



For people who are serious about mining



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ON THE COVER

Shell's innovative products help mines achieve efficiency, productivity, social responsibility and their sustainability agenda. See story on page 8.



PGMs take a knock

As the country gears up for the 2024 South African general election with both new and existing parties looking to contest the local elections, the mining sector too is fighting its own battle amid declining platinum prices, which see miners in the platinum group metals (PGM) space scaling back and restructuring to stay afloat while coal producers desperately seek new avenues to export their coal.

Sibanye-Stillwater's CEO Neal Froneman says that the slump in PGM prices is forcing South African mining companies to restructure and cut jobs. Diversified miner, African Rainbow Minerals – which reported a 43% decline in headline earnings for the six months ended December – said its headline earnings for the platinum business plunged 121%. And while Anglo American Platinum reported an increase in the sales volumes of PGMs from production, this was against a backdrop of much lower prices. Northam Platinum, meanwhile, predicts an extended slump in PGM prices of up to two years which is set to place “significant pressure on earnings and cash generation”.

According to Northam CEO Paul Dunne, the palladium price has been impacted by a downturn in global demand for internal combustion-engine automobiles driven by the current depressed global economic climate and high interest rates, with rhodium being impacted by substitution for platinum in the fibreglass industry, leading to a lower price.

Meanwhile, South Africa posted muted economic growth for 2023, according to Stats SA. The economy grew by a marginal 0,1% in the fourth quarter (October–December), taking the annual growth rate for 2023 to 0,6%. Real GDP in the fourth quarter of R1 158 billion, was still below the peak of R1 161 billion recorded in the third quarter of 2022. In the fourth quarter, six of the ten industries kept the economy in the green, including the transport, storage & communication industry which expanded by 2,9% and contributed 0,2 of a percentage point to the GDP growth. Mining activity was up 2,4%, pushed higher by stronger production figures for platinum group metals, chromium ore, coal and diamonds. On the flipside, the heavyweights of

iron ore and gold were down in the fourth quarter, Stats SA said.

On a more positive note, state-owned company, Transnet's two new executive appointments are hoped to bring great improvements to the beleaguered entity and the mining industry, which relies heavily on Transnet Rail Freight to transport its products.

The executive restructure sees Michelle Phillips as the new GCEO and Nosipho Maphumulo as the new group CFO. The Minerals Council South Africa lauded the appointments, having worked well with Phillips in her acting CEO role, and hope to build on the good relationship to urgently address the challenges at the railways and ports, which are critical for the mining sector and the broader economy.

“The Minerals Council and its members are actively involved in four corridor optimisation processes to urgently stabilise the performances of the railways serving the coal, chrome, iron ore and manganese mines.”

In this edition

Our Mining Indaba Review feature highlights companies interviewed at the Indaba, which took place in Cape Town recently, including AECI (pg 16), TOMRA Mining (pg 18) and the World Gold Council, which flags Africa's growing importance as a gold producer (pg 22).

Industry body, the Minerals Council South Africa, presented its annual Facts & Figures 2023 booklet at the Indaba and it estimates that mining added more than 7 500 jobs last year, employing 477 000 people (pg 20).

Also of interest is the column by Ross Harvey, our regular columnist, in which he compares the South African government's showing to that of Zambia's and says South Africa must send a much stronger signal to the market that it is credibly serious about attracting investment into its mining industry (pg 36).

The interview for our cover story, also undertaken at the Mining Indaba, highlights Shell's focus on helping mines achieve their efficiency, productivity, social responsibility and sustainability agenda (pg 8). ■



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Astron Energy unlocks new ways to mine

Leading fuel company, Astron Energy, is looking to build off the successful Mining Indaba held in Cape Town in February. Just under ten thousand delegates attended the 2024 event, which took place under the theme: *Embracing the Power of Positive Disruption for a Bold New Future for African Mining*. A further 1500 executives from major, mid-tier and junior mining companies, 200 senior government officials, and 60 ministers and heads of delegation also attended the event.

Astron Energy had a strong presence at the Indaba, where its team was on hand to showcase solutions to key players in the mining sector.

Astron Energy is a significant contributor and key enabler to the mining and energy sectors in South Africa. The company has a commercial offering through the supply of fuel, oil and lubricants for a wide range of uses across the mining sector.

The restarted Astron Energy refinery in Milnerton is critical in supplying a significant portion of the country and mining industry's product needs. South Africa consumes around 25 million barrels of crude per annum and Astron Energy, through its refinery and import of finished product, is a significant contributor in meeting this demand.

The South African mining industry is poised to be among the world's key sources of green energy metals and minerals, including copper, cobalt, lithium and nickel, in the coming years. These are all used in the manufacture of renewable energy sources such as electric vehicle batteries.

Axola Myendeki, Acting General Manager Commercial & Industrial at Astron Energy, said the company was continually looking at new ways to unlock value for customers in the mining sector to ensure greater efficiencies and to realise untapped potential.

He cited the example of working with fleet owners to reduce the total cost of downtime servicing intervals through proactive early detection systems.

"This forms part of our bespoke value offering to mining customers to keep the wheels of the industry turning, thus supporting the growth of the South African economy," he said.

He added that Astron Energy was able to respond to changes in the industry and was committed to co-creating solutions with clients as they sought to *Unlock New Ways to Mine*.

Astron Energy's stand was a major point of attraction at the Indaba, seeing a huge number of attendees visit to engage with the team at the CTICC.

"The Indaba offered us the opportunity to engage with customers in order to understand their varied needs," Myendeki explained.

"The engagements we had took place at the event and, since then, have been extremely positive, positioning Astron Energy well in terms of being able to provide solutions to key customers."

"We are a proudly South African company and believe in creating a future together," he said. "We are committed to enabling our mining customers to operate in a safe, reliable and sustainable manner."

Astron Energy operates a network of over 800 service stations in South Africa, alongside its refinery in Milnerton, Cape Town, a lubricants manufacturing plant in Durban, 15 terminals, and 180 commercial and industrial sites. ■



Astron Energy stand at Mining Indaba.



Astron Energy team.



Astron Energy's stand was a major point of attraction at the Indaba.

Anglo American completes chartered fleet of lower emission LNG dual-fuelled vessels

Diversified miner, Anglo American, has announced the delivery of the last of its 10-strong chartered fleet of Capesize+ Liquefied Natural Gas (LNG) dual-fuelled bulk carriers, the Ubuntu Liberty. The Ubuntu Liberty's maiden voyage from China to Saldanha Bay, South Africa, to collect a cargo of high-quality iron ore will mark the successful on-time delivery of all 10 ships built over the last three years with a zero-incident safety record together with

Shanghai Waigaoqiao Shipbuilding.

Matt Walker, CEO of Anglo American's Marketing business, said: "Launching the final vessel of our Ubuntu fleet is a very large manifestation of our commitment to more sustainable shipping. This milestone is testament to our dedication to a sustainable path forward for our controllable ocean freight, ensuring the delivery of essential resources to our customers around the world while minimising our environmental

footprint. It also puts us in a market leading position as the charterer of the largest LNG dual fuelled Capesize+ fleet in the world. By adopting more sustainable and lower carbon fuel options like LNG, we are actively contributing to a cleaner, greener future for the maritime industry."

The Ubuntu fleet is a key component of Anglo American's ambition to achieve carbon-neutrality for its controlled ocean freight by 2040, aligning with Anglo American's Sustainable Mining Plan commitment to carbon neutral operations across its mines by the same year. Compared to ships fuelled by conventional marine oil fuel, the LNG dual-fuelled vessels offer an estimated 35% reduction in emissions, and are the most efficient vessels of their type today.

Since the first vessel was loaded early in 2023, the Ubuntu fleet has successfully and safely moved 6.4 million tonnes of iron ore and steelmaking coal across global shipping routes.

In 2022, the shipping industry was responsible for nearly 3% of the world's greenhouse gas emissions. This underscores the importance of implementing targets and initiatives that work towards a more sustainable business by adopting cleaner fuel alternatives such as LNG in shipping operations. ■



Anglo American delivers the last of its 10-strong chartered fleet of Capesize+ LNG dual-fuelled bulk carriers, the Ubuntu Liberty.

Minerals Council South Africa welcomes new appointments at Transnet

The Minerals Council South Africa congratulates Michelle Phillips and Nosipho Maphumulo on their appointments in executive roles within Transnet and it looks forward to continuing constructive

engagements to stabilise the rail network and returning it to name-plate capacity.

The Minerals Council worked well with Phillips in her acting CEO role and, based on its engagements to date with Phillips, we expect to build on the good relationships established to continue collaborating to urgently address the challenges at the railways and ports, which are critical for the mining sector and the broader economy, the council said in a statement.

The Minerals Council notes Phillips's commitment to implementing the Transnet Recovery Plan, which includes sustainable cooperation with the private sector to improve operational efficiencies. Mining accounts for about 80% of Transnet Freight Rail's annual revenue.

The Minerals Council and its members are actively involved in four corridor optimisation processes to urgently stabilise the performances of the railways serving the coal, chrome, iron ore and manganese mines. Mining companies have increasingly resorted to road transport to export their products, which is far more expensive and more inefficient than using trains. Trucking is deleterious to the environment, communities, roads and safety. Returning bulk commodities to rail is a priority for the mining industry. ■



Mining accounts for about 80% of Transnet Freight Rail's annual revenue.

DRDGOLD reports a 12% revenue increase on the back of a higher gold price

Gold miner, DRDGOLD's revenue increased to R2 974.2 million for the six months ended 31 December 2023 (HY1 FY2024) on the back of a 22% increase in Rand gold price to R1 173 245/kg. The company returned an operating profit of R909.3 million (15% increase) with cash operating costs of R2 097.1 million. A total of R1 074.7 million was reinvested in capital infrastructure, with cash and cash equivalents reduced to R1 529.4 million (30 June 2023: R2 471.4 million). Gold production was 7% lower on the back of a 13% drop in throughput, the result of delays in the commissioning of two high volume sites due to community issues and delays in obtaining regulatory approvals respectively, with the company having to make up tonnes from several legacy and clean-up sites.

Looking ahead, the company expects to complete the 60MW solar plant by the end of March 2024 and the accompanying battery storage system by end of October 2024. Its next big capital investment project is Phase II of Far West Gold Recoveries to double plant capacity and build the 800 million tonne Regional Tailings Storage Facility for which regulatory approvals are imminent.

The company still expects output within its guided range of between 165 000 ounces and 175 000 ounces for FY2024 albeit to the lower end of the range. ■



The higher gold price is a boon for DRDGOLD.

Eastport Ventures Inc. appoints Robin Birchall as CEO



Eastport Ventures is an innovative Canadian Mining House focused on developing mineral interests spanning Copper, Uranium, REEs, Nickel, and Diamonds in Botswana. The company has appointed Robin Birchall as CEO with immediate effect. Birchall, who brings over 20 years of experience including over a decade at leading Investment Banking Institutions (BMO and Canaccord Genuity), has successfully led 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, the company said.

Over the past seven years, Eastport acquired six mineral projects that have benefitted from, in aggregate (historic and Eastport), exploration and development expenditures in excess of \$17 million. In addition, to complement the company's strategy, Eastport has developed a multi-million-dollar investment arm that has amassed a portfolio of both marketable and private securities. ■



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SACMA elects new President

The South African Colliery Managers' Association (SACMA) convened its 46th Annual General Meeting (AGM) on 23 February, ushering in a new era under the leadership of Londolani Rampfumedzi as its President. Rampfumedzi, a distinguished figure within the mining industry, assumes the presidency during a critical period for the South African coal sector. The industry grapples with a challenging operational landscape characterised by energy security concerns, logistical complexities, and fluctuating funding prospects.

"As an industry, we bear a profound responsibility to engage actively in the social programmes we undertake, to manage our operations meticulously with an ESG lens, and to compete fiercely. It is imperative that we foster sustainable communities, safeguard the environment, nurture the well-being of our workforce, and cultivate an industry that confronts challenges head-on, making purposeful decisions and taking decisive actions to leave our operational domains enriched rather than depleted,"



SACMA elects Londolani Rampfumedzi as its new President.

asserts Rampfumedzi.

In pursuit of SACMA's objectives, a pivotal resolution was made to enhance the involvement of what has conventionally been labelled as junior miners in council and SACMA initiatives. Rampfumedzi elaborates, "This strategic move aims to infuse diverse perspectives and mindsets into SACMA's discourse, enabling us to engage effectively with all stakeholders vital to the coal industry. We remain steadfast in ensuring their representation at the decision-making table, where their voices will be heard loud and clear as we chart the course of our association's activities and programmes." ■

Enel Green Power and QIA announce renewable energy deal

Enel Green Power, the Enel Group subsidiary dedicated to the development and management of renewable energy plants worldwide, and Qatar Investment Authority (QIA), through their jointly controlled entity, Enel Green Power RSA (EGP RSA), have concluded three long-term Power Purchase Agreements (PPAs) with Air Liquide Large Industries South Africa (Air Liquide) and Sasol South Africa (Sasol) to supply 330 MW of renewable energy to Sasol's Secunda site, where Air Liquide operates the world's largest oxygen production facility. This makes Enel Green Power RSA one of the first renewable energy companies to conclude a set of large-scale wind PPAs in South Africa for the Commercial and Industrial (C&I) market. The power will be generated by three joint venture (JV)-owned wind projects located in the Eastern Cape province of South Africa and are expected to be operational by 2026. This 330 MW cluster complements the



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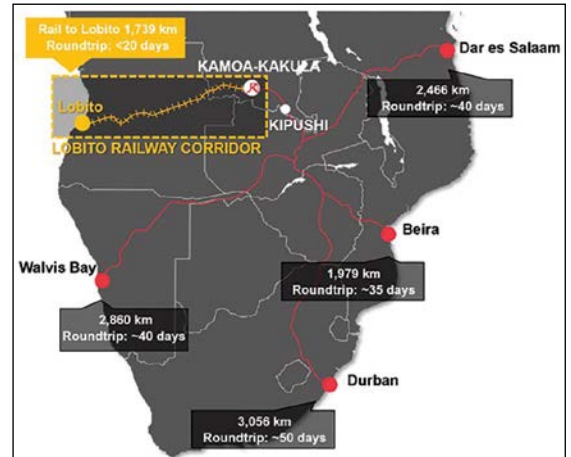
Enel Green Power and QIA announce renewable energy deal.

existing platform of over 730 MW already in operation and is expected to result in an annual production of more than 1 100 GWh. The announcement also marks the first project developed entirely under the umbrella of the JV between Enel Green Power and QIA since the two entities entered a partnership to build and operate renewable energy plants in Sub-Saharan Africa. ■

Trafigura and Kamoakakula to become first customers of the Lobito Atlantic Railway

Trafigura and Kamoakakula have agreed on long-term commitments to transport minerals via the Lobito Atlantic Railway for a minimum term of six years. The terms of the Reserved Capacity Agreements were signed during the Mining Indaba in Cape Town and mark the first long-term commercial commitments to the Lobito Atlantic Railway, a new import-export trade route between the African Copperbelt and Angola's Atlantic coast.

The Lobito Atlantic Railway is expected to ramp up to an annual export capacity of one million tonnes per annum before the end of the decade. Trafigura's allocation of export capacity on the Lobito Atlantic Railway will be up to 450 000 tonnes per annum from 2025. In addition, the Kamoakakula copper complex, a joint venture between Ivanhoe Mines and Zijin Mining, has been



Trafigura and Kamoakakula to become first customers of the Lobito Atlantic Railway.

allocated a minimum capacity of 120 000 tonnes and up to 240 000 tonnes per annum of copper products – blister-anode or concentrate – from 2025, with an initial commitment of 10 000 tonnes to be transported in 2024 as the railway ramps up. ■



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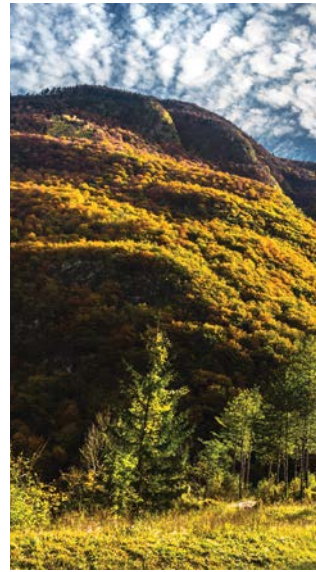
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Elitza Terzova, Global Mining Manager at Shell Lubricant Solutions.

Shell innovates – targets being a supplier of choice

Coupled with the drive to achieve efficiency, productivity and profitability, miners must meet their social responsibility and decarbonisation agenda as outlined by the Paris Agreement, which is why technologically advanced products and solutions from suppliers to the mining industry are key to helping mines achieve their stated ambitions, says Elitza Terzova: Global Mining Manager at Shell Lubricant Solutions.



Speaking to *Modern Mining* on the side-lines of the Investing in African Mining Indaba conference recently held in Cape Town, Terzova explained that mines essentially experience three key challenges: first, the need to reposition from a traditional legacy industry to an industry leader in productivity and efficiency; second, the drive to become sustainable, and third, the requirement to unlock further value through digitalisation.

“Mining sits at the very beginning of the minerals value chain and currently finds itself at an inflection point, having to consider how to reposition itself as an industry leader in innovation and sustainable practices. Interestingly, apart from having to decarbonise, miners also have the important role of providing a helping hand to other industries along the mining value chain that are also decarbonising.”

According to Terzova, suppliers to the mining industry need to continuously innovate in order to anticipate and meet miners’ evolving needs. As in the case of Shell which remains at the cutting edge of technological advancements, providing high performing lubricants to aid miners achieve operational efficiency and productivity, and to lower total cost of ownership of onsite assets.

“Given the sustainability focus, leading mining companies are seeking ways to leverage existing solutions to achieve results quickly, while also looking into longer term infrastructural improvements. For instance, high performing lubricants that are designed to

increase efficiency and achieve sustainability benefits, help miners unlock short-term, and often overlooked, savings.”

In line with developing smart mines and harnessing the power of big data and digitalisation, miners are investing in new skills sets required to manage the step change.

“Many mining companies globally, from Australia to Indonesia, South Africa to the US, Canada and Chile, regard digitalisation as an enabler both for efficiency and as a means to achieve their decarbonisation agenda. Based on my engagements with mining companies, I have noticed a growing human capital gap that needs to be addressed urgently. In the traditional profile of mining companies, there exists a large contingent of highly qualified technical managers with long tenure in Mining, who have gained significant insight and experience over the years; however, the challenge is that young talent may not be fully attracted to the mining industry. Young talent is often attracted to the IT and the financial sectors. Which brings us to the next question of how to support mining companies to become established as an attractive employer of young talent. Mining can nurture a perception of being a progressive innovator and adopter of the latest technologies and smart mining.”

Shell aligns product offering to miner’s needs

According to Terzova, mining equipment is extremely expensive with maintenance costs and unplanned downtime adding a further layer to the cost structure.

“Lubricants are really the hidden hero when it comes to solutions for mining equipment as they help equipment operate at optimum efficiency levels. Therefore, by choosing the right lubricant with the right lubrication management programme, mining companies can ensure their equipment operates as intended. For instance, among our product innovations, Shell’s premium oil and lubricants range offers longer oil drain intervals which translates to lower downtime and longevity of mining equipment,” she explains.

The evolution to smart mines sees mining companies turning to data analytics to determine how well lubricants are performing and the associated benefits to the fleet of equipment.

“With the help of digital tools and support from lubricant specialists, mining companies are able to see the real contribution that lubricants make



High-tech mining machinery leverages advanced lubricants for peak efficiency, exemplifying innovation in motion.



Left: Integrating renewable energy and sustainable practices into mining operations is crucial to support a progressive future for the sector. Right: Young professionals bring a wave of digital expertise, driving a new era of smart mining.

to their bottom line. When the correct high performing lubricant is used, it delivers total cost of ownership savings, which translates to sustainability savings. Essentially, this means that when less lubricant is used, less energy is consumed and less CO₂ is released.”

Carbon compensation

Shell Lubricant Solutions also offers customers a carbon compensation programme for their lubrication needs, to help them reduce the environmental impact of their mining operations.

“Many companies are keen to unlock immediate sustainability benefits, and where consumables, lubricants and fuels have long been viewed as a cost, with the introduction of carbon compensation, the perspective is evolving to the products now being viewed as enablers. Shell offers carbon compensation to forward looking mining companies that are targeting a lower CO₂ footprint,” says Terzova.

“Two years ago, when the topic of decarbonisation began to gain traction, mining companies started to evaluate a host of decarbonisation solutions, including full scale renewable electrification, adopting fuels and lubricants with a low carbon footprint and low emissions equipment and vehicles, amongst others. What we see emerging is the need for a step-by-step approach, especially given that some solutions are set to take some time to scale up before the associated gains are experienced. This is where carbon compensation becomes part of the journey and the solution. Importantly, the Shell carbon compensation programme is internationally certified.”

Further to this, an increasing number of miners are tuning to biodegradable lubricants which offer lower toxicity levels and have a lower impact on soil, water and human handling.

Terzova explains that the misconception of the past – that biodegradable lubricants are inferior when compared to conventional products – has changed.

“Shell’s range of biodegradable solutions, designed to provide companies with performance and sustainability benefits, sees a growing demand across the globe, with miners adopting sustainable solutions because they are mandated or to help deliver on miners’ sustainability ambition.”

Furthermore, Shell partners with mining houses to better understand their operational needs, identify efficiency gaps in their

operations and help them find suitable solutions.

According to Terzova, Shell offers technical expertise to global, regional and local mining operations.

“Our experts work closely with mining professionals to identify efficiency improvements and estimate the potential commercial savings from them. We offer tailor-made solutions for each operation using our tried and tested site assessment programme. Moreover, as we monitor the performance of the equipment and capture the commercial savings achieved, we can also monitor the sustainability savings. Our approach is tangible and based on longstanding technical expertise.”

Shell’s South African footprint

Shell has aligned its social responsibility agenda to South Africa’s focus on corporate social initiatives (CSIs) and social labour plans (SLPs) with the company collaborating with mining companies on their social sustainability or community projects.

“Our role is tailor-made to suit each miner’s specific operations, be it an opencast or underground mining project, as each has different community impacts. Together with the customer, we come up with potential ideas and solutions for each mine.”

Terzova says that South Africa is a leading incubator for Shell’s solutions on the African continent, with her role being to transfer best practice initiatives to mines across the globe.

“As mines are usually in isolated areas, best practice initiatives often take place in isolation, which makes my role even more relevant. I visit mines across the world, learn of the various solutions being implemented and transfer each exchange to peers globally. We position Shell as a supplier of choice, collaborating with miners to unlock value from their equipment and lubrication practices. The ultimate goal is to deliver productivity, commercial value, and sustainability benefits to mining houses as an integrated solution, both today and into the future,” concludes Terzova. ■



High performing lubricants that are designed to increase efficiency and achieve sustainability benefits.

Is Argentina the answer to the ‘green revolution’ lithium supply problem?

By Christian Möbius, CEO of Southern Cross Britannia & Jeronimo Wolf, Geologist at Southern Cross Britannia.



By Christian Möbius, CEO of Southern Cross Britannia.



Jeronimo Wolf, Geologist at Southern Cross Britannia.

In an era where technological innovation intersects an urgent push for environmental sustainability, lithium has emerged as a critical element. The widespread adoption of lithium-ion batteries has been transformative, releasing our electronic devices from the constraints of power cords and facilitating mobility and convenience. Beyond the realm of consumer electronics, these batteries are pivotal for the decarbonisation of the global energy infrastructure, aligning with the shift towards electric vehicles (EVs) and renewable energy storage solutions.

Lithium Demand

Lithium’s journey from a niche industrial metal to a cornerstone of green technology is marked by a surge in demand unlike any seen before. Globally, the automotive industry sees the introduction of approximately 80 million new vehicles each year, with a growing percentage of these being electric vehicles, each requiring a significant amount of lithium for their batteries. This has placed unprecedented pressure on the lithium supply chain, prompting a race to secure resources capable of sustaining the transition to battery electric vehicles. The current forecasts predict that meeting the needs of global vehicle fleets’ transition will necessitate an almost unfathomable demand for lithium, projected to reach nearly seven million tonnes.

The projection into the future, especially towards 2050, paints a picture where the global thirst for electricity and its share of total energy consumption must increase dramatically. This burgeoning demand for electricity, essential for eliminating the reliance on fossil fuels, is at the heart of the global energy

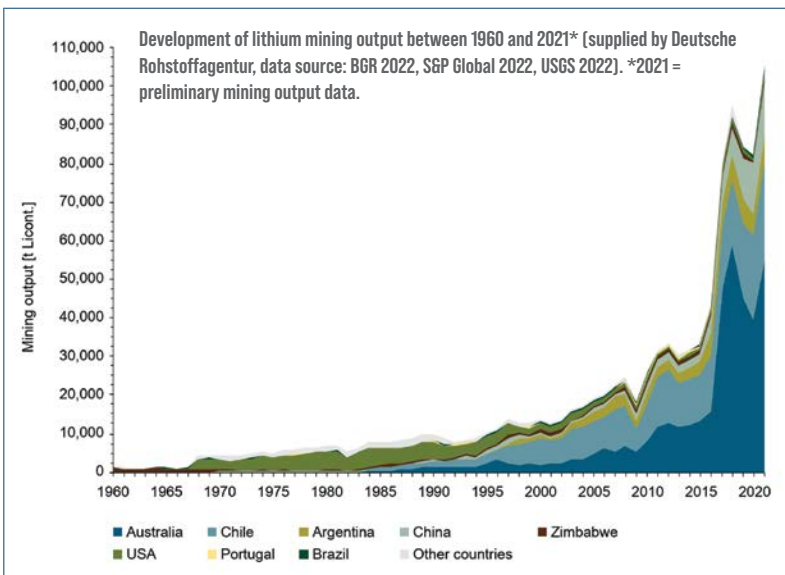
transition. Nations are crafting policies for significant reductions in CO₂ emissions, with some setting their sights on ambitious net-zero emissions targets. There are various strategies to achieve these emission reductions, with a significant focus on the energy sector, which is responsible for roughly 75% of global greenhouse gas emissions. The lithium industry is expected to rise to these challenges with plans for operational expansions and initiatives for increased recycling efforts to support the anticipated demand.

Argentina’s Lithium Potential and Southern Cross Britannia’s Hombre Muerto South Project

Despite recent market fluctuations and a fall in lithium prices from their peak in 2022, the economic viability of lithium production in Argentina remains strong. The country’s lithium production costs are still well below the market price for lithium, ensuring that operations remain profitable and attractive for continued investment. This is testament to the efficiency and cost-effectiveness of the Argentinian lithium sector, particularly its brine operations, which are among the most economical in the world. Argentina’s lithium reserves are not just abundant; they represent a strategic asset with the potential to supply the insatiable global demand for this white gold.

While Australia and Chile are currently leading the charge in lithium production, the spotlight is increasingly turning towards Argentina and its neighbour Bolivia. These nations are sitting on the largest reserves of lithium known today, signalling untapped potential that could significantly impact the global lithium market. Argentina’s competitive edge is bolstered by its lower production costs, primarily due to its extensive and rich brine deposits, which are cheaper to exploit than other methods, such as hard rock mining.

The cost-effectiveness of extracting lithium from these brine sources in Argentina has cemented its





Above: Salar del Hombre Muerto.

Left: Hombre Muerto South Lithium Project.

position as a key player in the global market. As the demand for lithium continues to soar, driven by the EV market's expansion and the burgeoning need for renewable energy storage, Argentina's strategic reserves and potential for production expansion place it in an enviable position. The country is poised to become a powerhouse in the lithium supply chain, promising to play a central role in the lithium narrative for years to come.

In the verdant landscape of Argentina's lithium-rich brine projects, the Hombre Muerto South Project, helmed by Southern Cross Britannia, stands out as a beacon of untapped potential. As the last undrilled lithium brine opportunity of material size in Argentina, the project has undergone extensive geophysical surveys, with over 40 kilometres of Controlled Source Audio-Magnetotellurics (CSAMT) surveys and 16 kilometres of Direct Current Induced Polarisation (DCIP) in 2023. These have unveiled low resistivity zones indicative of a large subsurface brine deposit. Anticipation builds as the company prepares for a significant drilling campaign, poised on the cusp of another major lithium discovery within the renowned Hombre Muerto Basin. This venture not only promises to bolster Argentina's lithium reserves but also reinforces the nation's position in the global lithium market.

Lithium Market Challenges

The lithium industry is currently navigating turbulent waters, characterised by price volatility and complex market dynamics. This volatility is influenced by the delicate balance of supply and demand, exacerbated by broader crises in the global metals market. After a temporary dip from its peak in 2022, industry

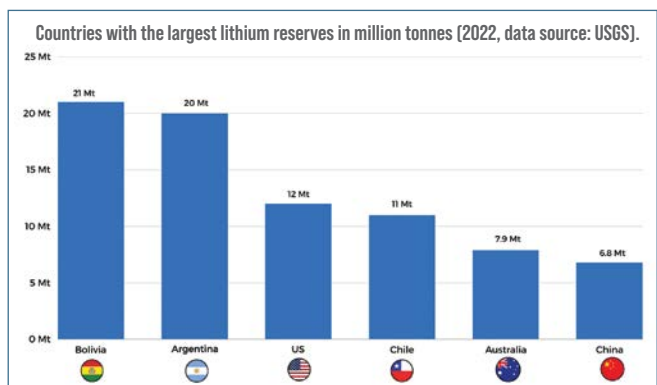
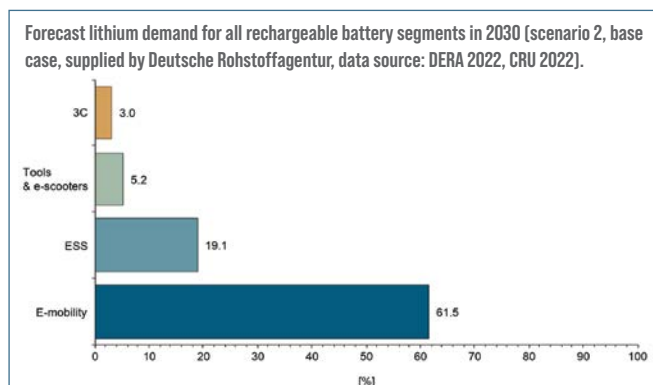
analysts maintain that the long-term demand for lithium, especially from the EV sector, will significantly outpace supply. This anticipated demand is not without its challenges. The industry must contend with opaque market dynamics, the complexity of lithium production processes, and geopolitical issues that can disrupt supply chains.

In response to these challenges, regions like the European Union are intensifying efforts to establish a secure and sustainable critical minerals value chain. These efforts are aimed at reducing dependencies and securing the supply of essential materials like lithium. Environmental considerations remain at the forefront, with the industry seeking innovative extraction and production processes that minimise ecological impact.

Conclusion

As the lithium narrative progresses, it becomes a tale of balancing opportunity with challenge. The quest for secure lithium sources intensifies, with nations and industries striving to forge a sustainable critical minerals value chain. Innovations in extraction and production processes, coupled with environmental stewardship, will delineate the future of the lithium industry.

In summary, lithium's global ascent is testament to its central role in powering the future. Argentina, with its vast reserves and potential for increased production, is well-positioned to become a pivotal player in the lithium market. The Hombre Muerto South Project is a glimpse into the promise that lies within Argentina's soil, a promise that could see the nation emerge as a cornerstone of lithium supply in the years to come. ■



Energy constraints, logistics bottlenecks and crime impede economic growth

As it did for the latter part of 2023, mining has shown slight signs of improvement in the first couple of months of 2024, in part due to the constraints imposed by energy availability becoming a little more relaxed and certain logistics related bottlenecks becoming less pronounced, which provided a little more leeway for the mining sector to produce and export more goods than a year ago, renowned economist, Dr Azar Jammine, tells *Modern Mining*.

Speaking to *Modern Mining* on the sidelines of Afrisam's 2024 Budget Breakdown, Director, and Chief Economist at Econometrix, Dr Jammine, said that while there were some gains, the mining sector continued to face huge headwinds, including a slowdown of the world economy.

"One may well see mining, and commodity prices in particular, being relatively depressed, but at the same time, there are global technological developments towards cleaner energy that may result in increased demand for some minerals relative to others. However, it is becoming increasingly difficult to take a single view of all mining."

South Africa's economic performance

Although the South African economy is now only marginally bigger than it was prior to Covid-19, the country's economic performance in relation to the rest of the world is not the worst, Dr Jammine tells attendees at the Afrisam 2024 Budget Breakdown.

"If you look at the forecast for the next couple of years, South Africa actually stands marginally above

Given the challenges at RBCT much of the coal has been diverted to Mozambique, Namibia and neighbouring countries.



Chief Economist at Econometrix, Dr Jammine.

the Eurozone and the UK – bearing in mind our population growth of 1.6% per annum relative to theirs."

Dr Jammine attributed South Africa's poor economic performance to underlying contributors, such as load shedding, rail freight bottlenecks and the high crime rate.

"The incredible spike in the incidence of load shedding experienced in the first half of last year has abated somewhat and, while we continue to have loadshedding, it is not quite as pronounced as it was during much of last year. The good news is that there is improved capacity from our coal fired power stations and decreased incidence of sabotage, which has led to a slight improvement in energy availability."

A welcome development has been the enormous uptake of solar energy by consumers and businesses with some "6 000 megawatts of electricity now produced through solar panels rather than electricity".

Further to this, rail freight continues to be a stumbling block for the mining sector, which is increasingly replacing rail with trucking as a reliable means of transportation for commodities.

Although the decline in rail freight theoretically translates to greater opportunities for the truck industry, more potholes emerge as a consequence, which means more work for the construction sector, says Jammine.

The decline in rail has led to a slump in the transport of coal to the ports.

"This has contributed to huge bottlenecks in our transport facilities as well as bottlenecks at South African ports. In fact, there has been a severe reduction in the



Above: There are global technological developments towards cleaner energy that may result in increased demand for some minerals.

amount of seaborne cargo going through our ports, with the Richards Bay Coal Terminal (RBCT) accounting for lower tonnages exported – from 76 million tonnes in 2017 to just 47 million tonnes in 2023. Given the challenges at RBCT much of the coal has been diverted to Mozambique, Namibia and neighbouring countries. The good news is that the quantity of seaborne cargo has recently experienced a slight uptick, which I believe is a function of a change in the management at Transnet as it gets to grips with the problems being encountered.”

On a further positive note, Business leadership South Africa, in partnership with business leaders and government, have committed to working together to tackle the three main scourges negatively affecting the economy – energy constraints, transport and logistics bottlenecks, and crime and sabotage.

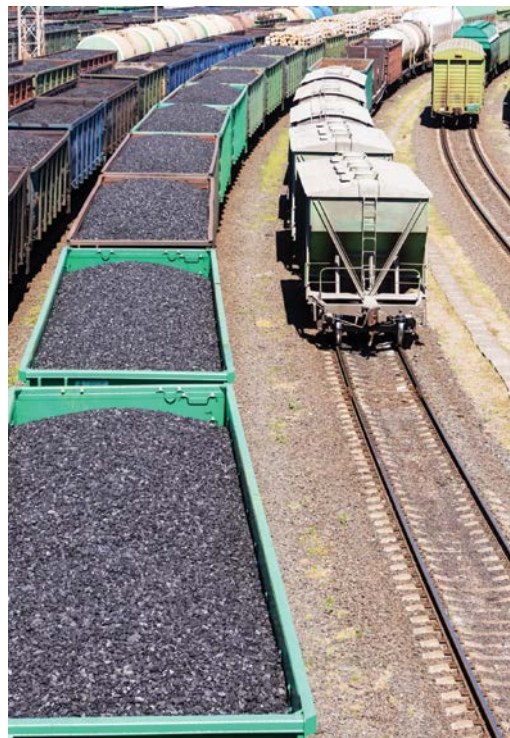
“Crime and sabotage lie at the heart of the country’s inability to undertake infrastructure projects that have been earmarked by government.”

Dr Jammie says that although South Africa faces severe energy, transport and logistic, and crime related challenges, the economy is not about to collapse.

“If it were another country facing such challenges, it would not have seen any economic growth at all – not 1% or 0.5%, but minus three or minus five percent and the total collapse of the economy.”

So, given the myriad challenges, especially the persistence of high unemployment, why is there no social unrest? asks Dr Jammie.

“South Africa has high interracial and interethnic diversity which creates checks and balances; several strong NGO organisations, a proliferation of religious organisations to keep the peace, a wide net of social grants to aid 47% of the population, and a private sector which remains enterprising and carries on regardless,” he says. ■



Left: South Africa faces severe energy, transport and logistic, and crime related challenges.

Structural impediments to economic growth

- Corruption
- SOEs
- Energy insecurity
- Transport and logistic bottlenecks
- Low investment relative to consumption
- Economic policy uncertainty
- Overregulation and bureaucracy
- State not embracing the private sector
- Lack of capacity to implement
- Cadre deployment
- Crime, sabotage and deterioration in law & order
- Need to improve educational outcomes

Mining indaba 2024 – recognised as a platform for positive disruptive change

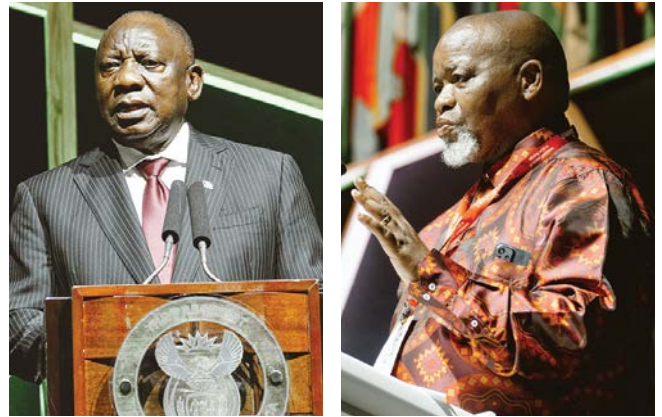
The annual Investing in African Mining Indaba, which took place in Cape Town, 5 to 8 February, presented a groundswell from governments, mining companies, investors and service providers to drive positive change in the industry.

Celebrating its 30th anniversary and marking three decades of commitment to Africa’s mining industry, the theme for Mining Indaba 2024 was ‘Embracing the power of positive disruption: A bold new future for African mining’ – designed to encourage and support the change and disruption the African mining industry needs to move forward.

Insights from CEOs of Africa’s foremost mining companies were shared on the Disruptive Discussions stage where they spoke of their strategies for introducing positive transformation and disruptions to the industry. The focus was not only on harnessing Africa’s vast mineral wealth, but also on the challenges mining companies face such as poor infrastructure and energy supply and governments’ willingness to make mining viable. Discussions also focused on how to ensure the benefits from mining were shared across the value chain and the transformative power of mining companies in fostering innovation and sustainability.

Mining Indaba did not shy away from hard discussions, with panel discussions throughout the four-day event focused on critical issues affecting mining and the positive disruptive change needed to drive innovation to unlock Africa’s mining sector potential for the benefit of all stakeholders and role players.

In a press lounge panel discussion on “combating crime and corruption in mining”, which is a critical issue of concern for companies and investors, all three speakers agreed that it could only be dealt with through collaboration and spoke of their company’s initiatives with other role players. Dr Mashego Mashego, Executive Director: Stakeholder Relations and Corporate Affairs at Harmony and Stephan Bullock, Head of Sustainability at Anglo American Platinum, both detailed the work being done with the Minerals Council, SAPS and the National Prosecuting Authority to deal with



Cyril Ramaphosa, President of the Republic of South Africa and Gwede Mantashe, Minister of Mineral Resources and Energy, attended Mining Indaba.

crime and corruption. Dr Mashego addressed the issue of illegal mining and the effect it had on mining companies, employees and communities, while Werner Duvenhage, Managing Director at Richards Bay Minerals, addressed procurement issues and the need for transparency in their community Trusts, and with Trust participants.

Climate change remains a critical issue of our time and in the wake of COP28, the global mining industry is at the heart of the transition to green energy from addressing the reduction in carbon emissions by energy heavy consumption mining companies, to how they address the huge demand for green minerals and metals in other industries. In a Mining Indaba press lounge panel discussion “What COP28 means for mining,” Anglo American Head of Sustainability Katie Ferguson highlighted the company’s ambitious targets in reducing its greenhouse gas emissions. Adam Matthews, Chief Responsible Investment Officer of the Church of England Pensions, focused on the expectations of investors explaining that they had to take a long-term view and encourage mining companies to take a responsible, credible path to a net zero future. Beyers Nel, COO Harmony Gold outlined the company’s response to climate change and said Harmony Gold had already installed 30 MW of renewable energy that provided 6% of Harmony’s peak



More than a hundred senior government ministers and officials from 74 countries attended the event.



Insights from CEOs of Africa’s foremost mining companies were shared.



The mining industry was well represented, with 1400 attendees from mining companies and 320 exhibitors.

power needs and that they were looking at adding another 137 MW, which would cater for an additional 24% of its needs. Dr Busia from Green Africa Minerals said a key outcome of the COP28 meeting was the establishment of a loss and damage fund that would help compensate developing nations for the impact of climate change and the need for Africa to capitalise and do better in terms of green metals. John Mulligan, from the World Gold Council, spoke about the need for sectors to cooperate and come up with innovative, collaborative approaches. Michelle Manook, World Coal Association, emphasised the need to reframe the debate about coal's role in the energy transition.

Throughout Mining Indaba, several key themes emerged, including the importance of Africa's resources in fueling the future needs of the world, and the power of positive disruption in driving sustainable growth in revolutionising the mining sector. Once again, Mining Indaba 2024 also proved to be the platform where deals are cemented. Rio Tinto's Simandou Project in Guinea, one of the world's great iron ore projects, after decades in development stage will now progress thanks to collaboration between key private and government stakeholders. Highlighting the importance of the Simandou project to Guinea, Gerards Rheinberger, MD of Rio Tinto Simandou, shared the panel with Moosa Cisse, the Guinean Minister of the Economy and Finance and the governor of the Guinean central bank, Karamo Kaba.

Another highlight of Mining Indaba 2024 included the first Mining Automotive and Electronics Club which saw a variety of automotive and tech-oriented sessions that delivered a new audience to Indaba. Sessions showcased the true importance of transparent supply chains for companies that will drive a just energy transition. This club represents the start of a new venture, bringing together companies from the automotive and electronic sectors participating in Mining Indaba 2024. The goal is to establish valuable business relationships and deals within the global downstream market. Comprising key stakeholders, the association collaborates at the event and throughout the year to create a compelling value proposition enabling the sectors to achieve their business objectives through active engagement.

The Mining Innovation & Research Battlefield returned in 2024 and, after impressive pitches, the expert panel selected Grace Akinyi, Founder of Women In Mining Kenya, as the 2024 winner. Convened by the Development Partner Institute (DPI) and Investing



Mining Indaba 2024 welcomed some 9 900 delegates.

in African Mining Indaba, the Battlefield is a high-profile platform to unearth innovative solutions to mining's intractable challenges.

Mining Indaba, for the past two years, has given junior miners the platform to compete for investor funding in the 'Investment Battlefield'. Mark Strizek, MD of Tietto Minerals impressed the judges with their entry: 'Fast-tracking the development of the Abujar Gold Project' and emerged as the ultimate Battlefield winner. The project is located approximately 30km from the major regional city of Daloa in central western Côte D'Ivoire. The current resource stands at 45.5Mt @ 1.5g/t Au for 2.15Moz of contained gold.

Mining Indaba 2024 welcomed some 9 900 delegates, a 20% increase in attendance, from 115 countries, including 1,200 investors and dealmakers. Added to this, 111 senior government ministers and officials from 74 countries attended, plus three Heads of State, Cyril Ramaphosa, President of the Republic of South Africa, H.E Hakainde Hichilema, President of the Republic of Zambia and H.E. Jean-Michel Sama Lukonde, Prime Minister Democratic Republic of Congo. The mining industry was well represented, with 1400 attending from mining companies and 320 exhibitors. The new Junior Miners Day and Investor Day programmes which were introduced in 2024 had phenomenal attendance with roundtable sessions over-subscribed. Mining Indaba once again proved that it is not only the largest gathering of global mining industry role players but also the platform where innovative solutions and future strategies in the mining sector are defined and put into action. ■

About Investing in African Mining Indaba

- ❑ Investing in African Mining Indaba is the largest mining investment event in Africa.
- ❑ With a proven track record of bringing together ministers, senior government representatives, mining companies, mid and junior miners, investors, professional services as well as mining equipment and service providers, Mining Indaba is the place to meet.
- ❑ It is the must-attend event that drives the mining industry forward and provides attendees with unmatched access to the entire value chain and the most influential players in African mining for four days of high-quality content, and deal-making and networking opportunities.

AECI prepares for the next hundred years

Accompanying explosives manufacturer, AECI's celebration of being listed on the JSE for a century, is its eye to the future as the company targets growth in key mining jurisdictions globally and becoming a leading explosives and mining chemicals company world-wide, says Group CEO Holger Riemensperger.

Speaking to *Modern Mining* on the sideline of the Mining Indaba, Riemensperger explained that the home-grown entity is ranked in the tier one group of explosives companies in the world. However, its entry into key markets including Australia, Latin America, North America and Asia Pacific, will see the company grow organically to move up the ranks.

Mandated to drive "certain areas of change to align with its vision of the future", Riemensperger is focusing on "what its people, business culture and leadership of the future should look like," amongst others.

To streamline the business, AECI, which is currently a diversified industrial business with several business units, is in the process of restructuring with the aim of focusing primarily on its mining segment.

Discussing the decision for the new approach, Riemensperger explains: "Decathletes are considered the best all-around athletes in the world but, in each individual discipline, the decathlete will be beaten by the expert. And that is a reality. One needs to focus on one's expertise, which is what AECI is doing so we are better able to succeed in new resource rich regions of interest."

Following AECI's exponential growth, the company plans on further strengthening its global presence. Seventy percent of AECI business is from



Group CEO Holger Riemensperger.

outside of South Africa with just 30% emanating locally.

"AECI is the number one explosives manufacturer in South Africa and in Africa. Over the past few years we have grown our footprint through strategic acquisitions in Indonesia and Australia, and are exploring possibilities for entering the European market."

AECI targets an array of commodities

Aligned with South Africa's long history of mining across a suite of commodities, has been AECI's 128 years of partnering with the industry. The explosives expert continues to pioneer innovations in product developments to meet the needs of customers across a wide spectrum of commodities.

"We are strong in gold, coal, platinum and iron ore as well as the energy metals the world is eyeing as it transitions to clean energy sources, including copper, nickel and cobalt and specialty minerals such as molybdenum, found in specific regions of the world. Backed by a century of knowledge and expertise, our strategy is to enter firmly into new age metals. There are currently three regions where energy minerals are abundant. These are Australia, where we have an established presence, and where we are on a growth path; Latin America, where we recently made an entry into Chile, which is a big in copper mining jurisdiction, and third; North America," says Riemensperger.

A pioneer of note

With a history of innovation dating back to the early days of dynamite, AECI continues to successfully develop cutting-edge products and technologies for a changing mining industry.

AECI has a combination of explosives and mining chemicals expertise.





AECI continues to develop cutting-edge products and technologies for a changing mining industry.

“At AECI we are constantly innovating to provide clients with customised solutions and thereby remain relevant. Apart from our advanced product range, we are progressing a digital platform to optimise our operating processes. AECI has a combination of explosives and mining chemicals expertise, which add value to different parts of the mining value chain. Our offering provides extensive benefits to our clients,” Riemensperger explains.

The company invests 2% of its revenue into research and development, and going forward, will look to invest twice as much as it focuses on being a market pioneer.

A five-year contract for the supply of explosives and the provision of services to Newcrest Mining’s (Newcrest) Lihir gold mining operation in Papua New Guinea (PNG) was awarded to AECI in October 2023.

“This is an exciting venture and has a number of challenges,” Riemensperger says. “Based on our legacy with the coal mining industry, which requires explosives solutions, AECI has capability to pioneer solutions for a similar challenge. Moreover, given AECI’s mining chemicals expertise, we are also able to assist clients with their water challenges. The area lacks freshwater and our water treatment solution is suitable for treating waste water, which will offer immense benefit to the mine and the surrounding community.”

Discussing AECI’s other innovations, Riemensperger says that to ensure safety and product performance, the company developed a range of portable underground pumps and centralised blasting



equipment, that make mining safer, while its mining chemicals range increases the yield of commodities, such as platinum.

In 2021, the company delivered a record-breaking 980m Emulsion Vertical Drop System (EVDS) for Non-Ferrous China Africa’s Chambishi mine in Zambia’s Copperbelt Province, one of the largest underground mines in the country.

“We innovate and pioneer technology to enhance value for our mining clients,” says Riemensperger.

Celebrating a 100 years of excellence

On 20th March 2024, South Africa and Africa’s first explosives company, AECI, will commemorate 100 years of being a registered business with a ceremony held at the JSE - an accolade for any South African business.

The 100th anniversary of AECI will be celebrated with a variety of activities and events throughout the year, highlighting its appreciation for its employees, customers, and the company’s esteemed heritage. ■

The company innovates and pioneers technology to enhance value for its mining clients.

AECI is ranked in the tier one group of explosives companies in the world.



Tomra drives mindset change in mining

Sorting specialist TOMRA Mining is passionate about developing solutions that promote zero waste across all business segments. According to Kai Bartram: Global Sales Director TOMRA Mining, becoming sustainable entails a mind-set step change.

TOMRA, which delivered a \$1.4 billion turnover in 2023, is zealous about reducing all types of waste, including plastic waste. “At TOMRA, our commitment to innovation revolves around the development of technologies aimed at minimising waste generation. This focus extends seamlessly to the mining sector, where we prioritise sustainable mineral sorting processes. Our technology is designed to pre-emptively extract and eliminate a substantial portion of waste material at the initial stages, rather than allowing it to traverse through the entire processing plant and wet circuits.

“The strategic approach not only aligns with environmental stewardship but also yields considerable advantages. By reducing the volume of waste early in the process, we achieve notable reductions in both energy and water consumption. The consequential decrease in operational costs underscores our dedication to fostering a more sustainable and economically efficient mining industry. This transformative mindset not only realises significant cost savings but also delivers substantial benefits to our clients.”

The good news is that the introduction of innovative technology is not reliant on a highly skilled workforce, but rather a change in methodology and tweaks to the flow sheet, he adds.

Although mining constitutes a relatively small part of the overall business for TOMRA, it is an important and growing segment, with demand for its innovative technology underpinned by the global drive towards becoming more sustainable and ensuring a smaller carbon footprint.

“In the past five to ten years, mineral sorting operated within a niche market. However, a discernible



Kai Bartram: Global Sales Director TOMRA Mining.

shift is underway, and we observe a significant evolution. Previously, miners predominantly acquired a single sorting machine. Today, driven by heightened environmental consciousness, TOMRA’s sorting solutions are experiencing increased demand, with clients now opting for acquisitions ranging between two and four sorters simultaneously.”

Exhibiting at Mining Indaba

The sorting specialist recently exhibited at the Investing in African Mining Indaba, held in Cape Town. According to Bartram, the Mining Indaba, attended by mine management and decision-makers, is the ideal place to network, “which is why product and service providers to the mining sector attend the event and showcase their services and offerings.”

This is the third year that TOMRA has exhibited at Mining Indaba and interacted with the “real decision makers”.

“Since we started attending Investing in African Mining Indaba in 2022, we have been able to network extensively with CEOs and key management personnel, and this has resulted in substantial business for TOMRA. The event also offers us the opportunity to meet with some of our clients, particularly clients in the diamond mining industry, which is a big part of our business. In fact, some of our managers from the diamond segment of business also attended this year.”

TOMRA launches OBTAIN™ at Mining Indaba

The metals and minerals sorting specialist launched its latest technology OBTAIN™, a revolutionary TOMRA Deep Learning solution for high-capacity ore sorting, at the Mining Indaba.

The software leverages Deep Learning to bring

TOMRA’s XRT sorter halves heavy media usage and extends the life of the deposit at QMAG.



single-particle precision to high-throughput particle sorting and unlocks value through a wealth of extremely detailed and accurate data for better-informed decision-making.

Bartram explains that AI encompasses two sub-fields that have progressed considerably in recent years: Machine Learning, which recognises patterns, learns from data and improves without being programmed, and Deep Learning, which is a type of Machine Learning that uses artificial neural networks to analyse data and solve complex problems. These technologies process vast amounts of data very quickly and use it to make decisions without human intervention.

Machine Learning and Deep Learning can further improve the sorting process for mining operations already using sensor-based sorting, but can also open new opportunities by enabling the processing of very low-grade materials that previously would have been discarded. A further advantage of AI is the vast amount of data it generates and processes, which provides mining operations with valuable insights into the sorter's performance, input material characteristics, indicative grades and particle size distribution, and for predictive maintenance.

"TOMRA is now breaking new ground with its latest innovation to introduce an industry-first: single-particle precision in high-throughput ore sorting. The software uses a Neuronal Network to identify the properties of each particle accurately and independently of the sorter's capacity, achieving precision and reliability in detection and ejection. Based on specific requirements, the mining operation has the flexibility either to enhance the throughput of the sorter while maintaining consistent sorting efficiency or improve sorting precision without compromising the existing throughput. It is a true game changer."

OBTAIN™ proves advantageous for a fully operational mine by enhancing recovery rates and elevating product quality within the existing throughput. Conversely, in mines with additional capacity it facilitates increased throughput without compromising product quality. Furthermore, the technology has the capability to unlock untapped value from low-grade ore, waste dumps, or materials previously deemed uneconomical for processing.

The OBTAIN™ software has been developed for TOMRA's XRT sorters.

TOMRA has partnered with two customers to test the new OBTAIN™ in real working conditions. The software has been operating for close to 18 months at the Wolfram Bergbau & Hütten tungsten mine in Mittersill, Austria, where it has delivered consistent and reliable performance. The proximity of the mine to TOMRA's development team made it a perfect testing ground for the first phase, as they were able to monitor it closely. A second phase of testing to quantify the improvements has been carried out with a long-standing customer in a magnesite application.



The successful tests have shown that OBTAIN™ is ready to transform sensor-based XRT sorting in numerous applications.

TOMRA Mining team at their stand at Mining Indaba 2024.

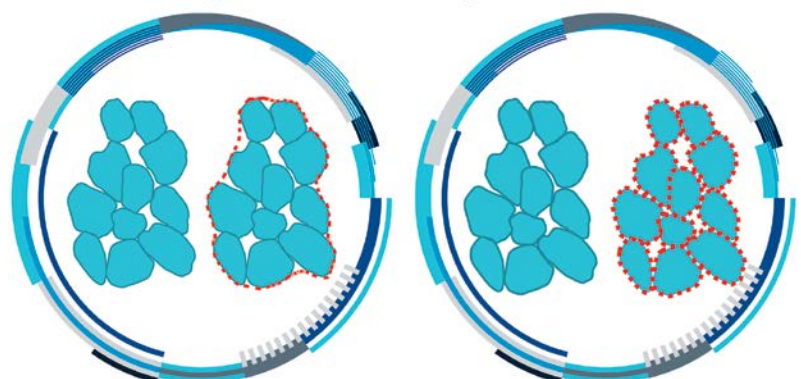
Both Machine Learning and Deep Learning have great potential to further enhance the benefits of TOMRA Mining's sorting technologies for mining operations. The company is constantly exploring the potential of these technologies and pushing the boundaries to offer technical solutions for sorting applications that were previously impossible for sensor-based sorters. At the same time, it can use Machine Learning and Deep Learning to improve existing sorting technology, applying them to more areas of its activity, such as better customer support, deeper analysis of the sorted material for improved control of customers' processing plants, and predictive maintenance and monitoring of the sorter's components. ■

COM XRT 2-1200 with OBTAIN.



Standard Segmentation

Segmentation with OBTAIN™



Mining industry upholds its end of the social bargain despite a tough operating environment in 2023



Hugo Pienaar, Chief Economist at the Minerals Council.

During 2023, the mining industry created jobs and delivered higher taxes for the fiscus. This was achieved despite the serious headwinds of record Eskom electricity supply curtailment, severe constraints on railways and at ports, and mixed commodity prices.

In its annual Facts & Figures 2023 booklet summarising the performance of the South African mining industry and its contribution to society and the country, the Minerals Council South Africa estimates that the sector added more than 7 500 jobs last year, employing 477 000 people. Total wages increased by 7% to R186.5 billion. This supported livelihoods in a weak domestic economy characterised by high unemployment.

“It is gratifying that the mining sector again delivered a crucial contribution to the South African economy despite the significant constraints caused by unprecedented electricity load curtailment, debilitating rail and port failures and pervasive criminal activities during the year,” says Mzila Mthenjane, CEO of the Minerals Council.

The mining industry’s contribution to the fiscus, comprising direct company taxes, royalties and pay-as-you-earn tax contributions on employee wages, is projected to have increased by R9 billion to R135.3 billion.

“There can be no doubt #MiningMatters. Our focus for the year ahead is to unlock further potential in the sector by working with the government to invite more private sector participation in energy and rail and ports, while addressing crime and corruption, all for the improved well-being of South Africa,” says Mthenjane.

Towards the end of 2023 and into 2024, several companies announced restructuring processes to reposition themselves with the reduced electricity availability, severe rail constraints, harbour delays, and a downturn in the prices of coal and platinum group metals (PGMs).

The repositioning process come during a challenging backdrop where:

- ❑ South Africa’s mineral sales in nominal terms fell by more than 13% in the first ten months of 2023. The expectation is that mineral sales will post the first calendar year decline since 2015 and also the largest annual fall since the global financial crisis in 2009.
- ❑ The direct contribution of mining to South Africa’s gross domestic product (GDP) fell by 12% to R425.6 billion and its percentage contribution to GDP dropped to 6.2% from 7.3%.
- ❑ Mineral exports fell by more than 11% to R781.6 billion.

“Fast-tracking structural reforms in the energy and logistics sectors, agreeing inflation- and productivity-related wage increases, implementing reasonable electricity tariff hikes, and improving municipal service delivery are crucial to the competitiveness of the industry,” says Hugo Pienaar, Chief Economist at the Minerals Council.

The two biggest contributors to mineral sales,

The industry is impacted by severe rail constraints and harbour delays.





Mining production, particularly from underground operations, is closely correlated to electricity supply from Eskom.

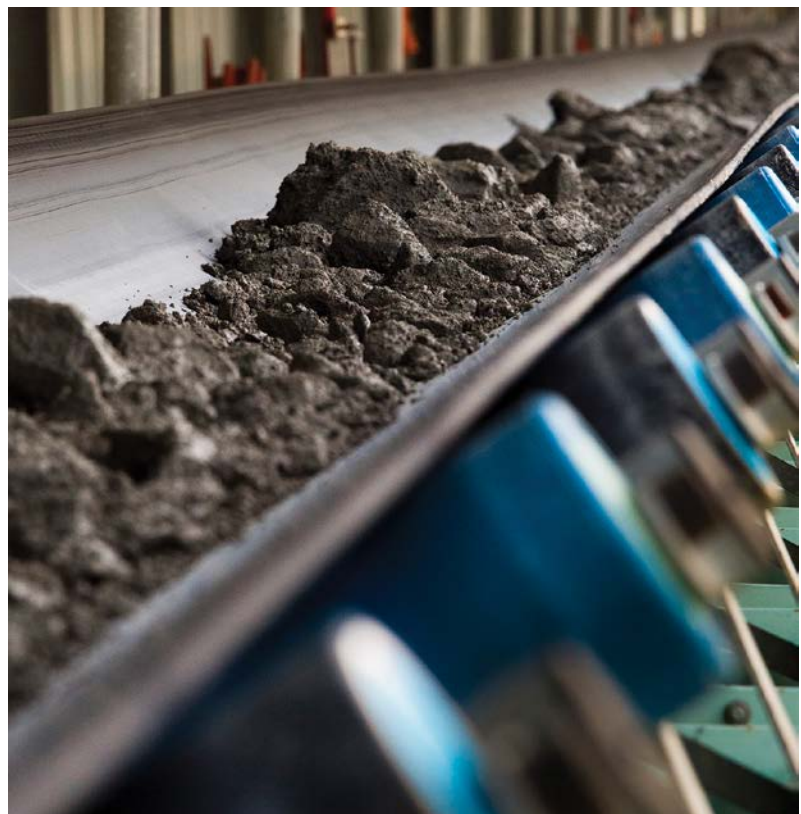
PGMs and coal, demonstrate the negative impacts Eskom and Transnet have had on mining sales and output performance. Contributing to the difficulties in these two sectors were steep falls in PGM and coal prices.

PGM sales generated an estimated R199 billion in 2023, a 33.3% decline from the previous year. Production fell by 11% to 239.9 tonnes. PGMs, in the main, are mined from underground operations which are exposed to electricity disruptions as are the processing, smelting and refining operations, which are particularly heavy users of electricity.

Mining production, particularly from underground operations, is closely correlated to electricity supply from Eskom. In 2023, Eskom's electricity supply shortfall reached a new record. Loadshedding increased to 6,760 hours, up from 3,751 hours in 2022 – an 80% change.

In the coal sector, producers increasingly relied on road transport to move coal to harbours, including Maputo, which carries a cost premium compared to rail. Total estimated coal sales of R192.2 billion were 22% lower year-on-year. Total production was flat at 228.5 million tonnes, with Eskom the single largest user of domestic coal output.

Coal exported through Richards Bay Coal Terminal (RBCT), a privately operated facility, fell to 47.9 million tonnes in 2023, the lowest level since 1992. This was a continuation of the decline since the peak of nearly 76 million tonnes shipped from RBCT in 2017. Trucking is estimated to have been used to transport up to 26 million tonnes of coal to various ports during 2023, the highest level of road transport in the coal sector yet.



Trucking is not the preferred option for exports of bulk commodities because of inefficiency compared to trains, damage to roads, congestion, accidents, increased levels of exhaust and dust pollution, and severe disruptions for communities on routes between mines and ports. Trains are a far more efficient way to transport bulk commodities, says Pienaar. ■

PGMs and coal demonstrate the negative impacts Eskom and Transnet have had on mining sales and output performance.



John Reade, senior market strategist at the World Gold Council.

Africa – world’s largest regional gold producer

Africa is the world’s largest regional gold producer, accounting for some 27% of global gold production in 2022. However, as a global consumer of the precious metal, how does the world’s second-largest continent rank? For insight to this question, *Modern Mining* spoke to John Reade, senior market strategist at the World Gold Council.

“As Africa’s population and economies grow, the continent has the potential to become an important gold demand story. From a gold production point of view, Africa is growing in stature; however, as a significant consumer of the precious metal, it remains on the backfoot, as it is the poorest continent on earth.”

Reade expects that given the continent’s population growth, which currently stands at close to 1.5 billion people and growing rapidly, and its strengthening economies, it could, in the not-too-distant future, emerge as a strong consumer of gold. China and India are currently the largest consumers of gold.

“I am keenly interested in the long-term potential of gold demand from Africa. We have already noted that countries in Africa have burgeoning populations with some countries also delivering decent economic performance. Looking ahead, I foresee jewellery and investment demand becoming increasingly more

important in Africa. In fact, I am interested in commissioning research into current demand for gold in countries such as Nigeria. As it is, we don’t spend enough time evaluating the demand potential for gold in Africa – not so much for the short-term but certainly for the longer-term – over the next ten to twenty or even thirty years, this as Africa’s economies gain traction. I believe that Africa’s story is not only one of gold supply, the continent has the potential to become an important demand story as well.”

Gold production

Although mine production increased steadily over the past three decades peaking at (3 347 t in 2018), the makeup of gold producers changed from 1995. Prior to 2007, South Africa held the number one spot as the top gold producer in the world, but by 2014, the country had dropped to sixth place and produced just 110 t in 2023.

“While South Africa’s gold production declined

Africa accounted for some 27% of global gold production in 2022.





steadily over the years, countries on the African continent have increasingly been supplementing gold production. Over the past six years, China emerged as the largest gold mining country and, within the African continent, Mali and Ghana have surfaced as two significant gold producers. Moreover, there has been growth in gold production from around the world, including Australia and Russia, which are in joint second place with just over 300 tonnes of production each. Canada is the fourth largest gold producer with the US holding the fifth position,” says Reade.

While there opportunities exist to bring new gold mines into production globally, progress in discovering, permitting, financing and developing new gold mines has slowed.

Explains Reade: “Mines are not like factories; they can’t produce indefinitely. Eventually, they run out of gold to mine profitably, and the mines shut down. So, explorers constantly need to be searching for and developing new gold mines.”

Although gold production peaked in 2018 at 3 347 t, production has since declined and in 2023 only 3 000 t of gold was produced globally.

A combination of factors, including production interruptions, safety stoppages in China, strike action in South Africa and other countries, coupled with the impact of Covid, have all hindered the global gold industry’s ability to grow beyond the peak production of 2018.

“Based on forecasts from our data partners, Metals Focus, barring any major incidents from around the world, we expect

that 2024 will mark a new high in gold mine production. However, one of the significant trends that has emerged, is one of plateauing of new mine supply. The prospects for the next few years show limited growth in gold production. In essence, the years of rapid gold mine growth that we saw between 2009 and 2018, have come to an end.”

Africa’s potential as a future gold producer

In terms of future potential and probable discoveries of gold and other crucial minerals, Africa offers large and under-explored potential with the continent

Africa is emerging as an important gold producer.

South Africa’s gold production has declined steadily over the years.





Gold is essential to the 21st century way of life.

already emerging, over the past two decades, as an important gold producer.

“With the exception of South Africa, which is tracking gold production declines, several countries in Africa are emerging as significant gold producers. I expect that to continue as long as the investment landscape within African countries remains attractive to international large-scale investors.

Although at times the relationships between host countries in Africa and mining companies have become a source of tension, in general, gold mining companies have done well in Africa, and so have the countries in which they operate. I believe there is tremendous potential for more discoveries, more production and growth from Africa that is probably unrivalled around the world.

In fact, over the past two decades, Africa has offered some nuggets in terms of gold mining success stories especially from Mali, Ghana, the Democratic Republic of Congo and Tanzania,” says Reade.

Gold demand trends

From a gold demand point of view, the most significant change that has emerged over the last few years, has been the major increase in demand for gold from Central Banks.

According to Reade, Central Banks have purchased gold every year since the global financial crisis.

“Between 2009 and 2021, Central Banks averaged about 473 tons of gold purchased every year and in 2023 alone, Central Banks acquired 1100 tons of gold. They have more than doubled their rates of purchases in the last two years, which is a massive change in the market, especially if one considers that mine production is roughly 3 650 t and about 1 300 t is from recycled jewellery. The total size of the market is only about 5 000 tonnes and Central Banks have added another 500 tonnes to their



Central Banks are set to continue their gold buying spree in 2024.

purchases, which has resulted in a big change in the portfolio of the gold market.”

Looking ahead, Reade, expects Central Banks to continue their gold buying spree, “possibly at the same high levels seen in the past two years”.

Moreover, given the heightened geopolitical factors, investors see gold as a safe-haven asset and continue to acquire the precious metal.

“Higher geopolitical risk and growing recognition from investors on the benefits of having a large proportion of gold in their portfolio, translates to strong investment demand going forward. Perhaps the one area that has pleasantly surprised us this year has been the strength of the jewellery market. Although gold prices hit record highs in every currency around the world, except the Swiss Franc, jewellery buyers, who normally hold off from purchasing gold, did not do so last year. In fact, jewellery demand in 2023 was unchanged from 2022. I believe this demonstrates that buyers of gold around the world continue to value jewellery and gold jewellery in particular, despite the higher prices, which is a pleasant surprise.”

Critical metals legislation and gold

The hot topic currently related to metals and minerals, is what constitutes a critical mineral. There are several definitions that have been tabled, including those related to ‘critical’ from an energy transition perspective or critical in terms of dependence on one or a few countries for the source of supply.

“While this debate is extremely important for some minerals and metals, it is not so for gold, given that the precious metal is produced and refined in many countries around the world. There is no danger that the industry will fail to produce gold when it is required. As such, gold is not classified as critical mineral by the United States, for example, nor as a critical mineral by the European Union. However, gold is essential to modern life, especially in its applications in technology. All electronics goods contain gold, even if in minute quantities. Gold is essential to the 21st century way of life and is the lifeblood for many economies in which it is produced. So, whilst gold is not critical, in terms of the formal definitions from the United States and the European Union, it is both essential and vital to the modern world, and to the countries that produce it,” concludes Reade. ■



Jewellery demand in 2023 was unchanged from 2022.

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Slurry, dewatering expert IPR builds one-stop capability

As mines demand higher reliability, efficiency and sustainability from all aspects of their operations, pump and dredging specialist IPR has been growing to meet the changing needs. *Modern Mining* spoke to IPR Managing Director Lee Vine and Sales Manager Steve du Toit about how they have become a one-stop solutions provider representing key global pump brands.

As experts in dewatering, heavy duty slurry pumping and dredging, IPR has grown rapidly over the past nine years into a full-service pump rental and sales partner for mines around the country and region. Its integrity and success have allowed the business to represent a wide range of high-quality global brands on the sub-continent, according to Vine.

“Our rental fleet has everything a customer needs for us to respond quickly to their dewatering needs including our Atlas Copco electrical submersible pumps, diesel-driven pump sets and small portable pump sets,” he says. “More than that, IPR has developed a depth of engineering capacity to customise solutions for mines and to keep equipment in top notch condition. Our progress in the market is also allowing us to grow our footprint to get closer to customers with the inventory and skills to keep their pump operations running smoothly.”

Top global brands

In addition to being the master distributor for Atlas Copco dewatering pumps in southern Africa, IPR has the agency across sub-Saharan Africa for the Toyo range of specialised heavy duty submersible slurry pumps. These brands form the core of a comprehensive rental fleet that drives IPR’s vision of becoming



Steve du Toit, IPR Sales Manager and Lee Vine, IPR Managing Director.

the leading player in dewatering and heavy-duty slurry pumping.

Underpinning the company’s ability to deliver results with these quality brands is its design expertise and modern workshop facilities. This has already been well proven through the development of its locally designed and manufactured SlurrySucker dredging system. Ideal for safely and efficiently cleaning mines’ settlement dams or process ponds, the SlurrySucker can remove up to 60 dry tonnes per hour – without the risk of damaging pond liners with heavy excavating equipment.

Experience

“Our many years spent engaging with customers’ challenges in the field have given us valuable insights into what the mining sector demands today from its supply partners,” he says. “Having an experienced team with an innovative approach really makes all the difference, as we can help to assess the requirements so the equipment and accessories are correctly specified.”

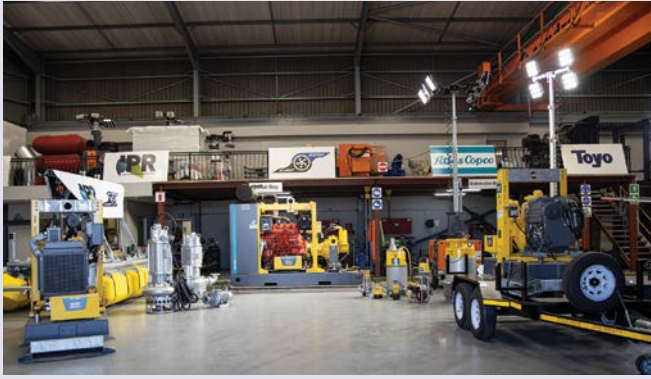
Vine emphasises that this aspect of IPR’s relationship with mines has in fact become paramount, as mines look for ways to mitigate risk, streamline processes and minimise downtime for greater productivity. By offering both a rental and a capital acquisition option, customers achieve the best of both worlds.

“We can draw on our extensive rental fleet to meet an urgent requirement on a mine, and the customer can effectively experience a trial period with the equipment to assess

Underpinning IPR’s ability to deliver results is its modern workshop facilities.



feature



its performance,” he explains. “This often leads to the mine deciding to purchase that equipment from us, as it proves itself in the application. Alternatively, many mines prefer to continue renting – as the contracting out of this function ensures that specialists are looking after maintenance; the mine can then rest easy, knowing that this pumping function is continuous and reliable.”

Correctly specified

He reiterates that IPR’s full-service approach is aimed at making mines not only more productive but more sustainable in terms of their carbon footprint. This journey starts with the correct specification of a pump for the duty that is required. Without the insight of an experienced pump technician, it is easy to misjudge what the pumping task involves.

“We take a holistic and scientific approach to sizing our pump solutions, so that all the necessary variables in any situation are accounted for,” he notes. “If a pump is over-specified, there will be wastage of capital and unnecessary power consumption; on the other hand, an under-specified solution will not endure the load and will incur extra maintenance while disrupting the plant workflow.”

Custom solutions

IPR’s engineering capability has extended to many a bespoke solution, including the dredging of a

space-constrained facility filled with highly corrosive liquid. Du Toit explains that its innovative SlurrySucker dredging unit was specially adapted to suit this unusual environment but, in close collaboration with the customer, the problem was solved.

“We visited the site a number of times, sitting with the customer and discussing various options and technicalities,” he says. “Through this constructive cooperation, we were able to present a workable customisation with stainless steel in the dredge and the pump components; we were then able to manufacture and commission the equipment.”

More accessories: lighting

With its eye constantly on opportunities to optimise customer solutions, IPR has also launched a range of lighting towers to suit various mining applications. Manufactured by Olikara, the QubePower range of lighting towers includes three different sizes, and can be powered by diesel or petrol engines, solar or battery power, or mains electricity. All models withstand the rigours of mining, demonstrating the quality and support for which IPR is well known.

“As we add to our offerings and enhance our one-stop status for customers, we also continue to grow our footprint,” adds Du Toit. “Our expanding presence across the region means technicians and inventory are more easily accessible, ensuring that customers can rely on us to stay productive.” ■

Above: IPR is the master distributor for Atlas Copco dewatering pumps in southern Africa.

Left: Pump and dredging specialist IPR has become a one-stop solutions provider representing key global pump brands.

Left: Atlas Copco diesel driven dewatering pumps are available from IPR for either outright purchase or rental.

Centre: The locally designed and manufactured SlurrySucker dredging system is ideal for safely and efficiently cleaning mines’ settlement dams or process ponds.

Below: IPR has the agency across sub-Saharan Africa for the Toyo range of specialised heavy duty submersible slurry pumps.



feature



Marnus Koorts, General Manager Pump Products at Weir Minerals Africa.

OEM parts key to sustainable partnership with customers

Significant investment in the quality and performance of their spare parts ensures that an original equipment manufacturer (OEM) can stand behind its brand promise to customers – and it is this promise that allows mines to mitigate operational risk and to continuously improve productivity.

According to Marnus Koorts, General Manager Pumps at Weir Minerals Africa, there is still a temptation for mines' procurement departments to 'save' on upfront costs for replicated spare parts, without realising the risks and disruption this can introduce into the mining workflow.

"In the context of today's technological advances and mines' growing focus on efficiency, the design and engineering investment that OEMs make in their spares often goes unnoticed to the untrained eye," says Koorts. "The aim of replicators is generally to reverse engineer a part so that it looks the same and fits into the equipment – but that is where the similarity usually ends."

He highlights that the whole philosophy of an OEM engineered part is an integral aspect of that OEM's long-term relationship with its customer. The detailed design, materials of construction, extensive testing and field experience of an OEM part is geared to deliver certainty over time in its performance within the whole mining process.

"Because mines harness the power of the digital age in condition monitoring and optimised uptime, they rely on us to extend service intervals and achieve reliable service life," he explains. "By doing this, we allow mines to streamline their operations with scheduled maintenance and less unplanned downtime."

The wear parts of a pump – which require regular

replacement – are vital contributors to the pump's overall reliability and performance, he emphasises. This makes it essential that these parts must boast the same pedigree as the rest of the pump, as all these aspects have been designed to function as an interactive whole.

"It is precisely because Weir Minerals invests so heavily in its ongoing engineering excellence that we can promise customers better and better results," says Koorts. "Our impeller designs, for instance, are designed for longer life and more efficient fluid transfer; by scientifically monitoring and measuring the results, we can then take these offerings and performance predictions to the market with confidence."

Benefits to the customer accrue in various ways, from productivity and efficiency to sustainability and technical support. New generations of technology from Weir Minerals often bring improvements in energy consumption, for example. These regular step-ups can soon lead to double digit savings in energy costs.

"With the mining sector's focus on controlling operational costs, many mines are working towards aligning the decisions of their procurement function with information on key operational expenditure like electricity," he notes. "This allows a mine's commercial strategy of reducing its energy costs to filter down into choosing the most energy efficient equipment."

He points out that this helps overcome the possibility that 'cost saving' in spare parts could have the unintended effect of raising running and maintenance costs down the line. It could also cause disruption and lost production through unscheduled downtime.

"One of our main aims at Weir Minerals is to help our customers mitigate their operational risk, as this has long been a central strategic imperative within the sector," he says. "An important way that we do this is through the integrity and technical advancement of our spare parts."

With its 150-year heritage, Weir Minerals has based its success on long term partnerships with customers, which includes the ongoing optimisation of their pumping solutions. By walking the challenging journey of mining with customers, Weir Minerals

Material development and extensive testing is geared to deliver performance within the mining process.



feature



is always there to back up its promises and assist customers in achieving new goals, he says.

“As sustainability has become a core principle for mining, we actively support customers with quality parts that allow reduced energy consumption and lower carbon emissions,” says Koorts. “We also contribute to reducing customers’ Scope 3 emissions, through our own sustainability initiatives. These include solar power on our facilities and optimising our foundries to become less energy intensive.”

Weir Minerals’ approach to its spare parts supply also supports other vital aspects of today’s mining industry such as social impact and governance. Security of parts supply is essential for mines to optimise uptime, so the company has built extensive in-country presence around Africa.

“Our global geographic footprint leverages our contribution to the local economy, where our entities will include local stakeholders among our directors, management and staff – developing skills, uplifting communities and conducting ourselves as a good corporate citizen,” he says. “As a leading industry player, the group also operates at the highest level of governance, which gives mines peace of mind in relation to their supply chain.”

Koorts reiterates that Weir Minerals’ partnership with customers focuses on achieving the lowest total cost of ownership (TCO) of pumping solutions – and



stresses the role of OEM parts in this equation. The company works with mines to achieve strategic mining production goals, and this demands streamlined operation to meet production targets.

“On the strength of the quality design and manufacture of our parts, enhanced by our research and development, we can confidently support customers to achieve predicted results,” he says. “This is central to our long-term commitment to the sector, and allows us to offer the support customers expect – often at no additional cost.” ■

Above: Weir Minerals offers condition monitoring to streamline operations and avoid unplanned downtime.

Above left: Weir Minerals invests heavily in ongoing engineering to offer customers better results.

Left: Weir Minerals is continually optimising manufacturing processes to reduce energy and lower carbon emissions.

feature



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Expertise and top brands for dewatering and slurry pumping

As Africa's mines work towards raising their competitiveness through optimising the lifecycle costs of critical pumping equipment, Integrated Pump Technology has the expertise and footprint to support a growing range of premium pumping solutions.

The latest addition marks a valuable advance into diesel driven dewatering pumps, according to Integrated Pump Technology Key Accounts Manager, Justin Bawden. The company is well known for its top end submersible pumps, such as Grindex and Faggiolati which are electrically powered. It now also offers the well-known Godwin range of diesel driven pumps.

"The diesel option allows customers to deploy these units in demanding applications in areas of the mine where there may be no electrical power supply," says Bawden. "Godwin pumps are premium products which are firmly established in this market."

Apart from being an official distributor in South Africa, Integrated Pump Technology has also been appointed as the Godwin distributor in the busy mining countries of Democratic Republic of Congo and Zambia. The versatile Godwin range extends from entry level units reaching heads of 15 metres and maximum flow rates of 200 m³ per hour – right up to large units pumping to 180 metre heads and achieving flow rates of 1 300 m³ per hour.

"Our customers' access to Godwin pumps further entrenches our leading position in supporting the market with the right solution for their application – boosting their efforts to improve



Justin Bawden, Key Accounts Manager at Integrated Pump Technology.

reliability, productivity, lifecycle economy and energy efficiency," he says.

The Godwin range augments the rugged Grindex submersible pumps for dewatering as well as slurry and sludge pumping – the latter ranging broadly in capacity from 0,42 kW to 90 kW. He highlights the smart features in the dewatering units that add extra protection such as phase rotation and phase loss to avoid overheating.

"Mining customers benefit greatly from the high chrome, wear resistant material in the Grindex slurry pumps, for instance, which extends service life and gives mines more uptime for better productivity," says Bawden.

Mines that need their equipment to be flameproof – such as underground coal operations – find their answer in the Faggiolati pump range,

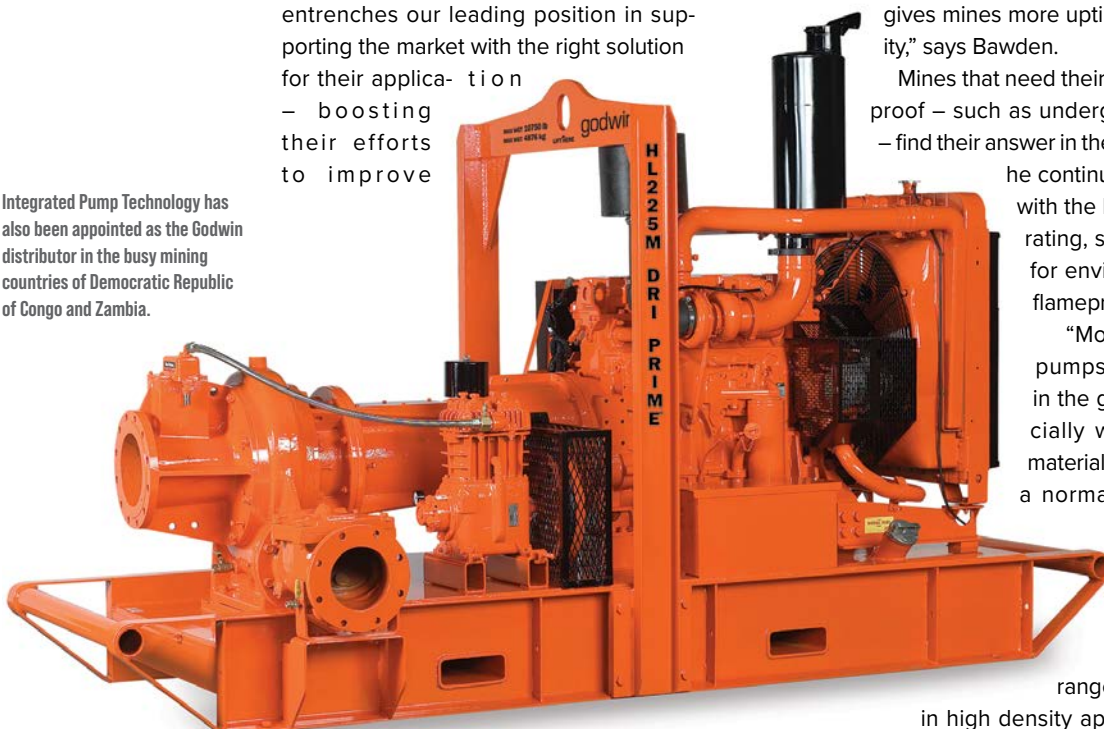
he continues. These units comply with the European Union's ATEX rating, so are the ideal solution for environments that demand flameproofing status.

"More than this, Faggiolati pumps are great performers in the grey water space, especially where there is fibrous material in water that would clog a normal pump," he explains.

"These pumps can be fitted with chopping impellers that will cut up this material and pump it through; the range is also a firm favourite

in high density applications where water

Integrated Pump Technology has also been appointed as the Godwin distributor in the busy mining countries of Democratic Republic of Congo and Zambia.



feature

contains material of a high specific gravity.”

Bawden emphasises that supporting these quality offerings demands well equipped technical facilities that meet demanding standards set by the original equipment manufacturers (OEMs). This is what sets Integrated Pump Technology apart, with its strong base of technical expertise, modern workshop and extensive stockholding facilities.

“Being able to service and repair pumping equipment to exacting OEM standards – and with OEM parts – is vital to ensuring uptime and performance for mines,” he says. “We are able to do this in our conveniently located Jet Park premises, which houses our state-of-the-art repair facility and certified test tank.”

The tank and 90 kW panel allow all pumps to be fully tested before being dispatched to customers, being accompanied by a test certificate that verifies operating capacity. Combined with the careful matching of each pump’s specifications with its intended duty, this rigorous testing ensures that it will run exactly where it needs to on its performance curve, he notes.

“In collaboration with the OEM, we pay close attention to specifying our pumps correctly – as this underpins their longevity, performance and cost effectiveness,” he says. “Then, with our large

inventory of fast-moving spare parts, we can ensure quick turnaround times for servicing – which we perform to OEM standards as part of our brand promise to customers.” ■



Integrated Pump Technology now also offers the well-known Godwin range of diesel driven pumps.

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Engineering Manager at Sandvik Rock Processing, Gideon de Villiers.

World class SA base for screen design, engineering

Leveraging South Africa's strong history of technological innovation in mineral processing practice and technology, Sandvik Rock Processing's specialised in-house capabilities in the country are delivering tailored and sustainable screening solutions for its mining customers.

With its heritage extending back many decades, the local design and manufacturing capability has been developed with extensive mechanical and metallurgical expertise. Engineering Manager at Sandvik Rock Processing, Gideon de Villiers, highlights the depth of skills at the company's 21,000 m² facilities in Johannesburg, South Africa.

"Attracting and developing quality professional and artisan expertise has made us a local leader in the design and manufacture of high-performance vibrating equipment for demanding mining conditions," says De Villiers. "Specialising in custom engineered solutions, our range covers a wide spectrum of vibrating equipment, including screens and feeders for all types of applications."

The company's success in the marketplace has allowed it to work closely with customers in the field, applying bespoke solutions and continuously improving performance and reliability. He highlights the design and engineering process, which involves close collaboration with customers to understand their specific needs. The company has seen growing demand for flexible solutions, he says, and it has focused on developing modular and customisable equipment designs so customers can more easily scale their operations in response to market shifts.

"When customers need to make changes to their production targets, for instance, they often consult



Sandvik Rock Processing's design and engineering process involves close collaboration with customers to understand their specific needs.

us on how to adapt designs to achieve a different outcome – without risking the reliability of the equipment," he says. "Our mechanical and metallurgical engineers are able to consider the new demands and find solutions that take into account performance limits and other factors."

He highlights the technical complexity of making meaningful adaptations while still safeguarding the structural integrity of the equipment and its components. Addressing these possible future changes starts with a flexible initial design, he explains, which will give customers the opportunity to optimise equipment for different results. This design philosophy provides the mine with more agility in production, allowing certain modifications to be made rather than replacing entire machines. The design process – whether on new or existing equipment – is enhanced by using Finite Element Analysis (FEA) to validate designs before finalisation.

"This customer-centric approach ensures that the final products align with industry requirements and exceed expectations," he says. A recent example was a scalping application for an iron ore mine in the Northern Cape province, where the customer was looking for longer wear life on the screen panels, as well as higher throughput tonnages. The target was to extend the screen deck life from six weeks to 10 weeks or longer, and to avoid tripping conditions at full load. Investigations revealed that the panels were flexing excessively under load, which changes the size of the apertures and exacerbates wear and damage to the rubber coating.

Sandvik Rock Processing's specialised in-house capabilities in the country are delivering tailored and sustainable screening solutions for its mining customers.



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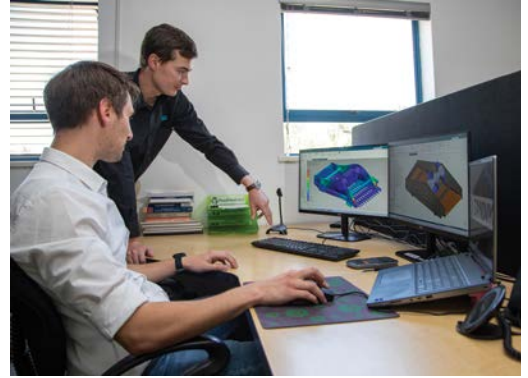
Sandvik Rock Processing's range covers a wide spectrum of vibrating equipment, including screens and feeders for all types of applications.

"We designed and simulated a scalping panel with a stiffer and more robust internal frame, and provided a more suitable rubber compound on the panels," he says. "This lengthened the intervals between complete deck replacement to six months. It also achieved a 20% improvement in throughput as there was less pegging and blinding due to the impact of flexing on the apertures."

The knowledge and methodology gained from this innovation has, in fact, been rolled out to other customers with similar applications, to help raise performance levels across the sector. To maintain its innovation and performance focus, Sandvik Rock Processing prioritises its training efforts. Continuous education, he emphasises, is fundamental to staying abreast of the latest developments in design and engineering.

"We ensure that our professionals have access to academic programmes, workshops and other training courses to deepen their knowledge and acquire new skills," he says. "We also engage regularly in collaborative platforms by attending conferences and participating in industry events to exchange ideas and learn from other experts."

Mentorship from experienced professionals also provides invaluable insights and guidance, helping the team to navigate challenges in the field and gain a broader perspective on potential solutions. The company also partners with research institutions



Sandvik Rock Processing's design philosophy provides the mine with more agility in production.

and laboratories, to provide exposure to cutting edge research, experimentation and collaborative projects.

"By leveraging these resources, our design and engineering professionals enhance their skills and stay updated on industry trends," says De Villiers. "They, in turn, contribute to the development of innovative solutions in their respective fields."

Using cutting edge software and tools is also crucial for efficient design and engineering. Access to advanced CAD and CAE solutions allows for sophisticated modelling, analysis and prototyping.

"These activities have significant positive impacts for the local economy, contributing to the pool of local talent and building a skilled workforce in the region," he says. "This also means enhanced efficiency and quicker turnaround times for customers, while ensuring product quality and facilitating a more agile and adaptive approach to the dynamic needs of the African and global mining industry."

He highlights the importance of sustainability in design practices, where Sandvik Rock Processing ensures energy-efficient designs, responsible material sourcing and a commitment to reducing the environmental impact of products.

"This includes considering the most efficient use of materials throughout the equipment life cycle, to use recyclable materials wherever possible and to minimise waste," he says. "Our choice of durable and corrosion-resistant material, for example, helps to extend lifespan and reduce the frequency of replacement." ■

feature



Training unlocks performance

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Helping mining operators with waste management compliance

South Africa is a leader in the global mining industry and produces a number of dangerous waste by-products which mining operators must ensure are safely and responsibly disposed of.

As a waste industry leader, EnviroServ Waste Management offers a multitude of solutions for complex hazardous and non-hazardous mining waste.

Jason Judkins, EnviroServ Regional Sales Manager, said the company had made innovative strides in assisting mining clients to find alternatives and minimise waste to landfill through searching the markets to see what opportunities exist. “Our focus is to ensure compliance at all times,” Judkins said.

Mines produce large quantities of primary waste such as process tailings, slimes and over burden. EnviroServ has a specialised tailings division, with vast experience within the industry, capable of managing these waste streams for large clients.

Waste is brought up from underground by locos or conveyor belts and separated into three categories – industrial, general and hazardous waste – by EnviroServ’s well-trained on-site teams.

“Industrial waste is first checked for items that can be re-used or repaired and put back into the system, such as gearboxes, jackpots and hammers, which may have accidentally been sent to the surface, but which can be re-used or repaired.” High value items to be auctioned, such as motors, electrical cable or steel, are transported to the client’s central salvage yard, separated into ferrous and non-ferrous metals and sold to recyclers,” Judkins said.

General waste is sorted into paper, plastic, glass, tin and any other recyclable categories which are also sold to recyclers, minimising waste to landfill.

“Managing hazardous waste is our speciality and we have various departments specialising in hazardous waste management solutions. EnviroServ has SANAS-accredited laboratories



Kroondal Platinum Mine Cyclone of Pool wall extension.

where waste samples are analysed and classified, according to prevailing legislative requirements. Results received allow us to determine best practise should it be re-use, recycling or disposal, while remaining in line with legislation and assuring clients of best practise and peace of mind that their waste has been managed, “cradle to grave.”

Judkins said while hazardous waste is increasingly being diverted from landfill for alternative solutions – including hydrocarbon waste and high hazardous chemical solutions to name a few – it can be costly to recycle these materials, due to a limited number of compliant recyclers and solutions in the South African market. Searching for innovative, cheaper alternatives to divert waste from landfill is an ongoing process.

Some mining companies are starting to assume the responsibility of sewage management from communities around their operations, and EnviroServ is assisting with these requirements. “Another concern the company helps with is legacy waste. Stockpiles sitting on the land are unhealthy and must be rehabilitated.

“Proper management of mining waste prevents or minimises water and soil pollution arising from acid or alkaline drainage and the leaching of heavy metals, thereby protecting the environment for generations to come.” ■



Kroondal Platinum Mine, upstream deposition with spigot system and planting of grass for erosion protection on outer side slope.



Upstream deposition with spigot system on Pilanesberg Platinum Mine.

Reflections on another Mining Indaba

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



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

Another Investing in African Mining Indaba has come and gone. To attract over 8 000 attendees is quite a feat, no matter one's feelings towards the event. The big idea is to get investors, miners, governments, the media, civil society and academia in the same room. It is an opportunity for countries to show what they have to offer, for investors to interrogate pitches, and miners to learn from one another. One could focus on any number of these for a post-match analysis column, but I cannot stop thinking about just how different the South African government's showing was to Zambia's. Zambia is by no means perfect, but South Africa must send a much stronger signal to the market that it is credibly serious about attracting investment into its mining industry.

To begin with, South Africa's Minister of Minerals and Energy took a shot at certain 'members of the media' who had written about the severe backlog of unprocessed prospecting and/or mining licences. This is not something to get defensive about unless the numbers reported were materially different from the amount actually processed. The truth is that there simply shouldn't be a backlog. A friend of mine builds cadastre software, and he has repeatedly told me that he would rather work in the DRC than in South Africa. I mention the cadastre because it's been a bugbear of the industry for many years now. If the country had a functional online cadastre that was well managed, we wouldn't have had the infamous Imperial Crown Trading (ICT) case in 2010, along with numerous other unnecessary debacles. I won't bore you with the details, but the upshot is that a politically connected fly-by-night company (ICT) lodged a fraudulent claim for expired rights (belonging to Arcelor Mittal SA) to which Anglo American had first rights. The Department of Minerals (DMR)



The opportunity to attract responsible players that will generate real value is there.

backed ICT all the way to the Constitutional Court. The DMR claimed that ICT submitted their claim (which looked remarkably like Anglo's!) first on the same day and that the right should have reverted to the state for distribution after expiry. ICT and the state lost the case. Had a functional cadastre been in place, an electronic fingerprint of the exact date and time of both applications would have been clear for all to see. That's one of the most important things that a cadastre does – it makes it clear as daylight to everyone which company currently has which type of right over which piece of land and for what minerals. It avoids the stupidity of granting exploration rights over an area currently being mined and so forth.

At the Indaba, Minister Gwede Mantashe announced that a contractor had been appointed to build such a cadastre for South Africa and that it would take at least 18 months for it to become fully functional. While the news is welcome, the system will only be as good as the capability and capacity of the department that manages it. And this is the

Investing in African Mining Indaba attracted over 8 000 attendees.



other thing that a government serious about attracting investment needs to recognise. Ambiguity and excessive discretion in the Mineral and Petroleum Resources Development Act (MPRDA) has had at least a partial role to play in inconsistent implementation of the law. Moreover, a maximum number of days for licence processing is not stipulated in the law, contrary to global best practice. Such a stipulation needs to be made, and then built into the cadastre functionality.

Beyond the minerals governance landscape itself, the country continues to face economic headwinds, along with structural investment-deterrents such as logistics (port and rail), energy (loadshedding) and crime (including mine-gate extortion). There was some acknowledgement of these matters at the Indaba, but the problems are not new. South Africa's exploration pipeline has pretty much dried up, and net fixed capital formation over the past decade was essentially zero; these are crisis markers. We require urgency and credible commitment to reform from the government.

Zambia stands in considerable contrast. While President Hichilema was not present in person, the pre-recorded message from him at the Indaba, and the rest of the Zambian delegation was clear, succinct and positive. Serious exploration and production expansion projects are taking root. The \$1.3 billion Kansanshi expansion alone is a serious play, never mind the high-grade copper deposit uncovered by KoBold. While the internal politics around mining remain complex, there is at least a sense that the message is right. Zambia has a functional cadastre system, though it clearly needs to be better managed. Zambia also appears dedicated to not changing the rules of the game, though there is still uncertainty over upcoming local content requirements. Either way, Zambia seems serious about attracting investment.

Macroeconomic conditions in Zambia remain challenging, though, and miners should take serious note of this. The sovereign debt situation is not yet resolved. While significant headway has been made, austerity conditions are beginning to cause socio-political strain. Hichilema is already into his third year and will be under pressure to demonstrate broadly distributed economic dividends ahead of a 2025 election. The opposition will have its eye on the mining prize, which will likely upset the current positive trajectory towards stability if they are successful at toppling Hichilema. Responsible players in the industry should, therefore, do what they can to help resolve the debt situation and put pressure on sovereign debt negotiators to minimise austerity pain.

Both South Africa and Zambia have complementary mineral endowments to power global energy and transport transitions towards a lower-carbon future. The mines required for those transitions are



South Africa's exploration pipeline has pretty much dried up.

not yet built, so the opportunities are clear. And these countries both have choices to make. They can attract responsible private sector investment and insist on fair deals that produce broad-based benefit, or they can unscrupulously strip the endowments and entrench elite bargains that exclude most citizens.

I had the privilege of spending ten days in Europe after the Mining Indaba, and it struck me that African countries have a remarkable opportunity to take advantage of the (unfortunately named) Critical Raw Materials Act (CRMA), under which Europe is strengthening its efforts to diversify the supply of minerals and metals it requires for the transition. European businesses are risk averse but technically capable, technologically proficient and serious about ESG. European countries also seem dedicated to ensuring that African countries get a fair deal in exchange for the materials, many of which should be processed (at least to some degree in the value chain) before being exported.

For South Africa and Zambia, and a multitude of others, the opportunity to attract responsible players that will generate real value is there. No matter what role we play, we should all continue speaking up and placing appropriate pressure on our governments to make responsible decisions that benefit a broad base of citizens. ■

Zambia seems serious about attracting investment.



Caterpillar and Thoroughtec renew global cooperation agreement

Caterpillar and ThoroughTec Simulation have renewed their global cooperation agreement, reinforcing their commitment to advancing the field of equipment operator training through cutting-edge simulation technology. The agreement solidifies the partnership between these industry leaders. Caterpillar Mining's recommendation of ThoroughTec Simulation as its approved supplier of equipment simulator products empowers Caterpillar customers with state-of-the-art simulators and other training products and services, delivering a comprehensive training solution to enhance mine safety, productivity, machine availability. The collaboration further provides ThoroughTec Simulation with access to Cat technical data and product engineers, which uniquely empowers ThoroughTec Simulation to produce the world's most accurate and realistic Cat equipment simulators, setting a new standard in operator training. "Caterpillar and ThoroughTec Simulation share a common vision for the use of technology to deliver the most realistic and effective operator training possible. In doing so, we aim



CYBERMINE Cat 789D Haul truck Simulator Operator.

to reduce the operating cost per ton and enhance operator safety for our mutual customers." says Justin Collins, CEO at ThoroughTec Simulation. ■



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ACTOM Distribution Transformers secures order for Kamo Copper Mine SA

ACTOM Distribution Transformers, a division within the ACTOM Group that designs and manufactures a range of 16kVA – 10 MVA distribution and lower range power transformers, recently secured an order for the supply of its Neutral Electromagnetic Couplers with Earthing Resistors and an Auxiliary Transformer (NECRTs) to Kamo Copper Mine SA in the Democratic Republic of the Congo (DRC). NECRTs combine three-phase neutral electromagnetic couplers with neutral earthing resistors and auxiliary transformers. ACTOM Distribution Transformers started refining the design and manufacture of NECRTs in 2010 and is now considered a class leader in this field in Sub-Saharan Africa. Lee Mbenge, CEO of ACTOM Distribution Transformers, maintains that within the green energy sector, NECRT's play a crucial role in grounding collector power transformer in the substations. These substations facilitate the transmission of power generated by renewable energy plants into the national grid. The Kamo Copper Mine is one of the biggest producers of ultra-high-grade copper in the DRC and is powered



ACTOM Distribution Transformers secures order for Kamo Copper Mine SA.

by hydro-generated electricity produced by the Mwadingusha Hydroelectric Plant, which was rehabilitated and modernised in 2021. Mbenge says that Kamo Copper Mine SA has been a customer of ACTOM Distribution Transformers for several years and has previously ordered distribution transformers and NECRTs from the business. Last year, ACTOM Distribution Transformers completed an order for NECRTs worth more than R10 million for the mine. ■

Babcock adopts Lean Retail System

Babcock has become the first Volvo Construction Equipment (Volvo CE) dealer in the world to adopt Volvo CE's Lean Retail System – a programme guided by a set of principles aimed at developing a culture of constant improvement and problem solving. The company is currently busy with the pilot roll out at its Bartlett, Jet Park operations. Championed by Volvo CE, the Lean Retail System is aimed at cultivating a culture of continuous improvement by identifying different parts in the work process that can be optimised to make them easier, faster, better, cheaper and less stressful, and improve them, on a continual basis. Duncan Gooch, Head of SHEQ – Equipment at Babcock, explains that the programme is premised on the same foundations as Lean Manufacturing, a principle that originated in Japan and is designed to minimise the waste of material and labour while maintaining or increasing levels of production.

“The Lean Retail System entails continual identification of opportunities to improve processes, increase efficiency and reduce waste – both in terms of time and resources. Ultimately, it is about eliminating that which does not add value and delivering the best possible service to the customer as quickly and cost-effectively as possible,” explains Gooch.

Continuous improvement, stresses Gooch, is not about making drastic changes, but rather small improvements on a constant basis. Continuous improvement, especially in the form of small adjustments, is one of the original lean principles. The smaller

improvements are usually quicker, involve less to no cost, do not require a specialised team, the latter meaning anyone can play a role in the process. Babcock commenced the rollout of the programme in September 2023 – becoming the first Volvo CE dealer to do so – under the guidance of four Sweden-based experts from the OEM. ■



Babcock adopts Lean Retail System.



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Introducing GeoSpatial Manager by Maptek

At GeoWeek, recently held in Denver, innovative software provider, Maptek, introduced its latest innovation - Maptek GeoSpatial Manager. The groundbreaking solution brings simplicity and efficiency to your workflow, revolutionising the way mining and civil engineering projects handle data from laser scans and drones, the company said. GeoSpatial Manager effortlessly connects users with real-time updates for surveyed surfaces. Its smart visualisation tools and user-friendly interface redefine how you interact with as-built surfaces, enabling seamless collaboration and accessibility for all project teams within an organisation through a convenient web interface. GeoSpatial Manager dynamically updates surfaces, allowing users to man-

age, visualise, and download any as-built surface at any given point in time throughout the project lifecycle.

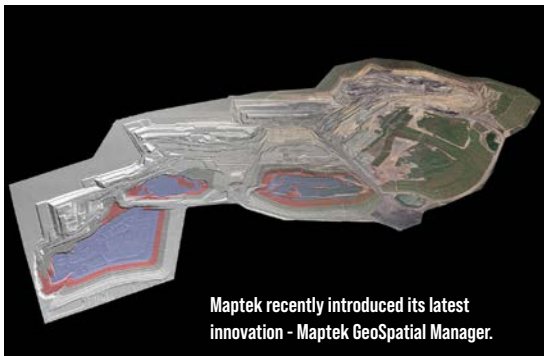
“Customers can say goodbye to the challenges of managing vast volumes of survey data,” said Global Strategy Manager, Jason Richards.

GeoSpatial Manager automatically updates as-built surfaces when new data is imported. Centralised storage on a cloud or network server avoids uncertainty around locating survey files that may be stored in various folders on a local or server machine.

‘Having the latest data at your fingertips eliminates the risk of using outdated surfaces for critical design work. We see improved collaboration and understanding – GeoSpatial Manager bridges the gap between data and value,’ Richards said.

Customers will be able to send surface data to other Maptek products knowing that GeoSpatial Manager provides the single source of truth for multiple systems. This interoperability harnesses the power of the Maptek ecosystem and streamlines project management.

GeoSpatial Manager is not just a product, it’s a game-changer. ■



Komatsu Mining: revolutionising mining for a sustainable future

Komatsu has a storied history in mining, providing solutions to operations for more than 100 years. We’ve been active in the industrial minerals market with high-quality Joy and Komatsu brand equipment, specially-designed industrial mineral mining machines and advanced technologies — all with the journey to zero harm in mind. Our vision is to work as one integrated team in a collaborative, motivated transparent and supportive environment, servicing customers with the highest level of application and technical knowledge.

For more than a century, our connection to the communities where we operate has stayed at the core of our brand. It guides everything we do, from the ways we think about innovation, to how we hire and train new employees around the world, and how we build relationships with our customers.

Today, we are a long way from where we started. We have evolved into a truly global company with a diverse workforce comprised of different nationalities and beliefs. And it’s by harnessing the potential of all our



different talents and unique perspectives that we push ourselves further.

We explore and help to advance the boundaries of technology, developing smart equipment. Our products and solutions directly support industries essential to the ongoing development of modern societies and everyday life.

For our core customers in forestry, construction and mining, we make big machines that take on even bigger challenges, gentle giants answering the needs of society.

We believe that when people are united by a common goal, the truly remarkable happens. In communities across the globe, we find purpose in creating value through manufacturing and technology innovation to empower a sustainable future where people, business, and our planet thrive together.

Harnessing our collective expertise to go further, we stay true to our brand promise: Creating value together. ■

Steinmüller Africa exhibits expertise at Africa Energy Indaba

Steinmüller Africa, a leader in the engineering, manufacturing, maintenance and services for the power generation and industrial sectors, showcased its expertise and solutions at the Africa Energy Indaba which took place from 5-7 March at the Cape Town International Convention Centre.

Specialists from Steinmüller Africa’s Process, Mechanical, Piping and Structural Engineering divisions spoke to all things pertaining to the company’s capabilities in boiler technology, including piping systems, heat exchangers and structural steel fabrication. Steinmüller Africa’s engineering experts took exhibition attendees through the various stages of the innovative 3D high-pressure heater model’s life cycle.

Adding to the depth of these conversations was Executive Director Moso Bololo, who shared insights as part of the Africa Energy Leaders’ Dialogue.

The Africa Energy Indaba 2024 marked a pivotal moment for energy stakeholders across the continent and beyond to exchange ideas, and pave the way for a sustainable future in energy. ■



Steinmüller Africa exhibits expertise at Africa Energy Indaba.

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