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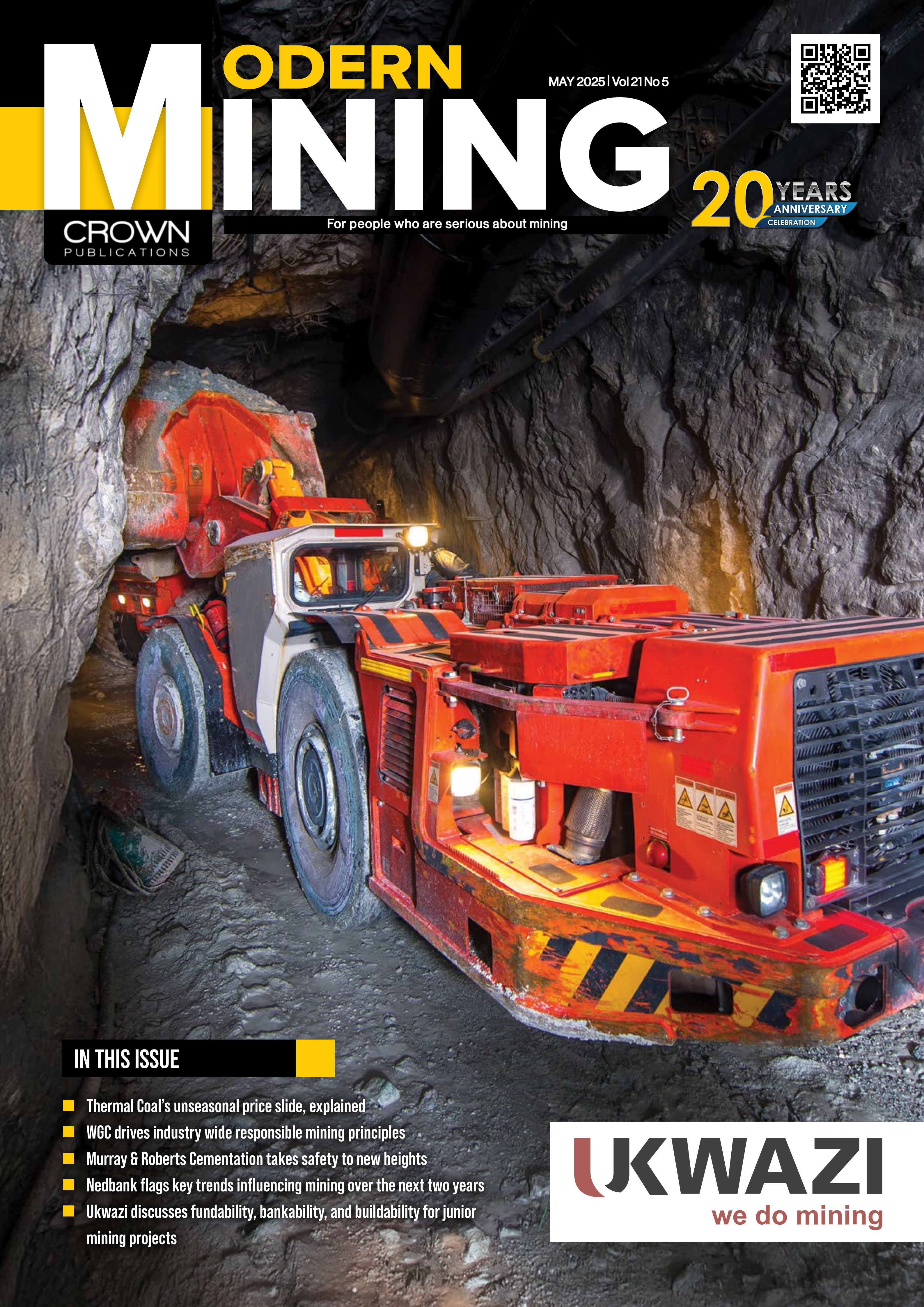

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ON THE COVER

Ukwazi shares insight into the critical triad of fundability, bankability, and buildability for junior mining projects. **Pg 6.**

COMMENT

Shake, rattle and roll

While US President Donald Trump's trade tariffs tiff continued to rattle markets with tit-for-tat tariff hikes playing out across the globe, the Minerals Council South Africa has raised concern that reciprocal import tariffs will damage global economic growth and lead to lower demand for the country's minerals.

On South African imports, Trump has pronounced that most of SA's minerals and metals sold to the US are excluded from the tariffs. Nonetheless, some, like iron ore and diamonds, will be subject to the 30% reciprocal tariff. According to Minerals Council chief economist, Hugo Pienaar, platinum group metals (PGMs) – coal, gold, manganese and chrome – have been excluded from the tariffs. However, vehicle prices in the US will increase because of the 25% tariff the Trump administration has imposed on all vehicle imports.

The council notes that the mining industry has provided some shield to the South African economy in these challenging times with the good news being the stellar performance by gold, with the precious metal reaching its highest price at the end of March when it breached the $3100/oz mark. Will we see it tip the scales beyond $3300 /oz sometime this year? Some analysts seem to think so. Financial services company, Goldman Sachs, recently raised end-2025 gold price forecast to $3 300 per ounce from $3 100, citing stronger-than-expected ETF inflows and sustained central bank demand.

This heightened demand for gold and the subsequent rocketing price continues to attract hordes of artisanal miners into the gold mining space, posing a potential risk "as it accelerates the size of the informal sector, especially the entry of players that do not practice responsible mining," the World Gold Council's Head of Sustainability Strategy, John Mulligan told Modern Mining recently.

"Informal gold mining, often associated with illegal mining, does in some cases involve elements of wider criminal activity. Over the past few years, there has been an increase in the number of illegal miners entering the fray. However, we need to recognise that these challenges – the drivers of an expanding artisanal sector - are well beyond a particular mine and the gold mining industry, and are often reflections of limited alternative livelihoods, extreme poverty and lack of government capacity to enforce the rule of law. While this talks to large structural issues, we still need to seek practical ways to reduce the negative impacts associated with small-scale and artisanal mining." For more on this story turn to page 10.

In this edition

Interesting reads in this edition, include the coal outlook, an article by Tom Price, MD at Panmure Liberum, entitled Thermal Coal's unseasonal price slide, explained (pg8), Dr Ross Harvey's column "Trade, not aid" may be a false dichotomy and a Q&A with financial services group, Nedbank's Nivaash Singh, Co-head of Mining and Resources at Nedbank CIB, which highlights, amongst others, key trends influencing mining over the next two years. Singh also flags funding challenges miners face, particularly junior miners and what Nedbank is doing to aid miners (pg 14).

> "Although platinum group metals (PGMs) – coal, gold, manganese and chrome – have been excluded from the tariffs, vehicle prices in the US will increase because of the 25% tariff the Trump administration has imposed on all vehicle imports"

The Health and Safety feature has been well supported with key industry participants sharing insights, including Murray & Roberts Cementation, which achieved an impressive milestone of 8 million fatality free shifts in January 2025 (pg 20), Menar's Kangra project, which has placed the spotlight on TB awareness (pg 23) and Kal Tire's whitepaper, which highlights mounting safety challenges and the opportunities to reduce, and even eliminate, risk (pg 24). Diamond miner, De Beers, is strengthening occupational hygiene talent for a safer future (pg 26) and Booyco Electronics is driving behavioural change with level 9 PDS (pg 28).

Our cover story by Ukwazi's Director, Spencer Eckstein, provides insight into the topic: The critical triad: fundability, bankability, and buildability for junior mining projects. Eckstein explains that these elements have become essential for junior miners seeking to advance their projects through the project development cycle and delivery pipeline (pg 6).■

Nelendhre Moodley.

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Seriti celebrates official opening of Naudesbank Colliery

Seriti Resources new Naudesbank Colliery, in Mpumalanga Province.

Black-owned and-controlled Seriti Resources has officially opened its new Naudesbank Colliery, a strategic new mining development that underscores the company's commitment to economic growth, job creation and responsible mining in South Africa. The Naudesbank Colliery is strategically located in the Mpumalanga Province - a region rich in coal resources - and is poised to make a significant contribution to the country's coal sector and the local economy. As a long-life, export orientated mining project, Naudesbank Colliery is set to generate around 300 direct jobs, with additional indirect and downstream employment opportunities in the surrounding communities, contributing to the region's economic development and social upliftment. Seriti invested over R500 million in the development of the Naudesbank Colliery, including infrastructure projects that will not only support mining activities but also deliver benefits to local communities. ■

The Minerals Council South Africa **hosts Fall-of-Ground Day**

The Minerals Council South Africa recently hosted its fourth Fall-of-Ground Action Plan Day of Learning as part of its concerted efforts to eliminate fatalities in the mining industry. In 2024, the industry reported a record low 42 fatalities, a 24% reduction from 55 in the previous year, and a reduction in injuries to 1 841people, a 16% reduction from 2023. The performance is confirmation that the industry is firmly on the path to Zero Harm when every employee returns home safely and in good health. The Day of Learning, attended by more than 300 industry stakeholders, heard from mining companies implementing leading practices and technologies to make underground mining safer by striving to eliminate fatalities and injuries arising from falls of ground, which happen when rocks fall from the roofs or walls of tunnels and working areas." This annual gathering plays a critical role in our ongoing efforts to eliminate fall-of-ground (FOG) fatalities in our industry," said Mzila Mthenjane, Minerals Council CEO. Falls of ground remain the highest risk of all underground mines and management of these incidents remain a critical factor in achieving Zero Harm. ■

Mzila Mthenjane, Minerals Council CEO.

Ndalamo Resources acquires Wonderfontein Coal Mine

Coal miner, Ndalamo Resources, recently acquired the Wonderfontein Coal Mine in Mpumalanga from Umsimbithi Mining. This acquisition is particularly significant as Wonderfontein becomes Ndalamo's first wholly owned operating mine, a strategic milestone that underscores the company's commitment to expanding its independent operational footprint in the mining sector. The Wonderfontein Coal Mine has a rich history, originally owned and operated by Umsimbithi Mining in a joint venture of Lithemba Wonderfontein Coal, Phembani Group, and Glencore. The mine began operations in 2012 as an underground mine but transitioned to a fully opencast truck-and-shovel operation in 2013. It was officially commissioned and opened as an opencast coal mine and wash plant in 2014.

Ndalamo Resources acquires Wonderfontein Coal Mine.

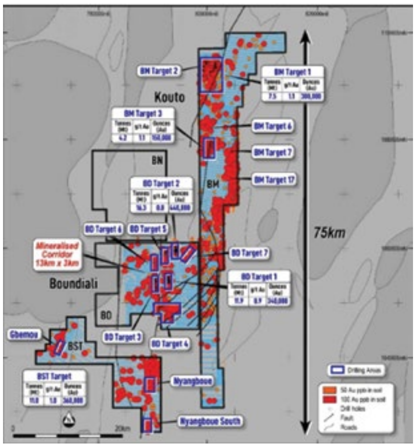
Ndalamo has a proven track record of strategic joint ventures, including successful partnerships with Universal Coal. However, the acquisition of Wonderfontein marks a new chapter in the company's evolution, representing a critical step towards greater operational independence. This wholly owned asset enables Ndalamo to further refine its approach to sustainable and profitable mining, free from the constraints of joint ventures. "The acquisition of Wonderfontein Colliery not only strengthens our portfolio but also marks a significant milestone in our growth and diversification strategy," said Shammy Luvhengo, CEO of Ndalamo. ■

Aurum appoints Ivorian specialist to commence **Boundiali environmental study**

Gold exploration company, Aurum Resources, has engaged Côte d'Ivoire-based environmental and social specialist, Envitech CI Sarl (Envitech), to undertake an Environmental and Social Impact Assessment (in Côte d'Ivoire referred to as an EIES - Etude d'impact environnementale et social) at its Boundiali Gold Project in north-west Côte d'Ivoire for the purpose of potential open pit gold mining and gold ore processing.

Envitech's EIES will cover six gold deposits/prospects and a central processing facility within three of the four exploration tenements comprising the Boundiali Gold project.

Envitech will commence EIES field investigations for Boundiali in April 2025. Utilising Envitech further strengthens Aurum's team of highly regarded specialist consulting firms engaged to deliver Boundiali's Pre-Feasibility Study, due for completion by end of CY2025. Aurum currently has eight self-owned and operated diamond rigs operating at Boundiali, and expects to complete 100 000 m of diamond holes at the project in CY2025. This in turn will support two MRE updates for Boundiali in CY2025 to grow the maiden gold resource of 1.59 moz and support the studies required for the future application for a mining permit over the project. ■



Aurum currently has eight self-owned and operated diamond rigs operating at Boundiali.

Cora Gold fundraise

Cora Gold fundraises to support Sanankoro construction readiness.

Cora Gold, the West African focused gold company, has conditionally raised £1 549 649.74 through a subscription of 32 624 205 new ordinary shares on 25 March 2025. CEO of Cora, Bert Monro, commented, "This fundraising is intended to support the company as it looks to bring Sanankoro to construction readiness, and follows the recent release of an updated Mineral Resource Estimate which reported total pit constrained resources of 31.4 million tonnes at 1.04 g/t Au for a total of 1 044 koz, comprising 689 koz at 1.13 g/t Au in the Indicated category and 354 koz at 0.89 g/t Au in the Inferred category, and the Mali government's partial lifting of its moratorium on issuing permits in the mining sector. Ongoing optimisation studies along with work on updating the ore reserves to support an updated Definitive Feasibility Study at Sanankoro are well underway and scheduled for completion later in 2025. With the gold price currently at near record highs, and the previously completed 2022 Definitive Feasibility Study based on a US$1 750/oz gold price, we are hoping for significant improvements in the project's economics." ■

In today's challenging resource sector environment, junior mining companies face an increasingly complex path from discovery to production.

The critical triad: fundability, bankability, and buildability for junior mining projects

By Spencer Eckstein – Director, Ukwazi

In today's challenging resource sector environment, junior mining companies face an increasingly complex path from discovery to production. The success of mining projects hinges on three interconnected factors: fundability, bankability, and buildability. Understanding and effectively addressing these elements has become essential for junior miners seeking to advance their projects through the project development cycle and delivery pipeline.

Fundability: the gateway to development

Fundability represents a project's ability to attract investment capital at various stages of development. For junior miners, this typically begins with equity financing and potentially evolves to include strategic partnerships, royalty agreements, and eventually, debt financing. "Farm-in" agreements are also common in the industry, particularly where a junior partners with a major to fund exploration in exchange for an increased equity stake in the project.

Recent industry data shows that only approximately 1 in 10 exploration projects secure adequate funding to reach the feasibility study stage. This funding gap has widened as institutional investors increasingly demand stronger environmental, social, and governance (ESG) credentials alongside traditional financial metrics.

The bar for fundability has been raised significantly. Junior miners must now demonstrate not just geological potential but also clear pathways to permitting, community support, and environmental compliance to attract investment capital.

Bankability: from concept to financeable reality

Bankability takes fundability to the next level, focusing on an owner's team and project's ability to secure project finance from banks and institutional lenders. This typically requires a definitive feasibility study that demonstrates robust economics across various commodity price scenarios.

Key bankability factors include:

- A clear, well-constructed public report that contains the information which stakeholders, interested parties, investors and their professional advisers would reasonably require, and reasonably expect to find for the purpose of making of a reasoned and balanced judgment regarding the investment in the project
- Code compliant Mineral Resources and Mineral/ Ore Reserves
- Reasonable prospects of eventual economical extraction
- Technical feasibility with proven technology
- Realistic capital and operating cost estimates and financial performance metrics, based on appropriate modifying factors

- Clear permitting pathways
- Appropriate risk management structures

The increased scrutiny from financial institutions means junior miners must produce more comprehensive feasibility studies, and at a faster rate than ever before. These studies must withstand rigorous scrutiny and due diligence processes that thoroughly assess technical, financial, social, and environmental aspects of projects.

Buildability: from PowerPoint into reality

Perhaps the most overlooked component is buildability—the owner's team and a project's ability to transition from technical studies to actual construction and operation. The mining landscape is littered with projects that appeared feasible on paper but proved challenging to build due to unforeseen complications.

Buildability encompasses:

- Construction logistics and timeline realism
- Labour and contractor availability
- True integrated design philosophies not only on the functional design, but how the design elements are integrated and interacts with other disciplines and functions
- Infrastructure requirements particularly energy independence and water security
- Operating complexity and operational readiness

Recent industry analyses indicate that nearly 70% of major mining projects experience significant schedule delays and cost overruns, often due to buildability challenges that were not adequately addressed during feasibility studies and operational readiness planning.

The success of mining projects hinges on three interconnected factors: fundability, bankability, and buildability.

Bankability takes fundability to the next level.

The integration challenge

For junior mining companies, success increasingly depends on addressing all three elements simultaneously rather than sequentially. Projects must be designed from the outset with fundability, bankability, and buildability in mind.

The most successful junior miners are those that integrate these three dimensions into their project planning from day one. They understand that optimisation decisions made during early studies will directly impact their ability to fund, finance, and ultimately build their projects.

This integrated approach represents a significant shift from historical practices, where technical considerations often dominated early project development, with financial and construction considerations addressed later.

Strategic implications for junior miners

Forward-thinking junior mining companies are adopting several strategies to enhance their projects' fundability, bankability, and buildability:

- Engaging geology, mining, plant and processing engineers, permitting specialists as well as financial specialists earlier in the project development life cycle.
- Incorporating construction expertise into feasibility study teams where appropriate.
- Developing more robust risk management frameworks.
- Focusing on modular, phased development approaches that reduce initial capital requirements.
- Building stronger relationships with potential strategic partners and financiers throughout the development process.

Industry observers note that projects demonstrating strength across all three dimensions are increasingly commanding premium valuations in today's capital markets.

Conclusion

As geopolitical uncertainty, resource nationalism, ESG requirements, and technical complexity continue to reshape the mining landscape, junior mining companies need to elevate their strategies and execution approach to project development.

The ability to demonstrate fundability, bankability, and buildability has become the new standard for separating promising projects from those likely to stall in the development pipeline.

For investors, lenders, and strategic partners, this triad provides a valuable framework for assessing project viability beyond traditional metrics like grade, size, and location. Junior miners that master the integration of these three elements will be best positioned to transform geological discoveries into operating mines in our increasingly competitive mining sector. ■

Thermal Coal's **unseasonal price slide, explained**

By Tom Price Managing Director, Research Analyst, Resources at Panmure Liberum

2025's bear market: South Africa is the source of 5% of the world's traded thermal coal – delivering more than 60 mtpa, generating US$5.4 bn for its economy – making it one of the country's key mined exports. Problem is, the value of this trade has dropped about 20% in the last six months. It's a sustained decline that largely reflects a general slide across global trade prices – an exogenous hit to South Africa's coal miners.

High-profile brands of the world's seaborne-linked coal markets (Newcastle; Richards Bay, Qinhuangdao, Kalimantan, etc) are now trading in a US$70-100 /t range, down 10-30% since 3Q24.

Typically, a sharp pullback in a commodity's price like this would reflect a deterioration in that commodity's demand. But that's not the case for thermal coal. For 2024, its total global import demand, for all traded thermal coal products, lifted 2% year-on-year to a record-high of 1.1 bt. The lift was dominated by China's 13%YoY lift to 421 mt, offsetting weakening demand elsewhere – on the West's ESG-related paring of coal-fired power-generation, as well as subdued global power demand. China's share of total global thermal coal supply is almost 40%, doubling over the past decade.

And yet, thermal coal prices declined throughout the northern winter, failing to respond to the ever-reliable pre-winter restocking trade 'kick' of November, which occurs across the coal markets of Asia and Europe. Curiously too, coal prices faded throughout 2024, while those of natural gas worldwide – key substitute of coal in base load power generation – reported a sustained lift.

So, given our collection of market observations above, the only possible explanation for this sustained fall in coal prices is an unexpected, outsized lift in traded supply – overwhelming robust demand growth. It turns out, that is probably what has occurred: global traded supply's up 8% YoY to a record-high too, of 1.2 bt – creating a massive market surplus of almost 100 mt (8-9% of total trade). What's going on?

Export trade, restructured

Our market analysis shows that China is the dominant trade and price driver here. Since 2023, it has dramatically restructured key supply lines of the global trade:

1. Australian, re-fired: late 2022, China removed its 2-year ban on Australian thermal coal imports (imposed 2020, when Australia requested details on the source of COVID-19), and then rapidly hiked imports to a rate of 70 mtpa (17% of China's total thermal coal imports);
2. Russian diversions: 2022-23, China boosted imports of coal from Russia too, much of it being the EU's spurned trade (war-related ban, since 2022); now importing at a rate of 40 mtpa (9% of total);
3. Indonesian 'lignite wave': 2023-24, China not only boosted imports of Indonesia's standard grades (4200-5900 kcal/kg Kalimantan; importing 230 mtpa, +10% YoY), it ordered lignite too (sub-3000 kcal/kg; 190 mtpa, +17%YoY; doubling since 2020; 54% of China's total thermal coal imports). We suspect the ballooning trade of this very low-grade product has undermined the prices of all Indonesian products. Unsurprisingly, the government of Indonesia is frustrated by the corresponding collapse in coal's tax revenues – prompting it to enforce its own coal reference price in March.

Local mining rate's peaking

China's extraordinary expansion in its key imports (for 2024, +13% YoY to 421 mt; 36% of global trade) now includes the widest available range of product grades (2000-6000 kcal/kg). But why make these trade adjustments at all? Is China suddenly short of coal? In fact, we suspect this is the case.

For the primary moving part here is the peaking in China's enormous 4.7 btpa local coal mining rate. That is, this domestic mining industry – the world's largest, operating under one government – has entered the mature stage of an output surge that began in 2020. Back then, China's central government directed its coal miners to create a huge local coal surplus, to cap energy prices and associated inflation risk, as the economy emerged from its first Covid-lockdown.

While China has invested heavily in ex-coal power generation capacity (gas-nuclear, solar-renewables) since 2020 – it's collective coal-fired power still underpins the economy, delivering over 55% of its total power-generation. Pushing for an even higher domestic coal production rate from current levels would require another expensive, industry-wide, long lead-time capital expenditure program. So, once again, to avoid a short-term coal shortfall – China has boosted its coal imports, as a stop-gap measure.

Busy blending

We have not seen thermal coal's typically quiet trade undergo the sort of structural change China has imposed on it, over recent years – simultaneously expanding imports from Indonesia, Australia, Russia. Unsurprisingly, China's ports-traders-utilities have reported a sharp lift in coal blending activity, necessary to manage this broad flow of coal types – from top-grade (5500 kcal/kg) of Australia and Russia, to sub-3000 kcal/kg lignite/brown coals of Indonesia – to be then delivered to local power utilities.

Based on our trade assessments though, China has managed to halt its decade-long decline in imported coal quality (i.e. 4600 kcal/kg; total supply's weighted average grade), at least for now. It has also cut the US$/t-value of its own trade. How? Expanding imports by over 80% during 2020-24, securing almost 40% of the total trade – China now possesses significant pricing power. Its on-going push for lower prices has dragged all trade signals lower.

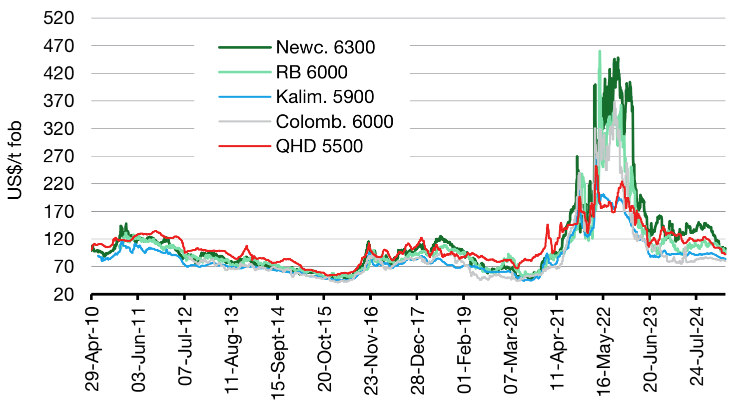
Thermal coal's price outlook

Again, prices of key globally traded thermal coal (Newcastle; Richards Bay, Qinhuangdao, Kalimantan, etc) have pulled back 10-30% since 3Q24 – with most of this shift occurring during the northern winter. High-profile brands of the world's seaborne-linked coal markets are now trading in a US$70-100/t range, with extraordinarily low volatility. Prices of forward contracts covering 5500-6300 kcal/kg Australian coals report a persistent contango, implying ample short-term supply.

Price drivers in play right now include: 1. China's large import surge over 2024-25 – from Indonesia, Australia, Russia – to offset the peaking in its local coal mining rate (stalling at 4.7Btpa); 2. in play for several years now, is the moderation in coal demand growth, ex-China/-India, across the western hemisphere (ESG-related structural shift in global power generation); 3. subdued global power demand (reflects moderating global economic growth, perhaps soon to be capped by another US-led global tariff conflict).

From here, dominant short-term bull factor for thermal coal prices is the northern summer's restock (May/June; tracks gas trade). An important longer-term bull factor for thermal coal prices is the lack of investment in ex-China thermal coal supply growth. Our long-term real (2025$) prices for key products: Richards Bay 6000 kcal/kg, $78/t fob South Africa; Newcastle 6300 kcal/kg, US$105/t fob Australia. .■

Thermal coal price indices (US$/t fob)



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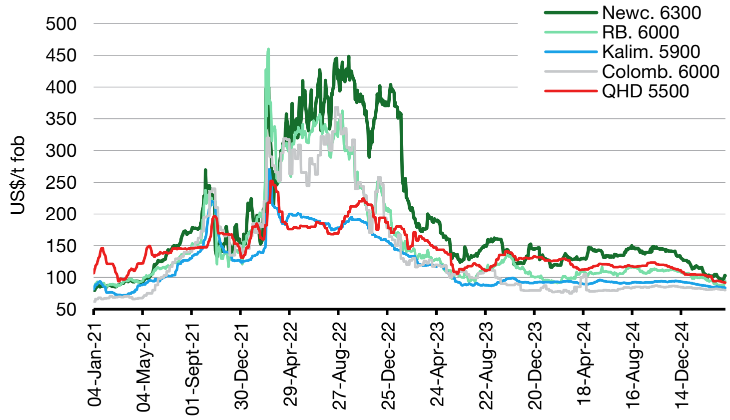
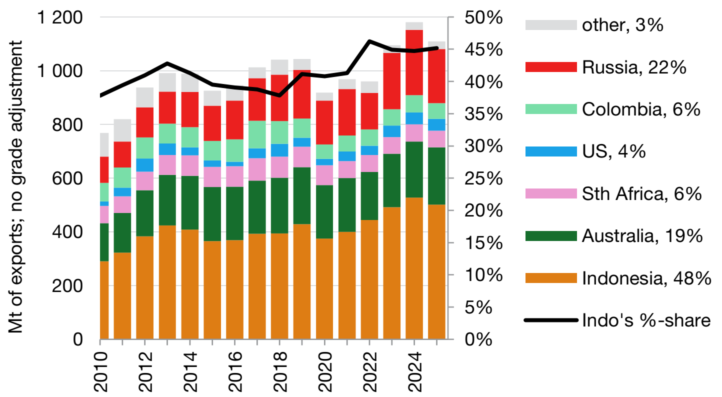
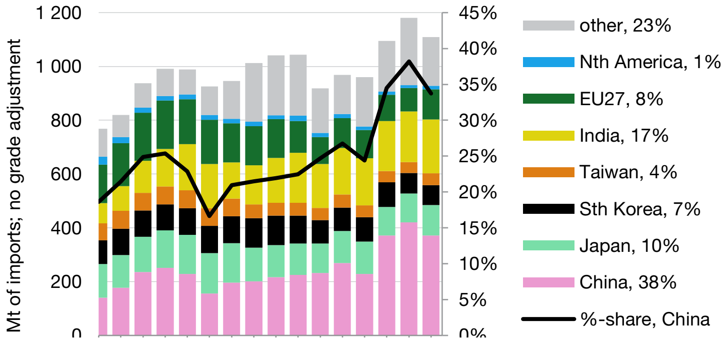


Thermal coal EXPORTERS (mt)



Thermal coal IMPORTERS (mt)



WGC drives **industry wide responsible mining principles**

By Nelendhre Moodley

The World Gold Council (WGC) has several initiatives aimed at advancing industry-wide responsible mining practices, including help to establish a single consolidated mining standard for all commodities, and pilot projects to demonstrate the benefits of incorporating artisanal gold mining into broader partnership with existing large-scale miners, as well as other local stakeholders.

Head of Sustainability Strategy at the World Gold Council, John Mulligan.

Speaking to *Modern Mining* on the sidelines of *Investing in African Mining Indaba 2025*, Head of Sustainability Strategy at the World Gold Council, John Mulligan, said the Responsible Gold Mining Principles (RGMPs) were foundational in seeking to change the narrative around responsible sourcing and consumption of gold.

"Over the past five years or so, we have been busy defining and implementing the Responsible Gold Mining Principles (RGMPs). There are 10 overarching key principles under which are 51 sub-principles – all of which seek to detail what responsible mining is in practice. The principles were arrived at after years of consultation with a wide range of stakeholders, including governments, mining companies and communities. The principles are mandatory for the WGC members, with a large portion of gold now produced under those principles."

The adoption of the RGMPs has effectively raised the standards of responsible mining in the gold industry. According to Mulligan, the establishment of the RGMPs has set a platform that allows consumers, investors, and stakeholders to demand from gold miners evidence of their performance in respect of responsible gold mining.

"It is no longer enough for a company to tout being responsible, quoting ESG aspirations, they now have to demonstrate their performance in a clear and transparent way against firm standards. Moreover, companies are keenly aware of the wider investor and societal expectations in relation to their ESG performance."

While the principles have introduced consistency, clarity and transparency to the market, they relate only to gold as it is mined and not to the gold that passes through to consumers via the refiners, says Mulligan.

So, what exactly is being done to bring gold refiners into the fold?

"What we need is for gold refiners to align to the principles of responsible mining. To date, there has been collaboration with the London Bullion Market Association (LBMA), which accredits responsible refiners as conforming to criteria laid out in its Responsible Gold Guidance. The responsible gold guidance explicitly references its equivalency with the WGC's RGMPs, so refiners know what questions to ask when they source newly mined gold. This encourages a trusted chain of custody that is consistent with ensuring gold is responsibly sourced before it enters the market. The process encourages transparency and has allowed gold to enter the system from trusted gold miners. It also ensures that consumers purchase validated gold."

Further to this, the WGC, in partnership with the LBMA,

A large portion of gold is now produced under the RGMP principles.

The adoption of the RGMPs has raised the standards of responsible mining in the gold industry.

(Source: World Gold Council) and ASM (Source: Open Institute Extractives Program, Migori County, Kenya).

recently established the Gold Principles Group, which brings together 14 global associations across the gold value chain, including three of the world's leading jewellery associations, refiners, exchanges and national industry bodies, such as the China Gold Association. Together, they strive to advance a set of sustainable and responsible business practices across the supply chain and across the world – from mine to market.

Encouraging artisanal miners to adopt responsible gold principles

Apart from gold procured from the formal sector, gold is also sourced "outside of that chain of custody", namely from artisanal/ informal gold producers.

The question then arises, how effective are artisanal miners in aligning with responsible gold mining principles?

According to Mulligan, for many people, particularly those outside the gold market, the gold sector is not only judged by the actions of the wider mining sector, but also by the activities of the informal gold industry – that is, the artisanal miners.

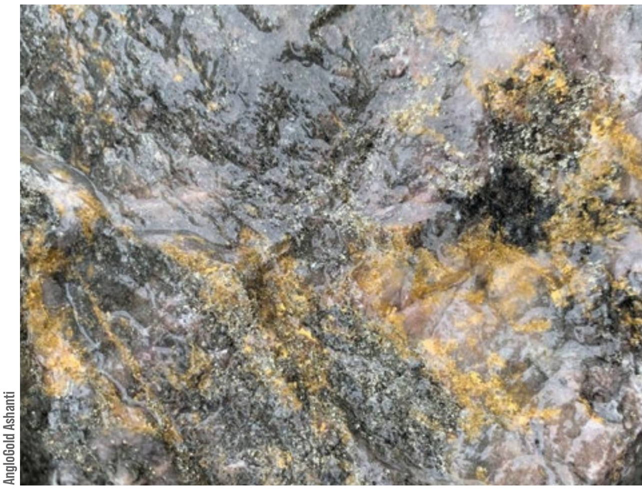
"As an industry, we must engage with the informal gold segment and encourage alignment with the basic principles of responsible gold mining. A panel discussion on this very topic is being deliberated at Mining Indaba."

The soaring gold price continues to attract hordes of artisanal miners to the gold mining space, which poses a potential risk, "as it accelerates the size of the informal sector, especially the entry of players that do not practice responsible mining.

"Informal gold mining, often associated with illegal mining, does in some cases involve elements of wider criminal activity. Over the past few years, there has been an increase in the number of illegal miners entering the fray. However, we need to recognise that these challenges – the drivers of an expanding artisanal sector - are well beyond a particular mine and the gold mining industry, and are often reflections of limited alternative livelihoods, extreme poverty and lack of government capacity to enforce the rule of law. While this talks to large structural issues,

The soaring gold price continues to attract hordes of artisanal miners to the gold mining space.


AngloGold Ashanti


AngloGold Ashanti

Visible gold-at AngloGold Ashanti's Nyankanga, the main production pit of the Geita Mine, located in northwestern Tanzania.

The principles are mandatory for the WGC members, with a large portion of gold now produced under those principles.

we still need to seek practical ways to reduce the negative impacts associated with small-scale and artisanal mining."

To address such challenges, the WGC has several programmes in place, such as bringing its members into potential partnerships with artisanal miners and other stakeholders. "We are collaborating with major and smaller mining companies – those members with perhaps only one or two assets - and the participants in the informal sector and encouraging them to identify joint solutions," says Mulligan.

Over the years, various attempts to formalise artisanal gold mining and incorporate it into the mainstream have failed, "in part, due to lack of sustained support from governments".

The WGC is currently engaging governments and Central Banks, which in some regions procure gold from local artisanal miners, to adopt responsible gold mining practices and demonstrate that the gold brought to banks is responsibly sourced.

"We recently established a Central Bank Domestic ASGM Purchasing Programme, which encouragers artisanal miners that sell gold to Central Banks, to adopt established principles of responsible mining. Several Central Banks are already on-board with a few new entrants queuing up to participate in the programme."

Further to this, the WGC continues to explore the "viability of locations across the world, and particularly in Africa," to pilot projects that demonstrate the success of incorporating responsible artisanal miners into the mainstream. The first pilot project currently being explored for implementation is in Cote d'Ivoire.

"I believe we have buy-in from the government of Cote d'Ivoire, the support of larger scale gold miners, including Barrick Gold, and the support of local miners. With a supportive government and the World Bank's overarching convening power, we hope to establish a site to demonstrate good practices within responsible artisanal mining. Moreover, we are seeking durable, scalable solutions that can be applied elsewhere."

Over and above this, the WGC continues to advance initiatives that address challenges arising from artisanal miners operating adjacent to - or on the concessions of - larger gold producers

"We have done much work in this regard and, a few years ago, published a report on how to address some of the more pertinent issues. Essentially, we are looking at ways to create a network of miners willing to help drive progress in the artisanal mining space."

Responsible Gold Mining Principles

The Responsible Gold Mining Principles (RGMPs) are a framework, first launched in 2019, that set out clear expectations for consumers, investors and the downstream gold supply chain as to what constitutes responsible gold mining.

Consolidated Mining Standards Initiative

The Consolidated Mining Standards Initiative (CMSI) seeks to harmonise many of the established responsible mining principles from different commodities or regions into a single set of standards. Currently, the various industry bodies working on consolidation include associations such as the WGC, the International Council on Mining & Metals (ICMM), the Mining Association of Canada (MAC) and the Copper Mark, and all employ their own sets of responsible mining principles.

"Although these standards may be from different commodities or segments of business – represented by the WGC, the ICMM, MAC, and the Copper Mark – overall, the standards are fairly compatible and often overlap. Large miners already adhere, perform and report against several of these frameworks. The aim is to have a single coherent standard for responsible and sustainable mining across all commodities. This means that guidance is no longer targeted at one market, one metal, one country; rather we move to one standard that defines responsible mining in total."

The CMSI recently concluded its first public consultation with the team currently reviewing feedback from the process.

"There have been thousands of comments from the consultation process, which clearly illustrates how engaged larger society and key stakeholders are in this process," says Mulligan.

The WGC is hopeful that the CMSI will be ratified in the next 12-24 months.

"Given that the metals we mine are vital for the future of our society and for our transitioning economy, it is imperative that we change how we operate and converge on good practice."

Are mines in Africa readily adopting responsible mining practices?

"In most mining jurisdictions mining companies are not only demonstrating and implementing these standards but are happy to inform the world of their initiatives. However, our challenge is to increase awareness in the smaller-scale mining segment of business."

In most mining jurisdictions mining companies are not only demonstrating and implementing these standards but are happy to inform the world of their initiatives.

In Africa, the world's largest gold producing region, WGC members are engaged in 44 gold projects (including 33 producing mines) in 12 African countries.

Cost vs benefits of implementing responsible mining principles

According to Mulligan, all change incurs a cost.

"We cannot deny that for some companies, implementing responsible mining principles will impose a cost, but that is the nature of responsible business and adapting to change. Being asked to perform transparently across a wide range of different standards often comes with additional cost, some of which could be substantial, depending on a miner's current capacity, current resources, expertise and skill set. However, this is weighed against the benefits that are unlocked in terms of efficiency, risk reduction, resilience, and in some instances, longer-term operational benefits."

Apart from the near-term benefits associated with responsible mining, there is the added motivation for continuous improvement.

"Once a miner becomes transparent, s/he looks to unlock further business and performance improvements. In fact, many companies implementing responsible mining standards uncover not only risks that need to be addressed but also realise further cost savings.

"Importantly, people forget to ask the question: What is the cost of not being demonstrably responsible? People frequently forget to factor in the cost related to failings, should they not adopt responsible mining practices," Mulligan concludes. .■

(Nivaash Singh. Co-Head: Mining and Resources, Nedbank CIB): Nivaash Singh shares insights on mining trends, finance, and the road ahead.

Nedbank flags key trends **influencing mining over the next two years**

Nedbank Group, one of the largest financial services groups in Africa and a banking institution synonomous with 'green banking' remains closely involved in the African mining industry, playing a crucial role in advising and financing mining projects. *Modern Mining* caught up with Nivaash Singh, Co-head of Mining and Resources at Nedbank CIB, for a Q&A about some of the key trends set to influence the mining sector over the next two years and insight into areas of interest for miners.

What does Nedbank see as key themes influencing the mining sector in 2025, going into 2026? How can industry prepare and take advantage of the positive aspects while mitigating the challenges?

At the start of every year, we sit down as a business unit and identify the key themes shaping the mining sector. These are not abstract discussions, they reflect what's actually happening on the ground and what will influence decisions around investment, development, and financing in the coming years. For 2025 and 2026, we have identified six major themes.

1. Rising geopolitical risk is the first and arguably the most pressing. As a miner, one cannot afford to ignore what's happening globally. The Russia-Ukraine war is still playing out, China is under pressure from the US, and with Trump back in

> The Russia-Ukraine war is still playing out, China is under pressure from the US, and with Trump back in the White House, a shift in US trade and foreign policy will have global ramifications.

Sustainable resource management is key to mining's future.

the White House, a shift in US trade and foreign policy will have global ramifications. These factors affect commodity demand, trade flows, and where capital is deployed. Regionally, miners operating in Africa need to ask hard questions about their position. Are they in a jurisdiction with a stable government? Do they have access to ports, or are they landlocked and dealing with logistical bottlenecks? Can they negotiate a mine development agreement that gives them long-term security in that market? Understanding these risks upfront is essential to making informed investment decisions.

2. The second theme is the importance of securing a social licence to operate. This is not just about meeting regulatory requirements; it's about earning the trust of local communities and governments. A mining company that is not seen as a partner in local economic and social development will struggle to operate, even if it holds all the necessary permits. It's about demonstrating real value to the communities surrounding a project, ensuring compliance with laws and regulations, and making investments that go bey

3. Heightened M&A activity is another defining trend. High commodity prices have left producers sitting on excess cash, and the need to put that money to work. First, they will pay down debt and then declare dividends. After that, share buybacks become an option. But eventually, once those steps have been taken, the logical move is acquisitions. Larger miners are actively looking at acquiring junior exploration companies that have completed feasibility studies but have not raised the capital to develop their projects. Right now, there's a lot of M&A activity on the continent as bigger players look to take advantage of high commodity prices and expand their resource base.

4. Accessing commercial bank debt remains an area that many junior miners are hesitant about. The perception is that banks are too slow, too bureaucratic, and impose too many conditions on financing. But the reality is that commercial

Gold remains a strong investment case.

bank debt is still one of the cheapest and most sustainable forms of capital available. Yes, it takes time to secure, and yes, there are governance requirements, but that is because bank debt is structured to support projects for the long term. Many miners wait too long to engage with banks, and then when they need funding, they find they don't meet the criteria. Early engagement is key.

5. The importance of a funding plan in a bankable feasibility study cannot be overstated. Too often, junior miners rush to complete a feasibility study but don't include a clear funding plan. That's a problem because the first thing any lender or investor will ask is how the project is going to be funded. A feasibility study without a funding plan isn't bankable. Miners need to have a clear capital procurement strategy, detailing where equipment will be sourced from, how infrastructure will be developed, and how they plan to manage key operational elements like tailings storage facilities and logistics. Without that, securing financing becomes an uphill battle.

> "The biggest challenge for junior miners is the tendency to rush through feasibility studies without properly considering how they are going to raise capital."

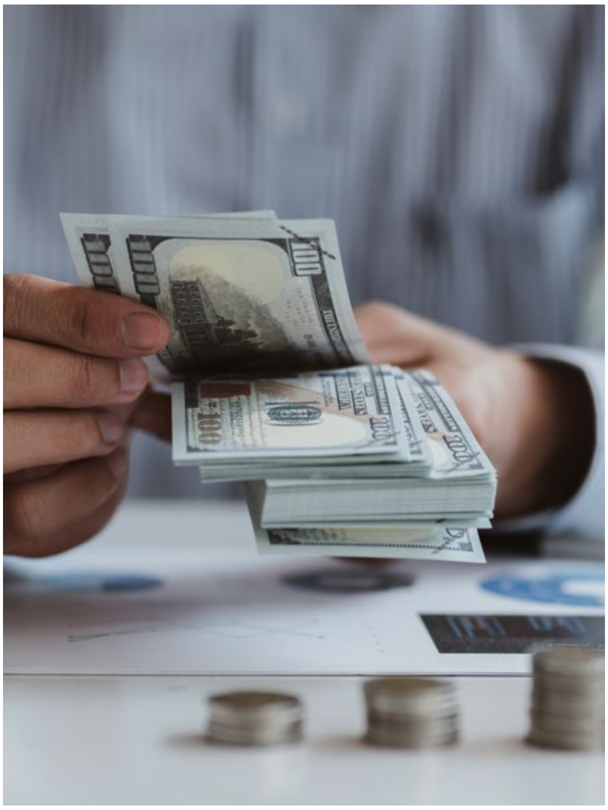
6. Mining's role in the green energy transition is the final key theme. This is a conversation that's been happening for years, but it's worth reinforcing: every renewable energy solution (wind turbines, solar panels, electric vehicles, battery storage) depends on materials that come from mining. The industry needs to shift from being on the defensive about its environmental impact to owning its role as the backbone of the clean energy economy. Without mining, the transition to a low-carbon world simply isn't possible.

What are some of the funding challenges that miners face, particularly junior miners? Are there any new ways to access funding and how is Nedbank assisting in this regard?

The biggest challenge for junior miners is the tendency to rush through feasibility studies without properly considering how they are going to raise capital. A lot of the focus is on the technical aspects like the geology, the mine plan, and the processing plant design. But what often gets overlooked is the funding strategy. Many junior miners complete their studies and then approach lenders, only to be asked where their funding plan is. More often than not, it doesn't exist, and that's a problem.

Lenders need to see a full picture of how a project is going to be financed before they commit capital. That means having a clear procurement strategy, knowing where key equipment and infrastructure will be sourced from, and having a structured approach to capital raising. At Nedbank, we're actively engaging earlier in the process to guide clients on structuring their projects properly. We offer advice on how to design a capital procurement strategy, what investors and lenders are looking for, and how to align funding structures with project timelines. This helps miners avoid costly delays and increases their chances of securing funding.

Smart investment supports productive and future-ready mining operations.



Commercial bank debt is still one of the cheapest and most sustainable forms of capital available

Alternative financing models are also becoming more common. We're seeing a rise in royalty financing, streaming agreements, and hybrid debt-equity structures, all of which provide flexibility for miners looking to raise capital. These options allow companies to access funding without overloading their balance sheets, making them an attractive alternative or complement to traditional bank debt.

Which commodities does Nedbank see as gaining development traction in the next two years? Why is this?

Copper is the standout. Demand is set to exceed supply, and when that happens, prices will rise. Copper is essential for electrification, power grids, renewable energy, and electric vehicles. It's a metal the world cannot do without, and as the green energy transition gains momentum, the need for copper is only going to increase.

There's also a growing interest in green copper - copper mined using renewable energy. While there isn't yet an official market for it, the expectation is that miners who can prove their copper is produced sustainably will be able to demand a premium.

Gold remains a strong investment case. It's always been a safe-haven asset, and that's not changing. PGMs are also worth watching. Toyota recently announced a shift away from fully electric vehicles to plug-in hybrids, which still require catalytic converters, meaning they still need PGMs. Two years ago, the expectation was that PGMs would decline as EV adoption increased. Now, with this shift in strategy from one of the biggest automakers in the world, it's clear that PGMs still have a long runway ahead.

While there is a push for mining houses to meet the sustainability agenda, is this really taking place on the ground? Are mining houses, especially junior miners, really committed to ESG?

ESG compliance in mining is not just a corporate buzzword, it's a hard requirement, particularly for publicly listed companies. If a miner is listed on a major stock exchange like the TSX, ASX, LSE, or JSE, they don't have a choice; they have to comply with strict governance frameworks, or they won't get investor backing. Institutional capital is demanding ESG alignment, and for publicly traded mining companies, this has been the reality for some time.

That said, the conversation around ESG has become a lot louder in recent years. It's not that sustainability in mining is a new concept, companies have been working on it for decades, but the focus on publicly demonstrating ESG efforts has intensified. Investors want more transparency, regulators are tightening oversight, and communities are holding mining houses accountable in ways that weren't as visible before.

The real question is whether ESG commitments on paper translate into action. The short answer is that for listed miners, they are implementing ESG in a real and measurable way. A good example is the Motheo Copper Project in Botswana, developed by Sandfire Resources. Sandfire is listed on the ASX, which means they are bound by the strict ESG regulations of the Australian market. Over and above that, the project operates under Botswana's mining laws, which have their own sustainability requirements. And because commercial banks fund the project, additional ESG conditions have been

Mining is at the heart of the green energy transition, responsible finance makes it possible.

layered into the financing agreements.

In a project like that, you get triple-layered governance regulatory requirements from the stock exchange, the host country, and the financial institutions providing the capital. That's how you ensure ESG isn't just a compliance box-ticking exercise but something that's actively shaping how a mine is developed and operated.

The challenge is with privately owned mining companies. Unlike listed entities, they don't have external investors or regulators enforcing sustainability commitments. Some private miners are genuinely committed to ESG, but others are not operating at the same level as their listed counterparts. That's where the gap still exists, and it will need to be addressed as ESG expectations continue to evolve.

How are geopolitical factors influencing mining on the African continent? Any new threats that you would like to flag?

Geopolitical risk is a major factor in mining, and every investor, financier, and mining company needs to consider it before making any long-term commitments. It plays out at two levels, global and regional, and both are shaping how capital is deployed in the sector.

At a global level, shifts are happening that directly affect mining investment decisions. The Russia-Ukraine war is still playing out and US-China tensions are escalating. These factors influence everything from trade policies to capital flows, which impacts where miners choose to invest and where financiers are willing to back projects.

On a regional level, the picture is more complex. Africa has always been a high-risk, high-reward investment landscape, and miners operating here must carefully examine the fundamentals before committing capital. In terms of immediate threats, nothing entirely new hasn't already been on the radar, but tensions in the eastern DRC, particularly along the Rwandan border, remain a concern. That situation has been simmering for some time, and while it hasn't yet disrupted mining operations at scale, investors and operators need to keep an eye on it.

Mining is a long-term game, and geopolitics can shift quickly. What is critical is that miners take a disciplined approach to geopolitical risk management, ensuring they have a solid understanding of the markets they are entering, the governments they're dealing with, and global factors that could impact their investment decisions.

It seems that the mining sector is gearing up for M&A's. What are some of the drivers and which commodities do you see as being ripe for the picking?

Mining M&A is gaining momentum because miners have cash, and they need to put it to work. Strong commodity prices have left producers with solid balance sheets. First, they pay down debt. Then, they return capital to shareholders. After that, acquisitions become the next logical step.

Right now, the big targets are junior miners with feasibility studies in place but no capital to develop their projects. It's not about buying and producing mines; it's about picking up de-risked, construction-ready assets. The real focus is on copper, cobalt, nickel, graphite, and lithium, the metals driving electrification and battery storage.

Nedbank CIB is in the middle of this, working on identifying opportunities, running valuations, and structuring deals. However, in M&A, it only matters when the deal closes. There's plenty of interest, but the real challenge lies in getting buyers and sellers to align on valuation.

How important is the Mining Indaba in Nedbank's calendar?

Investing in African Mining Indaba is where the industry's biggest decisions are made. It brings together investors, mining companies, financiers, and governments to shape the future of mining in Africa. For Nedbank, this event is about more than just networking; it is about being at the centre of key discussions on financing solutions, sustainability, the energy transition, and investment trends.

This year, our presence was stronger than ever. Nedbank's Chairperson, Daniel Mminele, opened the Energy in Mining Panel Discussion, exploring how mining companies could navigate energy tariffs, the carbon border tax, and decarbonisation strategies. This session included experts from Boston Consulting Group, Engie, First Quantum Minerals, and Cresco Group, who provided insights into how miners could balance sustainability with profitability.

On the commodities front, Arnold van Graan, Senior Mining Analyst at Nedbank CIB, hosted the PGM Breakfast with Johnson Matthey and Northam Platinum, where industry leaders discussed global supply-demand trends and the future of PGMs in the evolving auto sector. He also led the Gold and PGMs Investment Roundtable at Mining Indaba, unpacking where the best investment opportunities lay.

Critical minerals were a focus at the Project Blue Breakfast, which explored Africa's role in supplying manganese, copper, and other key materials essential to the energy transition. The BASF Breakfast featured discussions on auto catalysts and the impact on platinum group metals demand, with senior executives from BASF and Northam Platinum sharing their perspectives.

Beyond the discussions, Nedbank was a Platinum Sponsor of the 121 Mining Investment Conference, which included a speaking slot on the opening panel, a branded coffee lounge, and a dedicated refreshment lounge. Cathy Nader, Principal for Mining & Resources at Nedbank CIB, joined the Mining Investment Leaders Panel, providing insights on funding solutions and investment strategies.

We also hosted our annual Nedbank CIB Client Cocktail Event, an exclusive networking evening where executives, investors, and government officials spoke about industry trends and strategic partnerships. Additionally, I hosted a masterclass for the UCT Leaders in Extractives African Development (LEAD) Programme, reinforcing Nedbank's commitment to developing future leaders in African mining.

Our presence at Mining Indaba reflects our deep commitment to the industry. We were not just there to observe; we were actively financing and shaping the projects that define the future of mining. That's why we prioritised being there, ensuring that our clients, partners, and stakeholders had access to our expertise, capital, and insights. ■

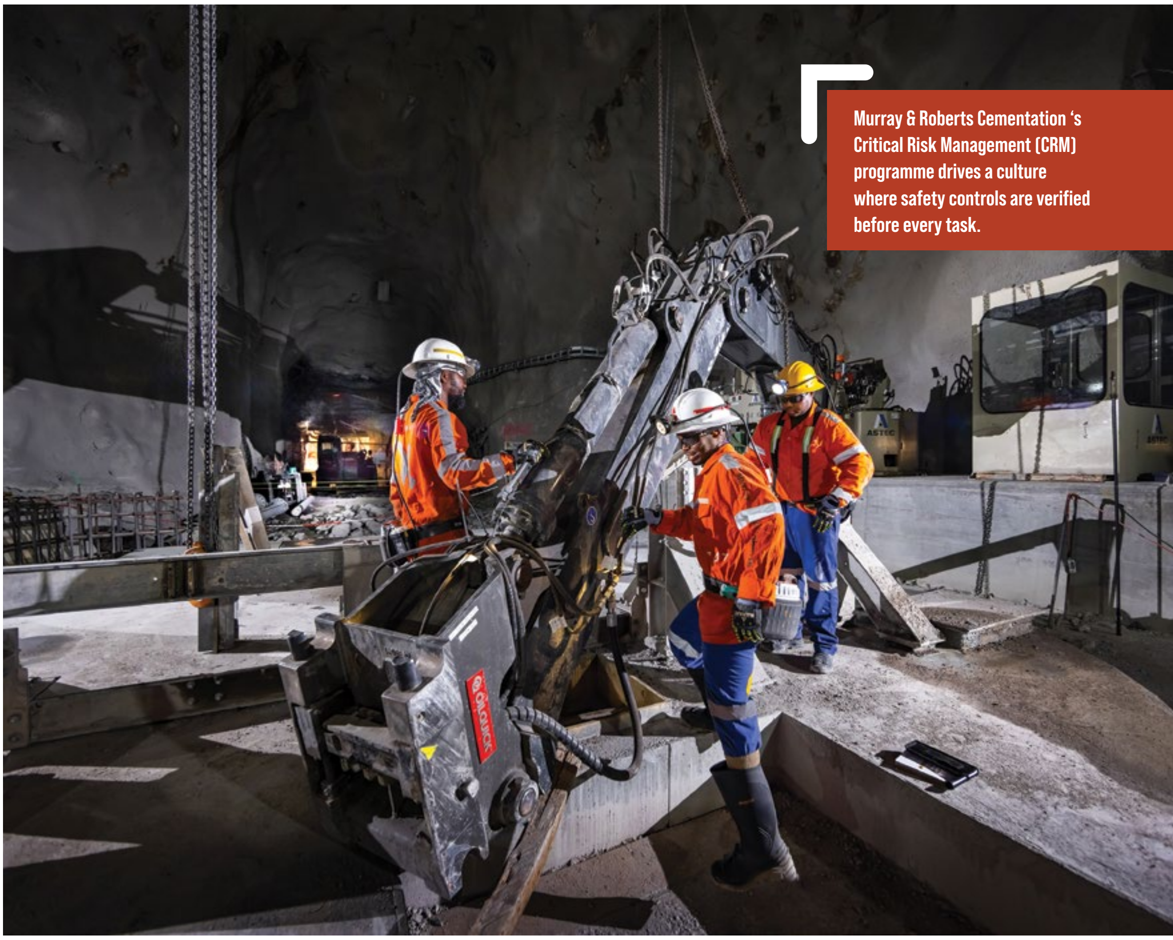
Murray & Roberts Cementation takes safety to new heights

By Nelendhre Moodley

2024 has been a momentous year for safety in mining with the sector recording 42 fatalities, a 24% reduction from 55 fatalities in the previous year, and a 16% reduction in injuries from 2023.

Trevor Schultz, Risk Executive at Murray & Roberts Cementation.

Graham Chamberlain, New Business Director at Murray & Roberts Cementation.



Murray & Roberts Cementation 's Critical Risk Management (CRM) programme drives a culture where safety controls are verified before every task.

"The record low number of fatalities last year is confirmation that the industry is firmly on the path to zero harm, when every employee returns home safely and in good health," the Minerals Council South Africa said.

Playing a key role in driving the agenda towards zero harm is leading underground mining contractor, Murray & Roberts Cementation, which has an unwavering dedication to safety, supported by hefty investments in training, advanced technologies, and fostering a culture where safety is integral to everyday operations.

The Johannesburg-based entity itself achieved an impressive milestone of 8 million fatality free shifts in January 2025.

"Besides being an extremely proud moment for the company, the achievement proves that we have been able to accomplish what was previously considered impossible for a contractor. Furthermore, it allows us to engage on a good footing with any blue-chip client driving the agenda towards zero harm at their mining operations," explains Trevor Schultz, Risk Executive at Murray & Roberts Cementation.

For New Business Director, Graham Chamberlain, achieving 8 million fatality free shifts means the company has successfully broken though the psychological target barrier of 7 million fatality free shifts and is continuing on its path of achieving its moving safety target.

"Given the strong legislative stance towards zero harm, Tier One companies, in particular, continue to seek our assistance in training and upskilling employees. It is important to note, though, that the safety agenda is driven by top management and when they are truly committed, safety records become a success story."

Continuous evolution of MAP

Underpinning its phenomenal achievement is

Embracing mechanisation and automation, Murray & Roberts Cementation pushes for safer, more efficient underground mining.

Murray & Roberts Cementation's successful critical control programme - Critical Risk Management (CRM) - offered to clients locally and to those with operations across the African continent.

Implemented 12 years ago, and initially known as major accident prevention (MAP), the CRM programme has evolved to align with current industry needs. The programme encompasses managers, supervisors and employees at operator level.

Spear-headed by Schultz, the CRM programme is a structured critical control management programme that focuses on critical controls to embed a company-wide safe working culture.

"The programme ensures employees verify that the necessary controls are in place before the start of any task or activity. However, when employees do transgress, the likelihood of a fatality or a serious injury is high," explains Schultz.

The data from CRM, analysed closely each month, is used to track non-compliance of critical controls.

"These trends are used to identify areas of concern that need to be rectified. We also focus on leading and lagging indicators, particularly of high impact lost time injuries. The cases with a potential for extensive property damage and serious injury are treated as fatalities and undergo a rigorous investigation process."

Importantly, given that crews move from site to site, each site is equipped with an integrated paperless training management system that is a duplicate of the Murray & Roberts Cementation Training Academy (MRTA) and allows the company to moderate behaviour, using various techniques, including developmental coaching to ensure individuals align with safety requirements.

"The client has access to real time progress reports of an individual's performance during the training phase, which includes photographic and documented evidence of competence as part of a comprehensive portfolio of evidence," explains Schultz.

"Moreover, we have excellent communication channels with our clients and sister companies, which allows us to cross-fertilise any learnings from key incidents as well as those from the Department of Mineral and Petroleum Resources inspectorate visits. We welcome these visits and use them as a learning platform and an opportunity to share insights with clients," adds Chamberlain.

Mechanisation and automation

Unlike miners globally that are embracing full automation strategies, this is not yet the case in South Africa.

Although the drive to zero harm calls for the removal of individuals from hazardous areas of operation with the mining industry looking to mechanisation to realise results, this is against the backdrop of a legislative environment that is slow to embrace advanced technological developments.

"To successfully implement mechanisation and automation in the local mining environment, industry first need to do away with regulations that promote the use of high-risk methods and equipment and endorse those related to safe and advanced mining technology. As it is, the local legislative environment does not endorse the use of off-the shelf cutting edge technology, such as the automated drill rig, which is equipped with pre-programmed drilling patterns. Currently, we have a laborious system in place that requires the certificate holder and drill rig operators to physically examine the machine, rock-face and physically sign-off that all is safe at each and every interface. They are then required to wash and clean existing sockets, plug them and then physically mark each new drill hole position 15 centimetres away from the old sockets. The latest drill rigs can, after the socket examination and safety sign off, use a laser positioning system and the drill rig can automatically then take over and complete the drilling cycle" says Chamberlain.

The good news though is that recent engagements with legislators show that the department is warming to the idea of adopting this latest technology.

"For now, the DMRE is happy to treat technology adoption on a site by site-basis," he says.

Accompanying the regulatory challenges stymieing the adoption of advanced technology at mines, is the prohibitive cost of the technologies themselves. "To succeed, we need a willing industry to partner with us."

Moreover, given that previous attempts to introduce various types of new technologies into the mining environment have failed, industry has thus become resistant to change.

"We desperately need these new technologies to succeed in the mining environment - not just with Murray & Roberts

With ongoing investments in training, safety culture and industry collaboration, Murray & Roberts Cementation continues to redefine mining safety standards.

Celebrating 20 years of industry leadership, Murray & Roberts Cementation remains dedicated to building a safer future for mining.

Cementation but with any willing contractor or client. Technology implementation that proves successful will pave the way for the mining industry to embrace advanced technologies; this includes automated and autonomous machine operation, ore extraction, shaft sinking and tunnel boring."

The benefits of adopting progressive technology include improved efficiencies, increased productivity and better safety.

"The advantages associated with embracing new technologies include the requirement for upskilling employees who are then eligible for advanced training, self-improvement and higher pay. Further to this, mining companies can lower the cut-off grade and mine lower grade orebodies and thereby extend the life of mine, ultimately improving the return on their investment," advises Chamberlain.

Interestingly, given that changing mindsets remains a challenge in our staid industry, Murray & Roberts Cementation recently introduced a 'change management' training module to aid individuals to better handle and accept change.

"In this fast-paced world with its swift technology developments, it is imperative that individuals in the working environment become receptive to change," says Schultz.

Challenges facing the mining sector

According to Chamberlain, the mining landscape continues to evolve with contractors expected to assume significantly more risk than was traditionally the norm.

"Mining clients now require contractors to be paid for the tonnages mined. This caveat means that contractors have to assume greater risk, including infrastructure and ground condition risk, amongst others – aspects traditionally associated with the mine owner. Our landscape, in terms of the type and form of contract is evolving, and we need to adapt to these changing and challenging requirements. Rather than being treated as a pure service provider, at Murray & Roberts Cementation, our focus is on partnering with our clients. A case in point is the recent agreement we inked with a South African gold mining company, in which we entered into a collaborative arrangement with the client. Increasingly, more clients in the SADC region are open to this type of engagement," says Chamberlain.

Secondly, with the adoption of the electronic tendering systems, which are largely based on cost-competitive contracts, international companies who are awarding contracts to offshore contractors in Africa are often not required to invest in local community developments.

Importantly, African countries continue to sell off their assets to international mining companies, without pursuing a symbiotic relationship that talks to aspects such as community upliftment programmes, social labour plans, local employment or CSI initiatives.

"While some international companies embrace a collaborative approach with contractors and host communities, others do not. In certain cases, when international companies are awarded licences to operate, they bring in their own labour, equipment and machines. In this instance, the host country is at a disadvantage as there is no economic multiplier - the only clear beneficiary is the foreign entity. Doing so robs African countries of the benefits associated with increased taxes, local training, skills development and local procurement"

According to Chamberlain, although international companies often deliver a sterling job, they do not have a vested interest in developing the host communities and frequently leave behind a community worse for wear.

In the case of Murray & Roberts Cementation, which celebrates 20 years in business this year, the company brings to the table extensive industry experience, an exceptional safety track record and investment in local communities, be it in skills development, local employment or investment in educational infrastructure development.

"As a leading mining contracting company our culture is to engage in training and skills development, stimulate local employment and we look to leave behind a legacy that promotes growth. For every new project we undertake, we employ labour in the shadow of that particular headgear. Further, through the MQA, we train novices from the labour sending areas and once a crop of workers has been trained, they have an opportunity to join the Murray & Roberts Cementation workforce on that particular project. We also have an excellent track record for developing current employees as artisans, technicians, supervisors and blasting certificate holders. Significantly, we have upskilled over a thousand unemployed individuals from host communities. Importantly, we have an absorption rate in excess of 50% of these pre-trained individuals," concludes Chamberlain. ■

Kangra puts the **spotlight on TB awareness**

Mpumalanga-based coal miner Kangra has intensified efforts to raise awareness about tuberculosis (TB) – crucial to the mine's continuous programme to promote employee wellness. Under the theme "Stand Together for a TB-Free World", Kangra's campaign equips employees with helpful information to make informed and healthy decisions.

Kangra's wellness day focused on TB awareness and advising employees about their health and wellbeing.

HR Manager Buhle Nzuza participated in the mine's wellness day.

South Africa's high TB burden is historically linked to the mining industry. The National Institute for Communicable Diseases reports that South Africa is among 30 countries with a high TB rate. This connection is attributed to several factors, including the concentration of people in workplaces, overcrowded living conditions, and the prevalence of silicosis.

To commemorate TB Awareness Month and launch its campaign, Kangra hosted a two-day wellness event. Stakeholders who attended included the Mpumalanga Department of Health and medical aid representatives. Employees from the mine's Udumo and Uthingo Shafts participated in various health assessments and screenings offered.

These included TB and mental health screening, as well as HIV and cholesterol testing. Screening for chronic diseases such as hypertension and diabetes was also conducted. "In March, our main focus was on TB screening since it was TB Awareness Month," says Tendani Maphiri, Kangra's Occupational Health Nurse Practitioner.

The wellness event was successful, as participants left with the knowledge and tools to lead healthier lifestyles. During the event, brochures containing valuable information about TB and HIV/AIDS were distributed.

Maphiri notes that a healthier workforce has a positive impact on productivity and safety in the workplace. "To be productive, you need to live a healthy lifestyle and ensure that you attend to all aspects of your health, including mental health."

The focus on these two communicable diseases is important because the World Health Organisation notes that individuals living with HIV are at a higher risk of developing TB. Additionally, TB is the leading cause of death among people living with HIV.

Kangra's Human Resources Manager, Buhle Nzuza, says similar events can be expected in the future. "Wellness days encourage employees to prioritise their physical and mental health, which can lead to improved morale, reduced stress, and better overall well-being." By hosting wellness days, the company is investing in reducing burnout, enhancing focus, and boosting long-term efficiency.

The Minerals Council emphasises that preventing and treating TB in mining operations necessitates a multi-sectoral and multi-disciplinary approach. This involves providing medical services on-site and conducting regular screenings for employees. Kangra's on-site clinic enables employees to undergo screenings and access a range of primary healthcare services.

Efforts to address TB within the industry are improving. In 2014, the Mine Health and Safety Council set a goal to achieve a TB incidence rate that is lower than the national average within a decade. On World TB Day last year, the Minerals Council announced that the mining industry exceeded its target. ■

To achieve safer tyre servicing, mining companies need to work closely with their teams, service providers, OEMS and training bodies.

Protecting mining tyre technicians **faster and more effectively**

Kal Tire whitepaper highlights mounting safety challenges and the opportunities to reduce, and even eliminate, risk.

Servicing mining tyres—particularly earthmover tyres weighing nearly 5 000 kilograms—has always posed a significant risk. While trucks are evolving and production targets are increasing, tools and processes used by tyre technicians haven't kept pace to improve tyre technicians' safety.

In a new whitepaper released by Kal Tire's Mining Tire Group, the company reflects on what's been done in the past to mitigate risk for technicians—and what's possible, with collaboration and investment in tooling and practices, to strive to eliminate risk.

A slow evolution of mitigating risk

Those who have been in the mining tyre service industry for several decades will recall the safety measures of the early days: a hard hat, gloves, a safety vest and glasses. In time, the introduction of safe work procedures and mechanisation helped to improve safety.

"Frequently in mining, rules or personal protective equipment (PPE) are used for mitigating hazards, but these aren't enough," says Dan Allan, senior vice president, Kal Tire's Mining Tire Group. "Implementing high level controls tends to be more effective than those at the lower end of the control hierarchy. It's time to think about eliminating hazards through new processes, or using engineering controls, like innovative tooling, to guard against hazards more effectively."

Kal Tire's latest whitepaper "Under pressure: Innovation is key to safer mining tyre service work," explores why action is needed—collaboratively and urgently.

Challenges of modern mine sites

The statistics are alarming: Between 2018 and 2023 alone, there were more than a dozen fatalities related to servicing mining tyres. The whitepaper's central question starts by addressing how safety challenges have been mounting.

First, mine sites are seeing a rapid development in truck types and sizes: think of autonomous systems, electric and battery technologies, and hydrogen fuel cells. Next, many sites are increasing production targets. That means plant equipment and tyre service are pushed to their operating limits—at a time when the industry is experiencing a shortage of skilled workers.

"As automated systems become more economical and feasible, there are so many opportunities to use automation in the tyre service space to eliminate hazards and risk," says Allan. "The only limit to the applications of these automated systems is our own imagination."

In the whitepaper, Kal Tire shares how innovation—in tools, processes and training—could be the best chance to make modern tyre service work safer.

Tooling and systems designed for safety and today's operations

In search of safety solutions where those solutions did not exist, Kal Tire itself has pursued innovation around the wheel. At its Innovation Centre in Canada, the company has focused on developing KalPRO tools and offerings that make daily tasks as safe as possible for team members.

Take, for example, WheelJaws. This tool was built to remove technicians from risk during the final and most dangerous steps of tyre and wheel assembly installation and removal. With secure, remote-controlled clamps that enable safe tyre removal by a technician safely located at a distance, WheelJaws ensures that the tyre and wheel can't fall on the technician, who would otherwise have to stand between the tyre handler and the assembly to remove the final lug nuts.

While some KalPRO tools lighten the heavy work of traditional daily tasks and smaller risks—like GATR, the Gravity Assist Tooling Rig that maneuvers 36-kilogram torque guns to reduce pinched fingers and back strain.

"They're essential in reducing finger pinches, fatigue and strain when mounting OTR tyres, especially ultra-class models," says Allan.

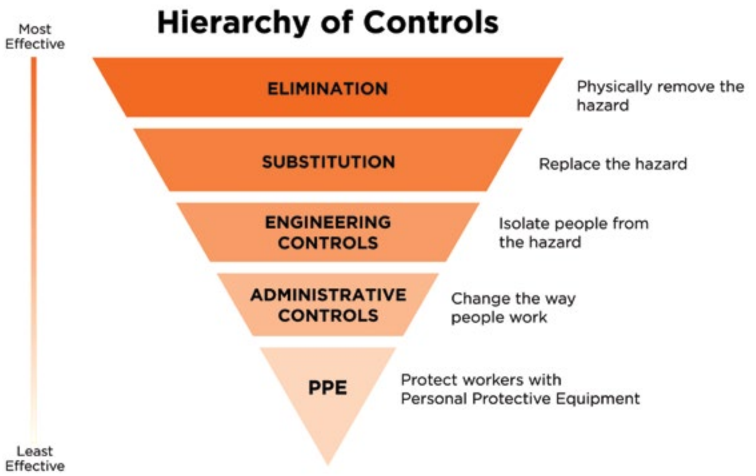
Other solutions are proving critical in a rapidly changing environment.

In the 2000's, TPMS were introduced and provided "a safety breakthrough." Embedded sensors give remote, real-time temperature and pressure readings that alert operators when internal temperatures need a cooling break to reduce the potential for fires and explosions. However, while TPMS gauges what's happening inside the tyre chamber, visual inspections by technicians have still been needed to identify potentially unsafe conditions outside the tyre.

Kal Tire asked itself: If mines are moving toward autonomous equipment, how does that affect technicians' risks and how can we reduce their exposure to trucks?

Now, in addition to TPMS, autonomous tyre inspection technology has been developed to flag potential tyre issues that could otherwise go unnoticed, all while keeping technicians at a safe distance. The result is KalPRO TireSight. Haul trucks simply pass TireSight stations, and without even needing to stop, the tyres of passing trucks are scanned multiple times, potentially revealing issues such as tread damage and hot spots, that are flagged, validated by a condition monitoring expert, and addressed when needed.

Servicing mining tyres—particularly earthmover tyres weighing nearly 5 000 kilograms—has always posed a significant risk.



Training for tomorrow

Another area of focus in the whitepaper is how training has evolved and become standardised in many regions, such as Australia, where tyre technicians must demonstrate competency by Registered Training Organisations to perform tasks unsupervised. In other regions, however, mining companies are left to ensure service providers are taking the right steps.

Kal Tire trains and certifies technicians over 27 months with hands-on training and assessment, and technical training presented via a Learning Management System in multiple languages and pictorial safe work procedures.

Kal Tire advocates for global standardisation in training so technicians everywhere have access to best practices that improve safety. Most countries have certifications for automotive mechanics, but mining tyre technicians don't, and yet those in the industry know all too well how complex and dangerous mining tyre service work can be.

For those working closest to mining's biggest tyres amidst growing pressures, Kal Tire is hoping to be a part of conversations and collaboration about how service tools, practices and systems can help the industry as a whole achieve safer tyre servicing.

"To achieve safer tyre servicing, mining companies need to work closely with their teams, service providers, OEMS, training bodies and more. We'll get there faster and more effectively if we work together." ■

De Beers strengthens occupational hygiene talent for a safer future

The company remains deeply committed to occupational health and safety as part of its broader Building Forever strategy, aimed at creating a better future for both its workforce and the environment, says Keneilwe Matjola, Principal Occupational Hygiene at De Beers.

Keneilwe Matjola, Principal Occupational Hygiene at De Beers.

"At De Beers, our occupational hygiene programme is a clear demonstration of this commitment," Matjola explains. "We proactively put in place preventive control measures to ensure our employees are safeguarded from occupational stresses and exposures that can arise in our operations. This focus aligns with our Group Safety and Sustainable Development policies and forms part of our everyday operational culture."

The role of occupational hygiene

Occupational hygiene is a key pillar of occupational health and safety, working hand-in-hand with occupational safety and occupational medicine. The discipline focuses on the identification, evaluation and control of environmental stressors in the workplace that could cause illness or discomfort. In the mining industry, these stressors could include noise, dust, extreme temperatures, chemicals, illumination, vibration and indoor air quality.

"Once these potential hazards are identified, the occupational hygienist evaluates their severity and frequency of exposure. We then explore whether the risks can be eliminated, substituted with safer alternatives, re-engineered to reduce exposure or automated to remove human involvement where possible," says Matjola. "Of course, personal protective equipment (PPE) forms a key part of the solution, but beyond that we implement policies, procedures and employee training to raise awareness and foster proactive risk management."

Managing risks across the diamond mining value chain

The diamond mining value chain — comprising upstream, midstream, and downstream processes — presents varied risks at each stage. Upstream activities include exploration and extraction, midstream covers processing and transportation while downstream involves refining, manufacturing, and final distribution to consumers.

"At every step of this value chain, our employees face different occupational exposures that could impact both their health and the overall business," explains Matjola. "For example, exposure to high noise levels can result in noise-induced hearing loss (NIHL). Inhalation of dust could lead to respiratory illnesses and prolonged exposure to vibration or poor ergonomics may result in musculoskeletal disorders (MSDs). In extreme cases, these

De Beers at a glance

- Founded in 1888, De Beers has a long history of diamond mining in South Africa.
- The company has expertise in diamond exploration, mining, grading, marketing, and retail.
- De Beers operates across two continents and four countries: Botswana, Canada, Namibia and South Africa.

conditions can even lead to loss of social standing or impact an individual's ability to work and support their family."

Adopting best practices and international standards

De Beers operates within comprehensive legislative frameworks and national standards in each of its countries of operation, including Botswana, Namibia, South Africa and Canada. But the company also goes further by benchmarking its efforts against international best practices.

"As part of our ongoing improvement, several of our business units have adopted global standards including the ISO 45001 management system for Occupational Health and Safety and Towards Sustainable Mining protocols used in Canada," says Matjola. "At a group level, we have developed frameworks such as the SHE Way and Total Health Standard. These are supported by technical standards that are implemented across our business units to continually strengthen our occupational hygiene maturity."

The company's leadership actively supports these efforts through its Visible Felt Leadership (VFL) programme. Senior leaders, including De Beers CEO Al Cook, CEO: Managed Operations Moses Madondo, Executive Head: Technical Burger Greeff and business unit general managers with their teams, regularly engage with employees on health and safety matters. "This direct engagement is vital in reinforcing the message that health and safety is not just a policy — it's part of who we are," Matjola says.

Talent scarcity in occupational hygiene

Despite its critical importance, occupational hygiene is a specialist field facing a global talent shortage and the African region is no exception. According to the Southern African Institute for Occupational Hygiene (SAIOH), southern Africa has just over 1 900 registered occupational hygiene professionals, with most based in South Africa and smaller numbers in Botswana and Namibia.

"The good news is that South Africa leads in this field within the Southern African Development Community (SADC) region. However, the talent pool is still small relative to industry needs," says Matjola. "At De Beers, we are partnering with registered consultants and academic institutions to help address this gap. Our focus is to bolster existing capacity and develop a robust pipeline of talent for the future. Equally important is retaining those skills once they are brought on board."

A successful model from Botswana

Matjola draws from her own experience as Botswana's first registered Occupational Hygienist, where she led initiatives to elevate the profession to a national level. During her tenure as Senior Occupational Hygiene Manager at Debswana, she helped spearhead a public-private partnership between Debswana (a joint venture between De Beers and the Government of Botswana), the Botswana Chamber of Mines, the Government of Botswana's Ministry of Labour and Home Affairs and the University of Botswana.

"The main goal was to address the talent scarcity in occupational hygiene in the country and to establish formal programmes both within government structures and at educational institutions," she recalls. Key achievements included the development of undergraduate and postgraduate academic programmes at the University of Botswana and the creation of occupational hygiene frameworks at the Ministry of Labour and mines through the Botswana Chamber of Mines.

"This initiative has played a major role in building local occupational hygiene capability and serves as a model that can be replicated elsewhere," Matjola adds.

The road ahead for De Beers

Looking forward, De Beers is focused on refining its occupational hygiene framework in line with international best practices and integrating it with broader business planning.

"We are developing an operating model that aligns with both legal requirements and global standards. Our key focus areas for 2025 include redefining our occupational hygiene processes, strengthening our talent pipeline and leveraging technological innovations," says Matjola. "We are especially looking at how technology can help us monitor and manage workplace stressors more effectively."

At the heart of these efforts is the understanding that investing in occupational hygiene is not just about compliance but about creating a safe, healthy and sustainable future for employees and the communities in which the company operates.

"We are committed to nurturing a robust occupational hygiene talent pool that can meet both current and future challenges," Matjola concludes. "Our people are at the centre of everything we do, and protecting their health and wellbeing will always be a top priority." ■

Beyond compliance - driving behavioural change with level 9 PDS

Applying a Level 9 Proximity Detection System (PDS) to a mining operation is as much about changes in behaviour as it is about technical solutions, according to Pieter Wolfaardt from Apex, Booyco Electronics' training partner of choice.

Change management initiatives address behaviour shifts required for the successful adoption of Level 9 proximity detection systems.

Successful PDS implementation relies on a combination of advanced technology, structured training, and behavioural change.

"An operational readiness assessment process conducted up front highlights all potential impacts on operations and pedestrian safety, giving the mine the opportunity to achieve seamless Level 9 integration with both the PDS and yellow fleet OEMs," he says.

It is over two years since the South African Department of Minerals and Energy's Level 9 intervention made it law to install PDS on all trackless mobile machines (TMMs). This is the latest step in the country's journey as a global pioneer in this field. The advanced pace of regulation has also spawned a vibrant local economy of PDS developers and suppliers, in which Booyco Electronics has been a prominent player since 2006.

Wolfaardt highlights that there is well-proven Level 9 PDS technology available to mines, and it has been shown to significantly mitigate safety risk. However, the best results require more than technical installation; they require a systematic process of change management by all involved.

"Integrating a Level 9 PDS into a mining operation is not merely a technical upgrade; it fundamentally alters the way mines operate," he explains. "Change management is the bridge that closes the disconnect between technology and people."

He notes that the change process impacts safety culture, production and operator behaviour. Without structured change management, resistance to new protocols can undermine the system's effectiveness.

"In our experience, a lack of change management often leads to a mine experiencing undue production stoppages, miscommunication and frustration among operators and managers," he says.

By fostering better understanding and acceptance, change management ensures that safety improvements translate into long term shifts in behaviour – going beyond basic compliance to support a stronger culture of safety.

He explains that Apex, as the training service provider of choice to Booyco Electronics, addresses these challenges by ensuring that all stakeholders are involved and committed to the process. A vital starting point is a mine steering committee, ideally chaired by the general manager, to ensure alignment across departments from procurement and human resources to engineering and production. Apex then assumes its role as the Level 9 PDS change management facilitator and trainer on this committee.

"Leadership commitment is the driving force behind successful Level 9 PDS adoption so when a general manager champions the change, it signals to employees that safety is a core priority," he says. "At the same time, every department must buy into the process and recognise their role."

A key aspect of the change management process focuses on the mine's traffic management plan, part of the baseline risk assessment prescribed by the Machinery and Occupational Safety Act. This plan will identify all the vehicles and zones of significant risk on the mine, and starts with a traffic analysis.

"Developing a sound traffic management plan will ensure that the mine understands their current traffic situation: Which vehicles are in the TMM fleet? Where do they travel? How often, and at what speeds?" he explains. "The plan must also analyse aspects such as road conditions, illumination levels and ventilation - as well as the critical issue of interaction between machines, and between machines and pedestrians."

It is important to identify pre-emptive traffic management adjustments that will minimise any disruptions and ensure that mining operations continue efficiently. Structured training is conducted with operators and other stakeholders, to understand the mine's new operating dynamics.

"Training is a cornerstone of effective Level 9 PDS implementation, and needs to be based on the gaps that we identify in the system," he says. "It focuses on people change management, and educates personnel on new protocols. This often goes beyond classroom training and should be tailored to operational needs."

Proximity Detection Systems are designed to enhance safety by preventing collisions between machines and pedestrians.

Effective communication strategies, such as regular briefings and transparent discussions about challenges, help to build trust and buy-in from employees. Engaging workers in safety committees and seeking their input on system refinements also promotes ownership of the change. ■

Orion Minerals outlines robust development pathway

ASX-listed Orion Minerals is firmly on track to become a near-term base metals producer with the release of the Definitive Feasibility Studies (DFS) for its flagship project, the Prieska Copper Zinc Mine (PCZM), and the Flat Mines project, which is part of the Okiep Copper Project (OCP).

Orion Minerals is firmly on track to become a near-term base metals producer.

The development of these projects in South Africa's Northern Cape will play an important role in unlocking economic development and community development opportunities, which are both essential for the region's long-term prosperity.

PCZM DFS

The Prieska DFS outlines an optimised two-phase development strategy aimed at de-risking the mine's development pathway and accelerating value creation.

CEO Errol Smart commented: "The 2025 DFS for our flagship Prieska Copper Zinc Mine marks the culmination of a major strategic and technical re-think of the development strategy for this large-scale base metal mine undertaken over the past few years. The outstanding results confirm the potential to develop a long-life, financially robust mining operation through a two-phase development plan which substantially derisks the mine development pathway and fast-tracks initial cash flow."

PCZM DFS financial highlights

- Payback period of 4.8 years – from start of production
- Peak funding requirement of AUD578 million (ZAR7,230 million)
- Total project capital expenditure of AUD607 million (R7,592 million)
- Capital intensity of $9 174/t, based on nameplate annual copper equivalent production
- Ore processing rate of 240ktpa for the Upper-Level Phase and 2.4 mtpa for the Deeps Phase
- Capex to achieve first production, within 13 months, of AUD49 million (ZAR560 million)

Development of the projects will play an important role in unlocking economic development and community development opportunities.

Flat Mines DFS

Orion is also implementing a phased development strategy at the OCP, with the Flat Mines Project as the first step. The initial phase focuses on developing Flat Mines North and constructing a processing plant which will operate at 50% capacity. This will be followed by the expansion of Flat Mines East and the ramp-up of the plant to full capacity of 65ktpm over 24 months. This approach enables Orion to unlock value in a scalable and manageable way.

"The completion of the Flat Mines DFS marks an important step towards our objective of unlocking the long-term potential of the OCP. We see immense prospectivity in the Okiep district and strongly believe that the Flat Mines Project will be the first of several mines that Orion will develop in the region. Our aspirational goal is to restore production from the OCP to historical levels, and believe this is an important first step towards achieving that ambition. We remain committed to rapid resource and reserve growth and will have a targeted and disciplined approach to exploration with the aim of delivering additional value from the Okiep region to all stakeholders," said Smart.

Flat Mines DFS financial highlights

- Payback period of 5.3 years
- Peak funding requirements of AUD103 million (ZAR1,290 million)
- Total project capital expenditure of AUD128 million (ZAR1,604 million)
- All-in-sustaining costs of $5,270/t (USD2.39/lb) of copper metal sold
- Average annual production of 6.5kt of copper (peak production of 9.5kt of copper), with a mine life of 12 years

Simultaneously, while moving to the next phase of development, implementation planning is underway to facilitate a seamless transition from study to construction. This includes finalising agreements with service providers for key early works activities and securing long-lead time items essential to the project's timeline. Orion is also advancing concentrate off-take negotiations, engaging with strategic partners to secure agreements that will optimise commercial terms and enhance long-term revenue streams. These initiatives will position the company for a timely and efficient project execution, ensuring maximum value delivery for investors and stakeholders.

> "Our aspirational goal is to restore production from the OCP to historical levels, and believe this is an important first step towards achieving that ambition."

"With a clear path forward, we are focused on transforming these projects into long-term value drivers and working alongside our stakeholders to deliver meaningful economic and social benefits," concluded Smart. ■

Elevate provides demonstration plant **construction update**

ASX-listed Elevate Uranium is making substantial progress on the design and construction of the U-pgrade™ demonstration plant which will be used to evaluate the performance of U-pgrade™ in beneficiating ore from the Koppies Uranium Project in Namibia.

Elevate Uranium's Managing Director, Murray Hill, commented: "We are making significant progress in the design and construction of the U-pgrade demonstration plant. Construction began in December 2024 and is on track for completion by mid-2025. The plant aims to confirm, at a scalable size and operating on a continuous basis, that the U-pgrade beneficiation process can remove gangue waste material and concentrate the uranium mineral into a low-mass, high grade concentrate before leaching. Fremantle Metallurgy's extensive experience brings important expertise to help ensure the project's success, including construction of pilot plants for clients ranging from BHP to junior resource companies."

Once constructed, the plant will undergo factory acceptance testing in Perth, be containerised, shipped to Namibia, re-assembled, and used to process at least 60 tonnes of Koppies ore. Results from operation of the demonstration plant will inform the design of a full-scale commercial U-pgrade processing plant.

"Our metallurgical team's recent visit to Namibia was productive, and we are moving forward with necessary approvals. We are excited about the potential of this demonstration plant to validate our U-pgrade process for commercialisation of the Koppies Uranium Project." ■

U-pgrade will be used to beneficiate ore from the Koppies Project.

"Trade, not aid" may be a false dichotomy

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

One of my very first forays into academia was a book review on development aid. The topic happens to have become a major news item since Trump re-ascended to the White House. Some of you may recall the book: *Dead Aid: Why Aid is Not Working and How There is Another Way for Africa* published in 2009 by Dambisa Moyo, a Zambian author. In my last column here, I drew attention to a 2008 paper published by a scholar who was then with the World Bank; he persuasively argued that aid is indeed more of a curse than oil in respect of its detrimental impact on broad-based development.

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

South Africa's trade relationship with the US is valued at roughly US$20 billion.

In 2009, Moyo wrote that "at least US$10 billion of foreign aid receipts depart Africa every year," drawing attention to the massive levels of corruption associated with siphoning off aid money into Swiss bank accounts. She argued that aid fundamentally undermines the incentive to build human and physical capital, the crucial ingredients for creating a future tax base. Moyo made a forceful argument that African governments, especially, needed to be weaned off the addiction to aid. No one paid attention. Now Trump has turned off the taps. Moyo argued for fair trade and innovative financing to replace aid. A strong notion emerged at the time that what the continent required was "trade not aid." An understandable sentiment, except that it has proved to be a false dichotomy.

Trade is certainly preferable to aid, but the two are not mutually exclusive. Properly directed aid can and should build the foundation for stronger trade. One problem with many aid sceptics is that they often don't adequately address the niggly question of comparative advantage and the negative terms of trade that afflict most African nations. As I wrote in my review: "One critique Moyo doesn't address adequately, however, is that even if Africa did trade more, trading in our traditional comparative advantages (commodities) would render us stuck in a commodity-cycle, where the [value is] low and supply and demand are volatile at best. Surely economic diversification is a must, lest the export of raw materials continue to be the unpredictable mainstay of African economies. ... Given tendencies to path-dependence in developmental trajectories, it is not clear that blind continuation of commodity exports is at all the wisest strategy."

Take South Africa. We score 59th of 132 in trade complexity on the Observatory for Economic Complexity (OEC)'s ranking system. Our biggest exports by far remain raw materials – gold, platinum, coal, iron ore and chrome. Cars – far higher on the value scale – were at least 6.16% of our exports in 2023. Refined petroleum (14.9%) is our single biggest import item. Car imports account for 4.02% of total imports, counteracting exports in that sector. Our single biggest import and export destination is China. The United States, currently in a trade war with most nations on earth (but especially with China), receives 8.48% of our exports (2nd only to China), and accounts for 6.63% of our imports (3rd largest after China and India).

But here's the rub: we've lost extremely valuable aid from the US, and we're at serious risk of losing our trade relationship too. These are integrally connected.

First, consider the loss of 17% of total funding for HIV programmes in South Africa, which came from Pepfar (the US President's Emergency Plan for AIDS relief). Pepfar has been one of the world's most effective aid programmes in respect of rescinding the sheer devastation wrought by HIV and AIDS since 2003. AIDS decimates work forces, so aid that keeps productive-age people economically active is critical for development.

Second, consider the fact that our trade relationship with the US, valued at roughly US$20 billion (where export value exceeds import value by some margin) is also in jeopardy. And trade is closely connected to investment, and there over 600 US companies invested in South Africa, employing hundreds of thousands of people.

If Moyo's argument is correct, we should just trade our way out of trouble. But this view ignores the importance of international relations, increasingly characterised by bare realpolitik. South Africa has thoroughly invoked the ire of the US government. No matter what you think of Trump (and – for the record – the man appears beyond morally bankrupt), the US is displeased at South Africa's closeness to Russia and China (economically and militarily); our case against Israel at the International Court of Justice, accusing it of genocide in response to the horrifying Hamas attack on Israel on 7 October 2023 has not helped either. To boot, the African National Congress appears to be courting Iran, the primary funder of at least two major terrorism groups that threaten US national interests. Of course, they are also funding Russian drones into Ukraine, which Trump seems to be willing to acquiesce to for the sake of a minerals and energy deal with Putin regarding Ukraine. In other words, Trump is so transactional that he'll sacrifice Ukraine as a pawn in his game.

The continent requires "trade not aid."

South Africa's biggest exports by far remains raw materials – gold, platinum, coal, iron ore and chrome.

Either way, the US is powerful; South Africa is not. We cannot simply trade our way out of trouble unless we maintain strategically important diplomatic relations with the US and its allies (increasingly few, admittedly). We live in a world where the reality is that South Africa needs both aid and trade. And those are both connected to how we conduct our foreign policy.

The complex reality outlined above shows the myopia of South African Mines Minister Gwede Mantashe announcing to the Cape Town Mining Indaba in February that we should simply "withhold minerals to the US" in response to US aid cuts. While Mantashe's argument is understandable and coheres with my critique of Moyo outlined earlier in respect of continued weak terms of trade through raw commodity exports, we are not about to develop new industrialisation capacity overnight. And certainly, we cannot do it sustainably without a vibrant and healthy relationship with the US. Mantashe needs to learn to build our development ambitions through mutually beneficial relationship-building, not through flamboyant rhetoric and threats to withhold minerals. ■

Unitrans leading **innovation in logistics**

The supply chain landscape is transforming rapidly, driven by technological advancements, shifting market demands and the growing need for more resilient and sustainable competitive solutions.

Unitrans continues redefining regional logistics by investing and leveraging cutting-edge technologies.

Unitrans, a leading end-to-end supply chain and operations services business, continues redefining regional logistics by investing and leveraging cutting-edge technologies and staying ahead of emerging trends.

The year ahead: key trends shaping logistics in 2025

According to industry analysts, key trends for 2025 include the growing adoption of artificial intelligence (AI) and machine learning to predict demand fluctuations, optimise routing and enhance inventory management. Meanwhile, the Internet of Things (IoT) will continue to improve supply chain operations by providing unprecedented visibility of goods and vehicles.

Additionally, Robotic Process Automation (RPA) is expected to streamline supply chain operations by automating repetitive tasks, increasing efficiency and reducing costs across the value chain.

Analysts also foresee continued growth in last-mile delivery solutions, despite prevailing constraints in the logistics sector. With high mobile penetration rates across sub-Saharan Africa, mobile money integration will remain a key enabler of seamless transactions within supply chains, though its corporate adoption may vary based on financial feasibility.

Experts highlight that infrastructure development, particularly in cross-border transportation, is expected to remain a priority, driven by increased public-private partnerships to bridge logistical gaps. Additionally, a rise in localised manufacturing and distribution hubs is anticipated, reducing reliance on long-distance supply chains and supporting regional economic growth.

As climate change concerns grow, experts predict that demand for sustainable logistics solutions is set to rise. Furthermore, simplified, localised digital models will become more prevalent, allowing businesses to test scenarios and optimise operations without disrupting real-world processes.

Unitrans: adopting innovation and digital transformation

"The future of logistics in sub-Saharan Africa will be defined by innovation, agility and a customer-centric approach," says Edwin Hewitt, Unitrans CEO. "At Unitrans, we are committed to driving innovation, with technology and industry specific expertise forming the backbone of our operations, enabling us to deliver value to our clients."

In response to industry shifts, Unitrans has made strategic investments in digital transformation. The company has designed its Enterprise Architecture technology stack to adapt and evolve with the unique challenges of the African and customer landscape.

"The growth of business lies in the seamless integration of Information and Communication Technology (ICT) with operational excellence," says Hewitt. "By embracing innovation and leveraging the combined power of these disciplines, Unitrans delivers the necessary solutions and remains ahead of the curve."

This commitment to innovation can be seen in the agriculture sector, where Unitrans uses drones, autonomous machinery and Variable Rate Technology (VRT), to enhance efficiency and sustainability across the agricultural logistics value chain.

A customer-centric approach

Customers remain at the core of Unitrans' innovation efforts. "We continuously engage and collaborate with our customers to understand their evolving requirements and develop tailored solutions that address their specific challenges," says Hewitt.

To support this, Unitrans has implemented RPA to streamline internal operations. By reducing manual workloads and improving efficiency, teams have gained valuable time and capacity to focus on customer-centric innovation. This allows Unitrans to respond quickly to customer needs and co-develop solutions that drive measurable value.

The company has also adopted an agile implementation strategy to test, learn and iterate on new solutions rapidly. This approach ensures adaptability to changing needs and technologies, delivering value quicker and more efficiently.

"Our commitment is to remain a trusted partner for our customers, shaping the future of logistics through tailored solutions that address the unique challenges and opportunities of sub-Saharan Africa," concludes Hewitt. ■

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.

Epiroc South Africa and UP to establish an Epiroc Academic and Research Forum.

Epiroc South Africa and UP **to establish an Epiroc Academic and Research Forum**

On 17 March 2025 Epiroc South Africa and the University of Pretoria formalised their commitment to fostering collaborative initiatives with the signing of a Memorandum of Understanding (MoU). "The objectives of this landmark agreement are to promote the academic and professional development of students and graduates of the faculty and to improve the profile of professionals in the mining field for their subsequent job placement," explains Wynand van Straten, Regional Business Line Manager - Surface and Exploration Drilling at Epiroc South Africa. Professor Stephan Heyns from the Department of Mechanical and Aeronautical Engineering at the University of Pretoria, explained that Epiroc and the University of Pretoria plan to explore a wide range of challenges in the mining industry: "These may include topics such as the development of digital twinning in mining, collision awareness and prevention and battery electric drives. Young engineers find topics such as these very interesting and I expect that the Epiroc Forum will very meaningfully contribute towards the development of specialist human resources in mining in South Africa". ■

GFRP Tech introduces sustainable products to local stakeholders.

GFRP Tech introduces sustainable products to local stakeholders

GFRP Tech, a manufacturer and supplier of glass fiber reinforced polymer (GFRP) products, recently held its official opening and ribbon cutting ceremony of its new manufacturing facility in Linbro Park, Johannesburg, that is set to disrupt the local construction industry. GFRP Tech showcased its flagship EnviraBar and EnviraMesh products, that are alternatives to traditional steel rebar. "South Africa has been, for many years, building infrastructure, but we have to build it better with the environment, with sustainability, safety and durability in mind. The GFRP Tech product meets all of those requirements. Our infrastructure needs to be more resilient, and we can now create that," said Professor of Construction Project Management at the University of Johannesburg, Innocent Musonda.

The multimillion-rand facility has been designed to manufacture, test and supply the GFRP products that are more environmentally friendly and sustainable than steel products. ■

DetNet upgrades blasting technology **for DigiMine students at Wits**

DetNet has upgraded its blasting equipment at the Sibanye-Stillwater DigiMine at the Wits Mining Institute to the latest BlastWeb II version.

Supplier of electronic initiation systems, DetNet, has revised its blasting equipment at the Sibanye-Stillwater DigiMine at the Wits Mining Institute to the latest BlastWeb II version. This will allow researchers and students to learn about the application of leading-edge wireless CyberDet detonators, while also introducing them to the new features of the latest generation blasting equipment with an improved build and enhanced safety and detonator capabilities. This forms part of their ongoing partnership with the Sibanye-Stillwater digital mining laboratory (DigiMine) at the Wits Mining Institute

According to DigiMine head Dr Ahsan Mahboob: "Our research at DigiMine encompasses various aspects of technology to evolve the smart mine of the future," said Dr Mahboob. "DetNet's electronic initiation technology is an important part of modern blasting systems that makes mining safer while promoting sustainability and productivity." ■

Why Huawei is the right partner for C&I Solar PV+ESS in Africa

Huawei Digital Power Sub-Saharan Africa FusionSolar gathered industry partners and key stakeholders from across sub-Saharan Africa's Commercial & Industrial (C&I) energy sector as they released an innovative product for the market, LUNA2000-215 Series, the World's First hybrid air & liquid cooling C&I energy storage solution (ESS). In his keynote address, Xia Hesheng, President of Huawei Digital Power Sub-Saharan Africa Region, focused on the theme of "Growing and thriving together in the new era of C&I". He told delegates that this new era requires a mindset shift in how they assess the quality of the original equipment manufacturers (OEM) they work with. Xia said three key factors are driving the growth of Africa's C&I sector: unstable electricity supply, higher electricity prices and reduced commodity prices that are making solar technology more affordable over time. This has led to booming demand for C&I PV+ESS solutions in Africa. In this era, businesses will unlock two kinds of value: reducing their electricity bills and fuelling a green energy transformation by supplying green energy to other smaller businesses. In this new era, C&I enterprises will be at the centre of driving sustainable development. ■

Huawei launches LUNA2000-215 Series, the world's first hybrid air & liquid cooling C&I energy storage solution.

Manitou: Innovative material handling solutions for mining

Manitou South Africa is a wholly owned subsidiary of Manitou Group which is headquartered in France and has a worldwide presence through establishments on every continent. As an innovative leader, Manitou Group designs, manufactures, distributes and services versatile material handling equipment for a variety of sectors such as mining, construction, agriculture and industry, amongst others. Since the invention of the first all-terrain forklift truck by the founder of Manitou, Marcel Braud, back in 1958, the search for innovation has continued to be at the origin of the great successes of the Manitou brand and continually evolves to offer a range of products that meet the needs of our markets.

With a strong commitment to innovation, reliability, and customer satisfaction, Manitou has established itself as a trusted partner for mining companies seeking efficient, safe and versatile equipment through the offering of a variety of specialised machinery tailored to the unique needs of mining. Manitou's factory-fitted mining specifications telehandlers are suitable for a variety of tasks on the mine. Coupled with specialised mining attachments such as tyre handlers, cylinder handlers, pipe handlers and personnel platforms, these telehandlers offer true versatility to the mining site. Each product is designed to withstand harsh operating conditions, ensuring maximum productivity and safety for our customers.

In addition to telehandlers, Manitou also offers a range of rough terrain forklifts, access platforms, skid steer loaders and backhoe loaders. At Manitou, customer support and service excellence is our priority. Our network of dealers provides comprehensive maintenance, training, and technical support to ensure optimal performance and minimal downtime for our clients. ■

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