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ON THE COVER

Conveyor belt cleaning equipment supplier, Brelko, continues on its drive to innovate. See story on page 6.

COMMENT

Copper play – BHP targets Anglo American's assets

Nelendhre Moodley.

Mining industry heavyweight, Australian listed BHP Group, is making massive waves with its play for diversified miner, Anglo American's assets, particularly its lucrative copper projects.

BHP Group made a $38.8 billion offer for its London-based competitor.

In April, Anglo American received a highly conditional combination proposal from BHP, which comprised an all-share offer for Anglo American, with a requirement for the local major to complete two separate demergers of its entire shareholdings in Anglo American Platinum and Kumba Iron Ore to its shareholders.

Following Anglo American's rejection of the proposal on the basis that it significantly undervalued the company and its future potential; in early May BHP CEO, Mike Henry, flew to South Africa to ramp up efforts to win over local authorities and investors.

The push for Anglo American's copper assets is because of strong demand for the red metal, which is underpinned by tight supply and fluctuating demand, in particular from the Chinese building and construction sector – which represents 30% of total demand for copper – and coupled with increasing usage for electric vehicles (EV).

According to Stuart Chambers, Chairman of Anglo American, copper represents 30% of the company's total production.

Copper is amongst the most-used metals in the world, and experts believe demand for this significant commodity is set to soar in the coming years. At the same time, the supply situation is expected to tighten up. In its copper price forecast for 2025, BMI projected copper to average $9 300/tonne, up from $8 800 in 2024. Interestingly, in late April, copper hit $10 000 a ton, a sure sign that market appetite is ramping up quicker than expected.

Although the BHP/Anglo American deal may take time to clinch, should the deal be finalised it would be amongst the most significant M&As to be inked and will allow the combined companies to churn out 10% of global output of copper and cement BHP's position as the top producer.

What the South African mining industry will look like without its stalwart and how the deal will impact the local landscape, remains to be seen.

On the topic of mega moves, petrochemicals giant, Shell, is looking to divest its SA downstream business after more than 120 years. The news follows a comprehensive review of its downstream and renewables businesses across all regions.

The downstream business has traditionally encompassed refining, and transporting and selling fuel to customers. Shell, which has around 700 fuel service stations in the country, also offers solutions for the mining and quarrying industries, including oils and greases suited to severe operating conditions in remote areas.

In this edition

Of interest in the June edition is Afriforesight's Precious Metals Outlook, which notes that although demand for gold will be strong through 2024/early-2025 supported by safe-haven demand, the PGM outlook is set to be more nuanced, with near-term challenges still expected amid underwhelming global manufacturing growth and above-average inflation drag on miners' profitability (pg 10).

Meanwhile, in line with an increased global appetite for uranium, Eastport Ventures, which holds a diverse portfolio of early-stage assets, including its flagship Foley uranium project in Botswana, recently appointed Robin Birchall, as its new CEO. Birchall unveils plans for the company's stock market debut (pg 14).

News from equipment manufacturers is that Bell Equipment, which has stood the test of time, celebrating 70 years in business this year, primes for the next decade (pg 28) while Pilot Crushtec's latest distribution agreement with industrial heavy-weight, Metso, to market its complete range of Jonsson primary and secondary crushing and screening equipment, is a game-changer for the mining sector, which seeks bigger equipment for improved productivity and output (pg 22).

Our cover story for June, Brelko, highlights the Johannesburg based entity's emphasis on research and innovation which underscores its focus of being a solutions provider of choice in its segment of business to the mining sector (pg 6). ■

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Orezone receives exceptional results from ongoing exploration

West African gold producer Orezone Gold recently provided drill results from its Bomboré Gold Mine in central Burkina Faso. The results are part of Orezone's ongoing infill and advanced grade control programme which was designed to further delineate multiple high-grade structures within the P8P9 Zone. All reported intercepts are in shallow oxides and are located within 1.5 km of the Bomboré processing facility, the company said.

CEO Patrick Downey stated, "With current mineral reserves down to an average depth of less than 40 m across 14 km of strike, we see significant potential not only to increase the overall mineral inventory at Bomboré, but also the potential to systematically target higher-grade mineralisation within the much broader structural corridor. While ongoing drilling in the near-term remains focused on further delineating near-surface, high-grade structures in advance of mining, we continue to rank multiple high-priority exploration targets for drilling in 2024."

Drilling Highlights:

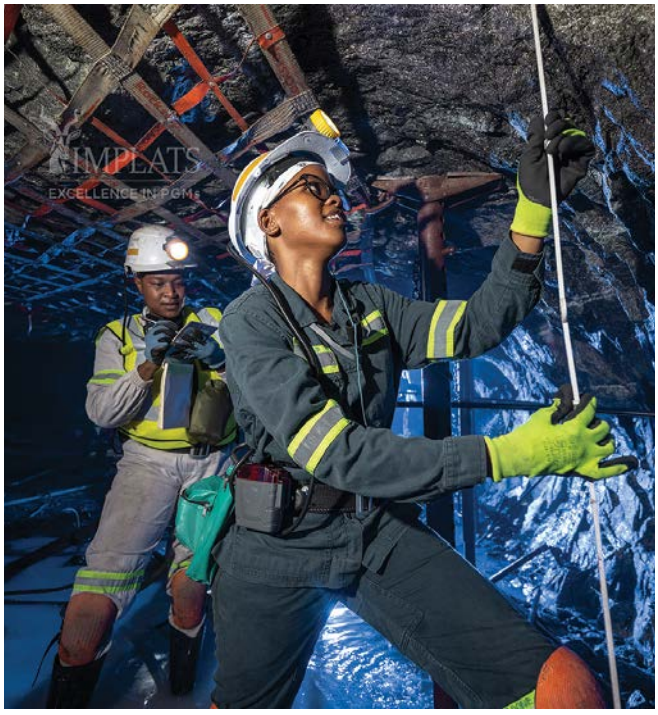
- 18.41 g/t Au over 8.00 m from 12.00 m in hole BBC5771
- 11.92 g/t Au over 4.00 m from 64.00 m in hole BBC5786
- 17.59 g/t Au over 5.00 m from 30.00 m in hole BBC5829
- 22.17 g/t Au over 4.00 m from 26.00 m in hole BBC5912
- 33.49 g/t Au over 2.00 m from 3.00 m in hole BBC5980 ■

Orezone is engaged in an on-going drilling programme at its Bomboré Gold Mine in Burkina Faso.

Implats enters section 189 consultations at local operations

Platinum miner, Impala Platinum (Implats) has initiated a Section 189(3) consultation process at its South African operations which may lead to staff reductions, the company said. Nico Muller, Implats CEO, commented, "Platinum group metal (PGM) pricing has declined sharply since the start of 2023, which together with persistent inflationary pressures on input costs has resulted in significant pressure on profitability and cashflow across the entire PGM sector, our operations included.

Global macroeconomic uncertainty and rising geopolitical tensions present additional downside risks to industry sustainability. As a result of these pressures, the Group has assessed and revised its business planning parameters and contemplated various measures to optimise operational efficiencies and resources. The proposed restructuring could potentially affect around 3 900 positions, equating to a 9% reduction in labour across the Group's Impala Rustenburg, Impala Bafokeng and Marula operations, as well as at the corporate office, which is targeting a 30% reduction in head office costs. ■



Implats enters section 189 consultations at local operations.

Fluor appoints Etienne Bredell as new GM

Etienne Bredell, recently appointed General Manager of Fluor's South Africa office, brings more than 30 years of industry knowledge to his role. Having joined Fluor in 2008, Bredell is experienced in leading projects, managing global multi-disciplinary engineering teams and driving business development across the African region. "I look forward to building upon Fluor's presence in the region and expanding our footprint," Bredell states. The company's commitment extends to providing comprehensive services to clients in the mining, metals and energy markets. The mining and metals team supports clients throughout the project lifecycle. From concept to commissioning, Fluor delivers expertise at every stage.

"Early-stage involvement allows us to fully leverage our capabilities in engineering, procurement, fabrication, construction, and project management," Bredell says. "We are currently engaged in a range of open pit and underground projects, as well as mineral processing facilities, across a broad spectrum of commodities." Fluor's presence in South Africa, spanning more than six decades, underscores its pivotal role in the country's landmark projects. ■

Vedanta's Hindustan Zinc becomes the 3rd largest producer of silver globally

Hindustan Zinc – a Vedanta group company in the zinc-lead-silver business has become the 3rd largest silver producer globally, as per the World Silver Survey 2024 conducted by 'The Silver Institute', USA. The company's Sindesar Khurd Mine now stands as the world's second largest silver-producing mine, moving up from last year's 4th position. On this achievement, Chairperson of Hindustan Zinc – Priya Agarwal Hebbar said, "Silver plays a pivotal role in the global energy transition and our recent record silver production of 746 mt paves the way for Atmanirbhar Bharat. Hindustan Zinc's production growth of 5% year-on-year is attributed to increased ore production and enhanced grades, reinforcing its status as a key player in the global silver market. This remarkable feat was achieved using innovative technologies and sustainable mining practices, which helped us to optimise the production process while reducing the environmental impact." ■

Hindustan Zinc's operation in India.

Bannerman Energy advances Etango project towards construction

ASX-listed Bannerman Energy reported strong progress during the quarter, as it advances preparedness for the targeted development phase of the Etango Uranium Project and demonstrated Etango's superior leverage to, and scalability with, higher uranium price outlooks through delivery of the Etango-XP/XT Scoping Study.

Bannerman Executive Chairman, Brandon Munro, said: "The strong progression in project workstreams during the quarter steadily advanced the fully-permitted Etango project towards construction, in parallel with financing and offtake marketing workstreams, as we drive towards being in a position to take a positive Final Investment Decision. We were particularly pleased to demonstrate, via the Etango-XP/XT Scoping Study, the long-term optionality afforded by our large-scale Etango resource and a clear pathway towards becoming a 6.7 mlbs pa producer." ■

"You can't touch this" – Brelko stands firm

Technology is important because it creates the future. We're able to be a part of the "next" and create things that don't exist. So said American entrepreneur and musician, Stanley Kirk Burrell, stage name MC Hammer, who is best known for hit songs such as "U Can't Touch This" and "2 Legit 2 Quit". By *Nelendhre Moodley*.

This is exactly what sets conveyor belt cleaning equipment supplier, Brelko, apart from its peers – a drive to innovate. According to Brelko's MD, Kenny Padayachee, innovation and technology are in Brelko's DNA as evidenced in its very first brochure, which illustrates the company's commitment to enhancing its product range.

Investment in Research & development (R&D) is crucial for enhancing the existing product range, developing new products and materials, and improving business efficiencies at plant level, amongst others.

The Johannesburg-based equipment manufacturer has set the standard for "superior" quality products, and established a brand renowned across mining destinations around the world.

Padayachee took on the conveyor belt cleaning equipment business at age 24, growing it to become a leader in its segment. Thirty-seven years later the home-grown entity trades globally across six of the seven continents - Asia, Africa, North America, South America, Europe, and Australia.

"Continuous investment in R&D ensures we remain ahead of the competition. As part of our R&D drive, we have several local and international patents to our name. The Brelko brand and its Keyskirt product-line are trade-marked in 74 countries.

"The importance of patents, explains Padayachee, "apart from dissuading competitors from duplicating Brelko's innovations, is that they set the standard for best-in-class product-lines. As of 2024, Brelko has amassed 14 – a move that establishes the company as a serious solutions provider."

While it is 'easier' to register a patent in South Africa, to do so in the US and Europe is a much more challenging task as the patent is put through rigorous testing before being awarded.

To promote the ethos of continuous improvement, which pervades the entire business, Brelko's teams, led by the R&D division, meet every Friday for a three-hour session to tackle challenges and action how to best improve the business.

"Our Friday meetings have been hugely successful as they encourage teams to highlight areas of concern – be they on the factory floor, plant processes or equipment. No concern is too small, and all issues are interrogated. Our field service teams share all product installation and customer concerns encountered onsite. As a solutions provider, challenges become the springboard for innovative solutions to enhance our product line and processes. In fact, over the past eight years, we have achieved huge improvements in product innovation and have streamlined our business processes for increased efficiency, productivity, and lower cost of production."

The Friday meetings include the R&D department, the Technical, Design, Graphics and Service divisions as well as management, including the MD and GM, Jay Pillay.

"We require buy-in from all segments of our business. It is essential to understand that we can innovate all we want but if, for example, the service division is unable to implement the innovations, that is a challenge."

Brelko's research and development team meets every Friday for three hours.

Research and development team discussing Brelko's patented Nip Guard.

Sergio Mabunda completing the manufacture of the Nip Guard.

Revving up R&D

Developing cutting-edge products comes with hefty price tag and Brelko is not shy to invest across all spheres of its business – people, manufacturing, technology, and the environment.

According to Riaan Rynders: Brelko's Technical and CADD Manager, who has been with the company for 23 years (2001-2024), R&D is at the heart of the business.

"Before we implement something new at Brelko, we devote time and resources on experimenting with options to address uncertainties and figure out how to develop an idea into something practical and feasible to achieve. Taking risks and experimenting helps us refine business practices to become more efficient and to develop higher quality products and innovate new and unique products to offer the market. Moreover, if an existing product is no longer profitable or no longer holds value to our business or customers, we play with ideas to update and modernise the product line. Alternatively, we may also revisit products to improve their efficiency or make them more cost effective to produce, without compromising on the product quality," he explains.

Brelko has a hands-on approach with its customers; always ready to modify its products to meet a mine's specific requirements.

Although the designs from an end-user may be found to be workable on paper, in reality, challenges may emerge during the product's installation phase, and these require the solutions-based company to adjust its equipment to ensure it is fit for purpose.

"Our field service team works closely with engineers and mining houses to ensure that our products

Automation of shaft machining for polyurethane rollers.

A special order of a stainless-steel food grade tracking system.

Brelko's warehouse with product being packed for delivery.

work seamlessly onsite. Where possible, we modify and even redesign our equipment to meet client's specific needs. Our goal is to exceed customer expectations to enhance our trust-base with our clients."

According to Rynders, Brelko was one of the first companies to invest in an in-house 3D modelling capability.

"For years, Brelko was ahead of our industry in terms of its 3D CADD offerings. We provided design houses with 3D CADD detail for integration into their design elements. Today, the technology is widely adopted across industry."

Brelko's innovation and technology mindset underpins all facets of business, including its focus on a cleaner environment, which means the equipment specialist is constantly evaluating options to lower its carbon footprint by reducing waste and embracing green opportunities.

The rising cost of raw materials, which Rynders says has gone up dramatically over the past few years, has been the company's push for precision engineering, which has also helped to reduce raw material wastage.

"As a case in point, we recently redesigned the tooling process for our scraper blades which, aside from dramatically reducing the cost of production, has made the process more efficient and ensures that the moulds are leak-proof. Furthermore, the scraper blades require no cleaning and squaring of blades – a saving of time, energy and material," explains Rynders.

Brelko's green initiatives extend to its power consumption with the company having recently incorporated solar and gas. Where previously its 550 kW diesel generator was its sole power source, it now supplements this with clean power.

"The generator starts up with diesel, then migrates to gas. Prior to installing environmentally friendly power solutions, our diesel generator consumed 102 litres of diesel per hour. Now, when there is no sunlight, we use roughly 22 litres of diesel per hour, which is a huge financial saving and it benefits the environment."

According to Rynders, R&D is an imperative, without which a business will quickly become stagnant and antiquated.

A competitive edge

Padayachee believes that Brelko's fully fledged warehouse sets the company apart as it holds sufficient stock to allow for same day product availability to mines. The 6000 m^2 warehouse has been expanded over the years and now has a stockholding of three months across all product lines.

"Time is money and mines expect to have replacement parts readily available to ensure production stoppages are minimised.

"Aside from having field service teams onsite at mining operations where it has major contracts, Brelko keeps stock on-hand at the various sites to ensure workflow at mines continues seamlessly.

"Very few companies in our field are able to offer service to the level that Brelko does."

The company has 47 field service teams operating in nine provinces and believes that its highly skilled teams, well stocked warehouse, superior quality product range, one-stop shop offering, and experience built over its 37-year history, stands it in good stead.

"What separates us in this highly competitive industry, is our ability to produce world class products, in a Third World, African country." ■

Brelko

- Brelko designs and manufactures conveyor belt cleaning equipment for a trouble-free flow of materials at transfer and load points. This is backed up by an installation and maintenance package.
- The company has over 36 years of experience as a supplier and advisor on spillage control to the bulk materials handling industry and offers proactive and ongoing maintenance for preventative spillage control and optimum belt cleaning.
- Brelko supplies and services its products throughout the world, with branches in the United Kingdom and the United States, and with master distributors in Australia, Chile, Europe and Greece, and agents located in Africa and more than 40 countries.
- The company is accredited with ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 certification and is a member of the South African Institute of Materials Handling and Conveyor Manufacturers Association Limited of South Africa.

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Afriforesight's Chief Economist, Nathan Musson.

Afriforesight's Head: PGMs, Kirthi Ramdhanee.

Precious Metals resilient but still facing challenges

By Afriforesight's Kirthi Ramdhanee – Head: PGMs and Nathan Musson – Chief Economist

Demand for precious metals is expected to be strong overall through 2024/early-2025 driven by interest in gold, which should remain supported by safe-haven demand (i.e. risk hedging) due to the severe compounding geopolitical rifts, as well as persisting financial market concerns as global interest rate trends shift.

Demand for precious metals is expected to be strong overall through 2024/early-2025 driven by interest in gold.

The PGM outlook is more nuanced, with near-term challenges still expected amid underwhelming global manufacturing growth (particularly from the auto-sector, the main driver of PGM demand) and as above-average inflation continues to drag down miners' profitability. Activity in the key PGM-using industries should however improve from later in 2024 as interest rates become generally more accommodative, which should encourage recovery in vehicle demand growth going forward.

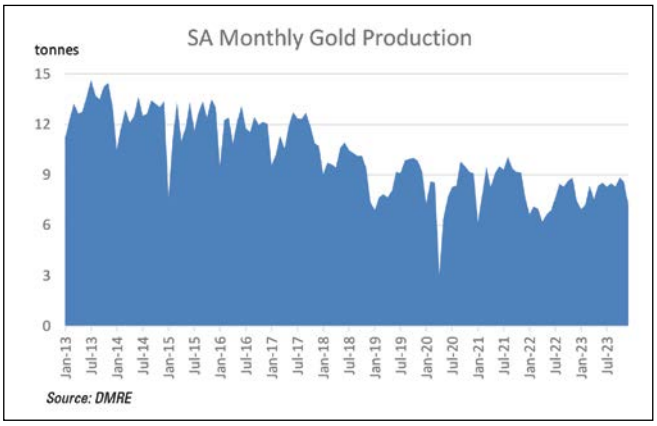
South Africa's mineral revenues are driven, to a significant extent, by activity in the PGM and gold sectors, which respectively accounted for 24% (R187bn) and 16% (R125bn) of mineral sales, reported by StatsSA for the twelve months to February 2024. Mining activity trends in these sectors are expected to diverge both in the short-term – when SA gold output should improve moderately, while PGM volumes are curbed by ongoing cost/demand pressures – and in the longer-term, where gold activity should decline as viable reserves deplete, while structurally higher costs discourage potential developments, while PGM activity is expected to improve with recovery in global growth. Longer-term PGM activity will, however, depend on the realised pace of transition to particular greener technologies.

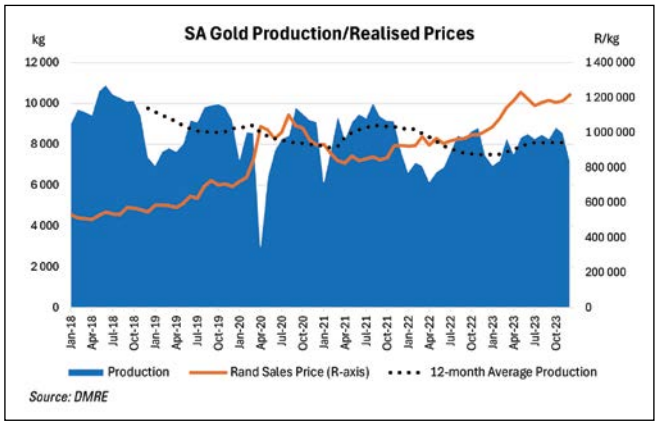
SA Gold Outlook

South Africa's gold sector has faced structural decline throughout the past decade and, while some near-term recovery/growth in activity is expected, the outlook for longer-term volumes remains distinctly negative unless plans change for the major producers. In 2023, domestic volumes improved firmly on the back of Sibanye-Stillwater's recovery from its early-2022 labour disruptions alongside gains from Harmony Gold's higher-grade underground operations and stronger activity from mid-tier producers. However, the 96.6 tonnes of gold produced was 39% lower than 2013's level and, outside of the volatility following the Covid crisis, declines have been consistent.

Even the rapid increases in gold prices realised in recent years have been unable to arrest this trend. Zooming into the past five years, the overall decline in activity remains obvious despite rand-based sales prices doubling over the period.

This decline is being driven by longstanding depletion of viable reserves (due to the sector's maturity) and structurally higher costs borne by local miners compared to the global average (graph below). Afriforesight's assessment of commercial gold operations reveals that within the last five years costs for most SA producers have typically been





PGM basket prices have declined rapidly since 2021/2022.

around 40% higher than the global average reported by the World Gold Council.

Despite these structural issues, SA gold production is expected to improve in 2024/2025 with Harmony Gold on schedule to meet its targets amid ongoing optimisation, Goldfields' South Deep maintaining plans to reach capacity during 2024, and Sibanye-Stillwater expected to see some improvement after recent disruptions.

Beyond the near-term improvement, a sustained decline is unfortunately expected into the medium- and longer-terms with both Harmony and Sibanye (which together accounted for 67% of SA gold output reported by the DMRE for 2022) planning to cut back sharply on investment and volumes targeted in SA from 2025/2026. However, with global gold prices expected to remain strong in the coming years, some additional exploration and/or assessment of potential brownfields operations may enable partial supply recovery in the medium term.

PGM Sector Outlook

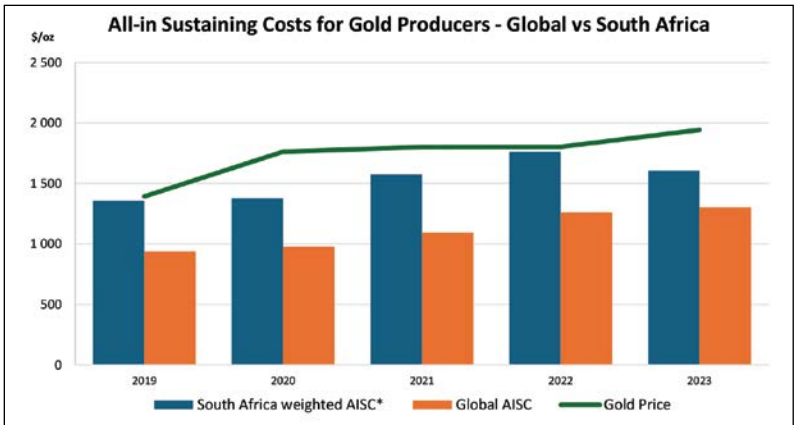
South Africa holds about 90% of the world's known Platinum Group metal (PGM) reserves. It is the largest producer of mined platinum (70-75% global mined supply), ruthenium (about 90%), rhodium and iridium (about 80% for both), and second only to Russia for mined production of palladium (about 35-40% for SA compared to Russia's 40%), making the country's PGM industry pivotal to the global landscape.

Following consolidation in the PGM industry in recent years, the major SA PGM miners are now Sibanye-Stillwater, Anglo American Platinum (Amplats), and Impala Platinum (Implats).

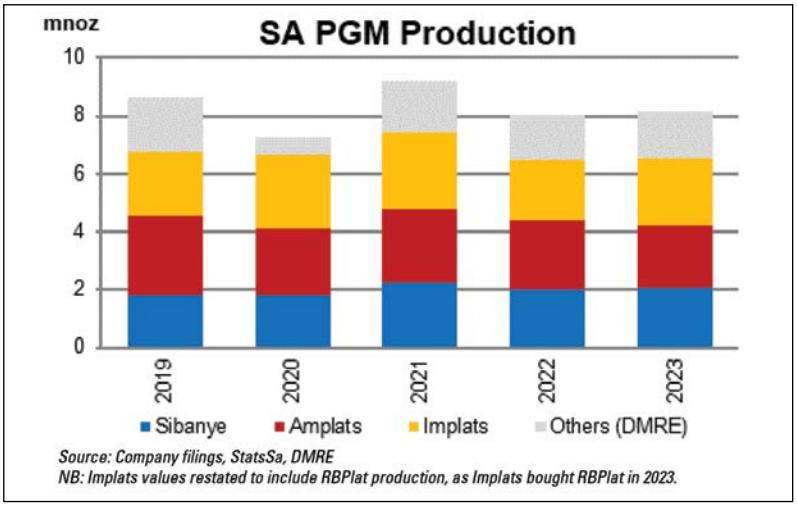
A factor encouraging this consolidation has been severe pressure on profitability from rapid price declines alongside sharp operating cost inflation in the past two years. Additional supply challenges such as, intermittent electricity supply, political instability, labour disruptions, copper cable theft, mine shaft depletions and declining ore grades have also crippled the PGM industry's growth potential.

The impact of declining ore grades is potentially the most notable structural concern, as this necessitates accessing richer and often deeper deposits if miners aim to sustain or expand overall volumes, which tends to be more capital and energy intensive. Considering the current subdued PGM basket prices, this can quickly lead to shafts becoming unprofitable.

Besides these mining challenges, PGM producers are also facing strong cost pressures from sharply rising electricity costs, as well as surging material and fuel costs in recent years. PGM production costs have been boosted further by elevated inflation of processing chemical costs, which surged in 2022 as the impact of renewable energy deficits in Europe and China reverberated around the world, only for global energy market disruptions to be worsened by fallout from the Russia-Ukraine conflict. While product prices mostly eased in 2023, some chemicals crucial for



*SA assessment is production-weighted per project, and accounts for operations controlled by Sibanye-Stillwater, Harmony Gold, Goldfields and Pan African Resources, who together accounted for 85% of SA's production reported to the DMRE in 2022.
Source: Company reports, World Gold Council, Afriforesight



Source: Company filings, StatsSa, DMRE
NB: Implats values restated to include RBPlat production, as Implats bought RBPlat in 2023.

PGM processing remain 25%-60% more costly than early in 2019. Congestion and delays at SA ports, intensified by the rerouting of vessels around Africa due to the heightened Middle East concerns, should also limit near-term availability of imported chemical feedstocks, constraining chemicals supply further and placing upwards pressure on prices.

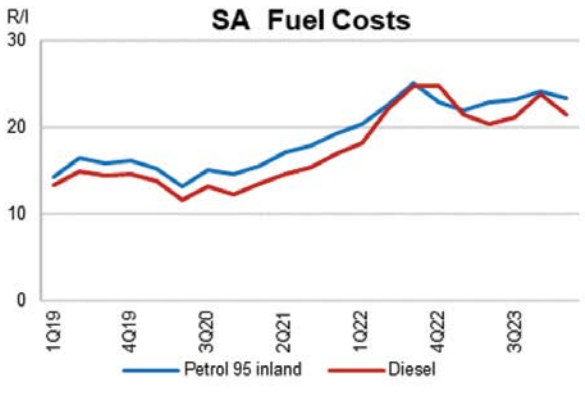
PGM basket prices have declined rapidly since 2021/2022 as major disruptions to supply chains and persisting chip shortages curbed demand from the global automotive sector (which accounts for 47% of platinum demand and 80%-90% of palladium and rhodium demand), while more recently, the higher interest rate environment in most regions has been slowing consumer spending of larger purchases such as vehicles.

The lower PGM basket prices coupled with the higher operation costs are squeezing PGM margins and pressuring miners to restructure to stay afloat, with much of the sector delaying projects and postponing investment plans for expansions. Unfortunately, labour has been one of the categories mostly affected by these repositioning strategies. In an indication of the current constrained operating environment for PGM miners, the key operators Implats, Sibanye-Stillwater and Amplats, as well as the Chinese-owned Wesizwe Platinum (which planned to develop a 420kozpa mine) are also targeting significant cost-cutting measures including job cuts and shaft restructuring or closures.

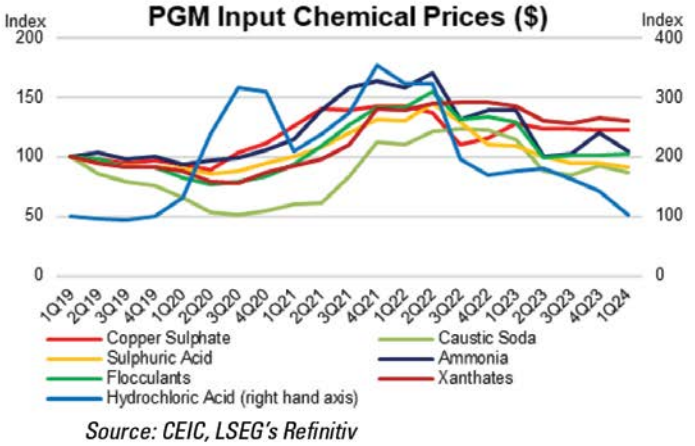
On a somewhat brighter side, a risk which has the potential to be mitigated in the medium term is the ongoing challenge of loadshedding. At stage 6 or higher, underground mines (which are the majority in SA) are typically forced to curtail or pause operations. Supported by incentives like the government's exemption of self-use power producers from generation licence requirements to accelerate the addition of generation capacity in the country, miners are increasingly investing in the development of onsite electricity generation solutions such as solar and wind farms. However, many of these projects will only come online from 2025 onwards. Some miners currently switch to generators during loadshedding, which is relatively unsustainable given the sharply rising domestic fuel costs and environmental implications.

Until this potential relief on power supply disruptions is realised, intermittent buildups of work-in-progress inventories are likely to remain a consequence of Eskom's deficiencies as the entire production process from extraction and concentration to refining can take up to six months.

Owing to the various challenges highlighted, and the potential for further external constraints, South African supply is expected to decline in 2024; however, expectations of improving demand are providing some hope for the PGM industry. Platinum, Palladium and Rhodium are used mainly to manufacture autocatalysts for combustion engine vehicles; demand for which should rise as many countries tighten emissions standards and as the transition to low- or zero-emission new energy vehicles occurs more slowly than the market originally anticipated. A more-gradual transition away from standard vehicles, and the increasing acceptance of dual-approach options like hybrids or e-fuels should sustain some portion of PGM demand from the auto sector into the longer-term. Recovery in industrial demand is also expected once the elevated interest rates prevalent in most regions begin to ease. ■



Source: DMRE



Source: CEIC, LSEG's Refinitiv

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Semarule: Inspecting carbonatite on the hilltop.

Eastport unveils plans for the company's stock market debut

After achieving much success in Botswana at the helm of critical metal developer, Giyani, Robin Birchall has returned to Botswana as CEO of Eastport Ventures. Since formally taking the role in February, his focus has been on strategically evaluating the most efficient manner for which to optimise value for the company and its shareholders, ahead of a planned IPO on a North American Stock Exchange in the coming months.

Eastport is an innovative Canadian mineral development company operating in Botswana. Over the past 10-years, Eastport has amassed what the company believes to be mineral assets that provide key exposure to critical metals it acquired during a sustained period of distressed market conditions.

CEO, Robin Birchall, believes that now, more than ever, is the time to be taking the company public with a backdrop of high metal prices, restrictive supply conditions and ethical sourcing of material. Eastport's objective is to develop its mineral interests to material stages within the value curve.

The company is seeking to raise ~C$6m upon listing to fund a highly active exploration and development campaign across its three core mineral interests:

1. **Foley,** its flagship Uranium exploration and development project, located on a 972 km^2 tenement and bordering Lotus Resources (ASX: LOT), Lethlakane Uranium deposit; one of the largest developed Uranium deposits in Africa.
2. **Matsitama,** an advanced Copper project with close to $20 million in historic and present expenditures over the last ~12 years.
3. **Semarule,** a Rare Earth Elements project covering 249 km^2 less than 50 km from the capital of Botswana, Gaborone.

With a focus on enhancing its asset base with drilling activities, the junior miner expects, by 2026, to have delineated a resource on its Foley uranium asset, be undertaking a pre-feasibility study on its Matsitama copper project – its most advanced asset to date – and engaged in a preliminary economic assessment (PEA) on its Semarule rare earth project.

Chief Executive Officer, Robin Birchall comments, "Eastport is at a compelling and ambitious stage. Our three core projects offer

Nakalakwana logging drill core.

Sampling drill core at the warehouse facility.

incoming and existing investors accelerated exposure to what is not only important in process but highly exciting in potential outcomes. The apparent optionality within the company allows us to meaningfully develop projects up the value curve concurrently due to the present status of development, which is rare in the junior exploration and development market that has been so devoid of capital investment. I am looking forward to pushing our plans into motion and believe that the company has a fantastic opportunity to generate value for our shareholders given current market conditions and a return of sentiment for the metals and mining industry."

Foley Uranium project

Located in north-central Botswana, the Foley project covers 971.9 km^2 under licence and is wholly-owned by Eastport. The project borders the ASX-listed Lotus Resources Lethlakane deposit, one of the world's largest undeveloped uranium deposits with an in-situ resource of 280 million pounds (Mlbs) U_3O_8.

Birchall explains that the former owner of the Foley asset – Australian company A-Cap Resources – had undertaken "some drilling" with Eastport Ventures scheduled to enhance the data sets with more drilling, including radio magnetic surveys.

"The favourable stratigraphic similarities between the Letlhakane uranium deposit, or the Langer Heinrich in Namibia, and the Foley project give confidence to the notion that Foley could host a significant high-grade resource."

Eastport's exploration programme at Foley aims to identify paleo-channel targets at the overlying Ecca sedimentary-basement boundary and to "test these paleo-channels for uranium". Historic drill holes on the licence indicate the existence and presence of uranium, with elevated grades observed in the assay results.

The region boasts excellent infrastructure, with power, transport, and skilled labour in close proximity.

Birchall concludes, "The Foley project has the potential to become a 'premier uranium asset', in the line with the likes of the Langer Heinrich uranium project in Namibia."

Matsitama copper project

The Matsitama copper project is an advanced stage development project, owned by a former producer to the north of the project. The former operator intended for Matsitama to provide increased mine life through development and discovery given the project borders the former operator's mine. The project is located on the Matsitama Schist Belt (MSB) - an accreted terrane thrust atop an Archean plutonic complex at the western end of the Zimbabwe Craton.

The MSB contains a drilled deposit with an historic SAMREC compliant resource, and two highly compelling exploration and development targets where drill results have yielded grade in excess of 10% Cu. The company plans to resume drilling and exploration activities at the MSB including; infill core drilling, diamond drilling and exploration drilling.

Eastport plans to invest a total of ~$3m this year to advance core objectives across the MSB, which include:

MSB: Nakalakwana (SAMREC Compliant Resource)

Nakalakwana was acquired by Eastport with a SAMREC resource of 9.9 mt at 0.45%. The resource is hosted by a shallow plunging structure extending from surface. Eastport's planned programme at Nak is focused on building tonnage and improving grade-potential through infill-drilling and expansion & exploration drilling.

Nakalakwana outcrop XRF Spectrometer Analysis.

Birchall comments, "Past drilling at near-surface indicates the opportunity for additional potential ore shoots at the Nak West and Tower Hill areas. Planned exploration drilling at Nak West and Tower Hill is expected to confirm their potential. Our objectives are to expand the existing resource and to explore for other similar resources. Additionally, eleven new exploration areas were identified, and ground surveys are underway on five of these sites with the expectation for drill testing in the latter part of 2024. Many untested geophysical and geochemical targets have been found within the historic data, which also require further exploration."

Semarule Rare Earth Elements project

Located, ~50 km from the Country's Capital, Gaborone, the Semarule REE project features an outcropping of mineral-rich, multi-phase syenite with carbonatite dykes.

Surface rock sampling has reported up to 5 097 ppm Total Rare Earth Oxides (TREO) – the project contains neodymium, praseodymium, dysprosium and terbium.

Aside from its intention to commence drilling on the project later this year, the company is currently engaged with environmental permitting. The asset is well located in an area containing excellent infrastructure such as roads, electricity, and a nearby skilled workforce.

Eastport's post-listing quarterly work programme at Semarule project will include airborne survey radio-metrics and magnetic drilling, ground gravity survey, geology and ground sampling. ■

Robin Birchall was recently appointed CEO of Eastport Ventures:

- ❑ Birchall brings over 20-years of experience including over a decade at leading Investment Banking Institutions (BMO and Canaccord Genuity) where in senior roles he completed over ~$5bn in equity and debt-based financing transactions within the mining sector.
- ❑ More recently, Birchall has focused on developing and building junior mining companies to material stages within the development curve, including Feasibility Study and Final Investment Decisions.
- ❑ He has successfully operated and led quoted junior mining companies on recognised investment exchanges, including, but not limited to, TSX-V and LSE, with these companies having operational mineral interests in Botswana, West Africa, and Russia.
- ❑ "I have proven that I can take companies from grassroots level all the way through to production," says Birchall.

Kagiso Fredericks, Beneficiation Manager at De Beers.

‘Life-changing’ diamond awards aim to redefine luxury

Giving wings to aspiring jewellery designers, De Beers has been broadening the avenues of beneficiation in the diamond sector through its Shining Light Awards. According to Kagiso Fredericks, Beneficiation Manager at De Beers, the awards competition challenges young design talent to redefine luxury – and rewards them with life-changing prizes. Young designers from all four of De Beers’ countries of operation are invited to add their creative genius to the art of jewellery design.

“We are starting the process of attracting applicants for this year’s Shining Light Awards,” says Fredericks. “After the designs are produced and judged, we are planning to announce the winners in the last quarter of 2024.”

Started in 1996, the Shining Light Awards – also known as the De Beers Group Design Initiative – began with the aim of showcasing South Africa’s design talent to the world. Fifteen years ago, the programme was extended to Botswana and Namibia, the two other host countries of De Beers operations in Africa. Entrants from Canada were then also included in the awards five years ago. The focus on youth helps to capture emerging creativity and to facilitate access to the sector, he explains.

“The consumer market today is flooded with luxury goods, so the Shining Light Awards encourage designers to think beyond the conventional brands – and to extend their personal, cultural and artistic boundaries,” says Fredericks. “For younger generations, especially millennials, there is often a feeling that luxury is being defined for them and not by them. These awards are an opportunity to place them in a more empowered position to define their own sense of luxury through diamond jewellery design.”

The art of diamond jewellery creation inspires extraordinary heirlooms.

De Beers has been providing a platform to champion talented young designers for over 20 years.

Three top designs from each of De Beers’ four host countries are chosen, and the winners are rewarded with prizes that could change their lives. In previous years, for instance, the first prizes included a year-long post-graduate scholarship in one of the world’s fashion capitals. While this year’s prizes have yet to be announced, the second and third prizes in the past have also focused on valuable educational opportunities and internships.

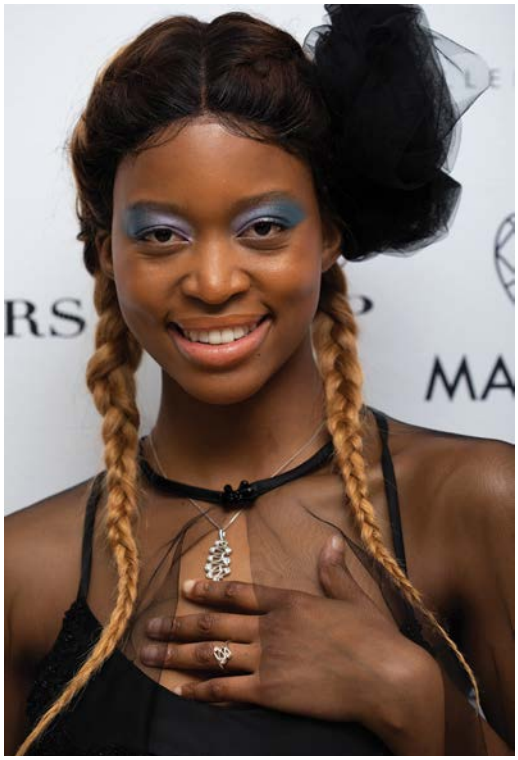
Another important outcome of the awards, Fredericks highlights, is that the winning designs are considered for actual production – through an engagement between De Beers and its Sightholders.

“Our customers remain an integral part of the Shining Light Awards, as our Sightholders have been important sponsors behind turning designs into jewellery,” he says.

Inclusivity

To bring as many potential participants as possible into the Shining Light Award process, De Beers works with schools, colleges and incubators to

The Flower of Dettah pendant.



A model wearing The Journey jewellery collection by De Beers Shining Light Awards 2015 winner, Lilja Hastie.

explain the brief and specifications for the designs. Entrants are given three months to develop their designs, with the help of their teachers, lecturers and mentors.

"It's important that the designs are capable of being practically translated into items of jewellery, so we include these considerations in our requirements," he explains.

The judging process is painstaking and detailed, with a panel of judges selected from the jewellery industry and related professions. They are given the onerous task of assessing each submission in detail according to the criteria supplied; applicants are identified only by a number, so each person submitting their design remains anonymous.

"From this assessment, a score is generated for every submission, and the top five are chosen for each country," he says. "There are then further

Above: Bheki Ngema of Ben & Co. was South Africa's Shining Lights Awards winner in 2009 and later became a judge.

Left: De Beers Group is calling on aspiring young jewellery designers from their producer countries to enter the 2024 Shining Light Awards.

deliberations among the judges to select the top three for each country, and only at this stage are the names of the winning designers revealed."

Entrepreneurship

While the Shining Light Awards focus on the artistic skill of the designer and support the honing of that creative talent, there is also the aspect of small enterprise development to consider.

"De Beers sees the empowerment of young designers – by giving them a voice through their designs – as a vital aspect of our role as good corporate citizens," says Fredericks. "It has also been important to support not only their design skills, but their capabilities as entrepreneurs and marketers of their own creations."

The awards have therefore also been able to support small jewellery manufacturers and distributors, helping to open doors into the sector and to introduce vibrant new entrants with creative energy. This, he highlights, has been achieved through close collaboration with important industry stakeholders like the South African Diamond and Precious Metals Regulator and the South African Diamond Manufacturers' Association.

Over the years, the winning participants in the Shining Light Awards have gone on to excel in

Above: Canada Shining Light Awards 3rd Place Winner Emily Vander Vlugt, visiting Ghacho Kue Mine as part of her three-month internship prize.

Right: A model showcasing jewellery at the 2021 Shining Light Awards.

various aspects of the jewellery trade. For example, says Fredericks, the firm BEN & Co was started as a jewellery retailer in Pretoria after its Bheki Ernest Ngema used his winnings to hone his skills and later branch out on his own. One of the winners, Hunadi Baloyi of Caliente Designs, used her prize to launch her own line of jewellery, which is marketed through the Jewellery Village at Montecasino entertainment and retail complex, located north of Johannesburg. Another young designer, Omphile Sibanda of Studio Pea, who was honoured at the awards has embraced the pop culture fascination with dental grills – or grillz – and creates this trendy dental jewellery using diamonds.

In Botswana, 89 Carat Street is a brand that designs and manufactures sentimental beauty through fine jewellery using precious metals, semi-precious stones and diamonds. The company was founded by Khumo Makwa, a former accountant who developed a deep interest and skill in jewellery design and manufacturing, and was subsequently one of the winners in the Shining Light Awards. Khumo has designed and produced jewellery for Botswana's President and the Prime Minister of Bahamas from a collection titled The Okavango Delta, created to honour one of the Seven Wonders of the World.

Also in Botswana, Caiphas Othomile is a renowned jewellery designer and owner of La Calla, a company that provides jewellery design and manufacturing services and watch repairs as well as a jewellery design consultancy that has seen him design crowns for some of Botswana's beauty queens. Along with his 2010 Shining Light Award, Caiphas is a graduate of the University of Botswana where he attained a bachelor's degree in design.

In Namibia, artist and art teacher Frans Uunona has been among the winners of the awards. While working mainly in fine art through acrylic and oil paints, he is also able to celebrate the power and glamour of diamonds in his artistry.

"By raising the profile and skill levels of these young designers, industry is given more opportunities to employ, support or partner with new entrants," he says. "Each time we organise these awards, we develop and give exposure to another cohort of talented youth who have much to offer the jewellery sector."

As part of her third-place prize, Emily Vander Vlugt from Canada received a three-month internship with De Beers Canada and had the opportunity to design a pendant named "The Flower of Dettah" from a diamond that De Beers gifted her.

"The pendant and its design have great personal meaning for me as they encapsulate my learning of the diamond industry, its environmental guardianship and the cultural influence of the Dene First Nations in Yellowknife," Vlugt said.

Fredericks notes that there are few events or competitions in Africa in this field of endeavour, making the impact of the Shining Light Awards even more vital in the transformation of the sector.

Building design capability

"Among the important contributions that the awards make is to schools and institutions where the applicants are studying," he points out. "We realise that not all the schools attracted by the awards have the technical resources in place to offer courses in computer aided design (CAD), for example."

However, when these schools commit themselves to joining the awards process and start to prepare and mentor their students to make a design submission, this often pushes them to go the extra mile. They find ways to make these facilities available, and even to offer skills like CAD as a more central aspect of their teaching. He says that more schools in South Africa are certainly pursuing this direction, to encourage an additional skill set.

"This is even more directly felt in countries like Botswana and Namibia, where there is great interest in further developing skill levels in the jewellery design field," he says. "We are therefore pleased to have a broader institutional benefit within the educational sphere, paving the way for more designers to emerge in future." ■

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Different quarries need different cone crushers. Weir Minerals is the only global manufacturer that offers both. TRIO® live and fixed shaft cone crushers are made for modern quarries with advanced hydraulics, wear resistant materials and the latest technology. You get what's right for your circuit. No unnecessary redesigns needed. Plus, with a lifelong commitment from the Weir Minerals global network, we've got you covered. Visit **info.global.weir/trio**

WEIR

Minerals

Taking crushing beyond reliability and into sustainability

As vital early stages of mineral processing on mines, crushing and screening functions are now required to be more than robust and efficient; there is growing focus on conserving energy and water as well as occupied space while reducing operational and capital expenditures, quantifying the actual impact of project and equipment performance on a company's sustainability performance.

Tiisetso Masekwameng, General Manager Crushing and Screening at Weir Minerals Africa.

"Mining has always been a demanding market with a stringent requirement for reliable and trouble-free performance to drive mining productivity," says Tiisetso Masekwameng, General Manager Crushing and Screening at Weir Minerals Africa. "At the same time, mines are looking to their technology partners for solutions to curb rising energy costs and to growing stakeholder expectations for a lower carbon footprint."

To align its crusher range with modern comminution plant requirements, for instance, Weir Minerals includes its Trio® heavy-duty CT series jaw crushers and TC series cone crushers, which are heavier than comparable market offerings to ensure reliability under the most severe conditions. Extending the conventional comminution plant boundaries, the company also supplies equipment for downstream processing like Enduron® high pressure grinding rolls (HPGRs) and STM® vertical stirred mills (VSMs). This allows a focus on supplying and maintaining a complete flowsheet offering from ROM 1 metre size to a product of microns.

"The HPGR can replace the semi autogenous grinding (SAG) mill at the initial grinding stage, and the VSM replaces the ball mill," says Masekwameng. "Consuming up to 40% less energy than traditional tumbling mills, our HPGRs require no grinding media or additional water for fine grinding."

The Enduron HPGR uses up to 40% less energy than traditional mills.

This energy efficiency makes a direct contribution to a mine's carbon footprint, and saves considerably on electricity consumption. In a study assured by a third party, Weir Minerals compared its simplified redefined mill circuit – with primary and secondary crushers, HPGR, stirred mill and coarse particle flotation – to a conventionally designed circuit. Results showed that the Weir Minerals circuit avoided 40% of the energy generated and 50% of carbon dioxide emitted, while achieving a 20% lower operating cost.

"With our close attention to monitoring the operations of our equipment – as well as gathering and analysing data – we can better quantify the benefits to the customer and the environment," she explains. "Key among the measurements of success is the total cost of ownership, where our Enduron® HPGR achieves between €0,09 and €0,20 cost per ton of ore processed, in terms of labour and wear parts."

The company's data also shows that its HPGRs provide high availability of over 95% and a prolonged wear life. She highlights a definite trend in which mines and their stakeholders – especially financial institutions – are requiring more detailed and empirical data about what mining projects are doing to reduce their carbon emissions. More than just a strategic commitment, mines want reliable statistics on the environmental impact of each item of equipment; in turn, OEMs are expected to have this information readily available.

"Our data monitoring and analysis allows us to quantify impacts, showing that the reduced power consumption of our installed base of Enduron®

HPGRs require no grinding media or additional water, lowering the environmental impact of the equipment.

HPGRs saved over 200,000 tons of carbon dioxide during 2021, for instance," says Masekwameng. "The fact that these units require no grinding media saved another 700,000 tons of carbon dioxide."

This equipment underpinned a large magnetite project in Western Australia, which began production in 2022, where priority was given to dry processing and energy efficiency. That project made full use of Weir Minerals' range of solutions from Enduron® HPGRs, GEHO® and Warman® pumps, Cavex® hydrocyclones and Isogate® valves.

Closer to home, a stockpile recovery project at the old Thabazimbi iron ore mine in Limpopo province is relying on a two-stage crushing and screening plant from Weir Minerals Africa – liberating the desired iron ore from the unwanted gangue minerals. Two Trio® cone crushers were coupled with a surge bin tower and a Trio® EF pan feeder to ensure choke feeding conditions which optimise grades, recovery and equipment reliability. For secondary crushing, a Trio® TC51 cone crusher was chosen, while the TP350 cone crusher conducts the tertiary crushing. Other equipment on site included the Enduron® DHG24/48 double deck horizontal secondary screen.

Ensuring both the operational and environmental performance of its crushers and screens requires a dedicated and well-resourced service function, emphasises Masekwameng. This is a vital aspect of Weir Minerals Africa's commitment to its warranties – to ensure that the performance and condition of equipment is closely monitored.

"Here we combine our proximity to customers with our digital monitoring capabilities," she says. "Our digital platform allows us and our customers to monitor the performance of their equipment in real time from remote locations. As importantly, we have our capable service centres located in close proximity to customers, so our technicians and spares are always close at hand."

Above: Enduron screens installed as part of the beneficiation process at a local iron ore mine.

Left: A Trio cone crusher and surge bin are part of a two stage crushing and screening plant at a local iron ore mine.

With 12 service centres in South Africa, there is always ready support for all the country's mining regions; they are also located in Ghana, Central Africa, Namibia and Botswana. This high level of support is crucial not only to maintain the equipment's condition but also, she argues, to constantly optimise performance through the mine's lifecycle.

"The mining sector is dealing with a common challenge of diminishing ore grades," she says. "A close partnership with OEMs can help mines to achieve the highest recoveries possible; it also often means increasing the throughput of a plant to reach the same production levels of valuable product which Weir Minerals is able to deliver with the current portfolio of comminution equipment that includes crushers, screens, HPGR and VSM."

Weir Minerals Africa facilitates this collaboration by ensuring its experienced technicians are often on site to better understand the conditions and challenges faced by the customer. Data from the field is used to improve the control of each item of equipment as well as the full circuit – so the system can be optimised with less need for physical observations and manual adjustments. ■

Francois Marais, Sales and Marketing Director at Pilot Crushtec.

Pilot Crushtec believes in big quality with new distribution agreement

South African equipment supplier, Pilot Crushtec's latest distribution agreement with industrial heavy-weight, Metso, to market its complete range of Jonsson primary and secondary crushing and screening equipment, is a game-changer for the mining sector, which seeks bigger equipment for improved productivity and output. By *Nelendhre Moodley*.

Metso acquired Swedish mobile crushing and screening solution provider, P.J. Jonsson, in 2018. Founded in 1953, Jonsson has been building and selling mobile tracked crushers since 1998 and has sold over 800 mobile units.

Pilot Crushtec launched the Jonsson range at its customer day on 24th April where it engaged consumers, contracting clients and mining clients on the latest product range.

According to Francois Marais, Sales and Marketing Director at Pilot Crushtec, the Jonsson philosophy is to focus on the most demanding customers who strive for the lowest operating costs and highest levels of productivity. This ties in well with the mining sector, which requires large-scale robust equipment to handle the arduous African mining conditions.

"Over the past three years, several commodities have been experiencing market volatility, which has put mines under pressure to mine cost-effectively. Contractors to the sector have thus been seeking larger equipment to deliver greater output at the lowest cost," Marais tells *Modern Mining*.

To capitalise when commodity prices are favourable, mining houses have been enlisting contractors with extensive fleets to mobilise swiftly to site.

Given this scenario, Pilot Crushtec has been seeking new and innovative solutions to meet customer expectations with the latest distribution agreement underpinning the company's confidence that the Jonsson range will deliver swift return on investment for its customers.

Jonsson product range

The Swedish manufacturer of bespoke multi-stage crushing and screening mobile plants powered by a single diesel engine, offers "a unique opportunity for contractors looking to deploy a single piece of equipment on a small footprint.

"Jonsson is the only manufacturer to build mobile tracked crushers with double crushing processing abilities. There is currently no other manufacturer that produces a similar one-stop offering, which places Pilot Crushtec in a favourable position to meet industry demands. The Jonsson double crusher concept saves on handling, has a single point of power, allows for a smaller plant footprint, and provides complete mobility of a processing plant. It is also available in two power options of full electric or dual power."

The Jonsson range of crushers is available from a C 120 primary jaw crusher up to a C 160 jaw crusher capable of 1000 t/h.

Apart from its sheer size and ability to deliver as a one-stop shop, the Jonsson range of crushers and screens offers several benefits, including total processing on a single chassis, which translates to low maintenance costs.

Marais explains that the products are built with a high level of attention to detail and include heavy duty construction with thicker hoppers, vibrating motors on chutes and thicker conveyor belting, which equate to an unrivalled heavy-duty mobile tracked crushing and screening plant.

"With the distribution agreement in place, we also become responsible for the after-sales and product service, which is why the team has been through an intensive training programme on the Jonsson product range."

Marais, who is confident that the company will "finalise at least one sale on the Jonsson range during 2024", notes that the niche product is favourable for high volume bulk commodities, including iron-ore and manganese as well as being suited to Greenfields projects in remote locations.

"We offer contractors an opportunity to buy a single piece of equipment, at probably less than half the time of setting up a fixed operation, and to begin generating revenue immediately. Given the market volatility across key aspects, such as exchange rates, commodity prices and transport to export markets, we believe that the

Pilot Crushtec is pioneering another industry first by introducing Jonsson equipment to the southern African market, featuring mobile tracked double crusher processing plants.

The Jonsson L120-330 includes a primary jaw crusher, cone crusher and screen on the same set of tracks.

feature

Jonsson mobile double crushers are characterised by their uncompromising quality, sustainability and outstanding cost per ton.

Whether it's aggregates or mineral ore, the Jonsson range can tackle a wide variety of applications looking for high tonnage and lowest cost per ton.

larger Jonsson range is ideal for the African mining sector."

Since launching the brand, a year-and-a-half ago, Metso has achieved product success in Australia, the UK and New Zealand with Pilot Crushtec now looking to replicate this success locally.

Mining becomes key for Pilot Crushtec

Discussing mining, Marais explains that for most of Pilot Crushtec's existence, which spans 34 years, supply of equipment has been dominated by the aggregates sector. However, since 2021 mining has accounted for as much as 70% of equipment sales, with aggregates and recycling accounting for 20% and 10% respectively.

"Equipment sales have historically enjoyed a roughly 50-50 split between aggregates and mining; however, last year was the first time where we experienced an exponential move towards mining as the dominant equipment sales procurer. The current state of the quarrying sector is unstable for us – we have noted an influx of price competitive products from China and India which are beginning to gain traction in the local market."

With mining emerging as an important segment, Pilot Crushtec continues to re-evaluate how it aids contractors to the mining sector. Some of the key differentiators between the aggregates and mining sectors are the timeframes related to decision making when purchasing large-scale equipment, with the aggregates sector being the more agile. The mining sector though has a greater focus on aftermarket expectations as miners rely heavily on after-sales support and backup spares.

Pilot Crushtec will provide after sales service and support for the Jonsson range from its head office in Jet Park on the East Rand. ■

Servicing, refurbishing HPGR units and more

Philip McCormick, General Manager of the FLSmidth Chloorkop Service Centre.

Dirk Wesselman, FLSmidth Head of Field Services for sub-Saharan Africa.

Steve Parkinson, Head of the FLSmidth Training Academy at its Chloorkop Service Centre.

As a global leader in high pressure grinding rolls (HPGR), FLSmidth's Chloorkop Service Centre has always been at the forefront of refurbishing these machines. Further expansion to the facility in Gauteng will allow the company to cover the entire flow sheet, including its large gyratory crushing technology. This provides a single safe source for customers covering the wide range of equipment in the company's offering to the mining sector.

According to Philip McCormick, General Manager of the Chloorkop Service Centre, its depth of capability represents FLSmidth's dedication to supporting customers with cost effective refurbishment and repair services that can be delivered in short turnaround times.

"At this state-of-the-art turnkey service centre, precision meets innovation," McCormick says. "As a global Centre of Excellence for HPGRs within FLSmidth globally – which includes a sophisticated test facility – we are also a full turnkey facility for equipment refurbishment for Africa, the Middle East and South Asia."

Infrastructure at the service centre includes a large fabrication shop as well as an extensive strip, assessment and assembly area. Served by a 220-ton overhead crane, the facility includes a heavy machining section with both conventional and CNC equipment. The precision CNC bay hosts multiple machining centres from two-axis to five-axis to manufacture various components.

"Our facility is closely aligned with FLSmidth products such as mills and HPGRs," he says. "This includes a specialisation in mill shell and trunnion white-metal bearings, which we can manufacture and refurbish."

The FLSmidth Chloorkop Service Centre refurbishes crushers, feeders, breakers and sizers – and manufactures a range of spare parts. With a blend of machinery and expertise that sets it apart, the facility applies its heavy machining, assembly, testing and quality control to give customers the best possible results.

"The advanced infrastructure has deliberately not been committed to extensive manufacturing runs," he explains. "This makes our resources more readily available to respond to urgent servicing requirements from customers."

Field services

The extensive capability makes the Chloorkop facility an important backbone of FLSmidth's field service offering, says Dirk Wesselman, Head of Field Services for sub-Saharan Africa. He explains that Chloorkop provides support services for customers across Africa, and trains technical staff who can then be based at FLSmidth branches on the continent in those regions where the company has a substantial installed base.

"Our strategic expansion of this service centre capability brings us even closer to customers, with field service technicians frequently on site to check the optimal performance of crushers, screens and other equipment," says Wesselman. "It also further improves our responsiveness to customer callouts, with our rapid on-site presence ensuring optimal uptime."

These interactions pave the way for inspections and audits, where FLSmidth technicians gain the necessary insights into the condition of equipment and exactly what intervention is required to return the unit to OEM standards. These standards provide the foundation on which warranties can be provided, giving customers the assurance they need for accurate maintenance planning.

"Once the refurbishments are concluded at Chloorkop, we can advise the customer on planned maintenance schedules to ensure high performance and long life of equipment," he says.

This also allows for the requisite spares to be ordered in advance or held in stock. For those mines requiring an OEM maintenance contract

The FLSmidth Service Centre in Chloorkop, South Africa.

feature

The main workshop at the FLSmidth Chloorkop Service Centre with a HPGR stripped ready for inspection.

On the job mentorship in a production environment at FLSmidth's Chloorkop Service Centre.

A miniature HPGR used for specialised training at the FLSmidth Chloorkop Service Centre.

from FLSmidth, a reliability engineer with specialised artisan skills is made available to the customer site. The key value is the highly specialised training and experience that this engineer has in the mine's specific equipment. The expertise in the field service team also allows customers to be supported with a full package of installation, commissioning and maintenance (ICM) of their assets.

"This could apply to a plant upgrade, where the mine is looking for a 'plug and play' solution for a new crusher or mill in an existing plant," says Wesselman. "It could also be provided to an EPCM contractor who is looking for support from installation through to cold and hot commissioning – and even maintenance."

He highlights that a team of over 80 technicians are strategically located to deliver these services in South Africa's mining regions and to meet service level agreements with customers. Crews in Mpumalanga, for instance, support the mining and energy sectors, while other service crews support customers in Zambia, the Democratic Republic of Congo and Zimbabwe. McCormick points out that these services are available for the range of legacy equipment including Thyssenkrupp Mining's mineral processing equipment such as HPGRs, crushers and apron feeders.

Skills development

Another vital component of the Chloorkop facility is the Training Academy, which fulfils key strategic objectives for FLSmidth, explains its head, Steve Parkinson.

"The Training Academy is an important contributor to our overall succession planning within the facility and the business more generally," says Parkinson. "It also upskills new recruits to the levels of competency that we require to operate our various facilities in South Africa, which represent a significant investment and vote of confidence in the future of the country."

Around 10 apprentices are enrolled every year at the academy, and they spend three years in formalised training towards their qualification and future role as an artisan. FLSmidth employs as many as it can accommodate within its resource planning and budgeting; the company also goes the extra mile in trying to find placements for the others, among its customers or the broader industry.

"In this way, we develop our own specialised in-house expertise while creating a skills pipeline that supports the local economy and builds a stronger base for the manufacturing, mining and other sectors," he explains. "This is part of our commitment to the growth of mining and industry in Africa."

Among its other training programmes is technical product training for customers' employees – from a general introduction to specific products right through to operations and maintenance. This is conducted through three levels of training: Level 1 is general knowledge; Level 2 is basic operations and preventative maintenance; and Level 3 is specialised maintenance. ■

Nils-Peter Ahlqvist, Sales Support Manager, Africa & Latin America – Crushing Division at Sandvik Rock Processing.

Emerging trends in crushing

To remain sustainable and competitive, mines are increasingly placing value on automation, digitalisation and energy efficiency in their crushing operations. Cognisant of these trends, the upgraded Sandvik 800i cone crusher series from Sandvik Rock Processing takes connected crushing to a whole new level.

Crushing plants in mining operations have traditionally been conservatively designed. However, in the hunt for cost savings, mines attach greater importance to advanced crushing technology. Technological innovations such as automation and digitalisation not only help mines to reduce costs, but also to minimise their environmental impact, increase production and improve mineral recovery.

The use of automation in mining has expanded dramatically in the past decade, says Nils-Peter Ahlqvist, Sales Support Manager, Africa & Latin America – Crushing Division at Sandvik Rock Processing. Automation, he says, impacts crushing efficiency and ensures lower operating costs per tonne. While the productivity gains are important, the biggest value he sees is in terms of safety.

The upgraded Sandvik 800i crushers are ready to be connected to the SAM by Sandvik cloud-based digital assistant.

The same view is shared by Adam Taylor, Business Line Manager for Crushing Solutions in Africa at Sandvik Rock Processing, who says that mining is a risky industry that has realised a step change in safety where automation systems have been introduced. Taylor is quick to dismiss the general trepidation that automation is going to replace jobs, but rather points out that automation takes people out of harm's way, while allowing mines to optimise available resources.

Digitalisation is equally becoming vital to mines' daily operations. "Digitalisation is a core focus for crushing and screening operations," stresses Ahlqvist. "Digital solutions such as telematics and monitoring software provide valuable insights into efficiency and performance of crushing operations. By optimising efficiency, uptime and productivity, mines can achieve the highest production output at the lowest cost."

Another big trend, especially in Africa, is the growing requirement for energy efficiency in crushing operations, says Ahlqvist. Given the electricity shortages that plague most African countries, mines are increasingly on the lookout for energy efficient solutions to reduce their power draw. Improved efficiency, adds Ahlqvist, translates into lower emissions, minimising the mine's environmental impact.

Digital solutions such as telematics and monitoring software provide valuable insights into efficiency and performance of crushing operations.

A greater focus on these emerging trends – automation, digital solutions and energy efficiency – has therefore provided a vital building block for the development of Sandvik Rock Processing's 800i cone crusher series. A major talking point is the new Sandvik ACS-c 5 automation and connectivity system.

The ACS-c 5 integrates the powerful capabilities of all crusher modules and subsystems into a single automation system. The new role-based interaction functionality facilitates the work of operators, maintenance personnel and engineers by offering guidance, access to valuable data and tools for proactive maintenance and optimisation.

"The automation system guides the operator through alarms and recommended actions, streamlining the decision-making process during alerts and minimising the impact of potential issues. This

The upgraded Sandvik 800i cone crusher series from Sandvik Rock Processing takes connected crushing to a whole new level.

feature

guidance helps operators to achieve their targets without the concern of losing shifts due to downtime," explains Taylor.

Meanwhile, maintenance personnel have access to an improved historical and operational data log, providing a comprehensive overview of the crusher's performance. "The inclusion of 90-day historical logs allows for in-depth analysis and tracking of the equipment's performance over an extended period," says Ahlqvist.

The new automation system offers engineers more opportunities to monitor, analyse and optimise the crusher's performance. The ability to create crusher programmes and finetune system limits enables a more customised and optimised operation. Performance optimisation is possible through insights on feed conditions, load cycles, pressure distribution and uncrushable objects.

With the growing move towards digital systems in mind, the upgraded Sandvik 800i crushers are ready to be connected to the SAM by Sandvik cloud-based digital assistant. SAM collects information from all connected Sandvik equipment to provide a complete overview of the entire operation. Customers can look at the status of their connected equipment, communicate across teams, view alerts and notifications, pro-actively order spare parts, and much more.

"With the new SAM mobile app for iOS and Android, customers can have an overview of their crushing fleet, monitor equipment data and key parameters, receive alarms from the ACS system directly in their pocket and get recommended actions, created to help them solve issues more quickly," says Ahlqvist.

Of course, adds Taylor, a key benefit here is the potential for remote support. "Through digital solutions, customers can get help remotely without the need to wait for travelling technicians. Remote support gives the customer access to Sandvik's vast crushing and screening expertise directly to their site, which is where they need it most," says Taylor.

The upgraded Sandvik 800i cone crusher range also aligns with the global push towards energy efficiency. For example, in flowsheets including three-stage crushing and conventional grinding, the range assists SAG/AG circuits with pebble crushing and optimises particle size distribution for lump ores and heap leach applications. The Sandvik 800i crushers are also suitable in high pressure grinding roll (HPGR) circuits. They crush more and deliver finer particle sizes to the downstream processes.

"With the latest Sandvik 800i crushers, we can produce much finer product (down to mill feeds of sub 6 mm) from our crushing and screening circuits, ultimately resulting in improved milling and overall process performance. This translates into less energy consumed and reduced wear in downstream processes. In other words, we allow customers to crush more to grind less," says Ahlqvist.

"The 'crush more to grind less' approach is a perfect fit for HPGR and mill processes, which are generally known to consume a lot of power. The finer the material that goes into HPGR and mills, the less the energy required in those downstream processes," concludes Taylor. ■

Bell Equipment CEO, Ashley Bell.

Bell Equipment primes for the next decade

JSE-listed Bell Equipment, which has stood the test of time, celebrating 70 years in business this year, is bedding down on growth initiatives for the next decade. CEO, Ashley Bell outlines the company's strategy which entails cementing its foothold in global markets through a manufacturing hub in the Northern Hemisphere, entering new markets and investing in cutting edge innovations to keep ahead of the competition. By *Nelendhre Moodley*.

In an exclusive interview with *Modern Mining*, Bell who took the reins as the new Group CEO in January this year, reminisced about the company's success over its seventy-year history, highlighting that the home-grown entity is now firmly established as a global player and a leader in the ADT market. Bell's products are available in 80 countries worldwide, which is no mean feat. He adds that the company's growth is underpinned by a dedicated team of some 4 000 people.

"Bell Equipment's strong foundation over its 70-year history has set the groundwork for the next decade. Looking ahead, our focus is to enhance our existing product range, develop new products and establish a manufacturing facility in Germany to unlock further opportunities in the Northern Hemisphere."

The Northern Hemisphere is an important growth node for the equipment supplier, accounting for the majority of ADT sales.

"Our expanding European supplier base has amplified the negative impact of 'round-tripping' materials and components from Europe to South Africa and reinforced our decision to manufacture our Northern Hemisphere ADTs closer to both suppliers and markets," he explains.

The company has 45 000m^2 of undercover manufacturing area in Richards Bay that is well equipped with specialist machines.

Bell Equipment's facility in Germany has been in operation for twenty years as an assembly facility for kits of manufactured components from South Africa.

The US market is currently Bell Equipment's largest Northern Hemisphere market accounting for roughly a third of the home-grown entity's ADTs.

Apart from being an important market for Bell Equipment, the US also offers "the most significant future growth opportunity".

Discussing investment into the new manufacturing facility, Bell explains that while the equipment supplier will invest in purchasing tools and equipment required for product fabrication; the company will take a different strategy to that of its local manufacturing hub.

"We will not replicate the approach we adopt at our South African manufacturing plant as Europe offers an option to outsource component manufacturing - this will translate to a nominal investment in transforming the German facility."

As such, the company is evaluating potential suppliers suitable to manufacture its high-quality components.

"There is a lengthy testing period required to ensure that components manufactured by our suppliers meet the quality standards that we as Bell Equipment and our customers have come to expect of our products. We expect that it will be roughly three to four years before we are able to fully incorporate outsourced products as part of our offering at the German facility."

Bell Equipment eyes new markets

In line with expanding its manufacturing capabilities to meet growing appetite for its product range from the Northern Hemisphere, Bell Equipment is also eyeing new markets, including the Middle East, which offers opportunities for its ADTs in the construction sector.

According to Bell, the company was unable to take full advantage of the strong demand for its equipment last year, given the supply chain constraints experienced. However, this year the company has plans to ensure the availability of its products to sell both locally and globally.

"Due to supply chain constraints, we were unable to satisfy all the demand for our products in many of our markets. Our focus in 2024 is two-pronged - ensure that we deliver Bell products to our key markets and grow our market share in those markets, and make a play for new markets."

He adds: "Demand is filtering through into 2024, we see an opportunity to grow market share in existing markets as well as an opportunity to enter new markets, such as the Middle East, which offers sufficient prospects to book our interest. We expect to make some headway into this market soon."

Bell Heavy Industries (BHI)

Further to this, the South African equipment supplier recently introduced its newly formed division – Bell Heavy Industries (BHI) – which will offer its expertise in complex engineering, heavy fabrication, and machining to all industries across the country.

According to Bell, the BHI business initiative in Richards Bay supports the South African economy and, importantly, keeps people and skills employed.

"We have initiated discussions with potential customers and will work to help stimulate the South African manufacturing sector via contract manufacturing to support local demand. We envisage providing services to the construction, energy, mining, and transport sectors."

The 45 000 m^2 undercover manufacturing area in Richards Bay is well equipped with specialist machines, including both horizontal and vertical CNC (computerised numerical control) machining centres, 5-axis boring machines, laser cutters, high-definition plasma and oxyfuel cutters, bending brakes, and advanced welding technology.

"The growth of Bell as a well-established mining, earthmoving, and agriculture equipment manufacturer, both domestically and in terms of exports around the world, is testament to the skills available and the quality of products we make in Richards Bay. We believe this will benefit not only the manufacturing sector but the whole country."

Mining a key market segment for Bell Equipment

The mining sector remains integral to the company, accounting for much as 50% of ADTs sold into mining applications globally, including the US, Europe, Southeast Asia and Australia.

ADT sales currently account for almost 80% of Bell Equipment's OEM business.

Bell explains that robust commodity demand translates into healthy demand for ADTs, especially from the mining sector in Africa, Southeast Asia and Australia, with the US and parts of Europe also driven by appetite from the construction sector.

Coupled with robust growth from the mining sector; the construction sector is a key sector, accounting for just under 50% of product sales.

Bell Equipment's growth is underpinned by a dedicated team of some 4 000 people.

The Bell Motor Grader range will be manufactured in Richards Bay from early 2025 and has been designed to be class-leading in terms of innovation, performance, and reliability.

However, setbacks in infrastructure project delivery in the UK, with projects "either scaled back or put on hold during 2023", has resulted in under-utilisation of large fleets of equipment and subsequently led to unforeseen pressure in the market.

Bell Equipment innovates to deliver cutting-edge products

Bell Equipment will be launching several exciting new products in the next two years, foremost being the Bell Motor Grader, which will be manufactured in Richards Bay from early 2025.

The Bell Motor Grader has been in development for several years, and Bell believes that a class-leading product with respect to innovation, performance, and reliability has been developed. "This product will take its place alongside the reputable Bell ADT line in the local and global markets."

Moreover, with autonomous-controlled ADTs being a focal point, particularly in the Northern Hemisphere, Bell Equipment has in its fleet, autonomous driver-less ADTs, which are already operational on customer sites in Europe and North America.

Bell Equipment's underground dump truck underwent a significant design review and update in line with the company's focus on the underground mining space.

The Bell Tracked Carrier features extremely low ground pressure and the ability to operate in wet, muddy conditions.

"Our engineering team continues to explore several technologies to find suitable alternative fuel and propulsion solutions for a zero-carbon future," he explains.

According to Bell, every Bell ADT sold today is "autonomous-ready" and any customer who purchases these products could at any stage in the future decide to integrate an autonomous driver-less system into the product.

"From a safety, operational consistency and cost per tonne perspective, the autonomous-controlled ADTs are potentially a game changer for the industry."

With the Northern Hemisphere, where the focus is on lowering costs, Bell expects to see a rapid uptake of autonomous products.

Further to this, the implementation of new mining safety regulations in South Africa has driven demand for Proximity Detection System (PDS) solutions on new and existing equipment in the local mining sector.

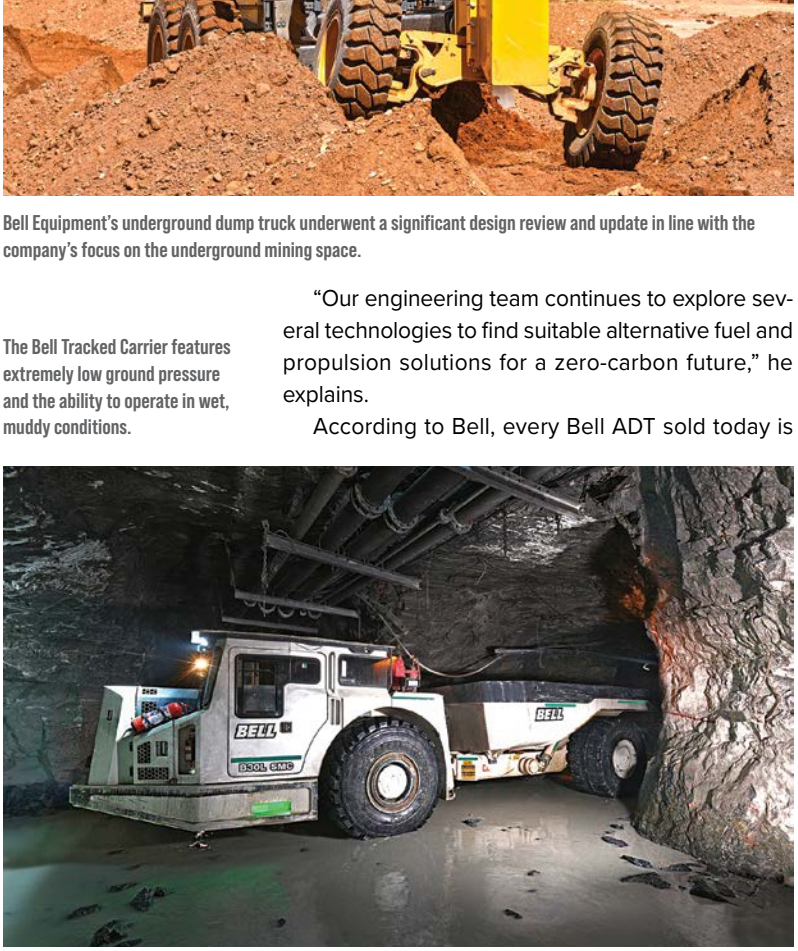
"This validates the forward-thinking design of our 'PDS-ready' ADTs, allowing seamless and cost-effective integration with any preferred detection system. As the market adjusts to the new regulatory landscape, we believe our PDS solutions establish Bell as a partner of choice for mines across the country," Bell says.

Bell Equipment is also expanding its focus to the underground mining space and over the past three years has been busy enhancing its underground Dump Truck, which has undergone a significant design review and update.

Sales of these units have already begun to underground mining operations in Africa.

Building on its underground product offering, the company has developed a 6t LHD, two of which will be commissioned for testing in the coming months.

Despite the forestry industry accounting for a small portion of sales, Bell Equipment recently developed a Bell Timber Processing Head for timber harvesting operations, which is expected to go into production during early 2025. ■



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The ultimate underground hygiene and sanitation solution

Hygiene standards in the mining environment play a significant role in a company's overall productivity. A lack of clean water, working toilets and handwashing facilities poses a significant health risk to all employees, and can ultimately result in avoidable downtime.

Underground environments are more difficult to manage due to the nature of their surroundings and access to available resources and infrastructure. However, this does not mean good sanitation provisions are not achievable, with many underground mines and tunnelling projects proving this possible.

Underground Toilet technology by MineARC offers the latest innovation in self-contained, portable waste management systems – ideal for use in underground mining locations. Designed to be simple to operate and maintain, the EnviroLAV is a semi-permanent structure that can be used both above and below ground, wherever there is access to compressed air or electricity.

One of the EnviroLAV's most enticing features is that it is designed to be a semi-permanent structure that can last up to 12 months before emptying is required. This delivers a substantial cost saving over the long term when compared to other underground toilet options.

The EnviroLAV's structure consists of latrine facilities mounted on top of a miniature biological treatment plant. Waste matter is deposited directly into the treatment tank and is fully isolated throughout the process. MineARC's biodegradable, non-toxic EnviroZYME solution works to break down the matter with every flush, involving no handling of hazardous chemicals at any stage.

The efficiency of the EnviroZYME solution ensures the system emits a minimum effluent odour and the waste treatment process causes minimal environmental impact.

MineARC's EnviroLAV is the perfect solution for both above and below-ground industrial scenarios. Featuring an integrated waste tank, MineARC's unique EnviroZYME solution is deposited with every flush; working simultaneously with the system's aerobic technology to quickly break down waste. Available in male, female and unisex configurations, the EnviroLAV provides the much-needed option of a private toilet facility for women in industry. Its robust design means transportation and installation is a simple one-person job.

Some of the EnviroLAV's features include:

- ❑ Solid steel, corrosion-resistant structure
- ❑ Easy to transport
- ❑ Eco-friendly enzymes

Ensuring underground safety and hygiene.

MineARC's Dual EnviroLAV model.

- ❑ Low maintenance – empty as little as once every 12 months
- ❑ Durable 10+ year life cycle

As with any MineARC purchase, customisation of the EnviroLAV is possible. A multitude of options are available to suit various scenarios and needs, including Single, Dual and Compact configurations with the added safety feature of internal stall locks.

Avinash Andhee, Project Engineer at BBE.

BBE commissions underground bulk

Consulting engineering firm, Bluhm Burton Engineering (BBE) Projects, recently completed the commissioning of a 1.7MWR underground Bulk Air Cooler (BAC) situated on the 63 level at Tshepong North Operations, near the town of Welkom in South Africa, on behalf Harmony Gold Mining Company (Harmony).

The installation of the BAC was required as part of the mine's strategic plan to improve underground working conditions in their decline. Tshepong North is an established underground mining operation that uses conventional undercut mining techniques. The primary gold-bearing orebody targeted by Tshepong North and South operations is the Basal Reef, supplemented by the extraction of the B Reef as a high-grade secondary reef. Mining activities are conducted at depths ranging from 1 500 metres to 2 300 metres. The extracted ore undergoes processing at the Harmony One plant, where gold is recovered using the gold cyanide leaching process.

The BAC – supplied, constructed, and commissioned by BBE Projects – is a two-stage cross flow horizontal spray chamber, incorporating banks of sprayers that release tiny droplets of chilled water vertically into the air stream through spray nozzles. The thermal performance of the BAC is significantly enhanced by employing a two-stage configuration, in which air to water contact is doubled in the chamber. Air flow through the BAC is achieved by the mine's underground booster fans so dedicated BAC fans did not have to be installed, which minimised capital and operating costs.

Easy access to the spray nozzles in the spray chamber for maintenance and inspection purposes is made possible by installing hot-dip-galvanised steel walkways between the spray pipes. The BAC floor is constructed from concrete and appropriately graded to facilitate the annual cleaning process. Where cool air emerges from the spray chamber, mist eliminators have been installed to capture droplets, preventing water carry-over into the haulage. The mist eliminator blades are formed from a specially formulated fire-retardant material developed by BBE, to ensure optimal operational safety.

Chilled water is supplied from the mine's existing chilled water circuit and the supply flow rate is maintained at a constant rate by a flow control valve, regardless of the mine's fluctuating consumption of chilled water in other areas. The BAC is equipped with operating and standby pumps for spraying the

Commissioning team.

feature

air cooler at Tshepong North Operations

chilled water and returning it to the mine water circuit. The return water pumps are fitted with Variable Speed Drives (VSDs) to maintain the water level in the BAC, regardless of the rate of water condensation in the BAC and the slight possibility of fluctuations in chilled water supply.

In line with Harmony's ethos of "mining with purpose", Harmony identified the need for BBE to modify the return water system design to allow slightly warmer chilled water to be reused on lower levels if operations demand it, or returned to the settlers for pumping to surface. This was achieved by using a control valve to regulate the flow of return water between the lower levels and settlers on the BAC level. The return pipeline is also fitted with mechanical pressure relief valves and pressure sensors to prevent an overpressure scenario. This strategy improves service water pressure on levels (below 63 level) and results in cost savings. The saving is realised because the water is reused therefore less water needs to be dewatered and refrigerated on surface.

The BAC is located 1.6 kilometres from the shaft on 63 Level and is supplied with chilled water from the mine's existing chilled water circuit at a nominal flowrate of 75 litres per second. The design of the BAC ensures flexibility and caters for an increased cooling duty should the mine decide to construct an underground refrigeration plant on 66 Level in future, which would then be used to supply the BAC on 63 Level with chilled water. Currently, 1000 litres per second of chilled water is produced by a surface cooling installation, which comprises four refrigeration plants with a total cooling capacity of 39MWR. A surface BAC consumes 400 litres per second of chilled water, and the balance is distributed underground via a chilled water supply pipe column installed in the shaft with pressure relief valve (PRV) stations on various levels.

Previously, air cooling on 63 level was provided by a bank of closed-circuit coils located near a sub-vertical shaft which fed cool air to the lower levels. The new open-circuit horizontal spray chamber BAC replaces the coil bank as it has many operating and capital cost advantages. Maintenance of the open-circuit BAC is significantly simpler than for a coil bank, and maintenance frequency is considerably lower as it is not prone to fouling at the air-water heat exchange interface. Moreover, the air pressure drop across an open-circuit BAC is considerably lower than a coil bank, minimising electrical power absorbed by the booster fans and thus, operating costs. Furthermore, the enhanced design allows for a better cooling duty to be achieved with an improved air flow rate.

Harmony issued an enquiry for a turnkey contract to build the underground bulk air cooler, in 2021. The BBE tender covered all technical, commercial, and statutory requirements laid out in the enquiry documents and BBE Projects was awarded the contract on a competitive basis, after a few rounds of technical and commercial queries. BBE Projects carried out the detailed design, procurement, manufacturing, quality control, shipping, delivery, construction, erection, installation, supervision, project management, commissioning, testing, certification and hand-over of the BAC.

All civil, structural, mechanical, and Electrical, Control, and Instrumentation (EC&I) works were carried out by contractors in line with the mine's commitment to drive local socio-economic development and training. Site construction, erection and assembly was supervised by BBE Projects with

Pump station.

Closed-circuit cooling coils that were replaced with the BAC.

regular inspections by discipline-specific engineers from BBE and Original Equipment Manufacturers (OEMs).

A major challenge in executing underground construction projects is getting material, equipment, and personnel to the underground work areas timeously and safely, given the many competing demands for use of the mine's shaft conveyance. This challenge was overcome by establishing clear lines of communication among all project stakeholders and proper planning as well as regular project meetings with the mine to discuss progress, challenges, and solutions. With this constraint in mind, BBE aimed to design components required to construct the BAC, as much as possible, in sections that could fit into a cage rather than being slung beneath it, which is far more time consuming.

BBE Projects has been assisting Harmony with ventilation and refrigeration upgrades at Tshepong North and South operations for the past few years with a major improvement in underground environmental conditions. The first project was a booster fan station on 66 level at Tshepong South Operations (formerly known as Phakisa) in 2019. Since then, BBE has successfully commissioned an underground condenser fan station on 55 level at Tshepong South and two more booster fan stations at Tshepong North Operations on 66 level. ■

feature

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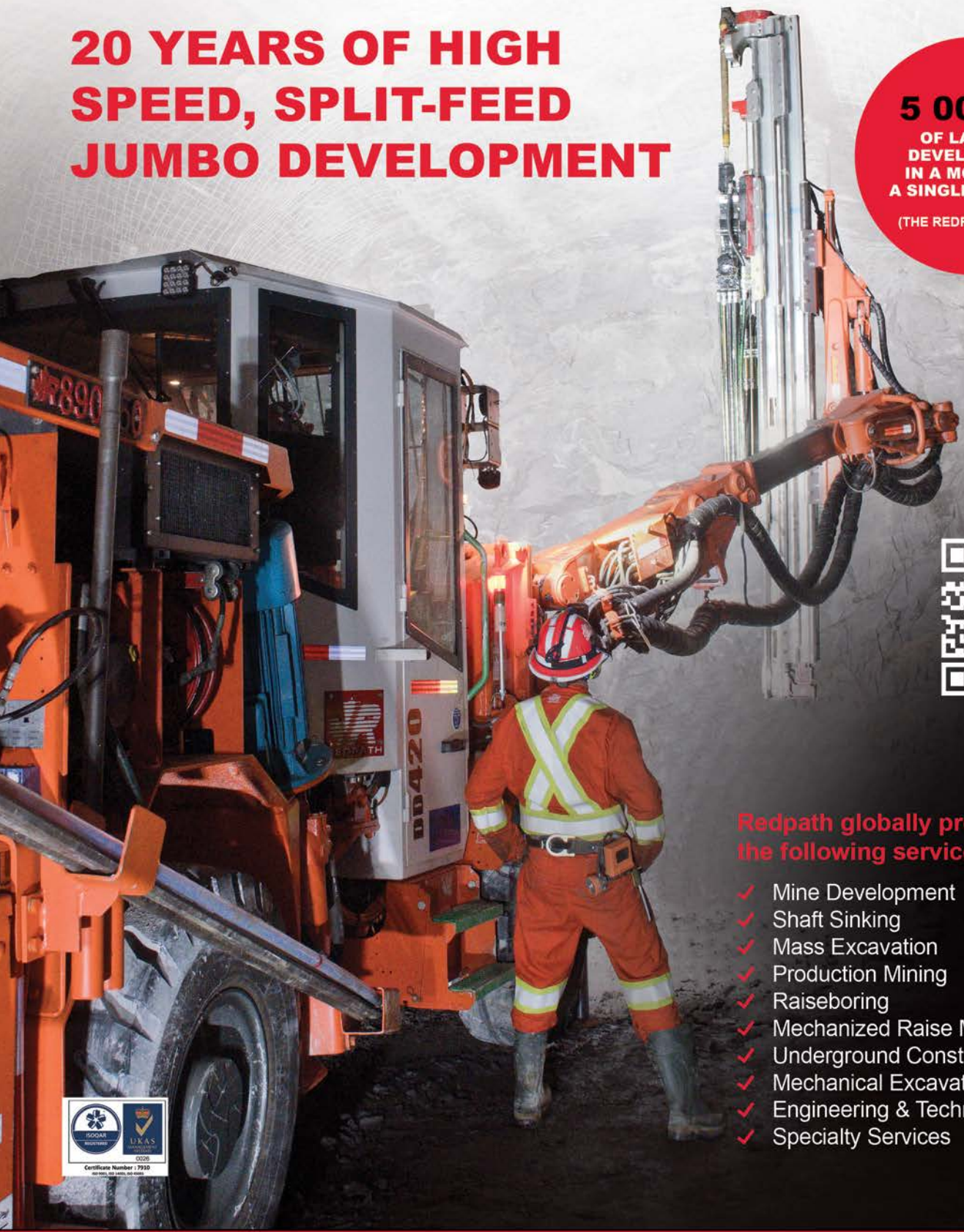

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Redpath Thonket makes history at Obuasi Mine

In March 2024, Redpath Thonket (a joint venture between Redpath Africa and Thonket Plant Pool) set a new world record by completing the largest raisebore hole at AngloGold Ashanti's Obuasi Gold Mine in Ghana. This milestone is part of Phase 3 of the mine's redevelopment project, aiming to support AngloGold Ashanti's goal of producing 400 koz annually from the underground mine by delivering 6 000 tonnes per day efficiently.

Guests and crew members gathered on 15 March 2024 to witness the holing of the Kwesi Mensah Ventilation Shaft.

The Kwesi Mensah Ventilation Shaft – measuring in at a depth of 944 m and a diameter of 6.3 - 6.5 m.

Measuring in at an impressive depth of 944 m and a diameter of 6.3 - 6.5 m, the Kwesi Mensah Ventilation Shaft (KMVS) was drilled by the Redpath Thonket team using a Rotary Vertical Drilling System (RVDS) in conjunction with Redpath's Redbore 90EX raisedrill. Leveraging the RVDS – a specialised directional drilling technology that allows for drilling in a non-vertical direction – the team attained an accuracy of 0.03% over the length of the hole.

Redpath Thonket reached several significant milestones during the implementation of the KMVS project, including the successful completion of the pilot hole in December 2022 and an accident-free record since the inception of the project. In November 2022, Redpath Thonket set the world record for the longest run (691 hours) on one RVDS; while in 2009, Redpath set the previous world record for the longest run (641,6 hours) on one RVDS at the Doyon Gold Mine in Québec, Canada.

Redpath Thonket's Environmental, Social and Governance commitments, which are structured around its values and key areas of care for its people, safety, the natural environment and the social environment, were evident at the KMVS project. The Redbore 90EX raisedrill was equipped with variable frequency drives to limit power consumption. Water consumption was limited and recycled during piloting operations through specially designed mobile settling dams to minimise water consumption. Furthermore, the Redpath Thonket team prioritised skills transfer by combining unskilled individuals from the local community with skilled and experienced team members, fostering growth and development.

Speaking at the KMVS holing ceremony on 15 March 2024, Vits Maharaj (Project Director, Obuasi Redevelopment Project) emphasised that by improving underground ventilation, AngloGold Ashanti will have access to deeper and richer ore bodies, achieve production targets, extend the life of mine, and maximise returns to shareholders and host communities in which they operate. "This feat is a major milestone in the journey to restore Obuasi Mine as a world-class tier 1 mine. It started some two years ago amidst ground condition challenges and has ended in this global achievement without any reportable safety incident," says Maharaj.

Bennie Burger (General Manager – Raiseboring, Redpath Africa) told *Modern Mining* that the Redpath Thonket team's dedication and expertise were instrumental in achieving this significant milestone at Obuasi Mine and have set a new standard for raisebore drilling. He reiterated the company's unwavering commitment to excellence and innovation, highlighting its role in supporting AngloGold Ashanti's vision for sustainable mining operations. He expressed immense pride in the team's accomplishments and eagerly anticipates their continued contributions to Ghana's mining sector. ■

The Redpath Thonket team was made up of crew members from Ghana and South Africa.

Dutch Disease and what to do about it in South Africa

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

Dr Ross Harvey, director of research and programmes at GGA.

Late last year, a colleague – Pranish Desai – and I published a peer-reviewed journal article trying to identify whether southern Africa was afflicted by a phenomenon now known as "premature deindustrialisation". A Harvard scholar, Dani Rodrik, had identified a pattern in developing countries of manufacturing decline sooner than their industrialised counterparts, and at lower levels of income. In other words, developing economies were transitioning into low-value services before having utilised the manufacturing bandwagon to build a prosperous, broad-based economy. This is obviously concerning, as manufacturing has been the traditional channel through which to absorb labour and build a sustainable middle class empowered to hold its political and business elites to account. African countries are increasingly afflicted by growing youth unemployment and, given that Africa will be the only fertility-positive continent on the planet by about 2050, we are concerned about future employment prospects for young people.

In our paper, we did indeed find econometric evidence for premature deindustrialisation in southern Africa. "We find that there is good reason to believe that the SADC group of countries is emerging as a region where deindustrialisation in both employment and output terms is growing more distinct." In our regressions – a statistically rigorous way of determining a potential causal relationship between two variables – we found that "a reliance on oil and mineral rents is negatively correlated with industrial employment and manufacturing output", which suggests Dutch Disease. "This could be curbing industrialisation prospects in many oil and mineral reliant countries in both SADC and Africa as a whole". Dutch Disease was originally identified in the Netherlands, where growing oil wealth was strangely correlated with manufacturing decline. Economists typically posit that the disease works as follows: The sale of a raw commodity increases the demand for that country's currency, which then appreciates as a result. However, such appreciation renders the country's manufacturing exports relatively more expensive in global terms, undermining their competitiveness. Concomitantly, the extractive industry sectors draw resources away from manufacturing sectors (especially during commodity price booms), which further impairs industrial competitiveness. There have been many wrong-headed attempts to address this phenomenon, many based on poor diagnoses or a naïve presumption about the actual causal mechanisms behind the disease. This is like treating cancer with TB medication. It won't work.

So, we set out to establish whether in fact there was good evidence for Dutch Disease in South Africa. If so, what are its likely causal pathways or patterns, and what can practicably be done to address them? In a forthcoming paper, colleagues and I at Good Governance Africa show that there is actually good statistical evidence to suggest that Dutch Disease is afflicting South Africa. When we interact a South Africa dummy with mineral rents (to tease out country-specific effects in our sample of comparator countries), we find a strong negative effect on manufacturing output that is significant at a 90% confidence level. We also see a negative impact on industrial employment (as a share of overall employment) but no statistical significance there.

South Africa needs an industrialisation strategy.

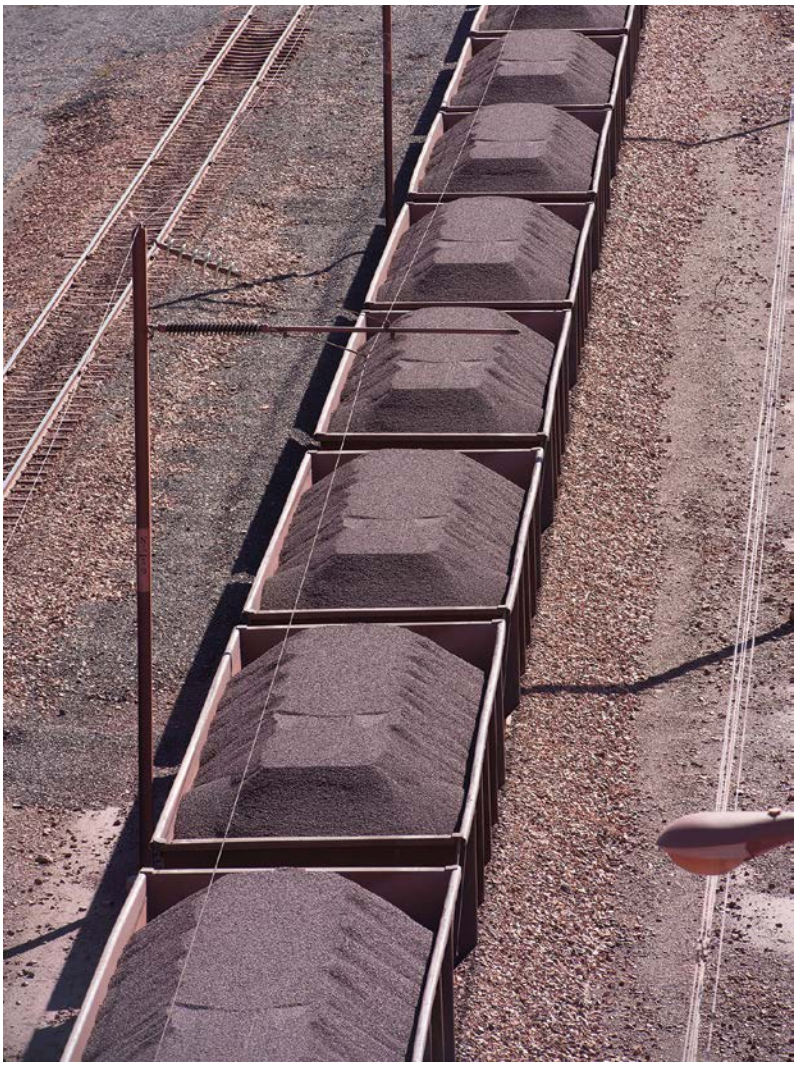
There is econometric evidence for premature deindustrialisation in southern Africa.

Mineral rents seem to be driving down manufacturing output in South Africa specifically.

In other words, that effect could be explained either by other variables in the model or variables outside the model.

Critics of models like the ones we've run typically suggest that it's impossible to isolate and specify the impact of a country's mineral rents and assert that they are primarily responsible for weak manufacturing performance. However, this is why we control for other factors that the economic literature suggests could also play a role in mediating the relationship. After controlling for institutional quality – typically the strongest explanatory factor in ascertaining why resource endowments often cause underdevelopment – we found that the effects still held. What we think is going on here is that South Africa's mineral rents (despite a paralysed mining industry increasingly in crisis) have played a partial role in undermining the country's institutional quality. This, in turn, has had a negative effect on manufacturing competitiveness through undermining the country's overall investment-attractiveness.

The sale of a raw commodity increases the demand for that country's currency, which then appreciates as a result.



Another possibility is that the electricity crisis, starting in 2008 and climaxing in 2023 (or may still yet peak after the May 29 elections) may be the primary factor explaining manufacturing decline. However, when we controlled for electricity consumption in the sample, the overall efficacy of the model deteriorated, probably because the variable's effect was already being picked up in other factors we had controlled for. Another option is simply that globalisation has undermined South African manufacturing attractiveness – labour is cheaper elsewhere, and skills and electricity availability are stronger. We haven't controlled for that in the modelling, so of course it remains an option. But all countries in the sample would have been affected by that, so we still can't override what we're seeing – mineral rents seem to be driving down manufacturing output in South Africa specifically.

So, what can we do about it? Two simple things (and two more difficult prerequisites). First, we need an industrialisation strategy that begins – perhaps ironically – with strengthening the investment-attractiveness of the mining industry. We need more money to flow into exploration and production expansion. Second, we need to ensure that a growing mining industry is integrally connected to green industrialisation that will generate broad-based development. This must serve as the foundation for a much more diversified economy. But, for any of this to happen, we need two other pre-requisites to be in place:

1) Improved political governance – we need electoral system reform, alongside parliamentary rule reform, to ensure greater accountability for our errant politicians and government officials. Moreover, we need radical strengthening of key institutions such as the Hawks and the National Prosecuting Authority to deepen deterrence effects to prevent corruption.
2) Improved fiscal transparency. South Africa needs to join the Extractive Industries Transparency Initiative, and it must expedite getting off the Financial Action Task Force's grey list. The longer we stay on that list, the more expensive it is for us to service our debt and the less likely we are to attract investment. ■

Empowering drilling excellence: Powerbit Rocktools leads the way

For over two decades, Powerbit Rocktools has set new standards in the drilling industry and innovation, solidifying its position as a trusted partner for drilling professionals worldwide.

Powerbit Rocktools MD, Thomas Chao and Nardus Bezuidenhout, Director, at Torque Africa Exploration.

The company's focus on building long-term partnerships is exemplified by its collaboration with clients like Torque Africa Exploration, where downtime is not an option. As a result of Powerbit's presence in Africa since 1996, the company has evolved to address the continent's drilling demands with unwavering commitment and excellence.

The company distinguishes itself through its steadfast commitment to understanding and addressing customers' unique challenges. Nardus Bezuidenhout, Director at Torque Africa Exploration, attests to this, emphasising that Powerbit is not just a supplier, but also a collaborative partner in creating tailored solutions for their water drilling business.

Bezuidenhout says, "There is great satisfaction in knowing that, whenever I need support, the Powerbit team is just a phone call away. They always go the extra mile to make sure I have no downtime and can always rely on the quality of their products."

Powerbit's extensive product portfolio, spanning DTH hammers and bits, RC hammers and bits, tri-cone bits, top hammer bits and rods, casing systems, grinding machines and more, is remarkably affordable, but maintains the highest levels of quality and cutting-edge technology.

Recognising the ever-changing nature of the drilling industry, Powerbit engages in global collaborations with advanced research centres and technology experts in Taiwan, China and Japan. This proactive approach ensures that Powerbit remains at the forefront of technological advancements, enabling them to meet clients' evolving needs effectively.

Collaboration with these cutting-edge research centres in Asia also ensures that Powerbit can tailor their products to meet clients' specific needs effectively.

Powerbit's product range is purposeful and comprehensive, catering to diverse drilling needs across industries. Each tool, meticulously engineered for efficiency and longevity, is a testament to Powerbit's commitment to empowering progress in drilling operations.

The value of reliable, cost-effective drilling tools in today's industry cannot be overstated. Powerbit recognises these tools' vital role in enabling clients' success and driving infrastructure projects that underpin local economies.

From DTH hammers and bits to top hammer drilling tools and RC hammers and bits, Powerbit's versatile range is engineered to ignite the power of remarkable rock drilling in various working conditions and industries.

Experience the power of precision-engineered rock drilling tools and exceptional customer support with Powerbit Rocktools. Connect with us and embark on a journey of progress and empowerment that has been driving the southern African mining industry for almost two decades. ■

Tricone bit: Powerbit Rocktools has set new standards in the drilling industry.

Lubricants supplier introduces latest calcium sulphonate grease

Following extensive testing, one of the world's largest diversified natural resource companies has standardised on FUCHS' RENOLIT CSX ULTRA across all its heavy mobile equipment. The calcium sulphonate complex grease is now being blended locally by FUCHS LUBRICANTS SOUTH AFRICA for its extensive mining customer base, says Dave Gons, Mining Export Technical Export. "RENOLIT CSX ULTRA from FUCHS is a grease capable of meeting and exceeding all major mining OEM grease performance criteria at a sustainable cost," says Gons. It is in line with changing maintenance practices as mining operations push to reduce the number of products used on-site. "Calcium sulphonate greases offer superior high-temperature performance," Gons notes. Their dropping point and high-temperature life are superior to those of lithium greases, allowing them to operate at elevated temperatures. They also outperform lithium greases in terms of oxidation resistance, making them much more stable under challenging conditions. Another benefit is higher mechanical stability compared to lithium greases. "RENOLIT CSX ULTRA from FUCHS offers several advantages, particularly in the context of sustainability and rising lithium prices," says Gons, adding, "It performs well even at elevated temperatures, making it ideal for arduous applications such as mining." ■

FUCHS LUBRICANTS SOUTH AFRICA's latest calcium sulphonate grease.

Astec Industries and Elite Crushers & Hydraulics in new dealer partnership

Reflecting Astec Industries' commitment to continuously improving its service to existing and potential customers around the world – including offering swift, seamless technical support in every region in which it operates – the global equipment manufacturer has partnered with Elite Crushers & Hydraulics in Botswana. The company has been appointed as Astec's dedicated agent in the country for all its Materials Solutions equipment. This includes Astec's premium range of crushers, screens and feeders, as well as washing, classifying and material handling solutions, modular plants and rock breaker technology. Elite Crushers & Hydraulics is a well-established supplier of equipment to the mining and quarrying industries in Botswana. According to director Thembelani Albert, the company's new dealer partnership with Astec Industries will ensure swift service and readily available spares for the end users of durable, high quality Astec Industries machines in the country. ■

Astec Industries and Elite Crushers & Hydraulics in new dealer partnership.

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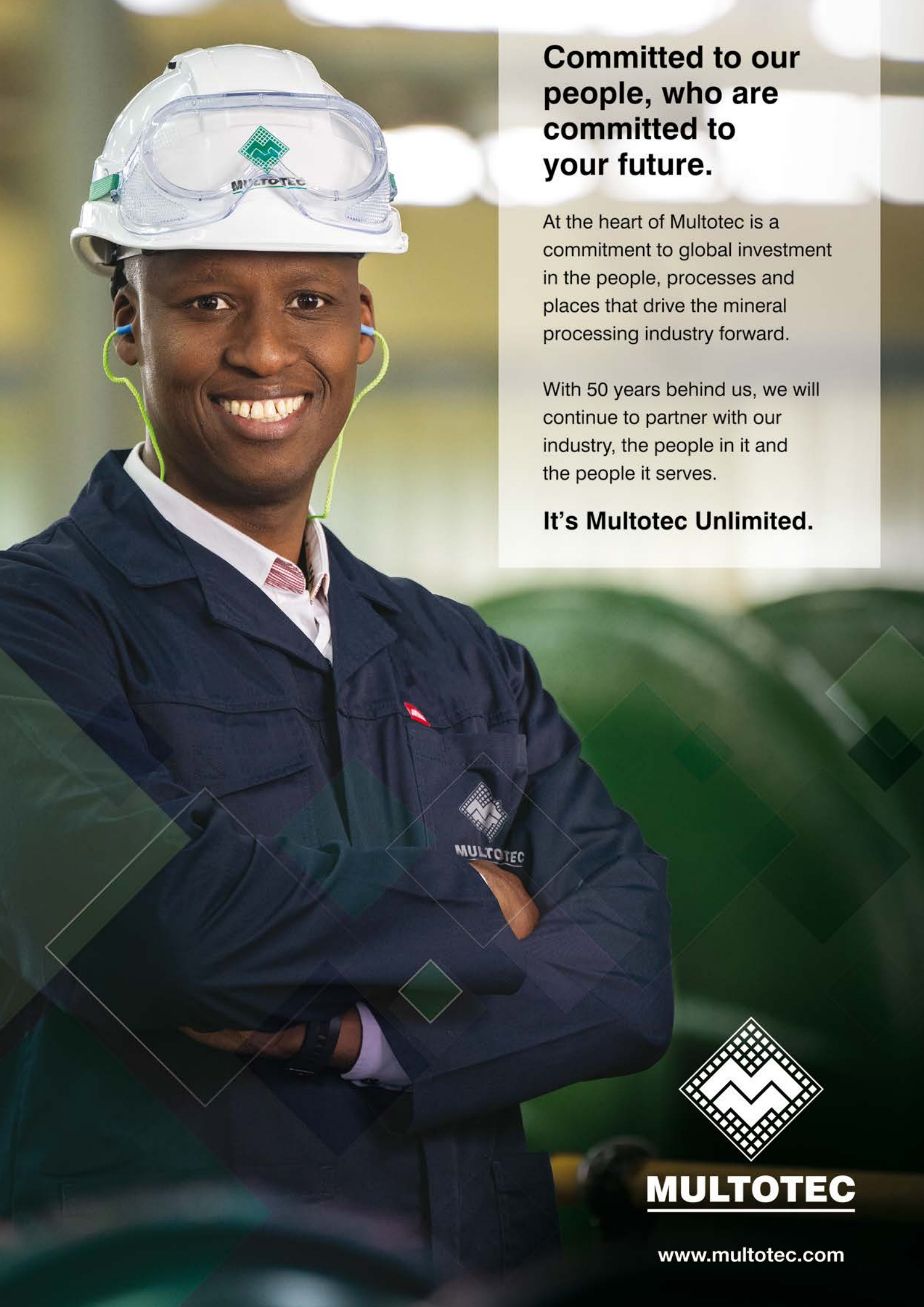

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