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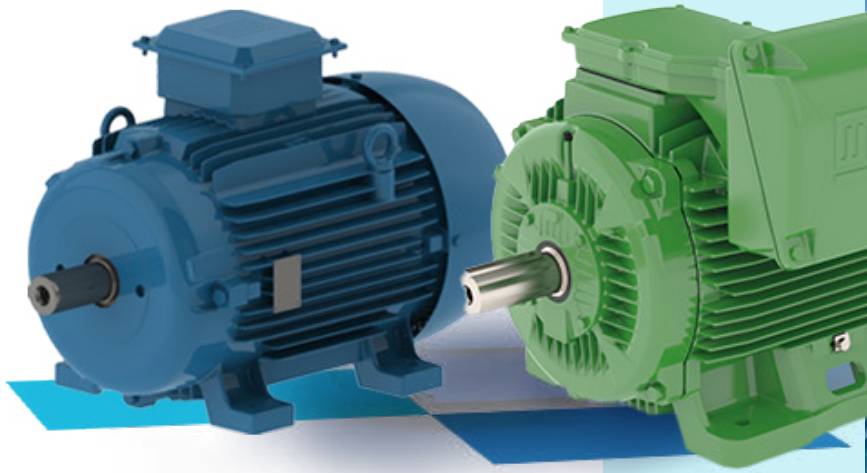


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Driving efficiency and sustainability

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Mining equipment continues to evolve with original equipment manufacturers developing products to meet industry needs.

COMMENT

Power moves

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Asian technology leaders, Japan and China, are making monumental moves in the renewable energy space, with Japan exploring a new frontier in energy collection – space, while China remains more grounded, unlocking opportunities from the ocean.

Japan has two groundbreaking innovations underway – its OHISAMA programme, designed to test the feasibility of harnessing solar power from space for use on earth and the development of a solar super-panel.

The leader in solar technology innovation, particularly in the development of perovskite solar cells (PSC) and space-based solar power, aims to capture solar energy 24/7 and beam it to Earth, to deliver continuous sun energy. The plan is to launch a 180-kilogram satellite equipped with PV panels into orbit 400 kilometres above earth, where it will turn sunlight received, into electricity.

Japanese researchers have already demonstrated wireless transmission of solar power on the ground from a stationary source. Should the programme prove viable, it could lead to a more stable, continuous, and clean energy supply, potentially impacting the global energy landscape and accelerating the transition away from fossil fuels.

Japan and China are making monumental moves in the renewable energy space, with Japan exploring a new frontier in energy collection – space, while China remains more grounded, unlocking opportunities from the ocean.

Further to this, the country recently unveiled the world's first solar super-panel which is said to be more powerful than 20 nuclear reactors. The solar super-panel can be installed on walls of buildings and windows, on car roofs, and on streetlights, allowing these surfaces to be used for energy harvesting.

PSC is a synthetic mineral with a crystalline structure that is lighter, more flexible, and cheaper than silicon, the material currently used to make solar panels. It is estimated that these solar panels could produce 20 gigawatts of electricity by 2040, and Japan has set a clear goal for 2050: to be a zero-emissions country.

China, on the other hand, recently launched a fully seawater-based solar energy system – the first of its kind suitable for industrial use and large-scale power production. The floating solar station builds upon another offshore photovoltaic power generation project launched earlier this year. The two projects could generate a combined 16.7 million kilowatt-hours of electricity annually, cutting carbon dioxide emissions by 14 000 tonnes.

On the local front, the good news is that solar adoption in South Africa is experiencing a rapid upsurge, driven by the ongoing energy crisis. Currently, the country is contending with ageing coal power plants, an impending gas cliff and dry taps in most areas.

The local solar market growth is projected to grow $3.74 billion by 2028.

In this edition

Our commodities outlook takes a deep dive into titanium, a market valued at $24 billion in 2024. For insight into titanium, which is emerging as one of the most investable minerals in the 21st century industrial economy, turn to page 8. Also of interest is the critical minerals outlook, (pg 12) which flags South Africa's cache of critical minerals, copper, manganese, platinum group metals, and rare earths. According to CMS South Africa, instead of unlocking value through beneficiation, local miners are exporting critical minerals raw and selling the country short.

The Hyve Group, which owns and organises the Investing in African Mining Indaba, is already working on the next instalment of the conference. The 2026 Investing in African Mining Indaba (MI26) theme, Stronger together: Progress through partnerships highlights the transformative power of collaboration in addressing the sector's challenges and opportunities (pg 14). Mining Indaba takes place in Cape Town from 9–12 February 2026.

For our EPCM feature, METC Engineering advises on the important value EPCM companies bring to mining projects. According to METC Engineering's MD Nick Tatalias, although there is latent demand for key commodities, such as uranium, copper and battery metal-related commodities used in the transition to clean energy, global market volatility has resulted in project developers taking a 'wait and see' approach (pg 18).

The women in mining feature presents insight from De Beers (pg 22), Menar (pg 24) and Multotec (pg 26).

THESE MACHINES HAVE BEEN ENGINEERED TO ENDURE

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Kumba Iron Ore: **senior leadership change**

The board of Kumba Iron Ore has announced a leadership transition as Chief Financial Officer (CFO), Bothwell Mazarura will be stepping down from his role to pursue other interests. Xolani Mbambo, currently CEO of Grindrod, will assume the role of Chief Financial Officer and Executive Director from 01 January 2026 and will serve on the Social, Ethics and Transformation Committee and the Strategy and Investment Committee. Mbambo brings over 20 years of experience in mining, logistics, and finance, having held senior leadership roles at Grindrod and previously at Anglo American. ■

Xolani Mbambo will assume the role CFO and Executive Director from 01 January 2026.

Côté Gold achieves nameplate throughput.

Côté Gold **achieves nameplate throughput**

Gold producer, IAMGOLD has announced that the Côté Gold Mine reached a major milestone as the processing plant operated at the nameplate capacity of 36 000 tpd on average over thirty consecutive days.

"I would like to congratulate our Côté Gold teams, who demonstrated remarkable determination and commitment to bring Côté Gold online and advance it to nameplate throughput rate within 15 months," said Renaud Adams, CEO of IAMGOLD. "To bring a gold project from first gold to the design nameplate rate within this timeframe, while ensuring a safe workplace for all, exemplifies the commitment to excellence and accountability that is at the core of IAMGOLD today. This milestone was made possible as momentum built from March, in which the Côté processing plant achieved an average monthly throughput rate of 90% of nameplate and then reached 96% over a 30-day period in April. The achievement confirms our confidence in the Côté Gold production guidance of 360,000 to 400,000 ounces on a 100% basis, with costs expected to decline through the year." ■

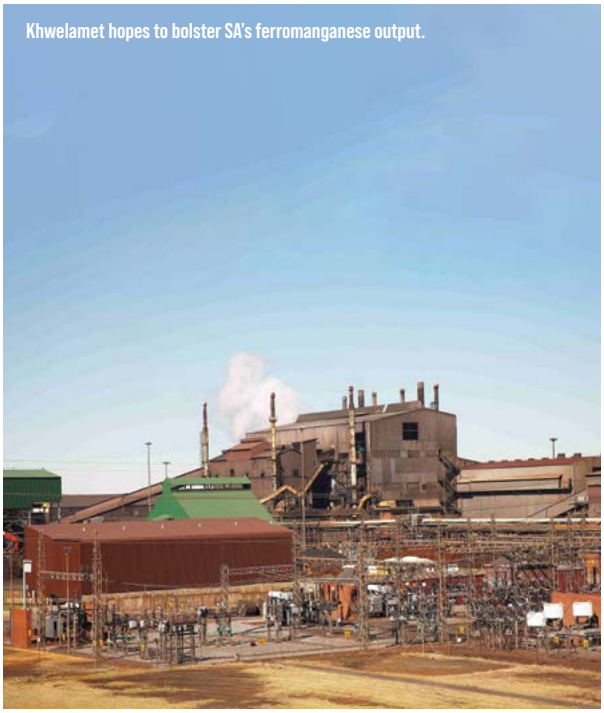
Andrada secures high-grade tin feedstock

AIM-listed Andrada Mining, a critical minerals producer with mining and exploration assets in Namibia, has secured additional supply from a tin ore body at Goantagab near the Uis mine and processing facility. The ore body located in Goantagab in the Kunene Region of Namibia was extensively drilled by Gold Fields Namibia in the 1980s confirming, at the time, a non-JORC compliant resource with tin grades of greater than 1%. The relatively high historic tin grades position this deposit as a potential source of high-margin feedstock that is expected to materially enhance throughput at Uis.

To unlock this value, Andrada has finalised an Ore Supply and Profit Share Agreement between its wholly owned subsidiary Uis Tin Mining Company (UTMC) and Goantagab Mining, which acts as agent for the relevant mining claim owners. Simultaneously, UTMC has entered into a Management Agreement with Birca Mining Namibia, the parent company of Goantagab Mining as an independent contractor to operate the recently announced additional jig plant at Uis. The accelerated commissioning of the plant combined with high grade feedstock from Goantagab will enable rapid production ramp-up. Anthony Viljoen, CEO, commented: "It is encouraging to see tin increasingly acknowledged as a critical mineral by global economies such as the USA, Canada and the UK. This shift reflects tin's transformation from being a traditional alloying mineral to being a key enabler in the electrical and energy transition value chains, particularly in soldering, semiconductors and renewable infrastructure. Therefore, this collaboration with Birca on the Goantagab deposit reaffirms our strategy in creating a mining district for critical minerals in the Erongo." ■

Andrada secures additional supply from a tin ore body at Goantagab.

Khwelamet takes ownership of Samancor's Metalloys smelter complex.


Khwelamet hopes to bolster SA's ferromanganese output.

Khwelamet, a subsidiary of Khwela Capital, jointly owned by Menar Capital and Ntiso Investment Holdings, hopes to bolster South Africa's ferromanganese output and support the country's reindustrialisation efforts by reviving the complex.

The company plans to refurbish the complex and, thereafter, gradually restart production. This process will occur in a series of phases that will be rolled out over time. Before being placed under care and maintenance in March 2020, Metalloys produced a range of ferromanganese alloys critical to the global steelmaking industry. This is a strategic asset for the company and the South African economy. Despite being the world's biggest supplier of manganese ore, South Africa's capacity to beneficiate has drastically decreased over the past two decades, mainly due to escalating electricity costs and electricity supply disruptions. The return of Metalloys under the Khwelamet brand creates an opportunity to replenish lost production capacity while taking advantage of locally sourced manganese ore. ■


Craig Miller, CEO of Valterra Platinum.

Valterra Platinum lists on London Stock Exchange

Valterra Platinum recently listed on the Main Market of the London Stock Exchange under the ticker symbol "VALT". This follows the demerger from the Anglo American group which concluded on 31 May 2025. Craig Miller, CEO of Valterra Platinum said "Today marks a significant milestone as Valterra Platinum joins the main market of the London Stock Exchange, complementing our primary listing in Johannesburg. Our secondary listing is a pivotal step in our evolution as a standalone, platinum group metals business. Not only does this listing broaden our shareholder base and access to our world-class assets but it also underscores our commitment to long-term value creation for the benefit of all our stakeholders."

Valterra Platinum is one of the world's leading integrated producers of platinum group metals (PGMs). ■

Giyani receives LOI from EXIM

TSX-listed Giyani Metals Corp., developer of the K.Hill Battery-Grade Manganese Project in Botswana, has received a letter of interest (LOI) from the Export-Import Bank of the United States (EXIM) for up to $225 million in financing to support the construction of the Project. The potential funding from EXIM falls under the Supply Chain Resilience Initiative (SCRI) the aim of which is to reduce US dependence on critical mineral supply chains controlled by the People's Republic of China. US EXIM is the official Export Credit Agency (ECA) to the US Government.

A key requirement to unlock the funding from EXIM is to secure offtake contracts with US companies, which is a fundamental component of Giyani's strategy.

Charles FitzRoy, CEO of the Company, commented: "Whilst this is the first step in the process of securing possible funding, this important milestone validates Giyani as a preferred strategic developer of battery-grade manganese products. ECA funding is an important part of financing critical minerals projects, as it offers the potential to secure lower cost loans than traditional debt, with longer repayment periods." ■


Giyani Metals CEO, Charles FitzRoy.

Orezone intercepts further high-grade mineralisation at Bomboré.

Orezone intercepts further high-grade mineralisation at Bomboré

Gold miner, Orezone Gold has advised of additional drill results from its ongoing multi-year exploration campaign at its flagship Bomboré Gold Mine. These latest results are from multiple targets identified along the broader 14 km long reserve defined Bomboré gold system, which remains open for further expansion. Patrick Downey, CEO stated, "These latest drill results further underscore the significant exploration upside at Bomboré and clearly illustrate that the broader system remains open to depth, along strike and outside of the currently delineated mineralised trends. At P17, drilling was successful in tracing higher-grade sub-zone mineralisation a further 300 m down plunge, while wide spaced step-out drilling at P16 and Siga have extended mineralization a respective 600 m and 550 m along strike. As we ramp up our exploration efforts at Bomboré, we continue to re-evaluate and update the project's existing exploration framework. The latest results also provide clear evidence that the hanging wall and footwall of the broader 14km long reserve defined system are prospective for additional near-surface discoveries, which was not previously recognised." ■

Anglo American streamlines leadership team

Following the demerger of Valterra Platinum, diversified mining house, Anglo American has streamlined its executive leadership team.

Duncan Wanblad, CEO of Anglo American, said: "We have made rapid progress with our portfolio simplification, and we are on track to complete the strategic re-shaping of Anglo American to focus on our world-class positions in copper, premium iron ore and crop nutrients. Reflecting those changes, we are consolidating our production businesses under a Chief Operating Officer, with Ruben Fernandes appointed with effect from 1 July. Themba Mkhwanazi, currently Regional Director – Africa and Australia, will step down at the end of June having overseen the successful demerger of Valterra Platinum." ■

Ruben Fernandes has been appointed as Chief Operating Officer, effective from 1 July.

A$8 million placement to accelerate Bengwenyama development

JSE-listed Southern Palladium has secured firm commitments to raise A$8 million through the issue of 16 million new shares at A$0.50 per share.

The placement was initiated by one of the company's largest shareholders, who will invest a further A$4.6 million. The placement funds will be deployed towards advancing the DFS and near-term mine development activities at the Bengwenyama PGM project, ahead of the planned release of an updated PFS incorporating a two-stage project development approach with lower up-front capital costs. Executive chairman Roger Baxter said: "This strategic placement provides the group with targeted funding support at an important juncture as we execute on the transition of Bengwenyama, a tier-one PGM project globally, towards staged mine development. The targeted raise provides the company with a strong cash runway to implement our near-term project objectives, including accelerating the DFS for a two-stage development pathway with lower upfront costs." ■

Perseus Mining Ghana announces leadership transition

Gold miner, Perseus Mining Ghana (PMGLC), has announced key leadership changes at its Edikan operations, effective 1 AUGUST 2026.

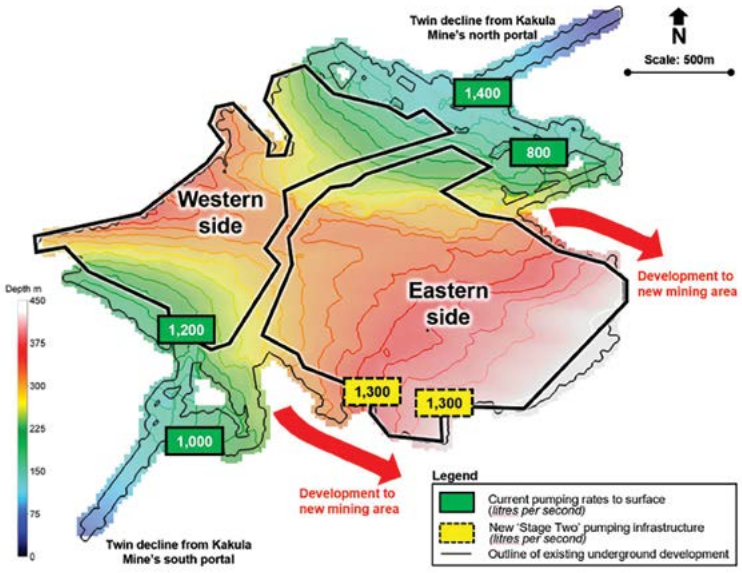
Daniel Egya-Mensah, currently General Manager of the Edikan Gold Mine, will assume the newly created role of Chief Executive Officer of PMGLC, having joined the company in 2023. In this new position, he will provide strategic guidance to the operational leadership team and oversee stakeholder engagement. In parallel, Mining and Technical Services Manager Alexander Kofi Oduro is being promoted as General Manager of Edikan Gold Mine. Amatus Niminye, currently Mine Operations Superintendent, will succeed Alexander as Mining and Technical Services Manager. ■

New Wits mining head says school is ready for global top ten ranking

Dr Paseka Leeuw is the new mining head at Wits.

One one of the largest mining schools in the world, the School of Mining Engineering at Wits University in Johannesburg has a new head. South African-born Dr Paseka Leeuw brings rockface experience from industry and a long academic career to the school. “Wits is a solid brand in mining education worldwide,” he said. “This is reflected by our current place at number 11 in the QS World University Rankings for Mineral and Mining Engineering.” Having cut his teeth in production and management roles in South Africa’s diamond sector before joining the academic staff at Wits School of Mining Engineering in 2009, Dr Leeuw was himself a BSc Engineering (Mining) graduate from Wits in 1994.

Figure 2: Overview of Kakula Mine’s existing underground infrastructure, showing current pumping rates, future pumping capacity and depth of mine workings.



Ivanhoe Mines resumes underground mining on the western side of the Kakula Mine.

Ivanhoe Mines restarts underground mining operations at Kakula Mine

TSX-listed Ivanhoe Mines has resumed underground mining on the western side of the Kakula Mine, with equipment and mining crews returning underground on June 7, 2025. The short-term mine plan for the western side of Kakula has been updated to include recommendations from the preliminary findings. Mining activities in the eastern side of the Kakula Mine also started, with activities solely focused on developing access drives to a new mining area east of the existing mine workings. Development to the new mining area will be isolated from the dewatering activities on the same side of the mine.

Ivanhoe Mines Executive Co-Chair, Robert Friedland commented: “While it’s still too early to outline our detailed plans for 2026 and 2027, the future remains bright across the Kamoa-Kakula Copper Complex and adjacent Western Forelands Exploration Project. Kamoa-Kakula is, and will continue to be, a world class Tier One operation, with decades ahead of us as one of the world’s leading copper producers.”

For the remainder of 2025, Kakula’s underground mining crews will focus on three activities: ramping up mining on the western side of the Kakula Mine; developing a new mining area on the eastern side of the Kakula Mine; and ramping up production from the Kamoa mining area ■

Large, anomalous envelope delineated at Namib IV

ASX-listed Elevate Uranium has announced the delineation of a large, mineralised polygon at the company’s Namib IV tenement, part of the Koppies Uranium Project, wholly owned by Elevate Uranium. Elevate Uranium’s MD, Murray Hill, commented: “The Koppies Uranium Project continues to expand outside of the Koppies Resource Area, with uranium mineralisation at the Namib IV tenement increasing, with the mineralised polygon now about 11 km long by 7.5 km wide. While the current drilling phase is focused on determining the extent of mineralisation, future infill drill programmes in selected areas will better define portions of higher-grade mineralisation, with a view to estimate a maiden mineral resource later in the year, adding to the 66 mlb U3O8 at the Koppies Project. Our exploration programmes have diversified over the past 12 months to include a variety of targets in addition to the more traditional palaeochannel hosted style of mineralisation. We have identified mineralisation in basement lithologies at Koppies and Hirabeb, and now at Namib IV. These targets open a new search space for us, no longer restricting exploration to palaeochannel uranium deposits.”

This calendar year, exploration at the Namib IV prospect, located within the Koppies Uranium Project, focused on further defining the extent of anomalism across the central project area via continuation of broad-spaced drilling. ■

Empire Metals titanium project in Australia.

Titanium: A critical investment opportunity in a strategic mineral

As global demand accelerates and supply chains tighten, titanium is emerging as one of the most strategically vital and investable minerals in the 21st-century industrial economy.

In a world increasingly defined by technological advancement, energy transition, and geopolitical competition, titanium has stepped into the spotlight. Long valued for its strength, lightness, and resistance to corrosion, titanium's strategic importance is now underscored by its official designation as a "critical mineral" in jurisdictions including the United States, the European Union, and Australia.

The metal's most visible use is in titanium dioxide (TiO_2) pigment that brightens paints, plastics, and papers, however the metal segment—used in aerospace, defence, and medical devices—is also capturing investor attention at the moment. A supply squeeze on high-quality feedstocks, rising geopolitical tension, and growing demand from strategic sectors are turning titanium into a mineral of critical consequence—and potentially, critical return.

Demand Outstripping Supply: A Structural Tightening Market

The global titanium dioxide (TiO_2) market was valued at $24 billion in 2024, with over 90% of titanium demand tied to pigment production. This segment continues to grow at a steady 2.5%CAGR, driven by urbanisation, infrastructure development, and industrial growth, particularly in emerging markets.

Titanium metal, which makes up 7% of total demand, also has significant strategic and financial value. Used in fighter jets, jet engines, spacecraft, and surgical implants, titanium metal is vital for sectors where performance and durability are non-negotiable. As aerospace primes like Boeing and Airbus ramp up production and militaries invest in advanced platforms, the pressure on titanium metal supply is intensifying.

Meanwhile, global supply is struggling to keep up. Although current supply appears sufficient, resource depletion, processing bottlenecks, and concentration of production in geopolitically sensitive regions are exposing cracks in the titanium supply chain. These challenges are creating a rare scenario: a mature market entering a new phase of scarcity-led opportunity.

Geopolitics and Supply Chain Risk

Titanium's supply chain is heavily exposed to geopolitical fault lines. China dominates global pigment production, while Russia's VSMPO-AVISMA is the leading supplier of aerospace-grade titanium metal. Together, they exert significant influence over critical supply nodes.

This concentration poses substantial risk. Export controls, trade disputes, and sanctions could disrupt global supply at any time. Recognising this, Western governments are actively encouraging domestic exploration, processing capacity, and alternative sourcing strategies.

In recent years, the European Union, Brazil, USA, and now India have imposed anti-dumping tariffs on Chinese pigment exports to reduce dependence and level the playing field. The United States has incorporated titanium into defence readiness planning and critical minerals strategies. These developments create both regulatory tailwinds and potential price support for new producers operating in allied jurisdictions.

A JORC-compliant Exploration Target for Pitfield was declared in 2024.

Mapping the market: key players and trends

The titanium ecosystem is complex, spanning upstream mining to downstream manufacturing and diverse end-use sectors.

Feedstock miners

- Rio Tinto, Iluka Resources, Kenmare Resources, Tronox, Sierra Rutile Ltd, Eramet
  These companies dominate the global production of ilmenite and rutile, often vertically integrated with pigment processing.

Pigment producers

- Lomon Billions (China), Chemours, Tronox, Kronos, Venator
  Western producers favour the chloride process, creating structural demand for high-grade feedstocks.

Titanium metal producers

- VSMPO-AVISMA (Russia), TIMET (USA), Toho Titanium and Osaka Titanium (Japan), Pangang Group (China)
  These companies convert sponge into alloy products for aerospace, defence, and medical applications.

Major end-users

- Paints: AkzoNobel, PPG, Sherwin-Williams
- Plastics: Dow, LyondellBasell, Avient
- Aerospace/Defence: Boeing, Rolls-Royce, GE Aviation

The global supply crunch has opened opportunities for new players and previously overlooked deposits. Among the most significant developments is London listed, and OTC traded, Empire Metals' (LON: EEE, OTCQB: EPMLF) Pitfield project in Western Australia. This district-scale titanium mineral system spans 40km by 8km and reaches depths of 5km, making it the largest known titanium discovery globally.

The project's two initial targets — Cosgrove and Thomas — feature thick, high-grade, near-surface titanium dioxide mineralisation. A JORC-compliant Exploration Target for Pitfield, declared in 2024, estimates between 26.4 to 32.2 billion tonnes with TiO_2 grades of 4.5 to 5.5%. A near-surface subset (down to

40m) includes 4.0 to 4.9 billion tonnes at even higher grades.

Preliminary testing has yielded a high-purity concentrate assaying at 99.25% TiO_2, free from deleterious elements, positioning Pitfield as a potential source of premium-grade titanium feedstock for both metal and pigment production. With access to roads, rail, and the nearby Geraldton port, and the benefit of low-energy weathered cap mineralisation, Pitfield represents a uniquely scalable opportunity.

Several other companies are also responding to rising demand and strategic pressures by scaling production and innovating technologies:

- Toho Titanium Co. (TYO:5727): With 12 000 tonnes/year capacity for titanium sponge and expansion into Saudi Arabia, Toho remains at the forefront of titanium supply.
- Osaka Titanium Technologies Co. (TYO:5726): As the second-largest global producer, Osaka provides titanium sponge to the aerospace sector and offers gas-atomized titanium powder (TILOP) for next-gen manufacturing.
- IperionX (ASX:IPX, NASDAQ:IPX): Backed by US Department of Defense grants totalling US$59.8 million, IperionX is developing

Empire Metals team inspects core samples.

a domestic mineral-to-metal supply chain and pioneering sponge-free titanium manufacturing.
- Tronox (NYSE:TROX): A vertically integrated TiO_2 pigment producer with a global presence, Tronox supports a reliable, sustainable pigment supply chain.
- Iluka Resources (ASX:ILU) and Kenmare Resources (LON:KMR): Major players in mineral sands with strong positions in premium feedstock production, Kenmare recently turned down a €565 million takeover offer, highlighting the rising value of titanium assets.
- Sovereign Metals (LON:SVML): Its Kasiya rutile project in Malawi, containing 17.9Mt of rutile, is among the highest-grade undeveloped deposits in the world.
- SAGA Metals: With the Radar Project near Rio Tinto's Lac Tio Mine in Canada, SAGA has the potential for a significant new titanium-vanadium discovery.

Critical mineral designation: unlocking opportunity

When a mineral is designated as "critical," it signals a broader shift in both policy and capital flows. For titanium, this label translates into:
- Government-backed exploration and development incentives
- Strategic stockpiling by defence agencies
- Export controls to secure domestic supply
- Infrastructure and permitting support for new projects

For investors, these dynamics mean early-stage projects in friendly jurisdictions could benefit from reduced risk and enhanced valuation. In short, criticality fuels investment premiums —especially for assets aligned with national security and clean-tech imperatives.

Future-proofing portfolios: Why titanium matters now

- Titanium sits at the intersection of several transformative global trends:
- Defence modernisation: Fighter aircraft, submarines, and satellites depend on titanium for performance and durability.
- Clean energy transition: Applications in offshore wind, solar tech, and hydrogen production are expanding rapidly.
- Healthcare innovation: Titanium's biocompatibility makes it essential for implants and surgical instruments.
- Urbanisation & infrastructure: As construction and coatings demand grows, so does the need for TiO_2 pigment.

Crucially, the supply of titanium—particularly in its high-grade, high-purity forms—is not keeping pace. This imbalance is expected to intensify over the coming decade, offering asymmetric upside to producers, processors, and investors positioned early in the value chain.

The titanium moment

Titanium is a strategic mineral at the heart of global security, industrial resilience, and sustainable innovation.

As governments race to secure supply and industries scale up demand, titanium is poised to become a defining material of the 21st century. For investors and stakeholders in the resource sector, it represents not just an opportunity—but a necessity. Whether through mining equities, advanced processing technologies, or strategic partnerships, now is the time to engage with titanium's growing role in shaping the future. ■

Circular copper recovery could bridge 3.6 mt critical supply gap

New research from McKinsey reveals that increasing circularity in copper could significantly lower emissions as currently 40% of postconsumer copper scrap remains uncollected.

As the global energy transition accelerates, demand for copper – a critical material in renewable energy, battery storage and electricity transmission – is rising sharply. However, according to McKinsey's latest report, Chasing the Lost Copper: Global Scrap and its Role in Decarbonisation, the industry could face a 3.6 million metric tons (mt) shortfall in refined copper by 2035, putting supply chains under increasing strain. The report highlights that increasing circularity in copper recycling will be essential for both supply security and emissions reduction.

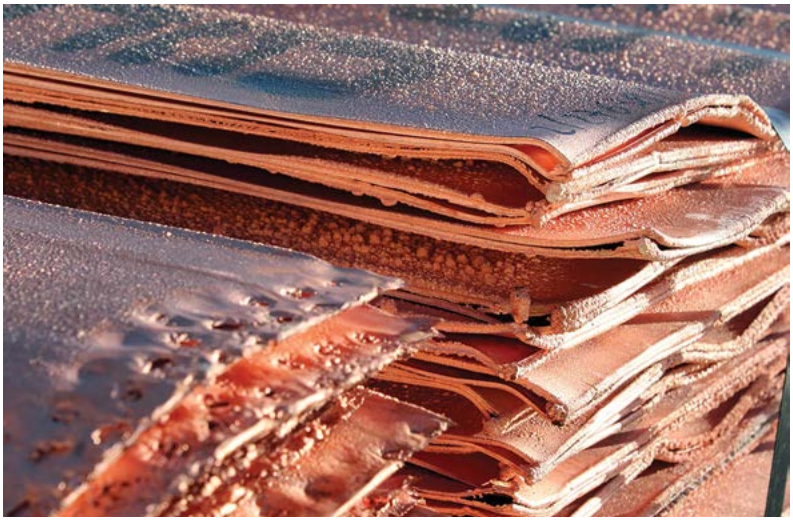
Despite scrap's growing importance in the copper value chain, 40% of copper postconsumer scrap remains uncollected or informally processed, representing an estimated 7.8 mt of lost material by 2035. However, about half of this uncollected scrap, 4-5 mt, is collectible and could provide a crucial supply source to help address shortages while lowering emissions. Yet, as the report highlights, realising this potential will require investment in collection and smelting infrastructure, regulatory support and stronger cross-industry collaboration.

Today, the total refined copper supply only contains about 20% postconsumer scrap. McKinsey projects this share is expected to increase to 25% by 2035. However, current collection and processing limitations prevent the industry from integrating more of the copper scrap arising each year.

The report finds that recycling presents one of the most effective pathways to decarbonization, given that postconsumer scrap is a low-carbon feedstock. This is because two-thirds of total copper emissions originate in the mine site during primary copper production. Copper postconsumer scrap bypasses these most energy-intensive stages of production as it has already been extracted and processed. By scaling copper recycling, the industry could significantly reduce emissions while simultaneously strengthening long-term supply stability.

Peter Spiller, Partner, McKinsey, says: "Copper is essential for the energy transition, yet supply constraints and factors including supply constraints threaten to slow progress and uptick market uncertainty. As the industry looks to scale circularity, expanding formal collection networks, investing in secondary smelting capacity and securing long-term scrap supply agreements will be critical. Capturing lost copper through improved recycling processes is not just an environmental imperative - it's an economic opportunity for the industry."

With global demand for refined copper projected to grow from 29.5 mt in 2025 to 37.3 mt by 2035, the race is on for players across the value chain – copper producers, OEMs, refiners and policymakers – to build sustainable circular supply chains and secure long-term access to secondary copper sources. Industry leaders who invest in circularity today will be best positioned for the future. ■



Global demand for refined copper projected to grow from 29.5 mt in 2025 to 37.3 mt by 2035.

As the global energy transition accelerates, demand for copper is rising sharply.

How critical minerals can anchor South Africa's Just Energy Transition

By Muzi Kubeka: Director at CMS South Africa and Kabelo Dlothi: Co-Head of the Corporate and Commercial at CMS South Africa

South Africa's mineral wealth must do more than power exports – it must drive industrial growth, job creation, and energy equity. CMS South Africa's Muzi Kubeka and Kabelo Dlothi argue it's time to move beyond extraction and build a value-added ecosystem that secures the country's place in the green global economy.

Kabelo Dlothi: Co-Head of the Corporate and Commercial at CMS South Africa

South Africa is sitting on a goldmine of critical minerals, copper, manganese, platinum group metals, and rare earths, yet exporting them raw sells the country short. To unlock real value, we must prioritise ourselves: industrialise locally, build domestic supply chains, and use our mineral wealth to create jobs, strengthen energy security, and grow our own economy. It's time to stop fuelling other economies and start transforming our own.

Critical minerals are at the heart of the new global energy order. They power everything from wind turbines and solar panels to electric vehicles and industrial-scale batteries. And demand is soaring. Countries are scrambling to secure critical mineral supplies – driven, as recent events show, by geopolitics. US President Donald Trump has struck a deal with Ukraine, floated turning Canada into the 51st state, and revived efforts to annex Greenland. Meanwhile, the US and EU have placed strategic mineral partnerships high on the agenda. China still dominates processing. The race is not just economic, it's also geopolitical and environmental.

South Africa cannot afford to be a spectator. If we want to be more than a pit stop on the global supply chain, we must use our mineral advantage to anchor a broader, value-driven energy and industrial strategy. This means building smelters and refineries, developing skills pipelines, and investing in reliable power infrastructure that supports local processing. It also means enforcing beneficiation requirements and incentivising the private sector to move beyond shipping unprocessed ore offshore. South Africa is the most industrialised country in the African continent, has the most diverse and deepest capital markets and the basis to build and develop

South African needs clear policy, bold investment, and coordinated implementation.

Muzi Kubeka: Director at CMS South Africa

the skills sets required to drive this transition.

The mining industry in South Africa employs approximately 480 000 representing almost 5% of the country's formal employment. Likewise, the country boasts in excess of 20 smelters for various metals, including aluminium, copper and platinum group metals (PGM), including Hillside smelter in Richards Bay, the largest aluminium smelter in the Southern Hemisphere. In addition to critical minerals South Africa also exports skilled professionals and expertise given the mining industry's long history of developing highly skilled professionals, artisans and technicians. The development of a broader, value-driven energy and industrial strategy can assist in reversing this trend.

There are already signs of change. Large mining houses listed in London, Toronto and New York are under mounting pressure to reduce emissions across their operations and supply chains. Many are responding by investing in captive renewable energy generation near mines, especially in remote areas where grid access is unreliable or non-existent.

These integrated energy-mining projects reduce environmental impact while improving energy security. Done right, they create jobs, strengthen resilience, and attract sustainable finance. In this respect, examples include Anglo American's 100MW solar pv plant at its Mogalakwena mine, its 125 MW solar pv plant at its Amandebult complex, Glencore's power purchase agreement with Pele Green Energy (PGE) to power the Glencore-Merafe ferrochrome operations from PGE's Sonvanger solar pv plant and Northam Platinum's 180MW solar pv plant to power its Zondereinde mine.

But scaling this model will require addressing structural problems. First, there is the infrastructure deficit. Most of South Africa's critical minerals lie in remote or underdeveloped regions. Without transmission lines, roads and rail, these minerals cannot reach processing facilities or ports. The development of regional power pools and cross-border transmission infrastructure is crucial, as are public-private partnerships to finance them.

Second, reliable energy is non-negotiable. Mining and processing require constant power supply, but renewable sources like solar and wind are intermittent. Storage solutions are costly and still evolving. Banks remain cautious, especially when assessing costly battery-backed projects with long-term revenue risks. Yet these same technologies offer the potential to stabilise supply and unlock off-grid potential. What's needed is blended finance, de-risking instruments, and regulatory clarity to support their adoption.

Third, beneficiation legislation must go together with investor confidence. If we want global players to set up processing hubs locally, we must guarantee policy stability, fast-track permitting, and provide incentives for innovation. South Africa's experience with localisation in renewable energy shows what is possible when regulation, funding, and capacity development align.

> Banks remain cautious, especially when assessing costly battery-backed projects with long-term revenue risks.

There is also an opportunity to coordinate across the SADC region. Countries like Zambia and the DRC are mineral-rich but infrastructure-poor. Regional corridors such as the Lobito (linking Angola's port to the DRC's Katanga province and Zambia's Copperbelt) and the North-South (connecting the Great Lakes to southern Africa) provide a foundation for integrated development. By pooling risk, sharing infrastructure, and aligning standards, member states can unlock regional value chains and scale up industrial benefits across borders.

At the centre of all this must be a commitment to justice. The Just Energy Transition is not just about moving from fossil fuels to renewables. It's about ensuring that communities affected by the shift are not left behind. That means ensuring the jobs created by new industries are meaningful, decent, local and long-term. It means ensuring that mining does not displace communities without compensation. And it means including workers, youth and affected communities in decision-making.

The global energy transition is a once-in-a-century reordering of power. South Africa has the resources to lead, but leadership will require more than rhetoric. We need clear policy, bold investment, and coordinated implementation. If we get it right, our critical minerals won't just leave our shores. They'll anchor a domestic industrial revival that powers South Africa into a greener, more inclusive and just future. ■

Stronger together: **Partnerships will transform Africa's mining sector**

The time is opportune for Africa's mining sector to step up and realise its full potential. With its vast mineral reserves, the continent possesses the resources to power the next phase of development for the continent and the globe. Given robust debate around which minerals will be most important to fuel that development, there is renewed interest in Africa from across the world.

The theme 'Stronger together: Progress through partnerships' is a call to reimagine partnerships on Africa's growth journey.

Mzila Mthenjane, CEO of the Minerals Council South Africa, emphasises the role of collaboration in driving growth.

Unlocking this potential requires more than resource extraction — it demands a collective effort from governments, private-sector players, downstream buyers, communities and civil society.

The 2026 Investing in African Mining Indaba (MI26) theme, "Stronger together: Progress through partnerships" highlights the transformative power of collaboration in addressing the sector's challenges and opportunities.

MI26 is a pivotal event for mining professionals, investors, and industry leaders looking to capitalise on the vast opportunities in Africa's mining sector. Mining Indaba 2026 comes at a crucial time for Africa, as it maps the role it will play in the global economy.

The conference theme is powerfully expressed in the visual identity for MI26, with a fingerprint motif representing the human component of the industry and underscoring the need for collaboration across the sector.

Frans Baleni, chairman of the Mining Indaba executive advisory board, explains that this year's theme aligns with the South African philosophy of ubuntu - a belief in a shared, essential humanism.

"Ubuntu holds that unity is strength — that when we work together, we craft a better future. This is fundamentally true. By collaborating, we can shape outcomes for the betterment of all stakeholders – and the environment."

This was echoed by Gwede Mantashe, South Africa's Minister of Mineral and Petroleum Resources. "Our strength lies in building partnerships that recognise the mutual value of investment. We understand that investors seek returns, and rightly so, but we are equally committed to ensuring that the benefits of growth and development are shared with workers, communities, and the country at large. Progress is only meaningful when it lifts all stakeholders," he said.

Strong governance and harmonised policies are essential for a stable, attractive investment environment.

Africa can position itself as a leader in the global energy transition while ensuring that its mineral wealth benefits its people.

New ESG and climate legislation across Africa is raising the bar for compliance – Achilles supports mining companies within the region.

Community-centric mining: A new paradigm

One of the most significant shifts in Africa's mining landscape has been the recognition of the need to involve indigenous and local communities. Historically not prioritised, these groups today have a seat at the table, as stakeholders, beneficiaries and equal partners. This shift is encouraging mining companies to adopt more sustainable and community-centric approaches.

Dr Marit Kitaw, economic affairs officer at the United Nations Economic Commission for Africa, calls for a reimagining of the way that the continent's mineral bounty can be developed, so that it benefits a wider range of stakeholders.

"The theme 'Stronger together: Progress through partnerships' is a call to reimagine partnerships on Africa's growth journey, to see minerals not as tools of convenience, but as instruments of collective empowerment," she says. "Africa's transformation through minerals can only be achieved when everyone, including women, youth, marginalised communities, artisanal miners, governments, industry, civil society, academia, and cooperating partners, sit at the table as equal partners. Stronger together, we rise!"

By fostering mutual respect, transparent dialogue, and inclusive decision-making, mining operations can ensure that local communities benefit from resource development while preserving cultural heritage and environmental integrity. From skills sharing and job creation to improving livelihoods and empowering indigenous voices, this new paradigm recognises that mining success must extend beyond production outputs to include shared prosperity and social equity.

Mzila Mthenjane, CEO of the Minerals Council South Africa, emphasises the role of collaboration in driving growth.

"The South African mining sector is positively impactful, but even more so in collaboration with government and other social

Africa has 40% of the world's gold and up to 90% of its chromium and platinum.

partners," he says. "The sector is poised for growth and will enable the investment and development of key infrastructure that supports livelihoods and economic growth."

Defining critical minerals

A crucial global debate is underway around the idea of critical minerals – resources deemed strategically important for economic, technological, or developmental reasons.

Precisely which minerals are critical varies according to national interests. For Africa, its reserves of iron ore and gold see it well placed to power infrastructure and technology development as well as financial markets. According to the United Nations, the continent has 40% of the world's gold and up to 90% of its chromium and platinum.

The continent also holds around 55% of global reserves of cobalt – a major input in batteries for electric vehicles, smartphones and laptops. DRC accounts for 70% of global production.

However, to maximise the benefits of these resources, Africa must move beyond exporting raw materials to developing local beneficiation and refining capabilities.

Tony Carroll, a member of the Mining Indaba Executive Advisory Board, advocates for a strategic pivot.

"We can no longer operate as before," he says. "Neither bulk exports of unrefined ore nor export bans are durable solutions. The industry has to pivot toward practices that provide more value and technology transfer in African nations. This transition will be aided by the introduction of more nimble and economically viable refining technologies and the provision of supportive infrastructure via public-private partnerships."

This shift will require governments, investors, and mining companies to work together to develop industrial hubs, reliable transport networks, and energy systems that support local processing and manufacturing. By prioritising infrastructure and industrialisation, Africa can position itself as a leader in the global energy transition while ensuring that its mineral wealth benefits its people.

Kwasi Ampofo, Head of Mining and Metals at BloombergNEF, highlights the significance of collaboration in this context.

"'Stronger together: Progress through partnerships' means uniting governments, private sector, communities, and civil society to transform mining, achieving a shared triumph for Africa's future," he says.

Technology and sustainability: The way forward

Innovation is another cornerstone of the 2026 Mining Indaba. From AI-driven exploration to digital-twin technology, the mining sector is embracing disruptive technologies to enhance efficiency, safety, and sustainability.

Laura Nicholson, content and communities director for Mining Indaba, stresses the importance of innovation.

"Investing in African Mining Indaba is a platform where transformative ideas and collaborations come to life," she says. "Our goal is to drive both investment and the kind of innovative technology partnerships that create shared prosperity."

Disruptive technologies also offer an opportunity to engage Africa's youth. By investing in skills training and education programmes around advanced mining technologies, the industry can create pathways for young people to lead the sector's transformation, building a resilient, future-ready workforce.

Governance and policy harmonisation

Strong governance and harmonised policies are essential for a stable, attractive investment environment. When African governments unite, they unlock growth in mining and the broader economy. Harmonised regulations, better infrastructure and responsible investment create a stable foundation, while international partnerships bring technology, funding and expertise to fast-track success.

Mantashe underscores the importance of aligning investment goals to build mutual value. "Investors seek returns, and rightly so, but at the Department of Mineral and Petroleum Resources, we are equally committed to ensuring that the benefits of growth and development are shared with workers, communities and the country at large. Progress is only meaningful when it lifts all stakeholders."

Building Africa's future together

As the 2026 Mining Indaba approaches, it is clear that the future of African mining lies in partnerships. Whether it's governments harmonising regulations, companies investing in communities, or innovators pushing technological boundaries, collaboration is the key to unlocking Africa's full potential.

By fostering mutual respect, transparent dialogue and inclusive decision-making, the mining sector can ensure that Africa's mineral wealth becomes a catalyst for justice, prosperity and dignity for all.

Investing In African Mining Indaba 2026, with its theme enjoining the industry to be "Stronger Together", offers participants a golden opportunity to partner with industry stakeholders to unlock possibilities and strengthen the sector. ■

Cementation Africa: a new name for a new era in underground mining

Japie du Plessis, Managing Director of Cementation Africa.

Murray & Roberts Cementation has rebranded as Cementation Africa, marking its 21st anniversary and a new era of independence following its acquisition by a consortium of investors led by Differential Capital. While the name has changed, the company's leadership, technical expertise and commitment to safety, innovation and high-performance underground mining across Africa remain firmly in place.

"Turning 21 is not just a symbolic coming of age - it is a powerful inflection point for the business," says Japie du Plessis, Managing Director of Cementation Africa. "As an organisation we have a solid foundation built on more than five decades of trust, technical excellence and safe project delivery. Now, as Cementation Africa, we step into the future with greater agility, independence and focus."

Formed in 2004 through the merger of Murray & Roberts RUC and The Cementation Company (Africa), the business has grown well beyond its origins as a conventional mining contractor. Over the past two decades, it has delivered more than 15 000 metres of vertical shaft sinking and 72 000 metres of raiseboring, averaging 300 metres per month. These achievements have been made possible through the use of advanced technologies, such as the Rotary Vertical Drilling System (RVDS).

A standout application of this technology is the 950 metre deep ventilation shaft at Ivanplats' Platreef project in Limpopo, which recorded a deviation of just 0.5% over nearly a kilometre -a world class result.

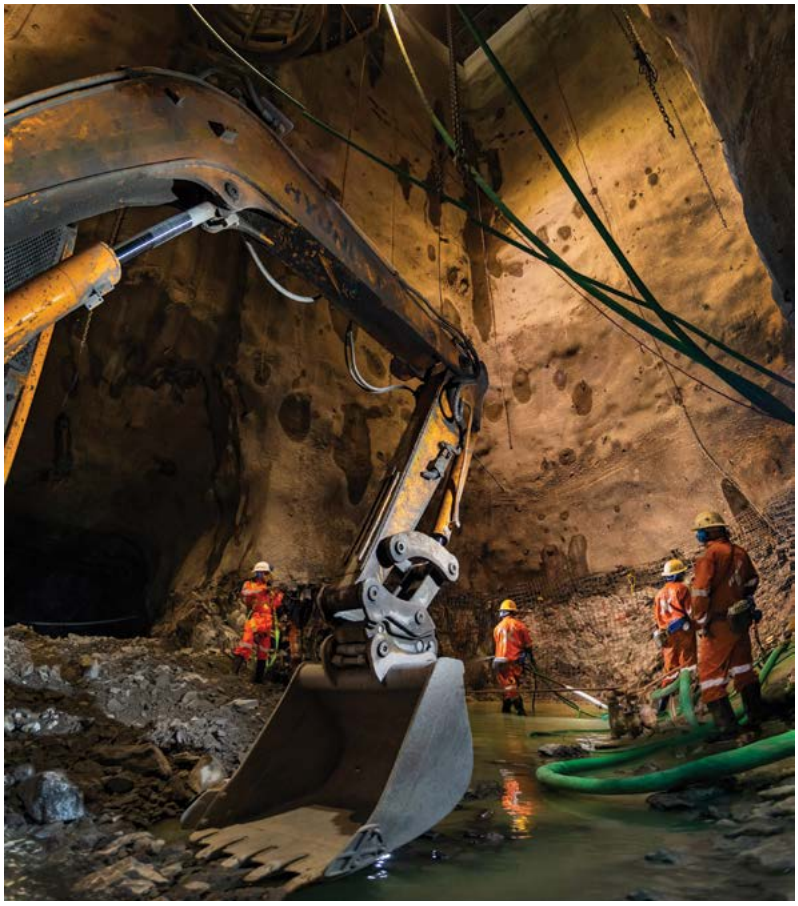
The company's in-house Mine Engineering team plays a critical role in shaping these outcomes. From mine design and infrastructure layout to construction sequencing and execution planning, the team ensures every project is underpinned by robust technical and operational foundations. Their close integration with project teams and use of digital modelling tools enables smarter faster decision making and reduces risk across the project lifecycle.

Cementation Africa has also built a strong reputation for its role in complex greenfield mining projects, supporting clients from development through to operational readiness. "These transitional contracts are complex and challenging, and we take great pride in having completed several of them successfully," adds du Plessis.

The company's fully accredited Training Academy at Bentley Park remains central to its strategy and social investment. As the only facility of its kind on the continent, it plays a vital role in addressing skills shortages across the sector - offering training for artisans, supervisors and managers, and hosting blasting ticket examinations on behalf of the Department of Mineral Resources.

"We are focused on technologies that remove people from high-risk areas while increasing deployment speed," says du Plessis. "From mechanised reef extraction to blind boring with mobile rigs, it is all about safer, faster and smarter mining."

Looking ahead, Cementation Africa is actively expanding its footprint across the continent with fully incorporated business structures already in place in key markets. "We are strategically positioning ourselves to support more mining clients in countries such as Zambia, Botswana, Namibia and Ghana," concludes du Plessis. "While our name has changed, our commitment to performance, partnership and people remains as strong as ever." ■



Celebrating a major milestone, Cementation Africa enters a bold new chapter following its rebrand from Murray & Roberts Cementation.

METC Engineering delivers value **to mining projects**

The value EPCM contractors bring to mining projects cannot be overstated. EPCM offers a streamlined approach to project execution from initial design and engineering, through to procurement and construction. The company is adept at simplifying the process, expediting coordination and logistics issues, unlocking cost savings and ensuring that projects are completed within budget and on time.

Nick Tatalias - METC's Managing Director.

"The immense value that EPCM contractors bring to the table can sometimes be overlooked, especially during challenging economic times. At METC we always go the extra mile – including collaborating with financial institutions in securing capital to advance projects, establishing relationships with key personnel in remote regions – thereby facilitating a smooth passage for long-lead items and we are known for executing projects on time and within-budget," METC Engineering's MD Nick Tatalias tells Modern Mining.

Established in 2017, METC Engineering has grown to become a medium-sized EPCM company, which designs and builds metallurgical plants for mines in South Africa, across the continent of Africa, and beyond.

Global uncertainty impacts project development

Global market volatility arising from geopolitical instability and regulatory changes continues to impact mining project development.

According to Tatalias, several of the world's economies are presently skirting close to recession furthermore impacting businesses and project development in general.

"While there is latent demand for key commodities, for example, uranium and copper as well as battery metal-related commodities used in the transition to clean energy, global market volatility has resulted in project developers taking a 'wait and see' approach.

Several mining companies are holding off on project executions, thus pushing out project timelines by a few months. Although some

commodities are still experiencing strong demand and rocketing prices, investor appetite for project funding remains capricious. Mining is a long-term investment, and most investors favour quick returns."

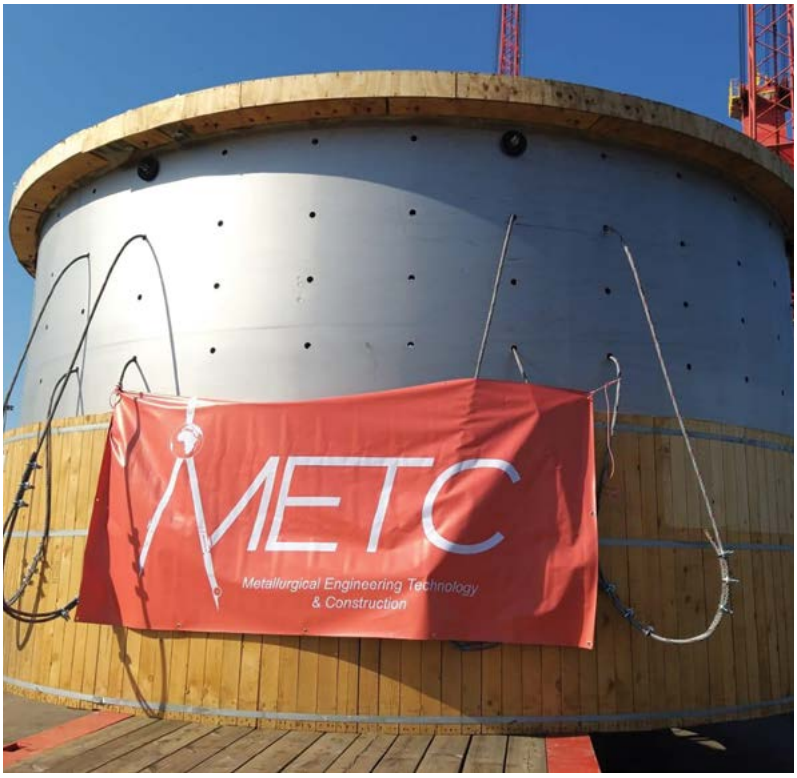
Although the EPCM specialist has a strong order book for 2025, Tatalias admits that the company has capacity for more work and is hoping that delayed projects, several for which it has tendered, will soon be given the green light.

Commodities experiencing strong upside

Copper's widespread use in various industries and its crucial role in renewable energy and the digital economy, cements its importance in the global economy, with demand remaining solid.

"Battery metals including lithium, tantalum, rare-earth minerals and cobalt are also in demand. The world's desire for non-carbon fuel sources sees uranium and thorium, which are used in nuclear reactors, gaining popularity. Uranium is a high energy-density green mineral that is aligned with the clean energy agenda.

Following the commodity's recent re-emergence as an important baseload energy source, uranium is experiencing an upsurge in demand, with METC currently involved in the development of a few uranium projects."



Mill shell being delivered to Mutoshi Project in DRC.

This Sandton-based engineering firm was recently involved in PCM work for the DASA *(Société Minière de DASA SOMIDA SA)* uranium project in Niger - an underground uranium mine being developed by Global Atomic in the Agadez region.

"In addition, METC is completing the demonstration plant for a uranium project in East Africa making METC one of the few EPCMs globally, that is executing more than one uranium project.

The company has also delivered a feasibility study for Omico Mining's Omitiomire Copper Project in Namibia and completed a feasibility study for the El Moto Tungston project in Spain.

In November last year, Omico Copper, announced that results from its BFS on its 95%-owned Omitiomire Copper Project "defined a highly compelling copper mining operation, on a standalone basis".

METC is currently working with Andrada on its lithium, tin and tantalum expansion initiatives as well as Rainbow Rare Earth's Palabowra project and its Uburaba project being studied by both Rainbow and Mosiac.

Although most of METC's workload is on projects in Africa, locally, it has shared its expertise with emerging miner, Orion minerals, upgrading the resource base of the company's flagship Prieska Copper Zinc Mine (PCZM) in the Northern Cape. Orion Minerals is aiming to become a next-generation copper and zinc producer.

Discussing precious metals related activities,

Tatalias says that owing to cooled demand for platinum group metals (PGMs), several projects have been shelved although METC is presently completing design work for Northam Platinum's base metal refinery.

While demand for gold remains robust, near-surface deposits have long been exploited, leaving limited opportunity for gold extraction in South Africa. As a result, local EPCM contractors have cast their eyes beyond the borders for work opportunities.

However, EPCM specialists like METC that are agile, flexible and adaptable, are faring better, and can straddle the local, African and global fronts in search of opportunities.

"We note that some large-scale global projects are progressing as initially anticipated. However, junior and emerging miners are presently facing challenges in getting their projects off the ground, largely due to difficulties associated with finalising project funding.

We continue to work closely with our junior mining clients, opting to be part of the project development process early on, and to assist with facilitating project financing as we have well-established relationships with funding institutions."

Looking ahead

Looking ahead, Tatalias believes that as uranium gains support as a clean energy fuel source, more uranium projects will be taken up the value curve.

METC is already involved in the development of several uranium projects, including the project in East Africa and the Global Atomic Corporation to build their DASA project in Niger.

The company has extensive experience working on uranium projects and is eager to be part of those teams restarting uranium projects placed on care and maintenance.

Following the drop in uranium prices, after the Fukushima nuclear disaster in 2011, several uranium plants were mothballed. However, with the resurgence indemand for nuclear energy, driven largely by its role in achieving low-carbon energy goals, and the need for a reliable baseload power source, uranium has been gaining traction.

"There are several uranium players looking to restart projects and METC is eager to help bring these assets back to life."

METC's competitive edge

The boutique engineering firm has a broad range of expertise and, as a mid-tier entity, it is flexible and adaptable. It can tailor operational modus operandi for both mid-tier and major clients in a wide variety of environments throughout Africa and beyond.

"As a medium-sized company, we are not encumbered by large corporate overheads and structures. We work across all commodities, across a range of clients – junior, emerging miners, mid-tier and major clients. Much of our work is outside of South Africa, in jurisdictions that require our specialist skills set – we are well versed in operating in remote regions in Africa and have established partnerships with local companies that complement our skills set," explains Tatalias.

METC has entrenched networks in East Africa, with a base in Tanzania and a partnership with a local company called Paul Sam.

"Our partnership with Paul Sam offers a symbiotic relationship - we provide engineering and plant design as well as construction management, while Paul Sam provides environmental and geoscience type work and helps us navigate local legislation in Tanzania. We have worked extensively across different jurisdictions in West Africa, including Mali and Niger, and are keen to expand our focus in central Africa, Zambia and the DRC, which are rich in both copper and cobalt. For the West African region, we have a local partner in Mali, namely Pyramis. We have our own entity open in Niger with an in-country manager helping us interact with the government there. Our motto is: if our clients are prepared to operate in these challenging areas, we are prepared to go with them. This stance has served us well."

Tatalias remains extremely proud of METC's logistics team, stating that it is adept at operating in complicated jurisdictions. A year after Niger's coup, which split political loyalties and fragmented relationships with some of the surrounding countries, METC along with our clients have established new routes "through Nigeria and from the Mediterranean through Algeria".

"I strongly believe our key competitive advantage is our ability to understand local environments and source new routes to deliver items on-time. We recently delivered engineering related equipment to areas such as Niger, Mali and to the DRC for the Ivanhoe Mines Kipushi project – a project for which we delivered our portion of the contract on time and on budget. For the Kipushi project, METC was contracted to deliver the project on behalf of the client as the EPCM. When mining houses contract METC Engineering to undertake a project, they enlist expert process plant builders with extensive experience, who work closely with clients to achieve the end goal of successful project completion.

We have garnered vast knowledge and experience of the best

METC managed the restart of Kipushi Zinc Mine process operations from FS to commissioning. The project was completed within a tight 20-month schedule despite logistical challenges.

logistics routes to use in Africa, and how to manage challenging operating environments. We also effectively handle in-country inspections and have insight into what next to expect in the project development process and plan accordingly," concludes Tatalias. ■

METC skills-set

- METC understands that delivering projects early, delivers improved investment returns.
- The team is responsive, fast-moving and flexible. It is also skilled in completing stock exchange compliant studies (NI 43-101, JORC, SAMREC) as well as detailed design and construction of metallurgical plants.
- METC is involved in both brownfield and greenfield projects as well as detailed engineering for plant sections, modular plants, and process islands.
- METC's first project was the Chemaf Mutoshi project, in collaboration with Outotec, where it provided both basic and detailed engineering, procurement, logistics and construction support, for a US$420 million green-fields copper and cobalt recovery plant in Kolwezi, DRC.
- Thus far, the company has delivered more than 70 projects and studies.

Women leading change in mining - De Beers drives gender equity with purpose

The mining industry has long been dominated by men, but companies like De Beers are actively reshaping this narrative. In South Africa, women still account for less than 20% of the mining workforce, according to the Minerals Council. Globally, the industry reflects a similar pattern with women comprising just 15 to 20% of the workforce. However, with new gender equity targets now gazetted for the mining and quarrying sector - including 24.4% female representation at Top Management level by 2030 – transformation is gaining traction.

Coral Wheelock, Senior Vice President - People Partnering, Mining and Discovery at De Beers Group.

At De Beers Group, transformation is not a tick-box exercise. It is a strategic imperative. Coral Wheelock, Senior Vice President - People Partnering, Mining and Discovery, spoke to Modern Mining. “Gender parity is both a moral obligation and a business necessity. A diverse workforce drives innovation, strengthens safety and enhances performance, all of which are essential in mining,” she explains.

De Beers has set itself the ambitious goal of achieving 40 to 60% female representation across its workforce by 2030. Current figures in South Africa show significant progress, with women already comprising 33% of Top Management and 36% of Senior Management.

“We are slightly behind at Middle Management level at 32%, but we have seen about a 5% improvement in Senior and Middle Management since 2018. This is a substantial shift in a traditionally male-dominated space,” Wheelock notes.

The company’s strategy is multi-dimensional. In 2017, De Beers partnered with UN Women to align with a global leader in gender equality and reaffirmed its commitment by renewing the partnership in 2021. As part of the HeForShe Alliance, De Beers is also focusing on accelerating the inclusion of women in technical and leadership roles.

Locally, progress has been driven by deliberate and practical action. “We are intentional in our talent acquisition,” says Wheelock. “We focus on attracting women into leadership and technical roles, while also building the pipeline by awarding full time bursaries to female students from labour-sending areas and prioritising qualified female candidates for apprenticeships.”

Beyond recruitment, development is a major focus. De Beers runs targeted mentorship programmes for female graduates, frontline leadership development for supervisors and invests in entrepreneurship through its EntreprenHer initiative, which has supported over 3,000 women entrepreneurs across Botswana, South Africa and Namibia to date.

“Still,” Wheelock explains, “there are hurdles. The mining industry’s deeply entrenched male-oriented culture, a limited STEM talent pipeline and the often remote and rugged nature of mining operations all contribute to challenges in attracting and retaining female talent.

“Historically, mining has not been a welcoming

Women working in key roles at the Venetia Underground Mine, highlighting the growing presence of female professionals in mining.

School girls playing wooden xylophone during music in Acacia Primary School, Botswana.

Cynthia Mosibudi, horticulturalist and owner of Mosibudi Trading Enterprise, on her farm in the Limpopo village of Bochum.

environment for women, from lack of proper facilities to limited career progression opportunities," she says. "We have had to change that."

De Beers has responded with a comprehensive framework. This includes gender-sensitive PPE, upgraded site infrastructure, maternity support, flexible work policies and safety enhancements such as improved lighting and transport options. The company is also addressing retention by offering leadership development, coaching, reciprocal mentoring and secondment opportunities that provide women with critical operational and managerial exposure.

Education is another cornerstone for De Beers. In Canada alone, over 100STEM scholarships have been awarded to young women, while partnerships with schools and universities across Southern Africa, Canada and the UK are helping to promote careers in mining to girls. More than 6,700 girls have already been engaged through STEM outreach to date.

As part of its commitment to economic inclusion, De Beers is also extending its gender equity ambitions to the supply chain. "We are actively promoting women-owned businesses through our procurement policies," Wheelock says. "Our impact needs to go beyond our internal workforce and must touch the communities around us."

This focus on transformation is deeply personal for Wheelock, whose own career is testament to De Beers' commitment to developing women leaders. Having started in a junior HR role, she has worked across various stages of the diamond pipeline to now hold one of the most senior people leadership roles in the business. "I owe my growth to wonderful leaders and mentors, a 'can-do' attitude and grabbing every opportunity that came my way," she says.

With a background in human resources and a passion for organisational effectiveness, Wheelock has been instrumental in shaping De Beers' transformation strategy. "My strengths lie in authenticity, disciplined execution and finding creative people-centred solutions," she reflects. "I believe in creating an environment where people can thrive as that is how we unlock human potential."

Under her guidance, together with collective leadership accountability, the company has taken major strides in embedding equity, diversity and inclusion at all levels. Her personal motto - "Go over, go under, go around or go through, but never ever give up" - echoes the spirit that De Beers is fostering across its operations.

Ultimately, the company's efforts are setting a new benchmark for the mining sector. With clear targets, accountability mechanisms and an unwavering belief in the value of inclusion, De Beers is demonstrating that gender equity is not only achievable but essential to the future of mining.

"We are redefining the future of mining," Wheelock says. "By creating pathways for women to succeed and lead, we are transforming our business and helping to build a more inclusive and sustainable industry." ■

Ayanda Khumalo's flourishing career **in the mining industry**

When Ayanda Khumalo was unable to gain admission to her preferred electrical engineering programme at the University of KwaZulu-Natal (UKZN), she didn't realise it would be a blessing in disguise. Today, she is a successful environmental officer at Canyon Coal's Gugulethu Colliery.

Ayanda Khumalo is an environmental officer at Canyon Coal's Gugulethu Colliery.

Khumalo enrolled for a BSc in Environmental and Earth Science. Despite it not being her first choice, she found the curriculum compelling. "When I later secured an internship in environmental management, I recognised that I belonged in this field. One in which I could actively advocate for the environment, even within profit-driven sectors," she says.

Raised by a single mother, Khumalo's upbringing was far from perfect as she encountered various challenges. "Although the circumstances were far from ideal, I believe they ultimately fostered my growth, and I am grateful for the lessons learned," she says. Her background motivated her to excel academically. After completing her BSc, Khumalo did her Honours degree in environmental science and later completed her MSc in geography at UKZN.

Throughout her career in the mining industry, Khumalo has noticed significant disparities between the opportunities available to women and those afforded to their male counterparts. As a result, she often feels the need to work twice as hard to be recognised and acknowledged. "Gaining recognition was not easy. I had to consistently go above and beyond in every task assigned to me," she explains.

Her efforts have undoubtedly paid off, as she now independently leads Gugulethu's environmental department, operating with minimal oversight. Her responsibilities include, implementing environmental management systems, taking well-informed environmental decisions, and ensuring that operational and regulatory obligations are met. "This experience has greatly enhanced my management and leadership capabilities, effectively preparing me for future managerial roles."

Khumalo firmly believes that although the mining industry has traditionally been male-dominated, it is not exclusive to men. She was particularly inspired when a female environmental manager personally introduced her to the industry. "It showed me that leadership roles for women in this field are not only possible but achievable."

She notes that the mining industry has made significant progress in promoting the inclusion of women in its operations. Initiatives like Women in Mining (WIM) have been crucial in influencing decision-making processes and advocating for gender diversity. Additionally, policies have been put in place to protect the rights of women in mining, along with procedures aimed at safeguarding them from all forms of gender-based violence in the workplace.

She highlights that ongoing research continues to identify the challenges women face in the mining industry, aiming to implement practical solutions that allow them to work effectively and safely. Progressive facilities, such as lactation rooms and onsite daycare centres, have been established in various mines to support women in resuming their careers after childbirth.

"While these and other measures represent significant progress toward gender inclusivity in the mining sector, continued efforts are necessary to ensure a truly equitable and supportive working environment for everyone." Khumalo encourages management in mining operations to keep creating opportunities for women to showcase their capabilities.

She emphasises the importance of companies investing in the development and empowerment of women, particularly where there are skills gaps. Her advice to women aspiring to pursue a career in the mining industry is, "Your dreams are valid, but achieving them requires hard work, determination, and focus."

Sisi Safety Wear steps up with women-specific safety boot for tough environments

The Sisi Fuse Safety Boot is the first locally manufactured PU/rubber safety boot specifically engineered for women.

The Fuse Boot represents a growing recognition within South Africa's high-risk industries of the importance of PPE designed specifically for women.

Jamie-Lee Bishop from Sisi Safety Wear.

As South Africa's industrial and mining sectors increasingly integrate women into high-risk operational roles, Sisi Safety Wear is addressing a critical and long-overlooked gap: the lack of heavy-duty, women-specific safety footwear with a PU RUBBER sole, designed for harsh working conditions.

Sisi, a local manufacturer of Personal Protective Equipment (PPE) designed for women in the workplace — has introduced its Fuse Safety Boot, designed specifically for women working in demanding industrial, mining, electrical, and heavy-duty environments. This new safety boot provides the essential protection, fit, and comfort long missing from the PPE ranges available to women in these sectors.

For many years, women in these industries have had to wear protective boots designed for men, often compromising both safety and comfort. This mismatch increases the risk of injury, causes discomfort, and reduces productivity in environments where reliable protection is essential.

"Women in these industries face the same dangers as their male counterparts, from electrical hazards to tough, abrasive surfaces yet their safety footwear has not kept pace with their growing representation in the workforce," says Jamie-Lee Bishop from Sisi Safety Wear. "The introduction of the Fuse Boot marks an important milestone in providing women with PPE that not only protects, but properly fits and supports them throughout long, demanding shifts."

Introducing the Fuse Safety Boot

Developed in direct response to market demand and feedback from safety professionals, the Sisi Fuse Safety Boot is the first locally manufactured PU/rubber safety boot specifically engineered for women. Tested to withstand 20KvA electrical hazards for 60 seconds, this boot offers premium protection in hazardous conditions.

Designed for sectors including mining, electrical utilities, manufacturing, and heavy industry, the Fuse Boot features a full-grain leather upper, abrasion- and slip-resistant PU/rubber sole, and a reflective strip for enhanced visibility in low-light environments.

Responding to real-world industry needs

The Fuse Boot was developed after years of industry feedback emphasising the need for women-specific safety boots with a PU/Rubber sole capable of enduring tough working conditions. An important demand came from eThekwini Municipality, which required a safety boot for female teams working near high-voltage equipment.

"This boot is far more than a checklist item—it is a solution born from real, on-the-ground challenges," adds Bishop. "It is designed to withstand tough terrain and electrical dangers, offering reliable protection without compromising comfort."

Advancing inclusive safety standards

The Fuse Boot launch underlines Sisi's commitment to transforming the local PPE landscape by ensuring women in demanding industries receive properly fitted, high-quality protective gear.

"By introducing this boot, we are sending a clear message that women's PPE needs require serious, tailored solutions," says Bishop. "We are breaking away from the outdated one-size-fits-all mentality that has long dominated South Africa's industrial safety sector."

Shaping the future of workplace safety

The Fuse Boot represents a growing recognition within South Africa's high-risk industries of the importance of PPE designed specifically for women. As more organisations adopt inclusive safety policies, innovations like the Fuse Boot are setting new benchmarks for equitable workplace safety.

"This is not just about introducing new PPE, it is about raising the standard for women's safety in the workplace," adds Bishop. "By addressing long-standing gaps in PPE design, we are making meaningful strides towards secure, more inclusive industrial environments." ■

Puledi Mahwiliri contributes to Multotec cyclones project

Puledi Mahwiliri is a Process Manager at Multotec, where she partners with clients to drive continuous plant optimisation through delivering customised mineral processing solutions that serve the complex demands of the mining industry.

Puledi Mahwiliri is a Process Manager at Multotec.

She was born in Polokwane and her curiosity about how things work, combined with a natural problem-solving instinct, inspired her to pursue a career in engineering. She went on to obtain a BSc Honours in Metallurgy, a qualification that laid the foundation for a rewarding career in mineral processing. “I’ve always loved STEM subjects, and I knew I wanted to work in a field where I could solve real-world challenges and make a tangible impact,” she explains.

Among her proudest achievements is her contribution to a Multotec cyclones project, which was a major undertaking involving exceptionally high flow rates and large cyclone clusters. Even after splitting the flows for manageability, the clusters remained extensive. Mahwiliri and her team

Puledi Mahwiliri at the Multotec facility.

were tasked with developing a practical, reliable solution — which they successfully achieved, helping the client optimise water usage and plant efficiency.

Mahwiliri describes her management style as a blend of democratic, coaching, servant, and situational leadership, although most of her team would describe her as a coach at heart. “I value diversity — in culture, education, personality, and perspective. It creates stronger, more agile teams and fosters innovation,” she says.

Navigating a traditionally male-dominated industry has not always been easy, but Mahwiliri believes women bring invaluable, people-centred leadership qualities to the workplace. She credits strong mentors throughout her career and has made it a personal mission to empower and uplift others within her team. Mahwiliri turns challenges into opportunities by owning up, asking for help, and communicating openly, earning trust and building stronger client relationships.

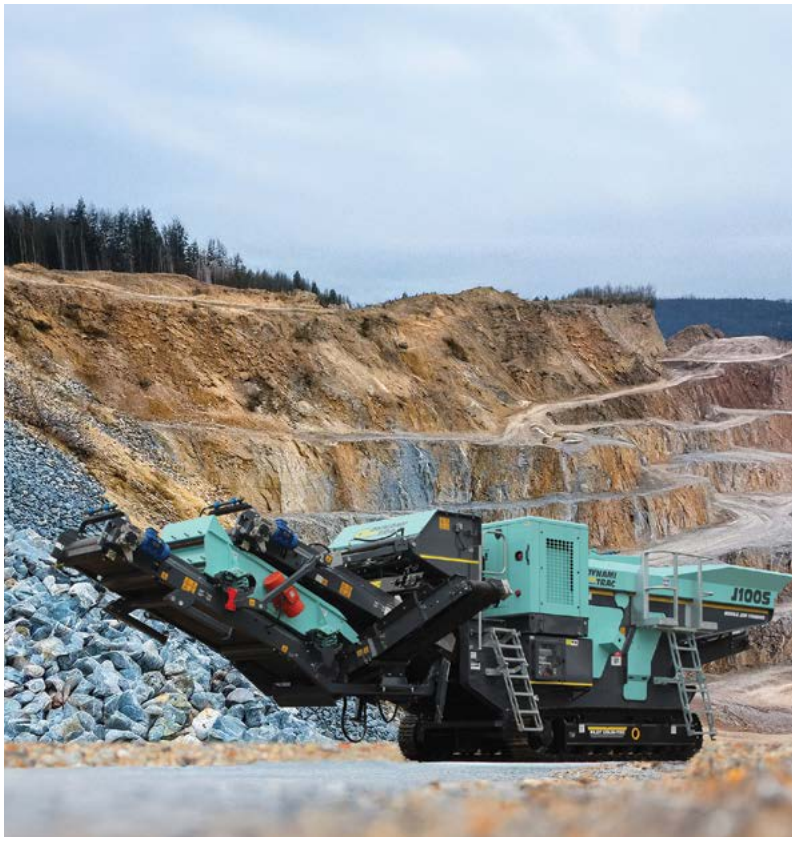
Her advice to other women leaders in mining and business is that: “The space has been created for us by pioneering women before us. Let’s continue to show up, take our seat at the table, and own it — because we are just as good.”

Mahwiliri’s life philosophy offers a simple but powerful reminder: “Every morning when you get up — if you get up — you have a chance to make a difference. In your own life, or in someone else’s.”

She continues to be a firm advocate for inclusivity, mentorship, and courage within the mining industry, paving the way for future generations of women in STEM. ■

Crushing trends drive focus **on flexibility and return on investment**

Mines have significantly transformed their approach to crushing and screening in recent decades, increasingly recognising the benefits of flexibility offered by mobile and modular plants. *Modern Mining* spoke to Pilot Crushtec to explore how these changes are reshaping the sector.



The DynamiTrac J100S is a compact, all-in-one jaw crusher for small-scale mining, recycling and construction.

"Today, it is far more common for contractors to handle the crushing and screening on behalf of mining companies," says Francois Marais, Sales and Marketing Director at Pilot Crushtec. "With a strong focus on reducing loading and hauling costs, strategies like in-pit crushing are gaining traction."

Marais notes that this represents a clear departure from the large static crushing plants that dominated mining operations three decades ago. Pilot Crushtec played a pioneering role in this industry shift, introducing an expanding range of mobile and modular solutions to support the transition.

Adding to this, Wayne Warren, Africa Sales Manager at Pilot Crushtec, explains that the traditional model required significant investment in fixed infrastructure, which was both costly and time consuming to establish - with returns only realised progressively over the project's lifespan.

"Our modular crushing and screening units eliminated the need for much of that fixed infrastructure, and the industry soon saw that they could meet production requirements without relying on static plants," says Warren. "It wasn't long before others in the sector began emulating our approach, and the success of our designs helped establish a solid foundation for our local manufacturing capability."

By the 2000s, this shift was well underway with growing adoption of both mobile and modular solutions. Today, Marais notes, the entire processing cycle – from run-of-mine (ROM) to the pre-milling stage – can be efficiently executed using a fully mobile setup.

"A key driver behind the popularity of mobile solutions is the growing trend of mines outsourcing their crushing and screening," says Marais. "Contractors need to mobilise and deploy equipment quickly and mobile units offer that flexibility. At the same time, volatility in commodity prices adds to the appeal - mines want to ramp up production when prices are high, but without the long-term commitment and overheads of fixed infrastructure should the market turn."

Warren underscores the importance of maximising return on investment in today's mining landscape, where securing finance for a mobile or modular plant - capable of generating immediate returns - is far more achievable than funding static infrastructure that may take months or even years to become operational.

"A mobile solution delivers real value not just to the contractor, but also to their client and the financier," he explains. "Its responsiveness aligns with the time sensitive demands of modern mining, and its versatility reduces risk, especially if a contract ends earlier than expected, as the equipment can simply be redeployed to another site."

As demand for more flexible solutions has increased, so too has Pilot Crushtec's range of offerings. The DynamiTrac J100S compact mobile jaw crusher - with an integrated oversize screen - is ideally suited for junior miners, small-scale contract crushers and even construction material recycling. It is also available in a modular version, which can be easily relocated on site.

"Our DoppiaTrac is a track-mounted self-driven

The TwisterTrac VS350E delivers high quality cubical aggregate for mining, quarrying, recycling and construction.

Pilot Crushtec's Mobi Light range is compact, portable, powerful and delivers reliable lighting.

machine designed for the feeding, crushing and stockpiling of medium to hard bituminous coal," adds Warren. "It features a purpose-built 3636 double drum roll, making it highly effective for coal applications."

Pilot Crushtec's range has evolved to such a degree that its flagship model – the versatile TwisterTrac – is now in demand globally, particularly in Europe. Designed for producing sand and fines, and for improving aggregate quality, the track-mounted self-driven TwisterTrac is ideal for tertiary and quaternary crushing applications. It features a purpose-designed vertical shaft impact (VSI) crusher for optimal performance.

Adding further value to its offering, the company also supplies Mobi Light freestanding mobile lighting towers. These units require no external power source, can be easily towed and are quick to install on site, making them a practical solution for remote or fast-moving operations.

As the southern African distributor for global crushing and screening leader Metso, Pilot Crushtec also supplies Metso's renowned range - comprising Nordwheeler portable units, Nordplant modular solutions and the premium Lokotrack mobile plants. These offerings complement Pilot Crushtec's in-house range, giving customers a broad selection tailored to their specific application needs and component preferences.

"This partnership gives us a complete suite of mobile and static crushing and screening equipment across all stages - primary, secondary, tertiary and quaternary," says Marais. "Our solutions support production rates from 30 tonnes per hour to over 500 tonnes per hour, across a wide spectrum of applications including mining, quarrying and recycling."

Ongoing industry efforts to reduce energy consumption in crushing and screening equipment have led to notable advancements in efficiency. These include the introduction of dual power machines that can operate on electrical grid power when available. "In fact, our TwisterTrac was one of the first models to offer a dual power option, as far back as eight years ago," notes Warren.

Additional gains have come from high efficiency electric motors and the reduction of hydraulic and friction losses throughout the crushing and screening train.

With such a broad equipment range, Pilot Crushtec is able to take a holistic approach to each customer's requirements, using specialised software to simulate plant design and layout. "It is not just about finding a plant that fits the job," says Warren. "It is about guiding the customer to a solution that protects their investment - both now and into the future."

This long-term value is supported by Pilot Crushtec's 24 hour technical support and robust parts availability, with R160-million worth of stock on hand to minimise downtime. Equally important are the company's remote monitoring systems which track equipment usage, detect anomalies and predict wear levels.

"This capability allows us to work with customers to develop predictive maintenance strategies that keep operations running smoothly and improve overall returns," he says.

"In an industry where margins are tightening and operational agility is non-negotiable, Pilot Crushtec's innovations are more than just engineering achievements, they are enablers of strategic advantage. By driving down setup costs, accelerating time-to-production and allowing mines to scale capacity in real time, our mobile and modular solutions help mining houses and contractors navigate uncertainty with confidence. Whether it is responding swiftly to price spikes or reallocating equipment to high-yield projects, customers gain the flexibility to maximise profit and minimise risk, making every ton count," Marais concludes. ■

Babcock takes the wraps off new-generation Volvo machines

Amid great anticipation from customers across southern Africa, Babcock is introducing the new generation Volvo articulated haulers and excavators. The new ranges have been updated with some of the most exciting features, meeting customer needs in areas of productivity, operator comfort, safety and efficiency, resulting in lower total cost of ownership.

Babcock introduced the all-new Volvo A50.

Following their global introduction in January this year, the new generation articulated dump trucks (ADTs) and their excavator counterparts from Volvo Construction Equipment (Volvo CE) have generated a buzz across the global earthmoving equipment market. Customers in southern Africa can finally get their hands onto these new machines, with Babcock set to officially take the wraps off at a grand launch event at the end of June.

"This launch marks a significant milestone in our long-standing partnership with Volvo CE, and in our commitment to helping reshape construction and mining operations across Southern Africa. These new-generation machines are more than just equipment – they are smart, efficient, and aligned to our customers' need for sustainable productivity. We are proud to bring them to market," says Roger O'Callaghan, CEO Africa at Babcock International Group.

The updated ADT models mark a significant technological leap forward thanks to innovations such as the new electronic system and an in-house developed transmission, delivering fuel efficiency improvements of up to 15% depending on model and application.

"We are excited about the arrival of the new generation, most technologically advanced Volvo articulated haulers to date, which we believe will reinforce our leading position in this market segment. While the range comprises seven models, we are initially bringing to market the updated A40, A45 and the all-new A50. The A30 and A60 will be introduced at a later stage," says David Vaughan, MD of Babcock's Equipment business.

With its ability to identify and remember any slippery road segments, the Volvo drivetrain with Terrain Memory ensures superb fuel efficiency without compromising on power. Automatic drive combinations, with 100% differential locks and all-terrain bogie and hydro-mechanical steering, also combine to provide unmatched traction, stability and precision control.

In addition, Volvo Dynamic Drive – with its predictive gear selection – adapts to operating conditions. The downhill speed control function and industry-leading braking systems further enhance efficiency, safety and comfort.

With simplified servicing, longer change intervals and easy component access, servicing is now quicker and easier than ever before, maximising uptime and reducing costs. Industry-leading greasing intervals of 250 hours also eliminate the need for daily or weekly greasing, boosting productivity and reducing downtime. In addition, Volvo articulated haulers are

said to require less fluid volume compared to the competition, benefitting the environment and reducing operating costs.

While all the new models break new ground with key innovations, Vaughan is particularly excited about the arrival of the all-new A50, which not only broadens the model line-up to cover more applications but also plugs an important gap between the existing 42-t A45 and the 55-t A60.

The major talking point on the new A50 is the full hydraulic suspension concept. Pioneered by Volvo CE in 2007, the full suspension has proved to be a reliable system for the toughest of driving conditions. Many mining and quarrying companies worldwide have praised the unique technology for the benefits it has brought them in terms of productivity and operator comfort, all while being just as durable and dependable as a traditional suspension.

The new Volvo excavator range comprises the EC210, EC220, EC260, EC300 and EC360. However, Babcock will initially bring in the EC210, EC220 and EC300. The range combines cutting-edge technology, robust design and industry-leading efficiency to benefit various industrial applications.

In the 20-22-t market segment, Babcock is launching the 21-t EC210, which replaces the previous EC200DL, as well as the new EC220, which replaces the old-generation EC210DL. The two models are ideally suited for general construction, plant hire and earthworks applications. The larger 30-t EC300 fits the bill for mid-size construction sites, sand works and small-scale quarrying operations.

Each of the models integrates engine-pump optimisation technology, delivering up to 15% fuel efficiency compared to previous models. The new range features increased hydraulic flow for responsive, accurate control in digging and loading operations. Operators benefit from smoother, easier movement when digging as well as travelling and lifting simultaneously, due to the harmonised boom and arm movement.

The revamped cab offers improved ergonomics, intuitive controls and advanced human-machine interface (HMI) systems, providing operators with a comfortable, productive working environment, with enhanced visibility, reduced noise levels and efficient HVAC systems.

In recent tests conducted by Volvo CE, the EC210 delivered an up to 7% productivity edge and 14% better fuel efficiency over competitor offerings in a similar weight class – even when operated at lower RPMs. For contractors in Africa, juggling performance expectations with fuel economy and uptime, the EC210's results suggest it is more than capable of punching above its weight – particularly in applications such as road construction, site prep and utilities.

The new EC220 was tested against the EC210, where it delivered 32% greater productivity, while maintaining similar fuel efficiency at a similar RPM. This highlighted its value in high-volume operations such as materials handling and bulk excavation. The EC220 therefore makes a strong all-rounder, marrying power and precision for work that demands both.

All models are compatible with Volvo Dig Assist, an optional intelligent machine control system that improves excavation precision and productivity. Operators can utilise tools such as real-time weighing, automated digging, and smart monitoring, which enhance efficiency, with Volvo Smart View producing 360° machine visibility. Additional features such as preset depth, height, and swing limits further enhance on-site safety.

Babcock is introducing the new generation Volvo articulated haulers and excavators.

The new Volvo EC220 excavator.

Volvo's EC300 excavator.

"Southern Africa is a key market for Volvo CE, and Babcock is an essential partner in delivering on our customer promise here. The feedback from early global adopters of these models has been exceptional – especially around operator comfort and fuel efficiency. We are confident these innovations will resonate with customers across the region," says Joakim Arndorw Head of Sales Region International at Volvo CE.

The selected models making their debut are immediately available at all Babcock branches across southern Africa. Equally, all the relevant parts have been stocked throughout all Babcock equipment outlets in the region well ahead of the launch. ■

Bell ADTs drive growth **for Matla Sechaba**

One woman is honouring the legacy jointly created by her late husband to make a success of a load and haul business in a challenging mining environment while harnessing the support of a benevolent mining client and a loyal local community near the mine.

And providing the backbone of this business is a growing fleet of Bell B30E Articulated Dump Trucks (ADTs).

Lucy Tau met her husband, Mothupi, while they were both working for South Africa's state-owned telecommunications company in Pretoria. Lucy holds a Bachelor's degree with a Psychology major, a post-graduate qualification in project management and an MBA specialising in leadership management.

Mines in South Africa are encouraged to support local communities by offering employment and making use of small and emerging contractors who operate in their areas. Two Rivers Platinum Mine, the large platinum mine close to Mashataung village, was no different.

"We had heard through the local community that the mine was advertising contracts for load and haul contractors," Lucy explains. "We registered our company, Matla Sechaba Holdings, in 2016 and set out to explore these new possibilities in 2018. We engaged with an existing contractor who offered us a 30% portion of his contract on the mine while also giving us valuable mentorship as we knew very little of how such a contract worked and what was needed in terms of equipment, people, planning and working methods."

Two Rivers Platinum Mine encouraged Mothupi and Lucy to approach South Africa's renowned Industrial Development Corporation (IDC) for assistance with financing of the yellow metal equipment they needed to get started. They also recommended that they approach Bell Equipment as a proudly South African manufacturer of mining haulage equipment with regards to its legendary tough Articulated Dump Trucks (ADTs).

Here, Chris Botha, one of Bell Equipment's top sales representatives based at the company's flagship Jet Park branch in Boksburg, takes up the story. "I remember meeting Mothupi when he stopped by our branch in 2018 and was struck by his eagerness to learn as much as possible about our products and what their application should be," Botha recalls. "It was a privilege to be able to advise Mothupi after learning about his new company's role on the mine and I suggested that our Bell B30E ADT would be the right size for the application."

With financing from the IDC in place at favourable rates, Matla Sechaba Holdings took delivery of two new Bell B30E ADTs in late 2018 and could start work as subcontractors.

By 2020, Matla Sechaba was still working as a subcontractor but now for a 50% share of the load and haul of both waste and ore run-of-mine material from the underground workings. This, however, meant that they needed to increase the size of their yellow machine fleet, and they again approached Bell Equipment for two more Bell B30E ADTs.

"We were very pleased that, with Bell Equipment backing us, we obtained financing through Wesbank and could take delivery of two new Bell B30E ADTs, which made an immediate difference to our production," Lucy says. "We run two shifts of 10 hours each around the clock and ore is hauled over a distance of 3km while the distance to the waste dumps can be as much as 12km."

Matla Sechaba Holdings' Bell ADTs are used for an average of 225 to 250 hours a month and the first two ADTs have now done 16 535 and 16 041 hours respectively, while the latter two from 2020 show 13 815 and 12 648 hours respectively. All the Bell ADTs have been bought with Bell Equipment Care Packages for up to 6 000 hours on the wet drivetrain and hydraulics and the most recent ADTs have an added Full Machine Cover (FMC) up to 36 months or 6 000 hours. Fuel is supplied by the mine and although its consumption is monitored, the Bell B30Es' frugal use is well within the business plan.

Sadly, Mothupi passed away in 2021 due to COVID-19 and Lucy resigned from her corporate role to manage the contract at the mine. "Mothupi had shared a great deal of information with me about what makes a mining contract work when we first started, but I've had to learn so much more in a short space of time. I'm fortunate to have a lot of support from my team, the mine, as well as the likes of Chris Botha from Bell Equipment," Lucy says. "Our Bell ADTs get serviced from Bell Equipment's branch in nearby Steelpoort but despite this, my point of entry into Bell is through Chris, who is always available to assist me with technical, accounting, and general enquiries. Chris has proved to be more than just a sales representative and I see him as a friend of mine

Matla Sechaba has grown to have a stand-alone contract at Two Rivers Platinum Mine that amounts to 50% of the load and haul of run-of-mine ore and waste material.

Bell Equipment Sales Representative, Chris Botha, with the CEO and owner of Matla Sechaba Holdings, Lucy Tau, and the company's Production Manager, Johannes Mmadi.

Although fuel is supplied by the mine, consumption is monitored and the fuel burn of Bell B30Es is well within the business plan.

and of my company as he and Bell Equipment really understand our business and the challenges we face."

By 2024, Matla Sechaba's role on the mine had changed as the company was offered a stand-alone contract that amounted to 50% of the load and haul of run-of-mine ore and waste material.

The mining industry in South Africa must be applauded for its initiatives in promoting small and emerging businesses to succeed, and Two Rivers Platinum mine where Matla Sechaba Holdings works is a sterling example. "I have the backing of our clients under a development plan for five years, and with this assurance we confidently ordered another Bell B30E ADT in 2024 as we really believe in this great product's design and build that helps us deliver a sustained service to our supportive clients," Lucy adds. ■

Efficiency in heavy lifting is not just about raw power, it is about precision, adaptability, and efficiencies.

Electric forklifts lead the charge in materials handling

In 2024, South African ports managed a total cargo throughput of 211.2 million tons, including 4.3 million Twenty-foot Equivalent Units (TEUs). The country's container yards also recorded a combined throughput of 4.3 million TEUs for the year.

This massive movement of cargo requires reliable equipment that can work around-the-clock to minimise downtime in the high-pressure container handling ecosystem.

It is in these environments that Konecranes reach stackers come into their own. Not only are they known for their proven design, high-quality components and durable spreaders; their economical fuel consumption and predictable maintenance costs make them cost-effective to operate and maintain.

Lenny Naidoo, National Product Specialist for Heavy Lift, a division of CFAO Equipment that supplies Konecranes reach stackers to most ports and container yards in South Africa, says efficiency in heavy lifting is not just about raw power, it is about precision, adaptability, and efficiencies.

"Two of the greatest challenges in high-volume scenarios such as ports, container yards and intermodal terminal operations are fuel efficiency and safety. Our reach stackers incorporate load-sensing hydraulics, high-capacity lifting capabilities and an ergonomic operator-centric design that ensure faster turnaround times, optimised fuel consumption and enhanced safety."

Operations today do not only look for ways to reduce fuel costs; they also pursue every opportunity to decrease their carbon emissions, in line with environmental considerations.

"Our reach stackers' fuel consumption is tracked via an app, allowing logistics managers to establish which equipment is operating optimally, as well as monitor the driving habits of operators. If a reach stacker is refuelling excessively, there could be an issue with the equipment itself or it could point to a driver habit that needs to be addressed," explains Naidoo.

From a carbon emission perspective, Konecranes' offers excessive idle shut down, which can be set from 0.5 to 30 mins on the unit and is aimed at reducing fuel consumption and emissions significantly. Additionally, Konecranes offers solutions such as the Start/Stop function that minimises idling and optimises operational efficiency.

With the focus on safety, Konecranes reach stackers feature an overload alert system. When a load exceeds safe limits, operators receive an in-cabin warning, and an automatic email notification is sent to supervisors, ensuring prompt awareness and response to potential risks.

Additionally, the reach stackers' load-sensing hydraulics monitor pressure levels and alert both operators and supervisors to any drops, which could indicate a leak or potential equipment malfunction. Automated lifting controls add another layer of safety

Konecranes reach stackers can be customised to suit customers' requirements.

and efficiency: when the spreader is positioned on the container, the twist locks engage automatically with the container's corner posts, eliminating the need for manual locking by the operator. Naidoo says operator fatigue is also a threat to safety in busy ports and yards. "When cabs are not user friendly, operators become exhausted midway through their shifts.

"Konecranes cabs are user friendly and offer excellent visibility. Operators do not have to twist around to see what they are doing. There are no large frames or doorposts to obstruct their view, and the controls are within easy reach, meaning they do not have to lean forward or bend to reach them. Less fatigue means improved safety, less downtime and greater productivity."

Ultimately, the true value of industrial equipment lies in the quality of its aftermarket support. According to Naidoo, this is where Heavy Lift has set itself apart in the market.

"Our response time to breakdowns is quick and our technicians are available 24/7. Reach stackers need to be serviced every 250 hours. The equipment has a built-in system that alerts the operators and supervisors when the next service is due.

"In fact, we pride ourselves on selling uptime. Our technicians attend regular refresher courses – in person and via the Konecranes online academy – and are always kept abreast of new innovations," adds Naidoo.

Konecranes reach stackers can be customised to suit customers' requirements, whether they need equipment that can lift unusual weights, or they need a breathalyser device fitted.

"South Africa's busy container handling ecosystem operates more efficiently with the indispensable and highly durable and efficient Konecranes reach stackers – true examples of power in motion," concludes Naidoo. ■

We really need to move away from **our GDP obsession**

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

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

We start accounting differently for our exploitation of nature.

I am trained in neoclassical economics. That sounds like a confession now, almost like being at an Alcoholics Anonymous. No judgement here, then. But having this training meant that I probably imbibed the view that GDP growth – the endless expansion of the size of our economies, measured as the total value of goods and services sold in a country in any given year – was an inevitable good. In other words, as long as a country's GDP growth rate exceeded its population growth rate, all would be well. The conventional wisdom was that if one had fast enough GDP growth, employment creation would follow, average incomes would rise, and poverty and inequality would be diminished

The problem is that jobless growth has been the story of many countries over the last thirty years, including South Africa. And this points to the need for moving away from GDP as a measure of a country's wellbeing. Multidimensional poverty, or the Human Development Index score are just two options among many. But even those might not get us away entirely from destroying our environment.

In the two decades since I graduated, I've worried increasingly about something economists call 'negative externalities'. These are environmental and social costs created in the process of production that are literally external to individual firms' financial statements. They are externalised – offloaded by factories onto local communities and ecologies who can least afford it. Technically, these externalities are the divergence between social costs and private returns.

The firm (let's use Apple as an example) reports profits from selling its iPhones. But the costs to the local communities from all the minerals and metals mined to forge that iPhone are not recorded anywhere except in the misery of those who have to drink poisoned water or work those mines for local militias. And when we buy those phones – I confess to owning one – we don't ask where everything in the supply chain came from. We don't wonder about the energy used to produce it, the carbon emitted in distributing it across the world, the trees that were

We really need to move away from our GDP obsession.

The costs to the local communities from all the minerals and metals mined to forge that iPhone are not recorded anywhere.

cut down or the coastal dunes destroyed to extract the titanium. And we probably don't wonder about how those trees were then used for charcoal to warm homes and cook food, contributing to indoor air pollution that is still a major killer across developing countries. The negative externalities associated with our production and consumption are extensive, as are the opportunity costs associated with it. For instance, perhaps those unspoiled dunes could have produced ecotourism revenue for decades to come for those local communities.

And as much as we can berate ourselves, it is quite complex. Just because the eastern DRC is a warzone doesn't mean that all the coltan that comes from that area is necessarily conflict tainted. In many instances, artisanal miners can make some cash that they wouldn't otherwise get their hands on. But we surely can't throw up our hands at this point and say, "well, it's better to have iPhones than not." What's considered "better" in this reductionist heresy is perhaps the cause of our doom.

When Herman Daly left the World Bank in 1994, I was nearly 13. He gave a cracking speech that should be mandatory reading for everyone leaving school. On this question of economics, ecology and how we measure 'success', he had "four important prescriptions"; I only have space to deal with two this month: First, he rightly proposed that we stop counting the consumption of "natural capital" as income. "We have habitually counted natural capital as a free good". This error still occurs today in the way that we report profit and loss, income and expenses; our "System of National Accounts." Granted, sustainability reporting is becoming mandatory, but it still doesn't get at the heart of treating natural capital – basic things like soil health – as essentially free. ESG just leads to a lot of greenwashing. Firms pollute rivers and report profits. Maybe some will suffer reputational damage and pay for that in some way, but this only in a handful of countries. Private actors largely get away with it.

The collective result is that we've overstepped six of our nine planetary boundaries now. Try running any economy without clean water. What happens when we treat things like clean water as "free" is a bias of "investment allocation toward projects that deplete natural capital, and away from more sustainable projects." Finally, when a company exports coltan, cobalt, copper, titanium, iron ore, graphite, rare earth metal or anything that feeds your iPhone, it is not reflecting the true cost of the trees cut down to make that possible, or the rivers diverted from their flow. But the GDP amount looks positive. This affects a country's balance of payments, which in turn determines how institutions like the International Monetary Fund make decisions on who qualifies for help to manage debt and so forth.

Second, it follows that we should tax resource throughput more instead of subsidising it. The result of the latter is that we literally subsidise resource-intensive energy production, water over-abstraction, soil-destroying fertilisers and even deforestation. "Shifting the tax base to throughput induces greater throughput efficiency, and internalises, in a gross, blunt manner the externalities from depletion and pollution." Not a perfect solution, but one that at least shifts us away from the current propensity to 'capital deepening' that substitutes labour, and the unsustainable exploitation of finite resources.

"Shifting the tax base to throughput induces greater throughput efficiency, and internalises, in a gross, blunt manner the externalities from depletion and pollution."

I'll deal with the next two in next month's column but suffice to say for now that until we start accounting differently for our exploitation of nature, we're going to continue valuing the wrong things and literally cut out the branches of the tree of life from underneath ourselves. It's a long way to fall. ■

The TAKRAF Group is supplying seven DELKOR high-density thickeners for the National Copper Corporation of Chile.

TAKRAF Group to supply equipment **for project in Chile**

In a key project award, TAKRAF Group (TAKRAF) is supplying seven DELKOR high-density thickeners and shear thinning technology for a new copper tailings facility for the National Copper Corporation of Chile (Codelco), the world's largest copper producer.

Known as the Talabre Thickened Tailings Project (Proyecto Relaves Espesados Talabre or PRET), the supply of DELKOR equipment represents a long-term solution for the disposal of copper tailings from Codelco's North operations into what will be the largest thickened tailings project in the world.

The contract was signed in 4Q 2024, with the project scope covering engineering, supply, technical assistance on site and spares for:

- Seven 60 m diameter DELKOR High-Density Thickeners with on-ground tanks and 14 MNm MOT (Maximum Operating Torque) drives. These are some of the highest torque thickeners ever supplied by DELKOR who are known globally for their strong dewatering capabilities.
- A multitude of DELKOR Shear Thinning Systems and ancillaries.

Located in the Antofagasta Region of Chile's El Loa province, PRET is divided into two phases. The current project comprises the first phase to treat tailings coming from Ministro Hales and Chuquicamata, while the second phase will involve supply of further equipment catering to the additional management of tailings from Codelco's Radomiro Tomic operations.

TAKRAF Group CEO Thomas Jabs adds: "Our DELKOR Thickener technology, together with other DELKOR dewatering technologies, play a crucial role in enabling operations to recover and recycle water, reduce their tailings footprint, and enhance process efficiency." ■

Boost your business with best-in-class drilling

The global rock drill rig market was recently projected to grow at a CAGR (Compound Annual Growth Rate) of 5.5% during the forecast period of 2018-2028. The global water well drilling market size is expected to reach $4.12 billion by 2028 – CAGR of 5.20% from 2021 to 2028. Maintaining leadership in the water or rock drilling market is essential in keeping your company ahead of competitors in these rapidly growing industries and partnering with Powerbit Rocktools can help you maintain your competitive advantage.

The company is renowned for listening intently to its customers and cultivating an in-depth understanding of their challenges, problems and goals. And, with over 20 years of experience, Powerbit drilling products remain at the forefront of technology at affordable prices.

With a singular focus on customer needs and a passion for excellence, Powerbit Rocktools continues to innovate; empowering drilling businesses to conquer even the most challenging drilling operations with ease and efficiency.

As the industry rapidly adopts technological advances and mining and drilling operations expand to new frontiers, the need for robust and reliable rock drilling tools has become even more critical. In the face of extreme and challenging environments, businesses need cost-effective and enduring solutions to conquer the tough terrain they inhabit.

Powerbit has been a prominent player in the southern African mining industry since 1996, addressing the unique demands of drilling-related industries with unwavering dedication and a commitment to excellence.

The company's product range is extensive and purposeful, catering to various drilling needs across industries. The fit-for-purpose line-up includes DTH hammers and bits, RC hammers and bits, tri-cone bits, top hammer bits and rods, casing systems, grinding machines and more. Each tool has a proven history of enhancing drilling operations' efficiency and longevity.

One key factor that sets Powerbit apart is its focus on building long-term partnerships with its clients. Thomas Chao, MD at Powerbit Rocktools, emphasises the value of maintaining a reliable supply chain in the context of African industry, where drilling and geotechnical excavation operations form the backbone of resource extraction and optimisation, driving the continent's survival and progress.

"In the drilling industry, our clients can't afford downtime. We pride ourselves on being a partner who is always on hand to help our clients address their unique challenges. Our team is not just a supplier, we are a valued partner for our clients' businesses. And that makes all the difference.

"We consistently maintain and adapt to new quality standards by collaborating with our facilities offshore and continuously work alongside our clients to understand their needs and provide products that serve their specific requirements."

Powerbit collaborates with its facilities in Taiwan, China and Japan, where they have advanced research centres and applied technology experts in the rock drilling tools field working tirelessly to innovate new products and methods, cultivating a practical understanding of emerging engineering challenges to effectively tailor their products to meet clients' specific needs.

Powerbit Rocktools MD, Thomas Chao.

The value of economical, long-life rock drill bits, hammers and grinding machines in today's drilling operations cannot be overstated. Powerbit recognises these tools' pivotal role in enabling clients' success and driving infrastructure projects that underpin local economies.

The Powerbit Product Roundup is a testament to its commitment to empowering progress in drilling operations. From DTH hammers and bits to top hammer drilling tools and RC hammers and bits, each product is meticulously engineered to ignite the power of remarkable rock drilling. With a versatile range suitable for various working conditions and industries, Powerbit is well-equipped to serve diverse clientele with different drilling requirements.

Each Powerbit product is meticulously engineered for efficiency and longevity.

NPC Powers a greener future with electric trucks at Simuma

Natal Portland Cement (NPC), a subsidiary of the global Huaxin Group, has taken a bold step toward zero-emission operations with the introduction of TONLY 70-ton battery-electric dump trucks at its Simuma Quarry near Port Shepstone. Replacing older diesel models, these cutting-edge electric trucks are designed specifically for green mining – eliminating tailpipe carbon and particulate emissions by an estimated thousands of tonnes, while significantly reducing the site's CO_2 footprint. "The power of change is green," says NPC – and the numbers support it. With the new electric fleet, NPC is on track to save more than 700 000 litres of diesel fuel annually, while also drastically improving air quality, reducing noise pollution and supporting worker safety on site. ■

Caterpillar's MINExpo 2024 booth design **receives gold award**

The award recognised the creative design of Caterpillar's 56 000 square foot MINExpo 2024 exhibit that transported attendees to a mine site. Caterpillar is one of four exhibitors awarded Gold for Stand Design at the 2025 Eventex Awards. Eventex Awards is a global competition honoring excellence and innovation in the experiential marketing industry. ■

Hydraulic crawler drill rigs for mining projects

JMH Equipment has been supplying quality hydraulic crawler drill rigs since 2007 in Southern Africa, with customers in South Africa, Namibia and Botswana. With customer satisfaction as our number one priority, we only supply high-quality equipment at very competitive prices. After sales service is the most important aspect of any business, and we pride ourselves in giving the customer the best after sales available. With a fully equipped workshop, parts store and field service units we can service and assist customers with whatever they need. We can repair and supply parts for any make and model drifter on both underground and top-hammer drill rigs. With our hydraulic test bench facility, the customer can have total peace of mind for we test each drifter after repairs before delivering it back to the customer. ■

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