash generator; as is the open-pit Mako Gold Mine, acquired in 2019. The recently acquired Doropo Gold Project, purchased in May 2025, is targeting first gold production in Q3 2028. Once operational, Doropo will become the company's third producing asset.

"Over the next two years, we expect to expand our production profile significantly as we advance toward first production at Doropo by Q3 2028. In Senegal, where the Mako pit is reaching the end of its life, we are extending the life of operations with the development of two satellite deposits - Tomboronkoto and Bantaco, which are at a well-advanced stage. Our efforts in Senegal will ensure that we maintain production for the next eight to nine years. We

remain on track and on-budget with the development of those two projects, which are set to deliver valuable replacement ounces in the next two years. Although the Syama mine remains a world class asset with a 10 Moz resource – an asset that should be much bigger than it is today – given the challenging operating conditions in Mali, we will not be investing capital to grow this asset any time soon," says Eger.

In Senegal, the gold producer is advancing two satellite deposits, Tomboronkoto and Bantaco, to extend the mine life of the Mako Operation. Resolute is currently processing stockpiles until the end of 2027, while the satellite deposits located nearby will provide a new source of gold for the processing plant.

In Mali, where the company has an enormous footprint, the focus is on expanding its existing sulphide processing capacity. "At the Syama Gold Mine, a large-scale operation that includes the Syama Underground Mine and several satellite open pits," Eger continues, "we recently invested $100 million to convert the existing oxide processing circuit to treat high-grade sulphide ore, as the mine's oxide resources are depleting and future ore sources will be predominantly sulphide."

The Syama Sulphide Conversion Project (SSCP) will increase sulphide processing capacity from 2.4 mtpa to 4 mtpa. Full commissioning is still on track for Q2 2026, with ramp-up slated for Q3 2026.

Once complete, the project should comfortably produce between 210 000 and 220 000 ounces of gold for the next 50 years.

> "Over the next two years, we expect to expand our production profile significantly as we advance toward first production at Doropo by Q3 2028."

Advancing Doropo to production

Located in northeastern Côte d'Ivoire, the Doropo project has, in hand, the regulatory approvals for its Environmental and Social Impact Assessment and an environmental permit awarded in June 2024. The exploitation permit is currently being processed and expected to be awarded before year-end 2025.

Although the previous owners of the development-stage Doropo Gold Project, acquired from AngloGold Ashanti,

The gold miner's growth strategy centres on advancing the Doropo project in Côte d'Ivoire.

produced a DFS in 2024 that outlined a robust, high-margin project producing average annual gold of 167 000 ozat an All-In-Sustaining-Cost (AISC) of $1 047/oz over a 10-year mine life, Resolute is revising the DFS.

"Further to the gold price more than doubling since the DFS was published in 2024, our due diligence has identified areas for further optimisation. The original DFS used a gold price of $1 450 /oz; today, gold is trading at over $4200 /oz. Aside from updating the DFS to reflect today's cost of building the project, we believe that there is much more gold on the property than was originally quantified. As a result, we are optimising the mine plan to cater for a larger plant that will handle tonnages of around 5 million tons per annum of fresh ore."

Targeting early works project construction in the first quarter of 2026 with gold production in 2028, Eger advises that as a gold miner with multiple producing assets, the company is well placed to finance the Doropo project.

"We have in place an experienced project team and consultants both from the region and Australia. Importantly, we have the full support of the government in advancing the project and continue to have meetings with them around project construction."

Taking the exploration pipeline up the value curve

To create value for its shareholders, Resolute is taking its exploration assets up the value curve, with an eye to production in the medium term.

The company has an extraordinary portfolio of exploration assets and an exploration team capable of new gold finds.

"We spent between $15 million to $20 million annually on exploration from 2022/3 to 2024. In 2025, we increased this to $25 million and, moving forward, it will be between $30 to $35 million given our more extensive exploration footprint. Essentially, we are chasing more greenfield assets and adding a fourth jurisdiction to our portfolio – Guinea."

Resolute is targeting several early-stage exploration initiatives, including the ABC Project, located in northwest Côte d'Ivoire, which has an Inferred Mineral Resource Estimate of 2.16 moz and three exploration projects in Guinea, including the 100% owned Niagassola and Siguiri-Kouroussa projects and the Kourouba Joint Venture.

Discussing the ABC Project, Eger advises that the company is undertaking a 15 000-metre drill programme in the northern area of the project.

Although the ABC project is regarded as a low-grade asset, it offers "some really interesting exploration potential", with the miner keen to better understand the asset and its value before deciding on whether to develop the project further or offer it up for sale.

More recently, Resolute announced an initial Mineral Resource Estimate (MRE) at the La Debo Project in Côte d'Ivoire – a strategically important jurisdiction for the miner. At the La Debo project the focus is on extending the high-grade mineralisation at G3S and drill testing targets in the south-western half of the permit.

In October 2025, Resolute was granted two new exploration permits, Serihio and Okroyou, that are contiguous to the south of the La Debo permit. Resolute plans to commence exploration across these permits in 2026 and sees potential to further expand the resources at the La Debo.

"Resolute now has three projects in Côte d'Ivoire – two exploration (La Debo and ABC) and one development (Doropo) – all of which have sizeable gold resources outlined. The country is a key jurisdiction for Resolute."

According to Eger, while the higher gold price supports a stronger case for increased exploration spend, "we proceed with caution, understanding that commodity prices are inherently volatile and can shift rapidly".

Keeping the lines of communication open

"Coupled with our strategy of unlocking synergistic opportunities between our projects, we have established good communication lines in the four countries of operation - Guinea, Mali, Cote d'Ivoire and Senegal."

Eger says the company has established better lines of communication with key government leaders – including the President of Senegal, the Prime Minister of Mali and Prime Minister of Cote d'Ivoire, having already engaged in several meetings with the ministers.

"We work hard to educate the governments in the respective countries on our undertakings and have established good working relationships with the key officials. We are making good progress in our endeavour to repair and rebuild relationships in Mali, which has been a challenge since last year."

Although the multi-asset producer is reaping the rewards of a soaring gold price, Resolute's focus remains on being a lean business, keeping costs low and ensuring that the team is efficient.

"We are working to continuously upgrade and upskill the management team. We recently appointed Gavin Harris as the new COO and have made several senior changes in Mali and expanded the team in Cote d'Ivoire," Eger concludes. ■

Qala Shallows Mine marks renewed momentum in SA gold mining

The opening of Qala Shallows marks the start of a new growth chapter for South African gold mining, demonstrating that the country can still build safe, modern underground operations that generate long-term value for the economy and local communities.

Speaking at the official opening ceremony west of Johannesburg, West Wits CEO and Group MD Rudi Deysel said the project – South Africa's first underground gold mine in 15 years – was built to create lasting socio-economic value for its host communities and for the country.

The event was attended by the Minister of Department of Mineral and Petroleum Resources Gwede Mantashe and government representatives, the Australian High Commissioner, the Minerals Council of South Africa, community leaders, investors, industry partners and members of the media.

"For years, many believed the Central Rand had reached the end of its mining life, but Qala Shallows shows that with rigorous geological work, clear planning and disciplined execution, as well as robust cooperation between government and business, new underground gold mines can still be developed in this district. The Witwatersrand built Johannesburg and shaped our economy, and it still holds substantial potential for the future," said Deysel.

Qala Shallows is expected to contribute more than US$1.15 billion to the national economy over its 17-year life-of-mine, supported by a steady-state production profile of 70 000 ounces per year for 12 years. The mine will also create more than 1 000 direct jobs as part of the first phase of the broader Witwatersrand Basin Project, with positions sourced from local communities, and will support wider economic activity through local procurement, enterprise development and community partnerships.

Qala Shallows has progressed rapidly since team mobilisation in July 2025, delivering first ore to surface in October 2025 and establishing the underground infrastructure needed for production. A growing surface stockpile is already in place and is expected to reach 30 000 tonnes ahead of the first gold scheduled for March 2026. The opening of

The opening of Qala Shallows marks the start of a new growth chapter for South African gold mining.

A growing surface stockpile is expected to reach 30 000 tonnes ahead of the first gold scheduled for March 2026.

Qala Shallows also marks a major milestone for the Australian-listed West Wits, transitioning the company from a developer into a producer and reinforcing its long-term commitment to South Africa.

The mine forms the first phase of the company's broader Witwatersrand Basin Project, which hosts a resource of more than five million ounces and provides a multi-decade foundation for growth. The next stages of development, including planned expansion into areas such as Bird Reef Central, are expected to build on Qala Shallows' momentum and strengthen the company's long-term production profile. West Wits' long-term aspiration, known as Project 200, is to grow into a 200 000-ounce-per-year producer through the disciplined and sustainable development of additional mining areas.

"This project would not have been possible without the support of government, our lenders, our host communities and our industry partners. Together we've brought a new mine to life in one of the world's most historic gold districts, and today Qala Shallows starts a fresh chapter for the Witwatersrand and for South African gold mining," said Deysel. ■

Newcore Gold CEO Luke Alexander.

Newcore Gold spent 2024 and 2025 investing in drilling for resource upgrade and expansion.

Newcore on-track to deliver Enchi PFS in 2026

By Nelendhre Moodley

With an eye to publishing its prefeasibility study by the middle of 2026, Canadian gold exploration and development company, Newcore Gold, has spent 2024 and 2025 investing in drilling for resource upgrade and expansion, CEO Luke Alexander tells *Modern Mining*.

Newcore Gold is advancing its 100%-owned Enchi Gold Project, located on the Bibiani Shear Zone - one of Ghana's two prolific gold producing belts.

Enchi, a 1.7-million-ounce gold asset in a district hosting several 5-million-ounce plus gold deposits, stretches along more than 40 km of the Bibiani Shear Zone.

Newcore's district scale project benefits from resources defined at five deposits (Sewum, Boin, Nyam, Kwakyekrom, Tokosea), all of which remain open for potential resource growth along strike, along with numerous additional targets that provide for potential future growth from further investigation.

"Following our successful capital raise of C$15 million in February, we expanded our drill programme from 10 000 metres to 35 000 metres. In tandem with resource conversion and resource expansion, we have been de-risking the project's development path with metallurgical, geotechnical, hydrological and environmental baseline work. Our plan is to commission the PFS in the fourth quarter of this year, publishing it in the first half of 2026," explains Alexander.

To date, the drill programme has delivered extremely strong results. Results released in May from drilling on the Boin deposit included 2.25 grams over 56 metres, 4.4 grams over 24 metres and 1.16 grams over 72 metres.

"As part of the 35 000-metre drill programme, we recorded one of the highest-grade intercepts ever at our Boin deposit - an impressive 204 grams over one metre. More recently, in September, we also had our third highest-grade intercept ever, 184 grams over one metre at Kojina Hill, which is an earlier stage target at Enchi that does not yet have a resource defined," says Alexander.

Opportunities at depth

According to Alexander, the property, which covers 248 km^2 along a prolific gold belt, offers significant exploration upside.

Enchi currently hosts an Indicated Mineral Resource of 743 500 ounces of gold at 0.55 g/t and an Inferred Mineral Resource of 972 000 ounces of gold at 0.65 g/t.

Aside from converting ounces from Inferred to Indicated category, the TSX-V-listed entity's resource expansion targets district scale opportunity on its extensive land package.

"We have identified over 25 targets across Newcore's mining license and, to date, have drilled over 200 000 metres

on the project. We have a good understanding of the geology of the target area."

Of the 25 targets identified along over 100-kilometres of shears that run through the project, only nine have been drilled.

"We have a multi-pronged approach to our drilling programme - aside from the several Greenfield targets lined up for further investigation, there are historical discoveries and current deposits, which remain open along strike and at depth, awaiting closer examination. The average vertical depth of the pits that constrain our resource today is roughly 80 metres, which is extremely shallow. We also have the opportunity to target high grade structures at depth to unlock additional value for shareholders."

The Greenstone deposits along the Sefwi-Bibiani Belt host more than 30 moz of gold with Newcore's neighbours - Bibiani Mine and the Chirano Mine, which have historical endowments in excess of five-million-ounces and growing, and Newmont's Ahafo operation further north along the belt hosting a gold endowment in excess of 20 million ounces, being examples where drilling at depth has identified high grade feeder zones that have grown the size of the resource.

"At Enchi, we have started the process of identifying those high-grade feeder zones. Further to this, we are investigating previously drilled targets that could longer-term be included in future resource updates."

It is currently anticipated that the Enchi PFS will be followed by a feasibility study, which will allow the company to establish project construction timelines.

Gold price influence

Underpinned by geopolitical tensions, gold continues to trade at new heights – trading at over US$3500 /oz in September, offering Newcore Gold significant upside on the development of its flagship asset.

While Enchi's Preliminary Economic Assessment (PEA) in 2024 outlined robust economics, the recent gold price amplifies the project's attractiveness.

Using the 2024 PEA when gold traded at US$3 000 /oz, Newcore calculated an after tax NPV of US$970 million and an after-tax IRR of 136%.

"Today's gold price environment favourably impacts the economics of our project. In fact, over the last year there has been an increased interest in Enchi from the investment community. For an exploration project seeking access to capital as we target project construction, this is good news."

Newcore Gold's core management and board together hold a 15% stake in the company – 'money invested by management alongside shareholders'.

The company also has strong institutional support from "deep pocketed, long term focused mining and precious metals investors".

"We have 55% institutional ownership and strong support from the investment banking community, with three investment banks providing research coverage and recognising the opportunity to take the Enchi project up the value curve."

Ghana as a gold mining destination

Ghana is a premier gold-producing destination, historically known as the 'Gold Coast'. The country has a long history of mining, which accounts for about 90% of its mineral exports.

At Enchi, the company has started the process of identifying high-grade feeder zones.

The company expanded its drill programme from 10 000 metres to 35 000 metres.

CEO Luke Alexander at the Core Shack inspecting the core samples.

Gold majors such as Newmont, Gold Fields and AngloGold Ashanti enjoy success in the country. The company's growth is driven by increased production from mines such as Bibiani, Edikan, Chirano, and Obuasi, with Ghana's gold output reaching around 130 mt in 2024.

Its long history of gold mining sees the country with well-established key infrastructure and paved roads that "cut through the middle of the Enchi project" providing good access to Newcore Gold's drill targets.

"Ghana is a mature mining jurisdiction and Africa's largest gold producer. In fact, it is the sixth largest gold producer globally. The country has a highly skilled labour force with numerous service companies operating within the mining sector. The government is extremely supportive, recognising the economic benefit that mining creates for the country and the local communities," concludes Alexander. ■

Ankh Resources poised to unlock Dara as a Tier-One discovery

By Nelendhre Moodley

The outlook for gold and copper remains bright with these commodities set for further price improvements in the year ahead. This momentum is great news for Ankh Resources' Dara project – one of Egypt's modern gold-copper projects, which is working to define its maiden resource with an eye to becoming a Tier One asset, CEO, Mostafa Talaat, tells *Modern Mining*.

Panoramic view across the Dara Project licence area in the Red Sea District of Egypt.

Gold continues to benefit from its safe-haven appeal amid economic uncertainty, geopolitical tensions, shifting monetary policy, and robust central-bank buying, while copper is surging on powerful structural demand from electrification - EVs, renewables - and ongoing supply shortfalls from mine disruptions.

Gold is currently trading above $4 400 /oz and continues to reach new all-time highs, with prices expected to strengthen further into 2026. Copper is also seeing robust demand and elevated pricing.

"Ankh's priority is to advance and consolidate the resource towards establishing a $2 billion asset," says Talaat.

The company was founded by a group that possesses key mining skills, including Talaat, a mining engineer with extensive experience in gold mining, having worked at the Sukari gold mine - the nation's first major Tier One asset with significant, long-life reserves.

Since the acquisition of its flagship asset in 2022, Ankh has invested more than $8.5 million to upgrade the Dara resource, having commenced desktop studies, undertaken trenching, completed 10.5 kilometres of detailed trenching and recently engaged in a 5 000-metre drill programme.

"Officially, we started developing the Dara project, situated in the Arab Nubian Shield, in May 2023 and recently initiated a diamond drilling campaign. We signed off a contract for the first 5 000-metre drilling initiative, which is part of the larger planned 20 000-metre drilling that will proceed into 2026. In a bid to consolidate the resource, we plan to drill up to 45 000 metres by the end of 2027."

To date, surface trenching and diamond drilling programmes have returned encouraging Au and Cu mineralisation results across the project area, highlighting broad zones of near-surface

Field geologist mapping prospective structures across the Dara Project.

and downhole mineralisation.

Trench sampling delivered strong surface results, including 6.1 m @ 7.25 g/t Au with 0.66% Cu from Trench TR003, 7.9 m @ 2.48 g/t Au with 1.34% Cu from Trench TR005, 24.95 m @ 1.29 g/t Au with 0.38% Cu in Trench TR006, 25 m @ 3.41 g/t Au with 0.20% Cu in Trench TR020, and 14 m @ 3.11 g/t Au in Trench TR017.

Follow-up drilling confirmed significant Au–Cu mineralisation at depth, including 29 m @ 0.88 g/t Au with 0.73% Cu (with 4 m @ 5.85 g/t Au and 3.10% Cu) in WDD001, 41 m @ 0.71 g/t Au with 0.44% Cu (12.1 m @ 2.14 g/t Au and 1.1% Cu) in WDD002, and 45 m @ 0.60 g/t Au with 1.1% Cu (5.6 m @ 3.4 g/t Au and 5.70% Cu) in WDD003.

"Based on these highly favourable early-stage results, we are looking to define a resource on what we believe is a Tier One asset."

According to Talaat, the strike of the mineralisation is four kilometres in length with the width varying from 800 metres up to 1.5 kilometres.

"The drill holes start at 400 metres and, based on the accumulated result from the first campaign, we have plans in place to extend the drill holes at depth. We envision Dara as an open pit mine with the potential to be developed into a super pit."

To advance the Dara project into a world class mine, the junior miner has established an onsite camp hosting up to 65 personnel and continues to engage with international consultants, including those based in Australia.

Once the Dara resource has been upgraded to Indicated and Inferred status, the junior miner has three strategic paths to consider: listing on the London Stock Exchange, entering a joint venture partnership, or acquisition by a major.

Ankh as a Tier One asset

A Tier One gold project is a top-tier, large-scale, long-life, low-cost gold mine with significant reserve potential (often 5+ million ounces), capable of producing over 500 000 ounces annually for at least 10 years and operating with all-in sustaining costs (AISC) in the lower half of the industry cost curve, typically in a world-class geological setting with growth potential.

Dara offers a combination of size, grade, long life, potential low cost and strategic importance (gold/copper) that defines a Tier One mining asset.

Geological potential: The asset shows strong indicators for being a large gold-copper porphyry system, a highly valuable deposit type.
Dual commodity value: Contains both gold (strong investment demand) and copper (critical for green tech), offering balanced market appeal.
Strategic location: Situated in Egypt's underexplored but mineral-rich Eastern Desert, attracting attention for high-potential projects.
Resource scale (potential): A Tier One asset typically promises high production over a long life (e.g., 10+ years, 500k oz/yr gold) with low costs, and Dara's geology points towards this large-scale resource base.
Supports green transition: Its copper content directly contributes to the global demand for minerals powering the green energy transition, aligning with future economic needs.
Undrilled potential: While showing promise, significant drilling is needed to confirm grades and depth, but initial signs suggest a major system comparable to other large discoveries.

What makes Dara an attractive project?

While early indications position the project as a Tier One asset capable of producing

Drilling underway at the Dara Project as Ankh Resources advances its maiden gold-copper resource.

FLTR _ Raadiyah Emam-Head of Investor Relations, Ankh Resources. Mostafa Talaat-CEO Ankh Resources. Karim Badawy-Minister of Petroleum and Mining Egypt, Eng. Abdel Haleem Assran -Exploration Manager, Ankh Resources. Eng. Yasser Ramadaan – Chairman of the Mineral Industries and Mining Resources Authority, Tarek Torgoman, Managing Director at Sericom.

Tim Livesey, Non-Executive Chairman for Ankh Resources and Expert Geologist reviewing mineralised drill core from the Dara Project.

both gold and copper, Ankh is poised to unlock multiple revenue streams, making it a highly attractive opportunity for the emerging miner.

"The project's appeal is driven, first and foremost, by the potential to deliver a dual return on investment for our current investors and shareholders. With the same capital outlay, we can advance both gold and copper development, significantly enhancing the company's overall valuation. In addition, copper – now one of the world's most essential minerals – positions the Arabian-Nubian Shield as a largely underexplored resource capable of meeting growing global demand. Importantly, the project's proximity to Ras Gharib in Egypt – home to roughly 70% of the country's oil and gas investments – provides access to a mature network of established service companies, further strengthening its strategic advantage. We are already engaging with several service providers, including drilling with Capital Limited, laboratory services with the MSA Group and lab equipment with FLSmidth."

The region also offers logistical advantages of good road access, nearby port facilities, proximity to an international airport and is only a few hours away from the capital city, Cairo.

Notably, Egypt's new mining code and accompanying reforms are drawing strong international interest and investment by creating a more competitive, transparent, and investor-friendly environment.

The application of the Model Mining Exploitation Agreement (MMEA) framework, introduced in 2023, replaced the traditional profit-sharing model with a globally aligned system based on royalties and taxes. This framework, which includes a 5% government net smelter royalty and a 22.5% corporate tax rate, offers long-term resource exploitation licenses and a clearer path for companies to recover investment costs, making projects more attractive to international financiers.

Major producers such as Barrick, mid-tier companies like B2Gold, and several Canadian and UK-based junior explorers have already entered the Egyptian market, launching greenfield exploration programmes. Most notably, gold major AngloGold Ashanti recently paid a significant premium for Egypt's Sukari gold mine through its $2.5 billion acquisition of Centamin plc, completed in November 2024. The presence of two top-tier miners investing in Egypt underscores the confidence the government has fostered within the international mining community.

"Government continues to refine the mining code encouraging increased competitiveness in line with its ambition to lift the sectors GDP contribution from 1% to 5% by 2030. Over the past six years, government has invested over $10 billion in infrastructure development – including improving access to ports and international airports – all of which enhance the ease of doing business and attracting foreign direct investment."

The locally founded exploration company is also restructuring its board, adding highly experienced personnel to its management team.

"We continue to evolve the business, beefing up the team with highly skilled and experienced members and adding reputable personnel to our board. We recently employed a strategic mining investor and three high net worth individuals who are well known in the mining industry," concludes Talaat. ■

THESE MACHINES HAVE BEEN ENGINEERED TO ENDURE

WORLDWIDE

Condra cranes and hoists are without equal in their quality, performance, reliability and overall lifetime cost. Operating data and the experience gathered from installations around the globe are today incorporated in all Condra products, the endurance of which has been proven in highly corrosive and abrasive environments, and under wide extremes of temperature, humidity and altitude. Technical support, service and spare parts delivery are guaranteed worldwide.

condra®
Cranes & Hoists

11 Indianapolis Boulevard, Raceway Industrial Park, Gosforth Park Ext 4,
Germiston, Gauteng. P O Box 752639, Gardenview, 2047, South Africa
Tel: +27 11 776-6000 | Fax: +27 86 669 2372
e-mail: sales@condra.co.za | www.condra.co.za

CONDRA A-042019

portal cranes | bridge cranes | cantilever cranes | hoists | end-carriages
single & double-girder overhead travelling cranes | crane components

IonicRE: ready to grow REE capacity for the western world

By Nelendhre Moodley

Rare earth elements (REEs) are taking front and centre stage as some nations lock in policies to secure the subset of critical minerals used to advance technologies associated with the modern world, while others are using them to leverage better deals in trade wars with the US. So, what does this mean for producers of these critical commodities and technology specialists in the field? For insight into the importance of rare earths and their influence on the global landscape, *Modern Mining* caught up with Tim Harrison, Managing Director of Ionic Rare Earths.

Crushed magnets – containing magnet REEs – are processed to extract the strategic magnet REOs.

ASX-listed Ionic Rare Earths (IonicRE) is an emerging miner, refiner and recycler of sustainable and traceable magnet and heavy rare earths needed to develop net-zero carbon technologies. The company's vision is focused on developing a closed-loop supply chain that minimises environmental impact and maximises access to critical, strategic raw materials, through targeted global expansion.

"Tectonic changes have occurred in the rare earth space over the last eight months, which have heightened the appetite from governments to accelerate the development of alternative supply chains. As it is, we are witnessing strong investment enthusiasm in the rare earth sector, which is creating a great environment for Ionic Rare Earths' technology offering," says Harrison.

Rare earth elements, a subset of critical minerals, are vital in a broad range of technologies significant to national security, renewable energy systems, medicine and consumer products. The minerals play a crucial role in high-tech industries, aerospace, defence, and advanced manufacturing, making them central not only to energy security but also to broader economic resilience.

According to Harrison, the real strategic value of having access to REEs is their use in robotics, AI and the next generation of technologies for the modern world.

"The demand for heavy rare earth elements (HREEs) is increasing rapidly due to their critical role in green technologies like electric vehicles and wind turbines; however, the supply is concentrated and subject to geopolitical risks. This has led to supply shortages for all HREEs like dysprosium and terbium, price volatility, and a global push to diversify supply chains and enhance recycling efforts."

As such, countries have been prioritising and fast-tracking policies on critical minerals, with agendas focused on securing supply chains, fostering domestic processing, and promoting regional collaboration to mitigate risks and drive economic growth.

Further to this, US President Donald

Trump's divisive trade tariffs are increasing geopolitical tensions, with trading partners receiving hefty tariffs, some to the tune of 30%. In retaliation, China, which dominates 69% of the market share for rare earth mining, 92% for refining, 98% for magnet manufacturing, and 100% of heavy rare earths supply globally, has levied export controls on HREEs and related products, equipment and technologies, creating instability in the REE market.

"With the supply-demand disconnect exacerbated by China's manipulation of downstream pricing, we are now seeing the emergence of two distinct supply chains: one dominated by China, and another driven by Western governments' strategic need to develop their own secure networks. In April 2025, China imposed export restrictions on heavy rare earths, ratcheting up further pressure in October, which has sharpened the focus of international governments on the development of rare earth projects. Given these factors, the outlook for REEs is extremely positive. As it is, there are increased inbound inquiries for other HREEs on the list, with the pricing for several HREEs on a steep increase since April 2025," says Harrison.

This bodes extremely well for those producing REEs and related technologies, including IonicRE, which has developed, demonstrated, and validated its processing capabilities for its group of partners.

On-site at Ionic Technologies' Belfast Facility.

IonicRE to build commercial scale plant in Belfast

ASX-listed IonicRE is advancing initiatives at its wholly owned UK-based subsidiary, Ionic Technologies, the refining and recycling arm of the business targeting rare earth separation and refining technology.

Its patented technology offers first mover capability for individual magnet rare earth recycling – separating 99.9% plus magnet rare earth oxides (REOs) to enable the energy transition, electric vehicles, advanced manufacturing, and defence capabilities.

IonicRE's initiatives are the catalyst, enabling production of new material flow into the UK's domestic supply chain.

"The unique selling point of our technology is the ability to use a raft of different feed inputs – be it end-of-life magnets or pre-consumer waste – and convert them into the compounds required in the production of new magnets, metals, and alloys; a real differentiator in our business. This underpins our strong engagement with several different parties, such as OEMs and supply chain partners, seeking access to our materials. A further benefit of our technology is that it has a 60% lower carbon footprint when compared to primary mined sources."

To date, IonicRE has successfully demonstrated the viability of its technology at its demonstration plant in Belfast, Northern Ireland. The plant produces high purity rare earth

IonicRE Managing Director and CEO, Tim Harrison, left, on-site at Ionic Technologies' Belfast Facility.

Collection of magnet recycling streams and separated magnet rare earth oxides (REOs).

oxides and magnet rare earth oxides for its partners, including GKN Powder Metallurgy, which produces magnets for Ford Motor Company.

"We are actively building supply chain capacity in the UK and have expanded our offering to Bentley Motors and Wrightbus," says Harrison.

Having completed the feasibility study for the development of a commercial scale magnet recycling plant in the UK in 2024, IonicRE will undertake the design for the front-end engineering of the commercial plant in the first quarter of 2026.

The target is to be in commercial production within two years. "First production from the commercial plant is scheduled for late 2027/early 2028," Harrison affirms.

In line with these developments, the company is advancing talks with the UK Government and financial institutions to fund the development of its commercial-scale plant, which carries a hefty £85 million capital requirement.

"Although we would really like to accelerate this venture, it is capital dependent, and as such, we are working closely with the UK Government for a cornerstone capital grant. We are also working alongside key stakeholders in the Ministry of Defence, the Office of Foreign Investment, and the Department of Business and Trade to establish the foundations for a robust UK domestic supply chain in the shortest possible time."

Apart from existing shareholders, IonicRE is eyeing new institutional shareholders and strategic investors.

"IonicRE is becoming an enabler not only for the development of new alloys used to produce magnets for EVs, but for the offshore wind market as well."

Harrison cites the UK as being one of the world's largest adopters of offshore wind energy. "It is anticipated that the country will account for as much as 12% of magnets used globally by 2035, making our role as producers of recycled, separated rare earth oxides incredibly important."

IonicRE eyes global expansion

With magnet recycling being "a relatively straightforward technology", IonicRE is looking to expand commercial scale rare earth production in western jurisdictions such as Brazil and the US, where it "plans to build both magnet recycling and rare earth refining capacity".

According to Harrison, its patent protected, modular technology design allows IonicRE to build and ramp-up capacity anywhere in the world.

"We are not dependent on a mine in another sovereign country that is susceptible to changes that may occur, such as in the political landscape. We can quickly ramp up capacity in target markets seeking security of supply for advanced manufacturing and military defence, which I believe are two areas driving the current global geopolitical tension."

In March 2024, IonicRE and Viridis Mining and Minerals inked a joint venture agreement to establish a rare earth separation refinery and a magnet recycling facility in Brazil.

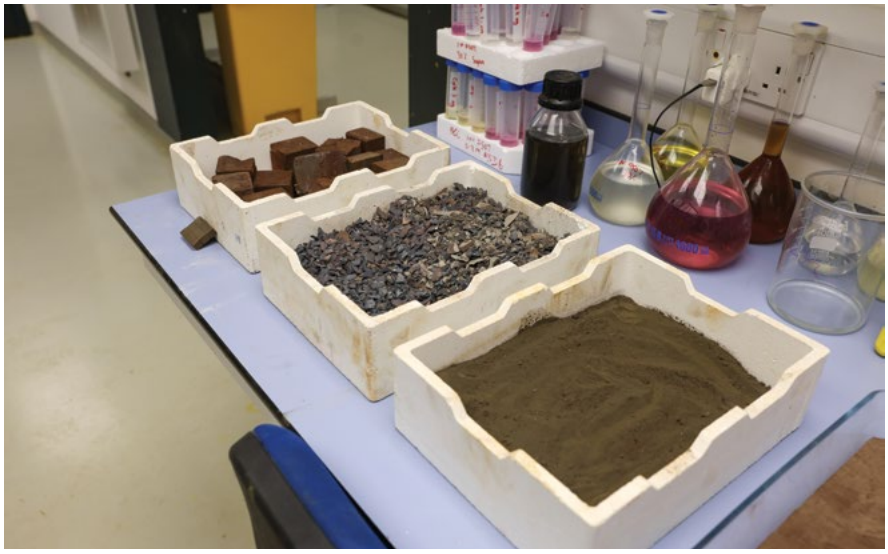
The venture aims to create a secure, domestic supply chain for rare earth elements in Brazil by commercialising IonicRE's recycling and separation technology.

"The Viridian joint venture is complementary to our business in the UK, and our ambition for the US. In tandem with completing several studies around recycling opportunities, we are also progressing a scoping study for a refinery. The intention is to build a pilot plant and establish a technical team to support the value addition in Brazil while also developing capacity for the US. We are extremely thrilled about the opportunity that is emerging in Brazil, as it will be a source of magnet and heavy rare earths for the West in the future."

IonicRE expects to be producing rare earth oxides from its pilot-scale facility in Brazil by the second half of 2026.

Apart from offering supply chain resilience and support for regional value addition, the initiative provides IonicRE with a first mover advantage "in what could be

Rare earth separation technology with IP developed by IonicRE at Queens University Belfast (QUB).



De-magnetised magnets, crushed magnets, and milled magnets – prior to processing to extract magnet REOs.

an incredibly large opportunity in decades to come."

In a recent development, an emerging markets investment firm, Argentem Creek Partners, made a strategic US$2 million investment into IonicRE. This was part of a larger AU$15.6 million capital intended to boost IonicRE's global expansion initiatives.

"It is fantastic news that we have been able to attract a strategic partner like Argentem Creek, which shares our vision. With Argentem's strong network in the US, Europe, the Middle East and South America, we expect to be able to open several other doors in partnership with governments and investment institutions that will strengthen our overall strategy. Recently, other strategic investors, partners, and supply chain collaborators have come forward to work with us and our technology."

The company's aim in building capacity in the US is "to provide IonicRE with a strategic advantage in magnet recycling in the country."

Commercial production of magnet recycling in the US is earmarked for 2027, though the company is in discussions to accelerate efforts.

Advancing the Makuutu project in Uganda

"While there is no shortage of rare earth minerals in the ground globally, the challenges for the industry are around getting the right heavy rare earths, and building capacity for processing. What we need is material with the right blend of REEs to offer a strategic value in the supply chain, which is what we have in the shovel-ready Makuutu project," says Harrison.

Ionic Rare Earths holds a 60% stake in Rwenzori Rare Metals, the Ugandan company that owns the Makuutu Project, an advanced-stage, low-capital, long-life, Ionic Adsorption Clay (IAC) project located in Uganda.

The Makuutu Project is one of the few proven IAC deposits globally, with scale to "move the needle on heavy REO supply for the new economy – for 50 years and beyond".

The project, set to become Uganda's flagship mine, has secured a mining license and successfully commissioned a demonstration plant that is producing material. A final investment decision is expected in 2026, delayed whilst the west defines downstream processing capacity to process Makuutu's strategic heavy REE basket.

The Makuutu deposit, located 120 km east of Kampala in Uganda, comprises six licenses covering approximately 300 km^2.

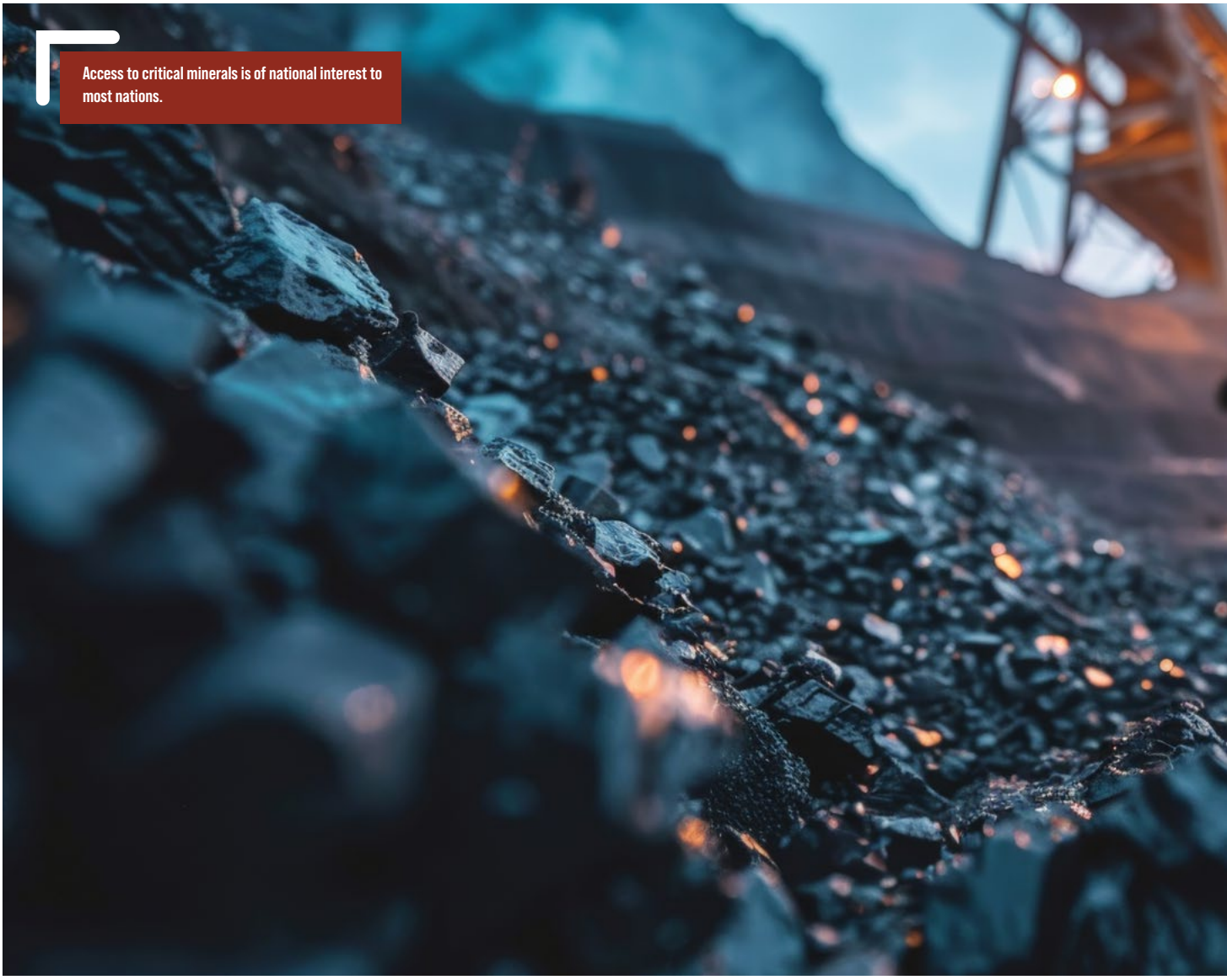
The project is well-supported by existing tier-one infrastructure and is on track to become a long-life, scalable and sustainable supplier of high-value magnet and heavy rare earth oxides.

"Bringing Makuutu to market provides IonicRE with a secure flow of both magnet and heavy rare earths to grow the supply chain beyond our initial recycling capabilities. It will also require the establishment of a rare earth refinery, with the capacity to process and separate heavy rare earths – a domain that's been completely dominated by China. Given that the development of Makuutu depends on a downstream supply chain being developed, we are involved in a series of discussions around new supply chains that depend on heavy rare earths for western markets. This is very exciting."

Harrison anticipates first commercial production from the Makuutu project as early as 2028. ■

REEs

- REEs are a group of 17 elements, including the 15 lanthanides plus scandium and yttrium, that have unique magnetic, fluorescent, and electrical properties.
- These elements are crucial for modern technology, from consumer electronics like smartphones, to defence systems, electric vehicles, and medical equipment.
- REEs, also known as the 'vitamins of industry', have exceptional properties that help to amplify the capabilities and qualities of other elements.



Access to critical minerals is of national interest to most nations.

Junior mining – opportunities for growth?

By Nelendhre Moodley

The push to revive demand for natural diamonds coupled with the global need for critical and strategic minerals offers opportunities for growth in the junior mining sector. *Modern Mining* recently spoke to Errol Smart, Vice President of the South African Diamond Producers Organisation (SADPO), about opportunities unfolding in the junior and emerging mining space.

Investment in exploration

According to Smart, the country's mining sector is shrinking. South Africa, which is blessed with a vast array of minerals, should be a mining powerhouse, but remains burdened by bureaucracy, red tape, power, water and supply chain challenges.

"While exploration is the lifeblood of future mining activity, there remains the challenge of attracting capital investment for exploration and, if one goes by the Fraser Institute, South Africa is an unattractive investment environment. Despite its best intentions, the country is mired in red tape, which is a deterrent to foreign investors. Geologically, we have a vast array of some of the most indispensable minerals; however, the regulatory environment remains highly unattractive. Our neighbours - Namibia, Botswana and Angola - are winning over investors with their welcoming attitude and enticing regulatory policies."

South Africa's ability to attract mineral exploration investment has waned over the past few years. In 2023, the country attracted $117 million (R2 billion) in exploration expenditure, significantly lower than the government's target of 5% set in 2019. The value of mineral exploration in South Africa has stagnated for the past five years, remaining between R1.1 billion and R1.2 billion in real terms. In 2024, expenditure on mineral exploration was only R781 million, down from a peak of R6,2 billion in 2006.

Junior and emerging mining companies in South Africa account for roughly 10% of the total mining

Local diamond producers have a small volume of exceptionally high value stones.

Research is underway by diamond producing regions to test the theory that alluvial diamond mining operations are accompanied by critical minerals such as rare earths.

industry's revenue, employing between 33 500 and 40 300 people. They hold a significant 80% of mining licenses.

According to the Minerals Council South Africa, in 2023 junior miners generated R95,9 billion in revenue, up from R88,2 billion in 2022.

Opportunities for growth

According to Smart, there are several initiatives underway aimed at rejuvenating the natural diamond sector, which has long been in the doldrums and at the mercy of lab-grown diamonds.

In a bid to safeguard the future of natural diamonds, industry stakeholders recently met to forge a path to profitability. In June, a ministerial roundtable was held in Luanda, Angola, to discuss and develop a joint global marketing strategy for natural diamonds. The meeting focused on addressing the challenges facing the diamond industry, particularly declining demand and prices for mined diamonds. Ministers from major African diamond-producing countries, along with industry representatives, participated in the discussions.

Locally, the Minister of Mineral and Petroleum Resources, Gwede Mantashe, urged a united front to revive the natural diamond industry and proposed the creation of a dedicated marketing fund, offering to champion the global promotion of SA diamonds, on condition that industry players commit a portion of their revenue to the cause.

The challenge, says Smart, is that diamond producers are required to contribute 1% of their revenue to marketing. "We believe in the imperative of adopting a marketing strategy and agree that it is of national importance. However, as diamond mines are currently loss-making, there is little to no income to contribute to the cause."

Smart argues that the diamond sector pays royalties to the state, and if mines are forced to close this will be a loss to the country's coffers. "For small-scale diamond producers that are currently loss-making, the state should step in and contribute the one percent. As it is, diamonds are among the top commodities contributing towards the country's annual mineral earnings and if diamond mines close, the state loses royalties and taxes."

Size matters – impact on producers

Smart advises that diamond producing countries in Africa, including Angola, Namibia and Botswana, produce, on average, higher value stones and fare better in the market downturn when compared to South African diamond miners, the bulk of whose production is low in value stones.

"Local diamond producers have a small volume of exceptionally high value stones, unlike our counterparts elsewhere in Africa who are blessed with a higher value small stone. As such, our diamond producing neighbours carry their costs better, because the diamonds mined fall into the category of what we term bridal goods i.e., stones ranging from half-a-carat up to three carats. Over the past year, the price of natural diamonds in the category of three carats and above has started to rise again, which is fantastic news for the South African small-scale miners that focus on the recovery of very low grade per ton of ore mined, but very high value stones greater than three carats."

Technology driver

Lab grown diamonds have become strong competition to natural diamonds largely because they are regarded as more affordable and as a more ethical and sustainable choice compared to mined diamonds.

Marketed as chemically, physically, and optically identical to natural diamonds lab-grown and natural diamonds are virtually indistinguishable to the naked eye; however, they can be differentiated through specialised gemological testing.

Interestingly, technology to validify natural diamonds has become the catalyst encouraging the purchase of natural over lab-grown diamonds.

Industry heavy-weight, De Beers, uses technologies like DiamondView, DiamondSure, and DiamondProof to differentiate between natural and lab-grown diamonds.

DiamondView analyses fluorescence and growth patterns, DiamondSure detects a specific absorption line, and DiamondProof verifies natural diamonds based on their unique chemical composition. These tools help retailers and consumers to distinguish between natural diamonds and other stones, including lab-grown diamonds.

"Technically and scientifically, there's always been an ability to differentiate between lab grown and natural diamonds. With mass production, these advanced tools have become more affordable, encouraging retailers to purchase them for clarification, especially for large purchases such as wedding jewellery."

According to Smart, diamonds are the only commodity mined that has a predominant gender bias. "Diamonds are mined and marketed for men to gift to women. Essentially, the premise is that if one really values a partner, a natural diamond is the appropriate gift, especially as a wedding gift."

India, the second-largest global consumer of diamonds, is a rapidly growing market for diamond jewellery. "Bridal parties, particularly in India, are turning to the latest technologies to authenticate that the diamonds purchased are mined diamonds."

De Beers' latest marketing campaign, "Love From Dad", encouraging fathers to purchase natural diamond earrings for their daughters' second ear piercings, is boosting natural diamond sales in India. The collection aims to strengthen the bond between fathers and daughters and position diamonds as a meaningful gift for this occasion. The "Love From Dad" marketing initiative was launched in July, this year.

Unlocking multi commodity opportunity

Is the alluvial diamond pathway strewn with critical minerals?

Smart says that research is underway by diamond producing regions to test the theory that alluvial diamond mining operations are accompanied by critical minerals such as rare earths. If proven

While exploration is the lifeblood of future mining activity, there remains the challenge of attracting capital investment for exploration.

In 2023 junior miners generated R95,9 billion in revenue, up from R88,2 billion in 2022.

true, this becomes a game-changer for alluvial diamond miners.

"A paper published by Chinese geologists proposes that an outcropping from a particular type of diamond pipe contains high levels of rare earths. Outside of China, geologists have examined kimberlite pipes in South Africa and Canadia and concluded that this holds true for certain kimberlite pipes in these countries. The SADPO is working closely with alluvial diamond miners to establish the occurrence of rare-earths minerals accompanying alluvial diamond mining and marine mining in South Africa. To date, geologists have identified ilmenite, rutile, zircon, tin, tungsten and niobium as rare earths found in some alluvial diamond mining operations, especially those occurring along the Orange and the Vaal River."

Smart references the early years in his career when he was part of a team of gold explorers who noted that gold anomalies followed the diamond alluvial diamond corridors.

"Not every kimberlite pipe yields critical minerals but, in instances of occurrence, diamond miners have an opportunity to expand their offering. A small amount of additional earnings makes a huge difference to a marginal diamond miner. As it is, small scale miners play a vital role in the South African economy, producing 25% of South Africa's value of diamonds exported every year," says Smart.

Junior and emerging miners

Discussing opportunities that exist for junior miners, Smart says that while the bulk of South Africa's gold deposits have been mined out, there exist several viable unmined gold and small diamond deposits across the country.

"There are dozens of small deposits close to surface, that have not been mined. At the current gold price these assets should be hot property; however, we are not seeing a frantic drive towards exploration and development. Significant gold deposits in South Africa are found in the Northwest Province and Gauteng (particularly around Klerksdorp and the West Wits Line) Pilgrim's Rest, Barberton and also the greenstone belt of Limpopo. While these are not big deposits, they can support a junior mining company quite comfortably. The fact that the SAPS is arresting illegal gold miners on a regular basis means that South Africa is still a rich gold field."

Trends influencing the sector

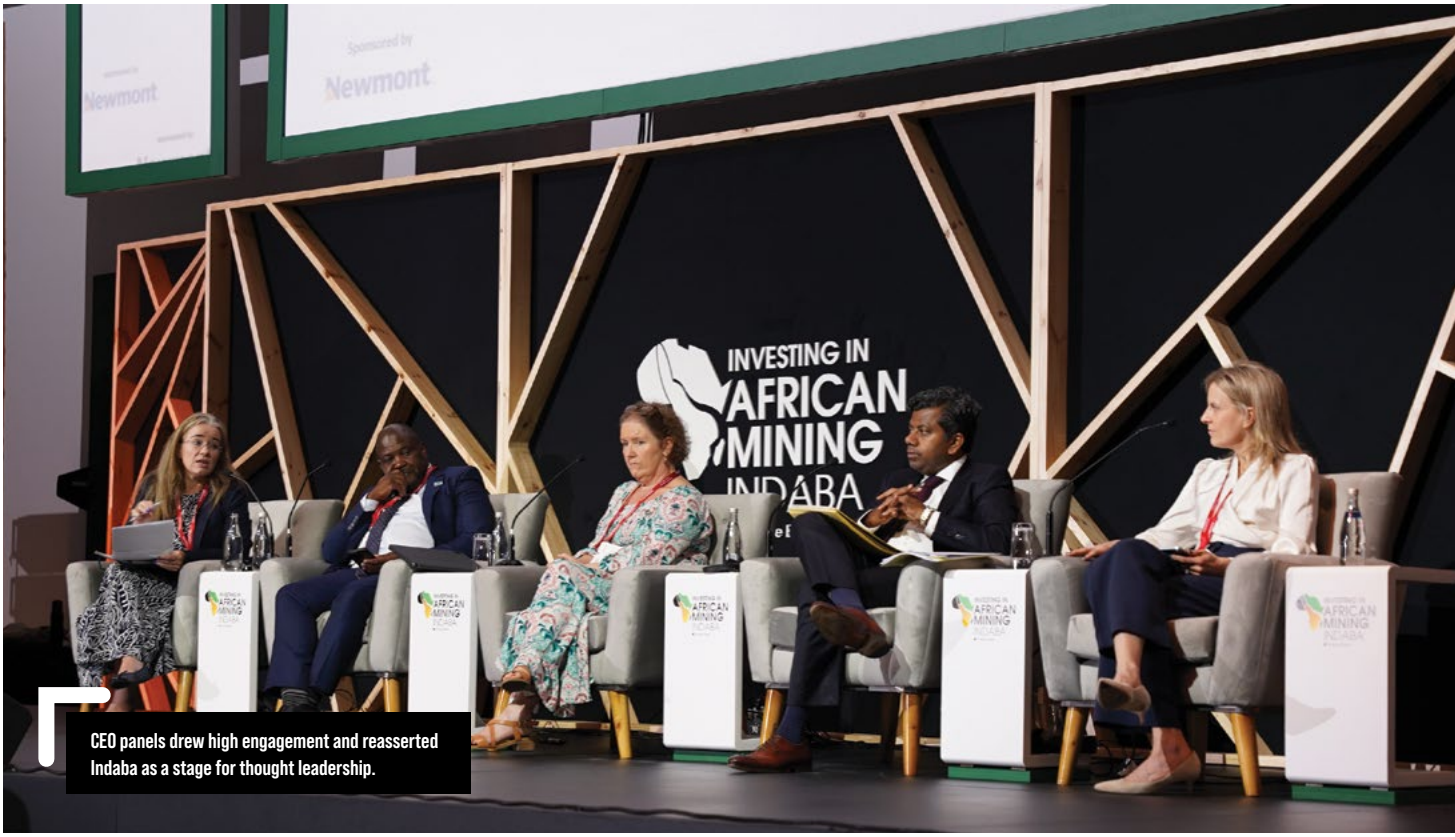
"Every mineral is critical because without it some part of the global economy will fail. Most countries have a list of minerals that are deemed critical to that country and strategic minerals considered essential to a nation's economy, security, and technological advancement. The United States Department of Defense is now investing internationally in mines and refineries - a clear indication of the importance that strategic and critical minerals play in their growth trajectory."

As a case in point, China has strategically used its dominance in critical minerals supply chains, including rare earths, to leverage its position in trade disputes, such as Trump's tariff war, by imposing export controls on essential materials. China's control over global rare earth processing, refining, and production gives it significant influence, forcing other countries to seek alternatives and diversify their supplies to reduce dependence on China for this critical resource.

"Access to critical minerals is of national interest to most nations. In a bid to ensure security of supply, governments of most major countries including the US, Germany, India and the Middle East are making funds available for the discovery and development of critical minerals. Recently, the US Department of Defense underwrote offtake agreements that are twice the current market price on some critical minerals. This is a clear indication that it is no longer just about commerce but about strategy and criticality," concludes Smart. ■

Mining Indaba 2026 – **ready to welcome local and global contingents**

Africa's premier mining event, Mining Indaba 2026, promises a riveting line-up of high-profile speakers and new items on the agenda to captivate its audience. To find out what Mining Indaba 2026 has in store, *Modern Mining* caught up with Laura Nicholson, Product Director for Investing in African Mining Indaba, who describes the mood heading into Mining Indaba 2026 as electric, filled with unity, optimism, and a renewed sense of purpose.



CEO panels drew high engagement and reasserted Indaba as a stage for thought leadership.

The strong line-up of key speakers includes government delegates such as Emmanuel Armah-Kofi Buah, Minister of Lands and Natural Resources from the Republic of Ghana; Estevão Tomás Rafael Pale, Minister of Mineral Resources & Energy, Republic of Mozambique and Diamantino Azevedo, Minister of Mineral Resources, Petroleum and Gas, Republic of Angola. Mining CEO's taking to the podium include Marna Cloete, CEO Ivanhoe Mines; Bold Baatar, Chief Commercial Officer of Rio Tinto; Beyers Nel, CEO Harmony Gold; Duncan Wanblad, CEO Anglo American and Mzila Mthenjane, CEO Minerals Council South Africa.

"The convening power of Mining Indaba is unmatched. By bringing stakeholders including governments, investors, miners, buyers, communities, and innovators into one room, we can shape the future of mining together. The future starts now," says Nicholson.

She adds that delegates return because Mining Indaba consistently delivers value through access to dealmaking in the Investment Village, a broader Ministerial Symposium, and Partnership Spotlights where ministers and CEOs engage in solution focused conversations. The draw is clear: progress through partnerships, authentic access, ambition in programming, and a proven track record make Mining Indaba the must attend event for Africa's mining ecosystem.

Delegates see Africa's critical minerals as central to the global energy transition. They feel a shared urgency that the continent must lead its own narrative. Nicholson captures this shift:

"Our mission is to unlock transformative solutions through partnerships. Only a united, forward-looking industry can embrace innovation, secure investment, and build a resilient, inclusive future.

"After welcoming a record 10 500 delegates in 2025, the community is eager to build on that momentum. There is a strong appetite for meaningful connections, deeper collaboration, and tangible outcomes."

Hyve Group, the international organiser of the Investing in African Mining Indaba, expects another record year. Over 70 percent of the exhibition space was sold within weeks of 2025 closing, signaling strong trust and demand.

Connecting Africa and the world

Africa is not just a resource provider. It holds the keys to

To accommodate the throng of delegates, the footprint of the event was expanded over CTICC 1 and 2.

industrialisation, decarbonisation, and global security. As resource nationalism, trade blocs, and geopolitical tensions reshape supply chains, Mining Indaba 2026 becomes the place where Africa speaks with one voice: bold, unified, and future focused.

Stronger Together: Progress Through Partnerships reflects the moment. Mining is navigating climate imperatives, supply chain shocks, and geopolitical flux. No player can succeed alone. Collaboration is the catalyst.

Nicholson frames it well: "The future of mining in Africa depends on how effectively we work together. Stronger Together: Progress Through Partnerships isn't just a theme; it's a call to action for the entire value chain to collaborate, innovate, and invest in Africa's long-term growth story."

Africa's mining narrative is being written in real time through connectivity, inclusion, and innovation. Mining Indaba 2026 will amplify youth voices, women in mining, and community leadership. The Ministerial Symposium will again host heads of state and industry leaders to map Africa's minerals strategy.

By bringing key stakeholders including governments, investors, miners, etc, we can shape the future of mining together.

Mining Indaba consistently delivers value through access to dealmaking in the Investment Village.

Mining Indaba 2025 – has set the bar high

According to the event organisers, Mining Indaba 2025 was a transformative year. Content struck a balance between policy, innovation, and community. The theme Future Proofing African Mining, Today framed conversations across generations and sectors. Delegates praised actionable sessions, inclusive forums, and high impact networking.

The investor experience was strong with oversubscribed matchmaking sessions and the Investment Village creating new partnerships. Diversity and inclusion stood out, with indigenous and community voices centered, while women accounted for around 40 percent of speakers. Moreover, women's representation was strengthened by the Women in Mining lounge and partnerships with WIMSA and AWIMA. Youth and PhD voices were integrated through the Young Leaders programme and university partnerships, ensuring future leaders had a seat at the table.

Downstream buyer attendance more than doubled over 2024, connecting mining to battery, automotive, and renewable sectors. CEO panels drew high engagement and reasserted Indaba as a

Mining Indaba 2026 promises a riveting line-up of high-profile speakers.

stage for thought leadership.

To accommodate the throng of delegates, the footprint of the event was expanded over CTICC 1 and 2, which allowed for improved logistics and capacity. The event gathered 58 ministers, 1 400 government officials, 625 speakers, and more than 10 500 delegates from 122 countries.

The decision to use CTICC 1 and CTICC 2 was driven by growth. It allowed for smarter layout of content, exhibit space, and networking flow. In 2025, government sessions and ministerial hubs moved into CTICC 2 to give ministers more space and smoother access across the event footprint.

Because it worked well, the Hyve Group is replicating the model in 2026. There will also be a dedicated technology exhibition hall showcasing leading tech players such as Microsoft, SAP, Huawei, and Mineral X. It is an approach to scale purposefully without losing the closeness of interaction.

New features for 2026

"For 2026, we are expanding community content and have launched an influencer campaign to deepen engagement and amplify voices across Africa," Nicholson said.

Under the theme Stronger Together: Progress Through Partnerships, Mining Indaba 2026 is our boldest edition yet.

Key features include:

- Critical Minerals Programme exploring Africa's strategic role in the global energy transition, backed by the Critical Minerals Committee and DMPR.
- Partnership Spotlights highlighting candid minister and CEO dialogues.
- Downstream Buyers Programme connects automotive, aerospace, chemical, and renewable sectors to drive local beneficiation.
- The Pitstop Networking Space as a casual, high energy hub for organic dealmaking.
- Industry Intel featuring interactive theatres and roundtables with sharp, data driven insights.
- Junior Mining Showcase spotlighting Africa's next generation of projects, offering visibility and investor connection.
- Technology Showcase featuring global innovators demonstrating how Africa can adopt and scale new technology.
  - Expanded CEO Participation including leaders from Harmony, Exxaro, Valterra, and Thungela.
  - Enhanced Community Engagement giving communities a stronger platform through dedicated programming, cultural heritage, and legacy development.

Each element is designed to spark new partnerships, surface actionable insights, and produce measurable outcomes. Sustainability is woven through every programme, not isolated as a standalone topic.

Moreover, exhibitor interest remains high, with major players such as Anglo American, Glencore, and Ivanhoe Mines having renewed their participation early on.

"New exhibitors from downstream, green tech, logistics, and innovation sectors signal a widening of the mining ecosystem. Mining Indaba 2026 exhibition space will span CTICC 1 & 2 with a dedicated technology hall to showcase startups and specialised tech solutions," concludes Nicholson.

121 Junior Mining

The 121 Mining Investment Cape Town 2025 delivered another record-breaking edition, reaffirming its position as the premier deal-making forum for the African mining investment community. Building on the momentum of last year's success, the event brought together an expanded line-up of over 120 mining companies and a highly targeted group of institutional and private investors. The result was a week buzzing with productive meetings, new partnerships, and real investment opportunities that continue to shape the continent's mining landscape.

For 2026, the 121 Mining Investment event will further strengthen its collaboration with Mining Indaba, creating a more connected ecosystem between exploration, investment, and innovation. Expect enhanced networking zones, dedicated sessions spotlighting emerging juniors, and new investor-led discussions designed to catalyse funding and project advancement across Africa's critical and precious minerals value chains. ■

Safety in body shops and the birth of voice amplifiers for respiratory protection

With 29 years of experience as a respiratory protection specialist, Reggie Naicken is acutely aware of the many challenges that workers face on the shop floor. Foremost of which is ensuring that all workers understand the risks associated with their specific environment, that they are provided with the correct PPE and work wear to protect them in that environment and finally monitoring compliance to ensure that the equipment issued is used correctly. Here, Naicken explains how this led to the development of a voice amplifier for respiratory protection to help improve workers safety.

The first step in ensuring workers safety is to conduct a comprehensive risk assessment, the aim of which is to identify all the health and safety risks associated with a particular environment. This will help the safety officer and leadership team to then specify the correct work wear and PPE to protect their workers. Once the workers have been issued with the correct work wear and PPE for their specific environment, compliance is extremely important. Workers need to be trained on the importance of wearing their PPE and how to use it correctly and consistently.

One of the biggest challenges that workers face on the shop floor is their ability to communicate effectively and safely while wearing either a half or full-face piece respirator. This is a global challenge for workers and while some communication devices have been developed to address it, the majority of these units are designed for first responders, swat, fire or special military units with SCBA that utilise radio communication and a Full- Face Respirator. However, very few devices have been developed for ambient applications that cater effectively for large workforces, who need to communicate effectively on the shop floor each day.

When wearing a standard respirator, safe communication is challenging for workers because the respirator muffles the user's speech making it difficult for them to be heard or understood. To overcome this challenge many employees will often compromise their personal safety by lifting, removing, pulling or dropping their respirator so that they can be heard. This leaves them exposed to toxic air borne substances in a respirator zoned body shop or shop floor. Removing their respiratory protection is a safety violation and can lead to illness, chronic health issues and even death depending on the length of exposure to the polluted air.

This is an important health and safety issue and one that Naicken was determined to address and so after taking early retirement, he decided, with the support of his wife and children, to start work developing a solution to address this problem. It was a challenging journey to develop an amplification device but after 3 600 hours and 15 months, he finally had a successful prototype and after further testing and development was granted patent in 2019.

The amplification device seamlessly integrates with respirators to clearly project the users voice, enabling effective communication without them having to remove their mask. This innovation is a South African first and will revolutionise communication on the shop floor while improving compliance, increasing wear time and most importantly protecting the workforce. The range of voice amplification devices will be launched in 2026 and be available with the Dromex DH-302 range and the Dromex full face respirator DH-FFM.

Dromex understands that the men and women who use our products work in tough and uncompromising environments and so all our products are designed and tested to the highest international technical and quality standards. We take our responsibility to protect workers seriously and have a team of experienced technical product specialists in workwear, footwear, fall arrest, respiratory, gloves, hearing, head and eye protection that provide risk assessments to help businesses understand how to better protect their workers. This service is part of Dromex commitment to championing improved safety for workers and so is provided free of charge with no obligation.

To find out more please visit our website www.dromex.co.za or contact a sales consultant on sales@dromex.co.za ■

The theme of the 2026 Mining Indaba should inspire the sector to think even more deeply about the importance of speaking and acting with integrity – so that every engagement can be leveraged to build trust.

Building Africa's mining future **on a foundation of trust**

Gatherings like the Investing in African Mining Indaba, now a regular feature of Cape Town's calendar in February, are becoming even more important in an age of widespread misinformation.

Andrew van Zyl, managing director of SRK Consulting (South Africa).

This is likely to make the theme of the event – which this year is 'Stronger Together' – resonate with delegates, according to Andrew van Zyl, managing director of SRK Consulting (South Africa).

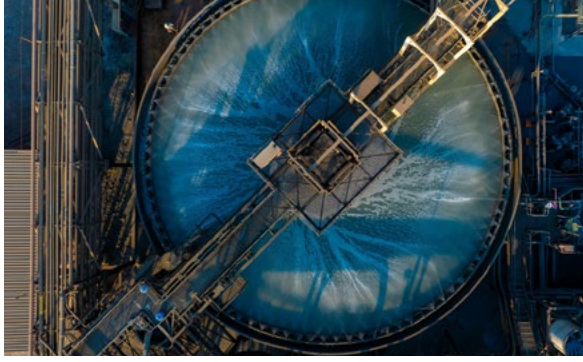
"As an industry, there is not much that we can do to counter the rise of misinformation and the mix of private and state actors using various platforms and tools for their own ends," said Van Zyl. "However, we can continue to build trust – among each other and with the communities we impact."

> As an industry, there is not much that we can do to counter the rise of misinformation and the mix of private and state actors using various platforms and tools for their own ends,

The theme of the Indaba, he argued, should inspire the sector to think even more deeply about the importance of speaking and acting with integrity – so that every engagement can be leveraged to build trust.

Setting the tone

"As ambassadors for our companies, our countries and our industry, we can make a positive difference by remaining authentic and in direct contact with our stakeholders," he said. "Our interactions at the



METC
Metallurgical Engineering Technology & Construction

From concept to commissioning, we design and construct metallurgical processing plants and mining infrastructure.

Au to Zn

What Sets METC Apart?

- Decisive and efficient
- Hands-on leadership with a proactive edge
- Building a lasting impact
- Committed to local partnerships
- Experts in metallurgical and process engineering
- Tackling the toughest challenges around the globe

METC Group
Your Partner in Success

Scan QR code to speak to our experts!

Indaba can set the tone for the message we take out – a message that must be conveyed directly to our other stakeholders who are not attending, especially those communities directly impacted by our activities."

Van Zyl emphasised how trust needs to be cultivated over time, based on each player's true assessment of the other. Critical to this process is proving one's bona fides to others in the mining ecosystem and receiving the same consideration from them.

"Physical engagements like the Mining Indaba – rather than virtual or remote conversations – give us a better sense of who we were dealing with, how they see the world, what their values are, and how their views compare to our own," he said. "Most importantly, the personal connection gives us the opportunity to find ways through our disagreements. Once the trust is there, it gives more scope to explore a positive route that may be unfamiliar to both parties."

Learning to engage

The issue of trust has become critical to the mining sector, notably in the relationships between mines and communities. He pointed out that, however, that just as the industry has made advances in its engineering solutions, so it is learning to more effectively engage with communities.

"Questions of communication and trust are now front and centre in mining's efforts to mitigate social risk – and this is demonstrated through the sector's environmental, social and governance (ESG) commitments," he said. "With smart devices now carrying messages in real time across all sectors of society, mining companies need to become more proactive in how they communicate."

He noted, however, that communication was becoming more challenging where digital and other media were harnessed to spread untruths; this has led to situations where a mine and communities do not even share a common set of basic facts.

AI and misinformation

"One of the tasks facing us as an industry is to build upon the trust and partnerships that exist in our respective ecosystems, to ensure that there remains a common factual basis for a relationship of mutual trust," he explained. "Indeed, it applies to our relationships with all stakeholders – from government and regulators to customers and suppliers."

He noted that, while the rise of artificial intelligence may contribute to innovative technical solutions, it is also likely to lead to even more misinformation – which will make it harder to preserve and build trust.

"This is exacerbated by the fact that past mistakes by the industry are more likely to stick in the minds of the public than the many ways in which we have become more responsible in our mining operations," he said. "There is now a greater onus on the sector to build relationships that will withstand the inevitable impact of misinformation."

He argued that greater trust will provide parties with firmer ground on which to base their decisions and interactions. Consistent integrity should, at the very least, provide the industry with the opportunity to engage and retain its social licence to operate, even when misinformation is rife. ■


ASTRON ENERGY
BUSINESS SOLUTIONS
INVESTING IN AFRICAN MINING INDABA
A Hyve Event
From refinery to delivery
Experience Astron Energy's integrated value chain at Mining Indaba 2026.
A reliable partner at the core of progress.
9 - 12 FEBRUARY 2026
CAPE TOWN | BOOTH IV10
Scan the QR code to book a meeting with our team or visit our stand.

The bottom shell of the old crusher is being removed to make way for the installation of the new Sandvik CH865i cone crusher supplied by Sandvik Rock Processing.

The bottom shell of the new Sandvik CH851i cone crusher supplied by Sandvik Rock Processing positioned on the ground in preparation for lifting into place.

Sandvik CH865i unlocks major production gains at Ghana gold mine

The need to raise throughput levels at the mine had become pressing, with the mine's stockpile quickly depleting due to the strategic demand for more ore. According to Michael Okunola, Service Manager for Sandvik Rock Processing West Africa, the solution also had to account for space limitations within the plant.

"The mine was considering adding another cone crusher to the existing lineup of three crushers in the plant but with limited space available, we began exploring other options," says Okunola. "Ultimately, the team was guided by the fact that the second of the three tertiary crushers was handling the bulk of the throughput, and we realised we could make a significant impact by addressing the capacity opportunities at that point in the circuit."

The mine was already operating three Sandvik CH660 cone crushers in the tertiary circuit and turned to Sandvik Rock Processing for a solution that would deliver the same exceptional performance and reliability, he says.

"Under the mine's previous production regime, the Sandvik CH660s comfortably met the required capacity," he explains. "However, with the new production targets, a crusher with higher throughput capacity was needed."

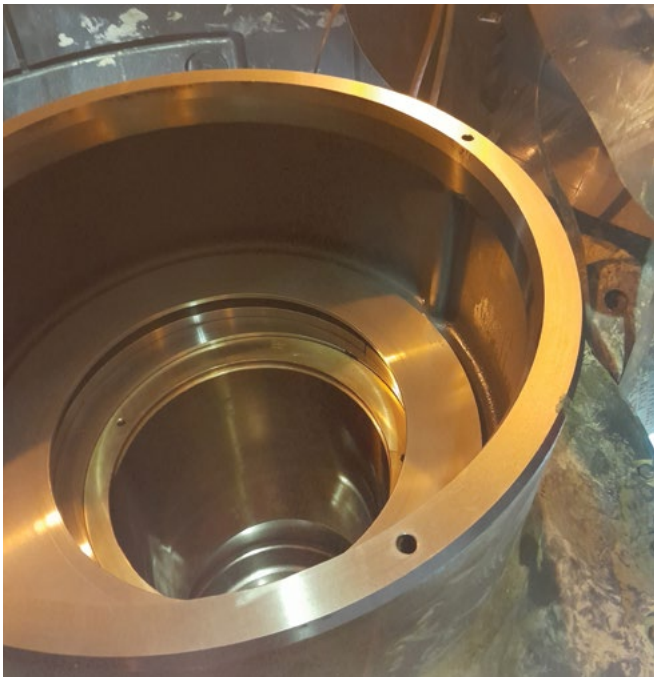
In this application, the Sandvik CH865i is capable of delivering up to 400 tph - nearly double the previous throughput - significantly boosting the mine's overall production.

"The optimal solution was achieved by replacing the second - or middle - CH660 cone crusher in the mine's tertiary circuit with a Sandvik CH865i model," says Okunola. Once the new unit's components arrived on site, Sandvik Rock Processing's technical team collaborated closely with the mine's team to implement the necessary adjustments within the plant.

These modifications included installing a new locally manufactured hopper to accommodate the taller dimensions of the Sandvik CH865i crusher. The installation had to be carried out while the plant remained operational, requiring special measures to manage dust and maintain a safe working environment.

"We worked with the mine to decommission the existing unit and implement the necessary concrete, steelwork and other critical infrastructure for the new crusher," he explains. "The Sandvik

The bottom shell of the new Sandvik CH851i cone crusher supplied by Sandvik Rock Processing being offloaded from its stand and lowered to the ground.



A view of the eccentric bush within the Sandvik CH865i cone crusher assembly.

Components for the new Sandvik CH851i cone crusher supplied by Sandvik Rock Processing being offloaded on site at a gold mine in Ghana.

Rock Processing team then assembled the Sandvik CH865i on site using the delivered components - including the sub-frame assembly, top shell, bottom shell and main shaft assembly - all in line with our strict OEM standards."

"Following successful commissioning, the increase in output delivered a rapid return on investment for the customer confirming that the decision was the correct one," says Okunola. To further support ongoing performance, the mine also entered into a service level agreement with Sandvik Rock Processing, ensuring that a dedicated engineer is based on site to maintain and optimise equipment efficiency.

"Our team is on hand to closely monitor the condition and operation of our crushers, and to ensure that maintenance such as liner replacement and lubrication are regularly performed," he says. "Our OEM procedures and attention to detail give the customer peace of mind that the new crusher is delivering as expected, with no unplanned downtime to disrupt production."

Among the benefits that the Sandvik CH865i cone crusher brings is its ease of operation and maintenance, he adds. For instance, it does not need the application of casting compound when replacing liners which also represents a significant cost saving.

Equipped with the hydraulic Hydroset™ system for safety and setting-adjustment functions, the unit is also intelligent - ready to be connected to Sandvik's Automation & Connectivity System (ACS). This automatically adapts the crusher to varying feed conditions ensuring the best performance constantly.

"The value of ACS lies in its ability to monitor key aspects of the crushing process including the electric motor's power draw, hydrostatic pressure, closed-side setting and oil temperature," says Okunola. "It also tracks the performance of individual components such as the lubrication pump and the Hydroset™ pump as well as rotation speeds and feed rates. All of this enhances operational transparency by flagging any deviations from normal performance."

"The value of ACS lies in its ability to monitor key aspects of the crushing process including the electric motor's power draw, hydrostatic pressure, closed-side setting and oil temperature,"

He highlights that, after the commissioning of the new Sandvik CH865i unit, Sandvik Rock Processing conducted on-site training for the mine's team, on both operation and maintenance.

"Our training also emphasises the safety aspects of working with our equipment, as our strong safety focus supports the mining sector's drive towards zero harm," Okunola concludes. ■

Electra Mining Africa adds new outside exhibit area

South Africa's mining, power, electrical, automation, industrial, transport, and manufacturing sectors are the engine of the nation's economy. Together, they drive growth, create jobs, and turn raw materials into value-added products that fuel trade and exports.

The new Orange Zone will accommodate more companies that want to showcase their equipment and innovations outside.

South Africa's mining, power, electrical, automation, industrial, transport, and manufacturing sectors are the engine of the nation's economy. Together, they drive growth, create jobs, and turn raw materials into value-added products that fuel trade and exports.

Electra Mining Africa brings all these industries together in one dynamic trade show, offering a platform for buyers, sellers, and decision-makers to connect, explore innovations, and forge partnerships. With in-person networking and cutting-edge exhibitor content, Electra Mining Africa is where industry collaboration meets business growth.

The biennial show is set to unveil several exciting additions in 2026, among them, a new outside exhibit area located in the Arena at the Expo Centre. According to Montgomery Group Africa portfolio director Charlene Hefer, the introduction of the new Orange Zone comes in direct response to exhibitor demand.

"The new Orange Zone provides the additional space needed to accommodate more companies that want to showcase their equipment and innovations outside," says Hefer. "There will be more original-equipment manufacturers than at previous shows and this level of representation will be of benefit to visitors interested in this particular sector as they are able to view, compare and evaluate the offerings all in one place. The Orange Zone complements the existing Red, Blue, Green, and Yellow Zones, creating an even more dynamic outdoor showcase."

Exhibitors located in the outside exhibit areas will span the full mining and industrial equipment value chain - from global and local OEMs to leading component and service providers. Major OEMs such as South African heavy equipment manufacturer Bell Equipment, global mining and construction machinery OEM Komatsu, mining equipment and tools OEM Sandvik, drilling, global construction and mining OEM Sany, mining machinery OEM Eickhoff, specialist manufacturer/supplier OEM All Terrain Mining & Tunnelling Machinery, and Shantui (represented by Everstar Industries) will be at the show with complete machinery and technology solutions driving productivity and innovation. Complementing them are distributors, technology partners, and component and service suppliers such as Barloworld, Egelquip, GHM Machinery, Drilling Mining and Construction, Kappa Engineering, Alpin, and nVolve Solutions, which provide equipment support, automation technologies, parts, systems, and engineering services that enhance OEM performance and operational reliability. Together, this diverse mix ensures a comprehensive showcase of the mining and industrial ecosystem—from original manufacture through to digital integration, distribution, maintenance, and operational excellence.

"The presence of these industry leaders will attract high-level buyers, engineers, and decision-makers seeking reliable, high-performance solutions, while also fostering partnerships, local manufacturing, and skills development," notes Hefer.

With just under eight months to go until Electra Mining Africa 2026, the exhibition is already 98% sold, demonstrating strong industry support for the show and confirming its proven track record as a driver of leads and sales.

Taking place in Nasrec, Johannesburg between 7-11 September 2026, Electra Mining Africa is a 6-in-1 Trade Show, incorporating Electra Mining Africa, Automation Expo, Elenex Africa, PowerEx, Transport Expo and the Local Southern African Manufacturing Expo. It is the largest show of its kind in Southern Africa, and one of the largest mining and industrial shows globally.

"We are really excited about Electra Mining Africa 2026," says Hefer. "The 2024 event was the biggest ever show since the inaugural edition in 1972, hosting 950 exhibitors across 6 exhibition halls and 4 outside exhibit areas, with almost 40 000 visitors attending. Now, with the addition of the Orange Zone, a new SAIMechE Career and Skills Hub, and other exciting initiatives, Electra Mining Africa 2026 is set to be even bigger". ■

SEW-EURODRIVE advances industrial performance with next-gen predictive maintenance

As industries intensify their efforts to cut downtime, reduce maintenance costs and operate with greater energy efficiency, the ability to anticipate equipment issues before they occur has become essential. Predictive maintenance, once considered an emerging technology, is now a core requirement for modern operations and SEW-EURODRIVE is driving this evolution with its advanced DriveRadar® IoT Suite.

Across sectors ranging from mining and automotive to agriculture, ports, airports, and food and beverage production, reliable drivetrain performance remains non-negotiable. Willem Strydom, Business Development Manager for Electronics at SEW-EURODRIVE, says the market is moving rapidly towards smarter asset intelligence. Customers increasingly want deeper, real-time insights into their operations and DriveRadar® provides exactly that through an ecosystem of intelligent sensors, edge devices and cloud-based analytics offering complete operational visibility.

Traditional maintenance practices such as manual plant surveys are proving inadequate in today's dynamic production environments. Werner Engelbrecht, Works Manager Megatronic at SEW-EURODRIVE, notes that these surveys often become outdated quickly as equipment is replaced or repaired. DriveRadar®, by contrast, captures every new item added to the plant, offering a live, accurate and continuously updated asset overview. As plant layouts and equipment evolve, this real-time accuracy becomes vital for effective decision-making.

The benefits extend beyond visibility, with predictive capability at the heart of preventing failures. Engelbrecht explains that operators who respond to the system's insights can avoid catastrophic breakdowns entirely. This also reduces the need for personnel to conduct repetitive physical inspections, freeing human resources for more strategic maintenance work.

A key differentiator of DriveRadar® is its reliance on SEW-EURODRIVE's integrated drivetrain ecosystem rather than third-party add-on sensors. Strydom highlights that the company's frequency inverters function as highly accurate, multi-function sensors. Each inverter measures time of operation, energy consumption, load and torque and detects vibrations or shocks - generating hundreds of parameters per device.

With additional motor sensors and advanced vibration sensors where required, DriveRadar® collects data such as temperature, ambient conditions, oil levels and ageing indicators, load variations and vibration signatures extracted directly from motor harmonics.

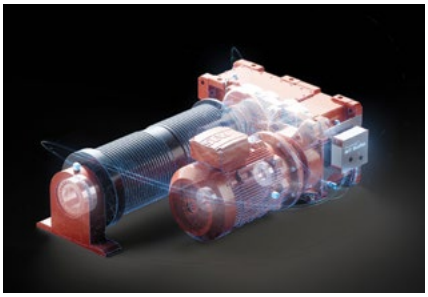
All this information is combined to create a digital twin of each drivetrain. The digital twin uses AI-driven models to learn normal operating behaviour from the moment equipment is commissioned. Any deviation from this baseline is detected immediately, enabling early identification of bearing damage, prediction of brake lining life, forecasting of oil change intervals, detection of structural faults and identification of load inefficiencies. Importantly, the system is capable of monitoring non-SEW-EURODRIVE components as well, making it suitable for entire applications such as conveyors or pick-and-place machinery.

Accessibility is another major advantage. DriveRadar® allows data to be stored in the SEW-EURODRIVE cloud, the customer's private cloud or local servers and can integrate with existing SCADA systems. Users can access full equipment data and generate reports from mobile devices, including in remote regions using GSM or SIM-based communication. This mobility is particularly valued by maintenance teams who can identify issues immediately without physically walking the plant.

To support customers in adopting these advanced tools, SEW-EURODRIVE has invested extensively in training. The company now offers training both on site and through its Drive Academy in Johannesburg. ■

Willem Strydom, Business Development Manager for Electronics at SEW-EURODRIVE.

Werner Engelbrecht, Works Manager Megatronic at SEW-EURODRIVE.



SEW-EURODRIVE's DriveRadar monitoring an industrial crane's drive system to support predictive maintenance and maximise uptime.

SEW-EURODRIVE's MOVILINK® DDI hybrid cable combines power, data and safety in a single connection to simplify installation and enhance reliability in modern drive systems.

BME Metallurgy drives green chemistry for sustainable mining

Environmentally responsible chemical practices demand an integrated approach from mines, across the mining value chain, with hydrometallurgy included, according to Daniel Verwey, Business Development Manager at Omnia Holdings company BME Metallurgy.

Daniel Verwey, Business Development Manager at Omnia Holdings company BME Metallurgy.

Verwey said mining companies are increasingly searching for practical ways to reduce the risks associated with chemicals in applications, such as leaching, flotation, metal recovery and explosives. These efforts are also being driven by stricter legal regulations, in addition to demands by shareholders for mines to operate in a more environmentally sustainable manner.

"In response, BME Metallurgy works alongside these customers to explore safer, more sustainable approaches that reduce environmental risk and waste – while also boosting mines' productivity and efficiency," he said.

Minerals for energy transition

He added that producers of minerals that are critical in promoting decarbonisation and a just energy transition, are particularly under pressure to avoid contributing to the very problems that they are trying to solve.

"In many ways, BME Metallurgy is a front runner in 'green' hydrometallurgy, which has taken our business to the next level," Verwey said. "Building on our strong track record in safe handling and application of chemicals, we combine our agility, expertise and R&D capacity to focus on customers' needs."

For instance, BME Metallurgy is helping clients to implement chemical circularity by recovering and recycling chemicals back into the system.

Nanofiltration

"We are deploying nanofiltration technology to help mines successfully recover and recycle reagents such as sulphuric and hydrochloric acid, as well as caustic soda," he explained.

This approach has halved total reagent demand while also saving on the cost of chemical neutralisation – for safer and more responsible transportation of chemicals and waste disposal.

Verwey said that these interventions show how BME Metallurgy had firmly entrenched sustainability into its business model.

"While we may be selling significantly less reagents to mines, we have made a substantial contribution to our clients' long-term sustainability," he explained. "In this way, we enhance our brand by building trust and longstanding relationships, while also fostering closer collaboration for continued innovation."

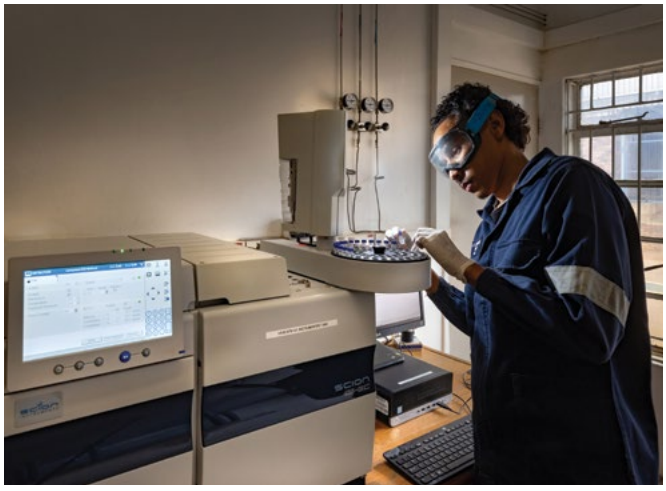
Replacement of hazardous products with greener alternatives

An example of one of the company's chemical circularity projects is the replacement of environmentally hazardous products with environmentally friendly alternatives resulting in cleaner production. Verwey said that BME Metallurgy had also made strides in replacing pyrolusite with hydrogen peroxide as an oxidant in uranium acid leaching circuits.

"Hydrogen peroxide is a potent and effective

Green hydrometallurgy and nanofiltration technologies enable mines to recycle and reuse water, reducing environmental impact in water-stressed regions.

Digital innovation and chemical circularity are transforming mineral processing, cutting emissions and supporting a low-carbon mining value chain.



BME Metallurgy warehouse facility.

oxidising agent, so only small volumes –substantially less than the volume needed when using pyrolusite – is required," he said.

This translated into substantial cost savings in transport for mines. Hydrogen peroxide decomposes into water and oxygen, leaving no environmentally harmful residues.

Meanwhile, through its partnership with Hypex Bio, BME has also introduced hydrogen peroxide-based emulsions as a substitute to nitrate-based emulsions for blasting, reducing nitrogen oxide emissions by 90%. He added that hydrogen peroxide-based emulsions were also more energy efficient to manufacture, reducing the carbon footprint of the mining supply chain. Another notable BME initiative entails recycling waste oil, a significant environmental pollutant, into a sustainable energy fuel source within its explosives.

Acid mist abatement

"We have also tested a safer surfactant for acid mist abatement in base metals electrowinning circuits, with the solution already demonstrating significant commercial potential," said Verwey.

He highlighted that efficiency improvements across the transport logistics value chain could further reduce the impact of mining chemicals on the environment. In one related instance, BME Metallurgy is working with mines to find optimal ways of managing the environmentally responsible disposal of packaging. This issue remains a large problem, he said, especially for remote mines who must incur high costs in transporting empty containers over long distances to the closest licensed off-site landfills or incinerators.

"A possible solution is to establish infrastructure on mine sites to support the procurement of chemicals in bulk or to recycle the packaging into a saleable product," he said, adding that this required a major shift in the way mines procure chemicals and operate.

Bulk liquids

Meanwhile, BME Metallurgy is also working towards finding better ways of transporting bulk liquids to remote sites, considering that bulk tankers often have to return empty – an inefficient process that contributes to CO_2 emissions.

He said moving forward, circularity would become even more important to the mining industry, driving demand for BME Metallurgy's tailored "green" chemical solutions.

"Water recycling and reuse is a higher priority than recovering reagents, especially for mines located in water-stressed areas such as South Africa," he said. "This is compounded by the high capital and operational costs for the advanced treatment of large complex contaminated water."

Verwey said that nanofiltration technology has also proven to be a very effective way of recovering, purifying and recycling water.

"The process provides high water recovery rates, is more energy efficient than some other treatment methods and does not require chemical reagents," he said.

He concluded by noting that through continued innovation in the safe and environmentally friendly responsible use and handling of chemicals, BME Metallurgy is helping mines align with global goals for a resilient future. This is in line with Omnia's purpose of 'Innovating to enhance life, together creating a greener future'. ■

Multotec GV Cyclones drive safer, more sustainable tailings management

Managing tailings safely and sustainably remains one of the mining industry's biggest challenges. For operations where above-ground deposition in a Tailings Storage Facility (TSF) is the only option, finding equipment that balances operational efficiency, safety, and environmental responsibility is critical. Yet, many conventional deposition methods struggle to keep pace with stricter regulations, sustainable water use targets, and the need to effectively manage both the rate of rise and long-term TSF stability.

Multotec's GV Cyclones Driving Effective Tailings Management.

Ernst Bekker - Specialist Cyclones.

Blane Pillai, Applications Engineer.

Multotec's GV Cyclone has been designed specifically for tailings dam applications, and engineered with these priorities in mind, delivering durability, flexibility, simple maintenance, and process efficiency. Its lightweight spin-cast steel shell is lined with bonded rubber, ensuring it can withstand pressure fluctuations while remaining easy for operators to move on-site.

"By improving material distribution, Multotec's GV Cyclones help mining operations reduce their environmental impact while maintaining safe and efficient tailings deposition," says Ernst Bekker, Cyclone Product Specialist at Multotec.

Supporting clients with tailored solutions

A leading South African gold producer, committed to reducing the environmental impact of its tailings deposition, sought a more efficient solution for slurry management. With strict operational and environmental performance standards in place, the safety and reliability of its tailings infrastructure were non-negotiable.

Multotec had already built a long-standing relationship with the client through its work on other TSFs and gold processing plants, where it extended equipment wear life, optimised cyclone performance, and supplied fit-for-purpose solutions such as screening media, automated mechanical samplers, and mill liners. This track record made Multotec the natural partner for the new TSF order.

Overcoming operational challenges

The mine's focus on leveraging modern technology to enhance operational performance while reducing environmental impact placed high demands on cyclone durability, flexibility, and efficiency.

Handling large tailings volumes under tough conditions had placed pressure on the existing deposition equipment, highlighting the need for a more reliable and operator-friendly solution. Earlier deployments of Multotec cyclones had already proven their performance advantage over competing systems, encouraging the decision to order the GV Cyclones for the new facility.

Innovative cyclone design for optimal performance

To configure the GV Cyclones, Multotec conducted both in-house simulations and test

Multotec's GV cyclones are the solution for tailings dam.

Proven Tailings Management Performance Powered by Multotec's GV Cyclones.

work, supported by on-site comparative equipment trials. These trials evaluated material behaviour, confirmed achievable recoveries, and provided accurate tailings samples for further testing. To ensure reliability, Multotec engineers oversaw sampling procedures to eliminate bias, giving the client confidence in the final configuration.

The cyclone's performance depends on factors such as length, cone angle, spigot size, and vortex finder selection. Multotec's GV Cyclones can be supplied with either a 10° or 20° cone angle, allowing operators to balance ease of handling with fine performance control.

For this project, Multotec customised the inlet head size and overflow elbow flange to integrate seamlessly with the client's existing pipework. This removed the need for auxiliary adaptor equipment and reduced the weight of the cyclone, demonstrating Multotec's commitment to delivering fit-for-purpose solutions that add real value on site.

"The GV Cyclones were designed with operators in mind. Features like the lightweight body, interchangeable cone angles, and quick-release spigots make day-to-day management easier and safer, while still delivering the durability needed for harsh conditions," explains Blane Pillai, Applications Engineer at Multotec.

The GV Cyclones are engineered to deliver the optimal volumetric split between overflow and underflow to meet TSF rate-of-rise requirements. Their configuration can be adjusted as deposition conditions evolve, ensuring consistent performance even if the characteristics of the ore entering the processing plant change.

Built to absorb pressure spikes during start-up, the cyclones offer stability under demanding conditions, while the quick-release spigot system simplifies adjustments and minimises downtime.

Key design features included:

Lightweight construction: Weighing just 44.6 kg, the cyclone can be easily manoeuvred by operators for installation, handling and maintenance.
Durable build: A steel rubber-lined inlet head and cone, with a 15 mm replaceable liner ensure wear resistance and a long service life.

Quick-change spigot system: A lightweight, tool-free screw coupling enables operators to replace spigot rapidly without shutdowns. Since spigot diameter directly influences product quality and deposition accuracy, this feature is critical to TSF stability.
Flexible operation: Interchangeable spigots, vortex finders, and cone angle options (10° and 20°) give operators control across different stages of TSF development.
Optional movable stands/skids: Improve cyclone relocation efficiency while reducing labour requirements.

Earlier in 2025, Multotec received an order for upwards off 200 GV250 Cyclones, for one of the client's existing TSFs. Manufacturing is underway, with delivery scheduled before the end of 2025, and the field service team will provide on-site installation support and training to ensure a reliable performance from day one.

Delivering results: efficiency, safety, sustainability

Although the GV Cyclones are yet to be commissioned, installations at other sites already highlight their benefits.

"Cyclones enable a faster, more controlled rate of rise compared to traditional open spigot deposition, reducing labour intensity, lowering operational costs, and giving operators precise control over dam wall height," says Erick Herbst, Territory Sales Manager - Capital at Multotec.

By ensuring even material distribution, the GV Cyclones improve water recovery, and aid in the correct material characteristics depositing on the TSF wall, contributing to safer and more sustainable long-term TSF management.

With their balance of durability, lightweight handling, and operator-friendly features, Multotec's GV Cyclones are setting a new benchmark for safer, more sustainable tailings management. ■

2025 brought multiple failures that underscored the consequences of delayed action in TSF management.

Tailings 2025: Lessons learned and the road to safer systems

2025 exposed the fragility of tailings governance and water management. 2026 must turn lessons into action.

Alastair Bovim, CEO of Insight Terra.

2025 saw multiple tailings dam failures, including a significant incident in Zambia in February. The global clean energy transition is accelerating, and with it, the demand for critical minerals. Global forums like the G20, COP30, and Mining2030 have made substantial public declarations of intent, and yet, as 2025 has shown, there are several opportunities to improve the systems responsible for managing the transition and to affect change across the entire value chain. Companies that purchase, trade, and are involved in sourcing metals and minerals should demand transparency and visibility on how mining and tailings management are done sustainability.

"Net Zero is a pipe dream if we cannot and do not get the basics of proactively managing water on our mines. We cannot safely grow global mineral supply on a foundation of fragile tailings systems," says Alastair Bovim, CEO and co-founder of environmental intelligence company Insight Terra. "Every rechargeable battery, electric vehicle, and wind turbine begins in a mine, and the safety of those mine communities and the surrounding environments must matter as much as the minerals we extract."

Africa, home to some of the world's most important supplies of copper, cobalt, manganese and PGMs, sits at the centre of this minerals surge. But 2025 highlighted a troubling truth: while governance frameworks like the Global Industry Standard on Tailings Management (GISTM) are maturing, the frequency and severity of tailings failures show that implementation is not keeping pace with the risks.

2025: A year of progress – and painful reminders

The International Council on Mining and Metals' (ICMM) 2025 Tailings Progress Report reflected significant progress in governance:

- 67% of member facilities have now achieved full compliance with GISTM.
- More than 80% of 'extreme' and 'very high' consequence facilities are compliant, showing that accountability is steadily moving to board level.

But the flip side is a stark one: one-third of facilities

remain only partially compliant - a signal of how much work remains before tailings governance becomes truly universal. 67% of member facilities that have achieved "self-assessed" compliance still require an independent audit from the newly established Global Tailings Management Institute. Whilst there is public discourse, these are mostly at a very basic level and lack true transparency on the operations. GISTM calls for an integrated knowledge base, performance monitoring, accountabilities and responsibilities to make the work visible and transparent.

At the same time, 2025 brought multiple failures that underscored the consequences of delayed action in tailings storage facility (TSF) management.

In Zambia (18 February), a breach released acidic, sulphuric-acid-bearing effluent into the Mwambashi and Kafue river systems, with cascading cell failures and overtopping dynamics recorded. Independent analyses confirmed significant water quality impact and long-term heavy metal risks.

In Indonesia's Morowali Industrial Park, two nickel tailings failures (16 and 21 March) and a fatal landslide (22 March) raised questions around site design, rapid industrial expansion and climate-driven rainfall stressors.

And closer to home in South Africa, a long-awaited investigation into the 2022 Jagersfontein tailings collapse confirmed extensive flooding, pollution and infrastructure damage. The report raised concerns about the dam's design, foundation stability and oversight, noting that signs of instability may have been present before the breach.

"2025 showed us, again, that tailings failures are not engineering problems alone," says Bovim. "They are governance, climate adaptation and community-protection failures. And they are largely preventable."

A governance shift: from voluntary standards to independent assurance

One of the most significant structural developments in 2025 was the formal launch of the Global Tailings Management Institute (GTMI), headquartered in South Africa and co-founded by the ICMM, UNEP, and the PRI. The GTMI will oversee an independent auditing and certification programme for GISTM – a pivotal step toward transparent, credible assurance for operators, regulators, investors, and, most importantly, mine-affected communities.

While most major operators are advancing toward compliance, smaller and mid-tier facilities – including many in Africa – remain outside formal global frameworks. For Bovim, this is where the risk lies.

"Standards matter, but standards alone don't change behaviour. Independent assurance, continuous monitoring and transparent public reporting are what close the governance gap."

Insight Terra contributed to GTMI's formative work through its involvement with the Minerals Council South Africa, supporting efforts to strengthen tailings governance across the continent.

Technology moves centre stage: monitoring must become continuous

2025 also marked a step-change in the adoption of environmental intelligence tools across the tailings lifecycle. Insight Terra successfully received funding from major climate technology investors and has expanded deployments across Africa and South America, deepened its partnerships with engineers of record, instrumentation vendors and systems integrators, and achieved AWS Energy Sector Differentiated Partner status. Their Insight Platform is available on the AWS Marketplace.

Platforms that fuse IoT sensors, ground-based instruments, satellite observations, InSAR analytics and machine-learning-based triggers are increasingly essential for real-time visibility. Synspective's expanding StriX SAR constellation, now supporting Global South demonstration projects alongside Insight Terra and Yokogawa, is enabling millimetre-level displacement tracking for large areas around TSFs and pit walls.

"Tailings facilities are dynamic, living systems," Bovim notes. "Monitoring cannot be static. Integrated sensing and real-time analytics give operators the ability to detect anomalies early and intervene before small deviations become structural failures."

Insight Terra's platform continues to emphasise GISTM Principle 7 - the requirement for disciplined, auditable data governance and clear accountability workflows.

2026: From reaction to predict-and-prevent

In the coming year it's imperative that we convert 2025's lessons into meaningful system and behavioural change. Two major forums will set the agenda early:

- **Mining Indaba 2026** (Cape Town, 9 - 12 February) is placing partnerships, technology and cross-value-chain collaboration at the centre of its programme.
- **SAIMM Tailings 2026** (Johannesburg, 3- 4 March) will advance discussions on SANS 10286 updates, AI-enabled monitoring, GTMI implementation and detailed failure learnings.

For Bovim, the goals for 2026 are clear:

- Close the partial-conformance and self-assessment gap across the industry.
- Scale integrated SAR and IoT monitoring stacks.
- Treat water as a strategic resource requiring continuous surveillance.
- Publish transparent, community-facing dashboards and emergency protocols.
- Embed independent assurance into routine practice.

Most importantly we need to continue to foster collaboration and teamwork with the Accountable Executive who reports to the board, the Responsible Tailings Facility Engineer that works at site level and the Engineer of Record that looks to monitor performance against the design. The Insight Terra platform allows these critical stakeholders to gather around the data and continually improve the safety and transparency of operations.

"If mineral demand is rising exponentially, our safety and transparency standards must rise exponentially to match it," he says. "Anything less leaves communities and the transition exposed."

A moment for African leadership

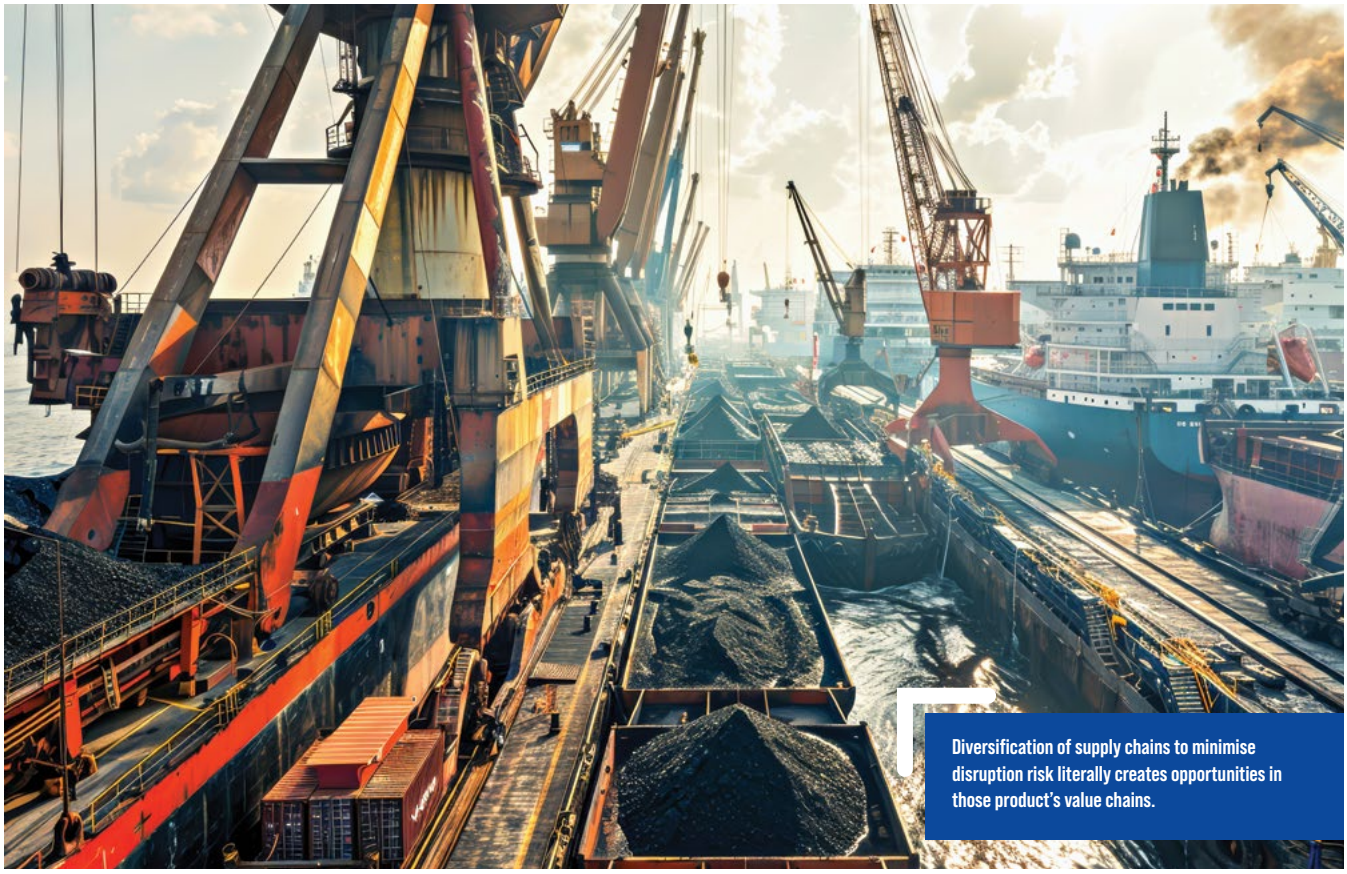
With Africa at the heart of global critical mineral supply chain, the continent must be part of the conversation on responsible extraction.

"African nations can lead by showing that environmental intelligence, transparent governance and community protection are not burdens – they are strategic advantages. Zero harm must be the expectation, not the aspiration," Bovim concludes. ■

Mining Indaba 2026: What's new?

By Dr Ross Harvey, director of research and programmes at Good Governance Africa (GGA)

It's that time of year again in the Mining World. Of the expected 10 000 delegates, not a small number will be hot off the heels of the Future Minerals Forum (FMF) in Saudi. The FMF is quickly becoming the platform that is seen as truly meaningful. Mining is a long game with long lead times requiring long capital. Global markets, to the contrary, want quick returns. Saudi and other gulf states are offering something more synergistic for miners – a long view. In an increasingly polarised world, with geopolitics as fraught as it is with tension, players in the mining game are increasingly asking whether the Cape Town Indaba is worth attending. Of course, the answer is likely to be "yes" for the foreseeable future, not only because Cape Town is the best city in the world (I'm biased – I live here), but because the conversations happening at the Indaba remain relevant (if a little repetitive).



Diversification of supply chains to minimise disruption risk literally creates opportunities in those product's value chains.

Dr Ross Harvey, director of research and programmes at Good Governance Africa (GGA)

This year, the theme will be "Stronger together: Progress through partnerships." The associate press release indicates that this "reflects the urgent need for collaboration across the continent to fast-track untapped growth opportunities across the entire mining value chain and unlock downstream industrialisation industries."

The agenda is structured accordingly, and two themes are worth focusing on here:

First up is a conversation called "From extraction to innovation: Leveraging Africa's resource wealth for diversification and development". The big idea is to "identify and brainstorm actionable policy and regulatory frameworks that better enable African governments to leverage their mineral wealth – shifting from traditional commodity extraction to a more diversified, complex economic model. It will explore how African countries can move beyond simple resource extraction to build economic complexity through industrialisation, technological innovation and advanced manufacturing."

It's an important – if perennial – conversation. I have been working within the broad ambit of this topic since 2009. Not much has changed in respect of African countries' abilities to attract investment into manufacturing capacity, never mind "advanced manufacturing" connected to national resource endowments. Mining investors themselves have gone through cycles of hibernation when the conversation appeared to be veering towards 'resource nationalism' – states legislating in a

draconian fashion that minerals needed to be locally 'beneficiated' through raw export taxes, quotas or similar measures.

The desire for diversification and development is laudable. Broad-based development has, however, proved elusive for many minerally-wealthy African jurisdictions. "Resource curse" dynamics are alive and well – high mineral rents as a proportion of GDP are often inversely correlated with development outcomes. But how countries address the drivers of this curse is all-important. Investors are typically risk-averse in long games, especially those in which consumer demand for the mined product is volatile and the future is uncertain. Just ask diamond miners. If those same investors see that mining companies will be asked to effectively subsidise downstream beneficiation, they will likely be more reluctant to invest in those jurisdictions. There are also the usual caveats that investors and miners typically don't mind difficult laws as long as they're consistent and stable. A high likelihood of exogenous policy shocks causes them to flee.

Connecting mineral endowments to manufacturing opportunities is critical because manufacturing is more labour-absorptive than mining. AI is a potential disruptor in this respect, but AI-driven robotics can also make mining (and manufacturing) less environmentally destructive (notwithstanding the extensive energy demands of AI itself). But the more traditional reason it is so difficult to build manufacturing bases next to raw material endowments is that the skills, infrastructure, and energy required to make it competitive are often lacking.

The second, deeply connected to the question of diversification and development, is how we should think about 'critical minerals'. So, the session called "Is the term "Critical Minerals" right for Africa?" looks promising. The write-up indicates that the "traditional definition for critical minerals was defined by the global north referring to minerals need(ed) for the energy transition. Should Africa follow this definition, is it right for its development, and is there a clear way to avoid definition overload?" I might suggest that the critical question is still "critical for whom?" You can call them what you like, and personally I prefer the term 'transition minerals' because it is less loaded and the meaning is clear. We're talking about the minerals required to power a transition to renewable energy and electric vehicles. And there certainly is opportunity for African countries. Much of the talk is about tapping into specific dimensions of global value chains. These chains are shifting in the wake of Covid-19 and an over-dependence that many countries recognised they had on China. Diversification of supply chains to minimise disruption risk literally creates opportunities in those product's value chains.

Practically, then, the questions start to look something like: "Can Zambia become a regional hub for processing raw copper, cobalt and lithium?" If these minerals are critical for consumer countries, African countries need to think seriously about what steps can be taken to harness new opportunities. The DRC is not going to become the world's new lithium battery hub, or a producer of world-class electric vehicles, overnight. But for it to move in that direction, the current deficits (still basics like skills, infrastructure, stability, and rule consistency) need to be addressed.

I trust that there will be a few conversations and connections at this year's Mining Indaba that start to meaningfully shift the dial for African countries. It remains a tragedy that resource endowments have yet to translate into broad-based development. Maybe this will be the year that this starts to change. ■

It remains a tragedy that resource endowments have yet to translate into broad-based development.

Connecting mineral endowments to manufacturing opportunities is critical.

Caterpillar teams with NVIDIA to revolutionise heavy industry with Physical AI and robotics

In collaboration with NVIDIA, Caterpillar is creating an AI-driven ecosystem that transforms machines.

For a century, Caterpillar has built the industrial machines that shaped the world.

Equipment supplier, Caterpillar, recently announced an expanded collaboration with NVIDIA to drive innovation across industries through next-generation, AI-enhanced customer solutions and manufacturing systems. This engagement will transform how work gets done for Caterpillar's customers, dealers and employees.

"As AI moves beyond data to reshape the physical world, it is unlocking new opportunities for innovation — from job sites and factory floors to offices," said Joe Creed, CEO of Caterpillar. "Caterpillar is committed to solving our customers' toughest challenges by leading with advanced technology in our machines and every aspect of business. Our collaboration with NVIDIA is accelerating that progress like never before."

"For a century, Caterpillar has built the industrial machines that shaped the world, said Jensen Huang, founder and CEO of NVIDIA. "In the age of AI, NVIDIA and Caterpillar are partnering across the full spectrum – from autonomous construction fleets to the AI data centres powering the next industrial revolution."

Equipping machines for the AI Generation

Caterpillar is investing to equip its assets for an AI-enabled future.
The NVIDIA Jetson Thor platform enables real-time AI inference on Cat construction, mining and power equipment, laying the foundation for next-generation autonomy and intelligent in-cab experiences. These upgrades will ensure assets are ready for AI-assisted and potentially autonomous operations. For example:

- **In-cab AI features:** An intelligent operator assistant providing customers with personalised insights to help them lead with confidence and win with speed, as well as real-time coaching, productivity tips and safety alerts for operators.
- **Autonomy at scale:** Construction and mining machines equipped with AI-driven recommendations, capable of processing billions of data points in milliseconds to navigate complex, variable jobsite conditions.
- **A new level of machine intelligence:** Cat fleets powered by AI, machine learning, computer vision and edge computing that process sensor data in real time and serve as a digital nervous system for customers' jobsites.

Debuting the Cat® AI Assistant™

At CES 2026, Caterpillar debuted the Cat AI Assistant, a proactive partner embedded in Cat digital and onboard products that helps customers take confident action. The Cat AI Assistant, which was built using NVIDIA Riva open speech models that deliver leading accuracy and lifelike voices, will answer questions and provide personalized recommendations on equipment, parts, maintenance and more.

In cab, it will use voice activation to enable settings, guide troubleshooting and connect users to the right resources across Cat apps and websites. It uses Caterpillar's own trusted data stored on the Helios unified data platform, so customers get reliable, context-rich information to make daily work easier.

Transforming manufacturing and supply chain operations

To meet evolving industry needs, Caterpillar is using its NVIDIA AI Factory to transform manufacturing and supply and to create safer, leaner, more resilient production systems. Caterpillar's manufacturing digital data platform takes advantage of this accelerated AI infrastructure and NVIDIA AI libraries to automate and accelerate important manufacturing processes, including forecasting and scheduling.

Caterpillar is also building physically accurate digital twins of its factories on NVIDIA Omniverse libraries and OpenUSD. With these digital twins, Caterpillar teams can design, simulate and optimize layouts and production processes before building in the real world.

Driving industrial innovation forward
In collaboration with NVIDIA, Caterpillar is creating an AI-driven ecosystem that transforms machines, jobsites, factories and supply chains — changing how the world builds, moves and powers progress and setting a new standard for the future of industrial innovation. ■

Hitachi EH4000AC-5 - Built to carry the mine

The Hitachi EH4000AC-5 is purpose built for large scale mining operations where reliability, productivity and operating efficiency are critical to success. Across Africa, mining environments are often defined by extreme temperatures, abrasive materials, long haul distances and challenging terrain. In these conditions, haulage equipment must deliver consistent performance while keeping total operating costs under control. The EH4000AC-5 is engineered precisely to meet these demands.

One of the most significant advantages of the EH4000AC-5 is its exceptional payload capacity. With the ability to move up to 242 tonnes per cycle, mining operations can achieve higher material movement with fewer passes. This directly improves productivity by increasing tonnes moved per hour and reducing cycle counts. For African mines where haul roads can stretch for several kilometres, this capability plays a major role in improving overall fleet efficiency and lowering cost per tonne.

The truck is equipped with an advanced AC electric drive system that delivers smooth, controlled power across a wide range of operating conditions. This technology provides excellent traction and torque control, allowing the EH4000AC-5 to perform confidently on steep gradients, loose surfaces and uneven haul roads. Stable acceleration and consistent speed help reduce wheel slip and tyre wear, both of which are major cost drivers in mining operations. With a top travel speed of up to 65 kilometres per hour, the EH4000AC-5 supports faster cycle times without compromising safety or machine longevity.

Fuel efficiency is another key strength of the EH4000AC-5. Multiple operating modes allow mine operators to balance power and fuel consumption based on site requirements. Eco focused operation reduces fuel usage during lighter haul cycles, while high power modes ensure strong performance when hauling at full capacity. This flexibility is particularly valuable in African operations where fuel availability and logistics can significantly impact operating budgets.

One of the most significant advantages of the EH4000AC-5 is its exceptional payload capacity.

Supporting the machine is Hitachi's advanced digital monitoring technology.

Safety and machine control are central to the design of the EH4000AC-5. A robust braking system that combines electrical retarding with all-round wet disc service brakes delivers confident stopping power, even when descending long ramps with a full load. This level of control enhances safety for operators and reduces wear on braking components, supporting longer service intervals and reduced maintenance downtime.

> Supporting the machine is Hitachi's advanced digital monitoring technology, which provides real time insights into machine health and performance.

Operator comfort and visibility are also prioritised. The spacious cab is designed to minimise fatigue during long shifts, with intuitive controls and clear displays that provide real time operating information. Improved visibility and ergonomic layout help operators maintain focus and situational awareness, contributing to safer and more productive operations.

Supporting the machine is Hitachi's advanced digital monitoring technology, which provides real time insights into machine health and performance. This allows maintenance teams to identify potential issues early and plan servicing proactively. For remote African mine sites, this capability is essential in reducing unplanned downtime and maintaining consistent production.

Overall, the Hitachi EH4000AC-5 delivers a powerful combination of high payload, dependable performance, fuel efficiency and intelligent monitoring. It is a haul truck designed to withstand Africa's toughest mining conditions and help operations achieve lower total cost of ownership and long-term operational sustainability.■

Traxtion confirms R3.4bn rolling stock investment to unlock rail capacity and jobs

Traxtion's R3.4 billion programme forms part of a larger R5 billion private-sector commitment.

James Holley, CEO of Traxtion.

Traxtion recently concluded a R3.4 billion rolling stock investment programme to expand freight capacity and support South Africa's rail reform agenda. The programme, comprising R1.8 billion in locomotives and R1.6 billion in wagons, is the largest private freight rail investment in South Africa's history in terms of fleet size and value, with a minimum 60% local content target and 662 direct jobs projected during build and deployment. The added capacity is expected to address about 5% of the national freight rail capacity shortfall.

The investment includes 46 Wabtec diesel-electric locomotives (42 U26C partly modernised locomotives and four C30-8MMI fully modernised locomotives) acquired from KiwiRail in New Zealand. Working with Wabtec, the 42 U26C fleet will be upgraded to C30MEI specification, featuring brand-new, fuel-efficient 7FDL-EFI engines and advanced Brightstar control systems, improving tractive performance and reliability. All locomotive upgrade work will take place at Traxtion's Rail Services Hub in Rosslyn, anchoring local manufacturing and supplier participation.

The 46 locomotives will be shipped in four tranches between April 2026 and August 2027. Each batch of 10 to 12 locomotives will undergo a four-month modernisation cycle, including engine and control system upgrades, major six-yearly services and full repainting. The first upgraded units will roll out in Q3 2026, marking the historic entry of Traxtion's trains to South African mainline operations.

"Private capital flows when Government policies create confidence in the private sector to invest. This investment is our vote of confidence in South African rail and in the reform momentum we are seeing," said James Holley, CEO of Traxtion. "Every additional locomotive we put to work lowers logistics costs, protects the road network, improves our environmental footprint, and creates jobs in the upstream economy."

"We have structured this programme to maximise South African industrial value-add, such as local assembly, supplier development, and skills transfer, while getting modern locomotives and wagons into service as quickly as possible. The objective is to move more freight by rail, reliably, and at scale. We expect that all the wagons for this project will be domestically manufactured by our existing trusted wagon suppliers"

What the investment delivers

Capacity where it is needed: High capacity and highly reliable locomotives and wagons dedicated to high-demand bulk and container flows, easing pressure on South African ports and key corridors.

Local content and jobs: At least 60% local content across the programme, a minimum of 662 direct permanent jobs projected through manufacturing, assembly, commissioning and operation.

Supplier ecosystem growth: Multi-year demand for components, maintenance, and technical services to deepen South Africa's rail services and manufacturing base.

Skills and safety: Training and certification for operating crews and technical teams supported by Traxtion's Government-accredited Rail Training Centre at Rosslyn.

A catalyst for broader economic impact: Traxtion's R3.4 billion programme forms part of a larger R5 billion private-sector commitment signalled at the launch of the National Rail Policy in 2022. Beyond immediate build-and-deploy activity, the company expects multiplier effects across mining, agriculture, manufacturing and export logistics as volumes shift from road to rail.

"The expansion of Traxtion's locomotive fleet delivers a strong competitive advantage and showcases how patient infrastructure capital drives industrialisation, job creation and regional trade. Harith is encouraged by the reform momentum, which is now translating into measurable commercial and socio-economic returns," added Makhubela.

"Rail is a network industry. When trains move efficiently, the whole economy moves. This programme is about getting South Africa's freight system working for growth and proving that private-sector investment, aligned with reform, can deliver fast, measurable gains for the country and the region," concluded Holley. ■

Kal Tire and Decoda in strategic alliance for autonomous haul road hazard detection

Kal Tire's Mining Tire Group and Decoda, an Australian mining technology firm, have announced a strategic alliance that will bring mines real-time, autonomous haul road hazard detection to increase truck productivity, tire life and fuel efficiency. Kal Tire and Decoda have collaborated to develop KalPRO HaulSight, which builds on the success of KalPRO TireSight autonomous tire inspections.

"HaulSight's ability to detect road hazards as they arise means mines can prevent the tire damage that TireSight detects," says Christian Erdelyi, technology services director, Kal Tire's Mining Tire Group.

With Decoda's LiDAR and camera sensors mounted to the front and rear of haul trucks, and an 'edge' computer processing live footage, HaulSight gives fleet teams instant alerts about hazards such as spillage, road undulations and high G-force events that can cause truck and tire damage, and slow down operations. Modeling TireSight, HaulSight's scanning technology integrates with Kal Tire's TOMS (Tire & Operations Managing System) and allows condition monitoring experts to assess flagged issues and automate priority-based work orders.

"HaulSight gives mine sites unprecedented visibility across the entire haul circuit and turns that insight into action. By making critical data easy to visualise and act on, operations see measurable improvements, like faster

KalPRO HaulSight mounted on a truck.

circuits and reduced downtime, from day one," says George Spink, executive general manager, Decoda.

HaulSight enables road crews to react quickly and create optimal road conditions that maximise cycle speed and fuel use. When long-term planning opportunities arise, HaulSight calculates the cost to lost tire life, productivity and fuel against the cost of a road improvement. ■

Integrated HVAC solutions enhance operator safety in mining cabs

With over 40 years of specialised expertise, Booyco Engineering continues to lead the way in climate control solutions for South Africa's mining and quarrying sectors - industries where airborne pollutants and extreme thermal conditions pose serious occupational health hazards.

Recognised as a key contributor to the South African economy, the mining sector faces mounting pressure to ensure safer healthier working environments - especially in the face of stringent legislation. The Mine Health and Safety Act (MHSA), Act 29 of 1996, requires that every mine must be designed, constructed and equipped to facilitate safe and healthy operations.

"Mobile machinery operators are often confined to enclosed cabs for extended periods in high-risk areas where dust, heat and toxic gases such as CO_2 can quickly compromise their health," Brenton Spies, Managing Director of Booyco Engineering, explains. "Addressing this challenge has been the cornerstone of our business for decades and today we can offer a fully integrated HVAC solution that aligns with international standards, including ISO 23875, to ensure that operators remain protected at all times."

ISO 23875 specifically governs air quality in enclosed cabs, with key performance criteria including the provision of fresh air into the cab, positive pressurisation to prevent ingress of contaminated air and effective control and management of CO_2 levels. ■

Hitachi Construction Machinery Africa will rebrand to Landcros Africa

Hitachi Construction Machinery Africa will officially transition to Landcros Africa, and all Hitachi-branded products will carry the LANDCROS brand effective 01 April 2027.

This strategic change reflects the company's commitment to a future-focused vision and positions the company as a long-term business partner that goes far beyond the norms of a traditional OEM service provider.

The new identity underscores the company's dedication to adding value across the entire equipment lifecycle— through traditional support and innovative technology and digital solutions that enhances it customers' business capabilities and profitability. ■

Hitachi Construction Machinery Africa will rebrand to Landcros Africa in 2027.

Epiroc launches the new generation PowerROC T45

Epiroc recently launched a new and improved PowerROC T45. The new generation surface drill rig offers increased fuel efficiency and high availability. It is a welcome addition to the PowerROC family.

"We are eager to get this rig out to our customers around the world. The PowerROC T45 MKII is the perfect choice for construction sites and aggregate, cement and limestone quarries, says Sr. Product Manager Masanori Kogushi.

The new generation PowerROC T45 is equipped with an Epiroc developed control system, which helps decrease fuel consumption. This is due to the auto engine speed control, which enables automatic optimisation of the engine RPM for all operations.

"The new generation PowerROC T45 offers up to 40 % lower fuel burn compared to the previous generation", says Kogushi.

Two one-touch lever controls make rod changing and drilling both simple and quick.

Epiroc launches the new generation PowerROC T45.

"Compared to the PowerROC T35 MKII, the PowerROC T45 MKII surface drill rig offers a big hole range, which is something many of our customers want. This PowerROC T45 MKII launch is therefore a natural step forward in our offering within the PowerROC family", says Kogushi.

The PowerROC T45 MKII has been field-tested with positive results during the last couple of months. "We have fine-tuned the rig for maximum performance and have achieved all our major targets", says Kogushi.

The new generation PowerROC T45 comes with two different engine alternatives – Tier 3/Stage IIIA and Tier 4 Final/Stage 5.

The PowerROC T45 MKII was available for order from 3 December 2025. ■

Index to advertisers

Global partners:

MNK | bme · HYPEX BIO · CONSBEC MINING + CONSTRUCTION · DynaEnergetics · Strayos · innospec · HAYCARB Activated carbon solutions

www.bme.co.za

OPTIMAL PERFORMANCE UNDER PRESSURE. GUARANTEED.

Global businesses rely heavily on Invincible Valves for exceptional products, proven expertise, and as Africa's largest stockist of Saunders & Insamcor valves, our reputation for reliability and excellence has earned us recognition on the world stage, making Invincible Valves the trusted partner across industries. Driven by technology and innovation, we continue to expand into emerging markets, delivering smarter solutions and building lasting partnerships.

There is only one trusted name in valves – INVINCIBLE VALVES.

GENERAL INDUSTRY | MINING | PETRO-CHEMICAL | POWER GENERATION | WATER | SEWERAGE

LEVEL 1 BBBEE

+27 11 822 1777 | enquiries@invalve.co.za | invalve.co.za

If it's not INVAL®, it's not Invincible