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Electromobility – a key pillar of the ESG drive

We have, in recent years, witnessed a material change in the level of sophistication and understanding of the importance of ESG (environmental, social and governance) in the mining industry, and the risks and opportunities it poses to the sector. It’s no longer just enough to tell a great story about a significant discovery or great production numbers. It’s equally important to demonstrate how you work alongside local communities, and how you contribute to the low carbon economy transition and to the responsible sourcing of prime materials.

ESG has come to the forefront primarily through investors demanding increased attention on environmental, social and governance-related matters and data. In short, investors are starting to look beyond financial statements and now want to consider the ethics, competitive advantage and culture of a mining organisation. They have also proposed new standards and frameworks against which mining investments should be measured.

Against this backdrop, the electrification of equipment will play a major role in mining companies’ drive for ‘greener’ operations. An increasing focus to reduce carbon emissions and improve worker safety is at the centre of the electrification revolution in the mining industry. The transition to electric has been relatively faster in the automotive industry than in mining. However, electromobility is here to stay and the mining industry is not excluded from its influence.

There are several factors behind the increased supply and use of electrically-powered vehicles in mining. The most significant is that many mine sites have now committed to environmental and sustainability goals and are seeking to be emission-free in the next decade or two.

Reducing underground emissions can significantly improve worker safety and quality of life in the workplace. Electric machines also have lower maintenance requirements and are typically cheaper to operate on a per-hour basis.

Electric machines reduce the need for ventilation in underground working areas. Reducing underground mine ventilation can have significant OPEX savings for a mine operation. Around 10 – 20% of a typical underground mine OPEX is related to ventilation system costs and in some cases several million dollars of CAPEX can be saved by not installing large systems in new developments.

With electric machines, the need for ventilation systems can be reduced by as much as 30 to 50%, and less ventilation translates into reduced electricity use. Electric vehicles also require less maintenance, while running them is generally cheaper as electricity from renewable energy is becoming more affordable.

In a recent conversation with an executive from a major OEM currently championing the development of electric machines for the mining industry, he noted that there is a strong customer pull from mine operators requesting fully electric machines for new mine developments and extensions to existing mines, for the reasons mentioned here. In some cases, it is not possible to bid on equipment contracts with diesel powered machinery, so this is a tremendously powerful incentive for equipment OEMs to innovate and develop new electric machines.

In fact, there has been a transition to electric vehicles across a large portion of the underground mining fleet, including loaders, trucks, scaling machines, drill rigs and, of course, light vehicle fleets. With these changes, mines have seen an increase in revenue as well as health and sustainability benefits.

As the focus continues on the environmental and sustainability aspects of mining, along with the increase in consumer take-up of passenger electric vehicles, the requirement for all industries to be emission-free will soon kick in. Consequently, all future fleets, large and small, will be electrified. This, combined with enhancements and reliance on automation, will see electrification creating safer and more sustainable working environments globally.

We are in a period of unprecedented innovation. The move to fully electric equipment will fundamentally change mining operations as the characteristics of batteries and diesel engines are so different.

There will be different usage profiles to allow for battery recharging/swapping, but also new capabilities with these machines due to the high power and capacity that electrified drivelines can provide. Batteries can provide much higher peak power than diesel engines and can, for short durations, output many multiples of their rated capacity, which can be very interesting for machines with regular burst power requirements – LHDs and load lifting equipment are obvious examples. The near future of mining equipment is indeed electric! *
Anglo American completes demerger of Thungela thermal coal business

Anglo American plc has announced the completion of the demerger of its thermal coal operations in South Africa. Thungela Resources Limited (Thungela) started trading on June 7 through a primary listing on the Johannesburg Stock Exchange under the abbreviated name ‘Thungela’ (Alpha code ‘TGA’), and a standard listing on the London Stock Exchange (ticker symbol ‘TGA’). As a leading South African thermal coal exporter, Thungela offers investors access to a high quality thermal coal business with low cash cost and high-margin assets and a strong balance sheet, underpinned by a robust ESG framework.

The admission to trading of Thungela on the Johannesburg and London stock exchanges follows the completion of the demerger of Anglo American’s thermal coal operations in South Africa that was announced on April 8, 2021 and was approved by shareholders on May 5, 2021. The scheme of arrangement to implement the demerger was sanctioned by the UK High Court of Justice on May 26, 2021. The completion of the demerger took effect at 8.00 pm (UK time) on June 4, 2021.

Mark Cutifani, chief executive of Anglo American, says: “We have consistently believed in a responsible transition from thermal coal, being a transition that seeks to balance the needs and expectations of all stakeholders. The demerger of Thungela lives up to that promise by bringing our employees, shareholders, host communities, host government and our customers along with us.”

“Thungela starts its journey today as a high quality independent business. We have every confidence that Thungela will be a responsible steward of what are valuable thermal coal resources in South Africa and will continue delivering value for all its stakeholders and for South Africa as a whole.”

July Ndlovu, chief executive of Thungela, says: “We are excited to be listing Thungela today. The company plays an important role in providing affordable energy to our customers in the developing world, as well as in South Africa. Our business consists of well-established, well-managed assets that produce high-quality thermal coal, with access to a world-class export infrastructure. Thungela has an enviable cash cost position and is poised to deliver attractive returns to shareholders.”

With the completion of the demerger and at the point of listing of Thungela, 100% of the issued share capital of Thungela is held by Anglo American’s shareholders who each received one Thungela share for every ten Anglo American shares that they hold. Each Anglo American shareholder also retains their existing shareholding in Anglo American. Thungela holds 90% of the thermal coal operations in South Africa with the remaining 10% held collectively by an employee partnership plan and a community partnership plan.

Lucara recovers 470 carat diamond from Karowe mine

Lucara Diamond Corp. has recovered a 470 carat top light brown clivage diamond from its 100% owned Karowe Diamond Mine located in Botswana. The diamond, measuring 49 x 42 x 26 mm, was recovered from direct milling of ore sourced from the EM/PK(S) unit of the South Lobe.

The 470 carat recovery forms a notable contribution to a series of top quality gem and clivage quality diamond recoveries during a recent production run, including an additional five diamonds greater than 100 carats (265 ct, 183 ct, 161ct, 116 ct and 106 ct) and 13 diamonds between 50 and 100 carats in weight.

The May production run, dominated by EM/PK(S) ore, produced diamonds greater than 10,8 carat in weight accounting for 12.7% weight percent of total production, exceeding resource expectations. Continued strong resource performance and recovery of large diamonds reinforces the significance of the EM/PK(S) as an important economic driver for the proposed underground mine at Karowe.

The 470 carat diamond was recovered in the Coarse XRT circuit and represents the third +300 carat diamond recovered to date in 2021. Year to date, Karowe has produced 10 diamonds greater than 100 carats including six diamonds greater than 200 carats, including the 341 carat and 378 carat top white diamonds recovered in January 2021.

CEO Eira Thomas comments: “The benefits of a South Lobe dominated mine-plan continue to be realized in 2021 and underscores our confidence in the ever-improving Karowe resource as we mine deeper in the open pit to 2026 and move into underground mining out to at least 2040. Both main rock types from the South Lobe continue to deliver large, high value diamonds, including 6 diamonds greater than 200 carats in the first five months of this year alone. Our operations remain safe, stable and strong, maintaining all COVID-19 protocols.”
Global uranium production is expected to recover by 3.1% in 2021, thanks to the return of production at Cigar Lake in Canada and other mines suspended during 2020. Output growth from Kazakhstan (+15.5%) and Russia (+5.2%) will contribute significantly to the overall growth, according to Globaldata, a leading data and analytics company. In contrast, production will continue to decline in Australia (-21.2%) due to the closure of the Ranger mine.

Vinneth Bajaj, associate project manager at GlobalData, comments: “Global uranium production has been limited in recent years, mainly due to a sluggish market. This was further impacted by the COVID-19 pandemic from early 2020. In fact, global production of uranium fell by 9.2% to 49.7 kt in 2020. The most significant declines were observed in Canada (43.9%) and Kazakhstan (14.6%) – globally, almost 60% of uranium originates from these two countries.”

In March 2020, Canada’s Cigar Lake mine, which accounts for 12-13% of global production, was suspended to contain the outbreak. The suspension stayed in place until September 2020, but was later halted again in mid-December 2020 because of the increasing risks. It reopened in April 2021.

In April 2020, Kazakhstan reduced activities for nearly four months at all uranium mines across the country. The pandemic also led to restrictions in other countries, including Australia, Namibia and South Africa. Gradually, however, restrictions began to ease towards the end of the third quarter, with several companies resuming production activities.

Bajaj continues: “Global uranium production is expected to grow at a compound annual growth rate (CAGR) of 6.2% over the forecast period (2021 – 2025) to reach 65.2 kt in 2025. Kazakhstan, which holds some of the world’s largest uranium deposits, is expected to remain the world’s largest supplier for the next few years. With potential open pit uranium mines, Namibia is also expected to remain a prominent supplier of uranium to the global markets. Furthermore, the restart of Cigar Lake, in April 2021 is expected to provide a much-needed boost to Canada’s uranium supply.”

The impact of the COVID-19 pandemic on the global nuclear industry was relatively minimal because of an early implementation of safety measures, thereby ensuring operations continued with minimal disruption.

Bajaj notes: “These actions enabled companies to effectively manage their workforce and resources required to keep operations running. The refuelling of reactors normally takes place in every 12 to 18 months (unlike conventional fossil fuel plants that require constant supply), even when strict social restrictions are in place. Meanwhile, planned outages and expansion works at many reactors were delayed during early 2020 and, instead, companies focused on electricity generation anticipating higher demand later in 2020.”

There has been recent optimism surrounding the global nuclear industry, with several governments incorporating nuclear energy within their plans for reaching climate goals. For instance, the US is currently evaluating extending the operating life of its nuclear power plants for up to 100 years. The plants were initially licensed for up to 40 years, but this would permit renewals for up to 20 years with every renewal application.

Other countries such as China, Japan and South Korea, as well as the EU, all upgraded their climate change policies during 2020, indicating higher demand for nuclear power going forward – alongside higher electricity generated from sources other than coal.

Global uranium production is expected to grow at a compound annual growth rate (CAGR) of 6.2% between 2021 and 2025.

Mining rights for Barberton mines renewed

Pan African has announced that the South African Department of Mineral Resources and Energy (DMRE) has granted the renewal of the company’s Barberton mining rights for a period of 30 years.

Official notification of the grant of the renewal in terms of section 24 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) was received by the group on June 1, 2021, and comprises renewals of the mining rights for the Fairview, New Consort and Sheba Mines (all of Pan African’s Barberton mining rights).

The renewal applications submitted by the company included detailed technical reports and mine works programmes that support mining at the Barberton operations for the 30-year renewal period.

Pan African CEO Cobus Loots comments: “Our exploration and mining teams at Barberton have made exceptional progress over the past years, applying modern exploration, development and mining techniques to increase underground gold production and the lives of our mining operations. We view the granting of the mining right renewals by the DMRE for a 30-year period as an endorsement of our efforts and operations.

As one of the largest employers in the Barberton area, Pan African has invested significantly in, and will continue to invest in community and ESG initiatives, including community infrastructure and large scale agriculture projects that improves the lives of our stakeholders and the economic sustainability of the region.”
Kamoza Copper signs off-take agreements for phase 1 copper output

Kamoza Copper has signed copper concentrate and blister copper offtake agreements, on competitive arm’s-length commercial terms, for 100% of Kamoza’s phase 1 copper output (copper concentrate and blister), which is anticipated to be approximately 200,000 tonnes of copper per year.

Kamoza Copper signed off-take agreements with CITIC Metal (HK) Limited (CITIC Metal) and Gold Mountains (H.K.) International Mining Company Limited, a subsidiary of Zijin Mining Group Limited, for 50% of each of Kamoza’s copper products from phase 1. The remaining 50% of products will go to a multiple other partners. The demand for Kamoza’s copper is due to its clean, high-grade concentrate, which is estimated to contain roughly 57% copper and very minimal levels of contaminants.

“We are very pleased to have reached agreements with our partners CITIC Metal and Zijin at internationally-competitive terms. The agreements reflect the great partnership we have with CITIC Metal and Zijin, and the advance payment facilities significantly reduce the mine’s working capital requirements as Phase 1 production ramps up,” says Ben Munanga, chairman of the board at Kamoza Copper S.A.

Kamoza Copper started copper production on May 25, 2021, and on June 1, 2021 delivered its first concentrate to the Lualaba Copper Smelter nearby, outside Kolwezi. Kamoza Copper signed a 10-year agreement with the Lualaba Copper Smelter (LCS) on May 31, for the processing of approximately 40% of Kamoza’s copper concentrate production. This agreement is followed by the conclusion of a strategic partnership with Ivanhoe Mines and the China Nonferrous Metal Mining Group (CNMC) and is in keeping with Kamoza’s commitment to in-country beneficiation.

The smelter, which began operations in early 2020, will process up to 150,000 wet metric tonnes of Kamoza’s copper concentrate at a market-based fee. LCS will locally produce blister copper containing approximately 99% copper that will be collected by Kamoza from LCS’s storage facility. LCS has been developed in the Democratic Republic of Congo as the first modern, big, pyro-metallurgical copper smelting plant and located about 40 km from Kamoza, along a recently constructed road.

Rochelle de Villiers, Kamoza Copper’s CFO, who is leading the concentrate off-take and marketing negotiations, states: “Kamoza Copper is pleased to have concluded an agreement with LCS, which will make up about 40% of the total volumes of concentrate produced by phase 1, making the most of available in-country smelter capacity. We look forward to a long-term collaboration with our new partner.”

Kamoza’s off-take agreements with CITIC Metal (HK) Limited (CITIC Metal) and Gold Mountains (H.K.) International Mining Company Limited, a subsidiary of Zijin Mining Group include both concentrate exports (60%) and blister copper ingots from LCS (40%).

Michelle Jenkins appointed independent non-executive director at Shanta

Shanta Gold (AIM: SHG), the East Africa-focused gold producer, developer and explorer, has announced the appointment of Michelle Jenkins as an independent non-executive director of the company, with immediate effect.

Jenkins is a Chartered Accountant (South Africa) and an exploration geologist with an honours degree in Geology from the University of Witwatersrand, South Africa. Jenkins has 25 years’ experience in the mining sector during which time she has accumulated a wealth of technical and managerial expertise.

Jenkins has extensive experience across Africa including currently as the executive for Finance and Administration (South Africa) for Orion Minerals Ltd and as a non-executive director of Kumba Iron Ore Limited. Jenkins previously worked for the Pangea Group.

Tony Durrant, chairman of the board, comments: “We are delighted to welcome Michelle to the board. We believe her experience in exploration and mining finance across Africa will bring a complementary skill set and will be of considerable value as the company continues to develop its portfolio in East Africa.”

Michelle Jenkins, independent non-executive director, comments: “Joining the board of Shanta Gold at such a transformative period is incredibly exciting. I have watched the business go from strength to strength over the past few years and understand the potential for this year’s exploration programme to create a step change in shareholder value. I’m delighted to be a part of the company’s future as it transitions to a mid-cap producer. I’m looking forward to working alongside the board and management team to deliver on this next phase of growth.”

Kamoza Copper concentrate.
Reflecting on a turbulent, yet constructive term

In his address at the 131st AGM of the Minerals Council South Africa, outgoing president Mxolisi Mgojo reflected on his turbulent, yet constructive and collaborative four-year term.

Some of the highlights of his term included: the attempt by former Minister Mosebenzi Zwane to unilaterally impose a revised Charter in 2017 and the subsequent publication of a much-improved version by Minister Mantashe in 2018; rebuilding constructive relationships with the industry’s regulator under the leadership of Minister Mantashe and the collaborative efforts of the minister and the industry to put mining on the front foot following a ‘lost decade’; the transition from the Chamber of Mines to the Minerals Council South Africa; the significant progress on improving health and safety in the mining sector with the launch of the Kumbul’ekhaya strategy as well as the National Day of Health and Safety in Mining and the safest year in recorded history in 2019.

Said Mgojo: “I thank my fellow office bearers for their wisdom and guidance, our board and members for their commitment and support, and the Minerals Council CEO, Roger Baxter, and his remarkable team for their commitment. They not only held everything together, they continued to build and grow the organisation and the work that it does.”

In his address, Minerals Council CEO Roger Baxter considered the most pressing issues the industry faced in the past year, including the industry’s great collaborative effort to manage the COVID-19 pandemic, while getting the sector back to work; the critical need for structural and institutional reforms to revive the economy and raise the potential growth rate; and the significant work that went into the development of plans to revive the mining sector in the new normal with significant leadership collaboration between the Minerals Council and Minister Mantashe’s DMRE team.

Baxter recognised the enormous efforts of Mgojo for his years of leadership during an extraordinarily eventful tenure.

Concluded Baxter: “What an incredible four years it has been under Mgojo’s astute leadership with the significant wisdom of the other four office bearers. The leadership collaboration and teamwork between the Office Bearers and the Minerals Council senior executive team has been exemplary and enabled the Minerals Council to not only transform from the old Chamber to the new Minerals Council, but for the Minerals Council to play a national level leadership role in driving the reform and transformation agenda of the sector and country. On behalf of all the board members and my senior leadership team I want to express my sincere appreciation for the huge leadership contribution that the office bearers. Their contribution has made a fantastic contribution to the sector and country, and will be built on going forward.”
Afrimat acquires Gravenhage manganese mining right

Afrimat, a leading open-pit mining company providing industrial minerals, commodities and construction materials, has announced the acquisition of the Gravenhage manganese mining right and associated assets in the Northern Cape, its biggest acquisition to date.

Afrimat CEO Andries van Heerden says there are many positives to the acquisition, the first being that the group will be adding another commodity, i.e. manganese, to its diversification strategy within the Bulk Commodities segment of the business, the second being that this sizeable acquisition will propel Afrimat into the mid-tier mining space.

He goes on to explain that the resource is well positioned within Afrimat operationally as it is not dissimilar to its existing operations given the process and is considered attractive in both size and quality of the resource.

Gravenhage is a long-life, near-development manganese resource situated in the northern part of the Kalahari Manganese field approximately 120 km from Afrimat’s existing Demaneng iron ore mine. Current studies show an extensive life of mine in excess of 20 years.

A Definitive Feasibility Study was finalised confirming the technical and economic feasibility of the Gravenhage Manganese Project based on an initial open cut operation with the potential for subsequent underground mining. The resource and its significant potential has been well defined by continued exploration drilling.

Van Heerden adds that Afrimat has ensured sustainability through diversification. “The successful development of Gravenhage will increase our scale in the ferrous-metal value chain and provide further exposure to foreign currency denominated earnings.”

Afrimat has been able to successfully invest into commodities that generate a strong cash flow – cash that the group has in turn spent on making further strategic acquisitions to grow cash incrementally. “This approach has proved successful for us and will be applied to this acquisition and in turn by ensuring focused execution of Gravenhage, I am confident we can achieve growth of the group.”

Operational synergies with the Demaneng iron ore mine are expected to be realised, and a plan is in place to accommodate logistics to extract manganese product from Hotazel to ports for outbound international markets. Afrimat already has an excellent working relationship with Transnet through Demaneng and it is envisaged that the further co-operation of Transnet as a partner to enable new entrants like Afrimat into the manganese sector, will be forthcoming.

Van Heerden makes it very clear that economic viability and profitability are one thing, but that Afrimat is equally passionate about the longer-term contribution it will be able to make to the immediate local community, the Northern Cape province and in turn the South African economy through its dedication to job creation and skills development and transfer. “We know from experience how important this commitment is,” says van Heerden, going on to say that this sustainable intervention is a core part of the Afrimat culture.

According to van Heerden the manganese price has lagged other commodity prices, such as iron ore. “In true Afrimat style, we will ensure from the outset that the mine will remain profitable even at the bottom end of a commodity cycle,” he says.

Afrimat is purchasing the Gravenhage manganese mining right and associated assets from Aquila Steel (S Africa) Proprietary Limited and Rakana Consolidated Mines Proprietary Limited for a total purchase consideration of roughly R650-million (or the Rand equivalent of US$45-million and R15-million for the property).

There are conditions precedent that include approval in terms of section 11 of the Mineral and Petroleum Resources Development Act, Competition Commission approval, the granting of a water use license, and approval having been obtained by Aquila Steel (S Africa) Proprietary Limited from the Chinese State-owned Assets Supervision and Administration Commission of the State Council for the sale of the assets and the assumption of the assumed liabilities as contemplated in the agreement.
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**East Manganese on course to start production in July**

East Manganese will produce first ore in July, while the dry crushing and screening plant is currently in the process of being commissioned.

Located near the Northern Cape town of Hotazel, the East Manganese mine is a mining investment group Menar’s first manganese asset operated by group subsidiary Sitatunga Resources. Rapid progress has been made in developing the mine and construction of the mine’s plant, since receiving all the necessary regulatory approvals towards the end of 2020.

East Manganese has cost around R250-million to develop and will produce its first ore in July. At peak production it will produce approximately 30 000 t a month of run of mine manganese ore, which is anticipated to take place by August. The ore will be processed using a dry crushing and screening plant system, which will reduce water usage at the plant, to produce lumpy and fine particle manganese products. Products will include both lumpy (85%) and fine material (15%). The plant is currently in the process of being commissioned.

On May 19, Menar’s management team hosted stakeholders at the mine to showcase progress made since the mining of the box cut began in September last year.

“We are satisfied with the progress that has taken place to date, which is in line with our timetables. As this is our first manganese operation, it has been somewhat of a learning curve for the group. However, our collective skills and mining knowledge has been advantageous, which has resulted in the smooth advancements seen at the mine to date,” states Menar chairperson Mpumlelo Mkhabela.

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**West African portfolio review confirms positive growth potential for Centamin**

Centamin has announced the results of the company’s review of its West African exploration portfolio, following which the board has approved the commencement of a pre-feasibility study (PFS) at Doropo, a further exploration programme at ABC and a review of the third-party development options at Batie West.

The review, which commenced in H2 2020, was designed to evaluate the potential development prospects of the portfolio, to rank each project and to define the pathway to realising value. The review was led by the company’s Projects team, with the support of industry-leading consultants, including Lycopodium, Cube Consulting, Knight Piesold and ECG Engineering.

The Doropo Project shows strong development potential with the completion of a positive preliminary economic assessment (PEA):

- US$234-million post-tax net present value (NPV5%) with a 21% internal rate of return (IRR) at US$1 450/oz gold price
- US$487-million NPV5% with a 33% IRR at consensus gold price per ounce of US$1,829/oz
- Total development capital expenditure (CAPEX) of US$275-million, including a 15% contingency
- 13-year life of mine (LOM) based on the updated mineral resource estimate of 0,16 million ounces (Measured and Indicated) and 5,21-million ounces (Inferred) of gold, with potential to further increase gold resources across the permits
- Average annual gold production of 207 800 ounces for the first five years, averaging 150 956 ounces over the LOM, for a total of 2-million ounces produced at an average AISC of US$990/oz
- The board has approved US$14-million spend to advance the project to PFS stage by mid-2022.

The ABC Project continues to deliver strong priority greenfield target generation along the 60 km Lolosso Gold Corridor (LGC) and the board has approved a further US$3-million exploration programme for the Kona and FarakoNafana permits for the period to June 2022.

The PEA for the Batie West Project also delivers positive results:

- US$63-million NPV5% with an 11% IRR at US$1 450/oz gold price
- US$282-million NPV5% and a 26% IRR at consensus gold price
- Total development CAPEX of US$265-million, including a 15% contingency
- 8,5 year LOM based on the updated mineral resource estimate of 2,13-million ounces (Measured and Indicated) and 0,1 million ounces (Inferred) of gold
- Average annual gold production averaging 139 994 ounces over the LOM, for a total production of 1,2-million ounces of gold at an average AISC of US$998/oz
- The board has approved the assessment of third-party development options as the project does not currently meet Centamin’s investment criteria

Martin Horgan, CEO, comments: “Building a strong active growth pipeline is central to our strategy, while maintaining our capital allocation discipline. Today’s announcement of a positive preliminary economic study at Doropo and the exploration potential at the earlier stage ABC, demonstrate the quality and potential of our portfolio.

The Batie West Project has potential to deliver a profitable mine, but not one that would currently meet our strict investment criteria. We are now initiating a review of development options for this asset.

The Doropo Project is very exciting and is our priority growth target outside of Egypt, showing excellent potential to become Centamin’s second mine. Our highly experienced team has proven expertise at delivering successful gold projects in West Africa and will now commence the PFS, the results of which we look forward to announcing in mid-2022.”
Jubilee Metals announces further acquisition of PGM material in SA

Jubilee, a leader in metals processing with operations in Africa (AIM: JLP/AltX: JBL), has announced a further substantial acquisition of the rights to 944,000 tonnes (t) of PGM containing tailings in the Eastern Limb of the PGM-rich Bushveld Complex. This comes in quick succession to the PGM supply agreements entered into and the acquisition of 255,000 t of PGM containing material in the Western Limb, as announced on June 3, 2021.

Leon Coetzer, CEO of Jubilee, comments: “I am thrilled we have been able to secure a further significant amount of PGM containing surface material in the Eastern Limb, in such quick succession to the PGM supply agreements we announced on June 3, 2021. The Eastern Limb has been a key focus of Jubilee to expand our PGM reach and operational capacity and this material further solidifies our presence there.

“Our reputation as the go-to partner in an ever expanding operational footprint is just another example of our ability to outpace competitors and drive growth in the region and I am highly confident that we will secure further long term feed supplies and operational presence driving our sustained earnings in South Africa.”

Jubilee has acquired the rights to approximately 944,000 t (before accounting for any moisture) of surface tailings containing PGMs in the Eastern Limb. The consideration is linked to the prevailing PGM basket price and is payable monthly in advance of uplifting the material and transporting it to Jubilee’s Inyoni PGM plant.

Jubilee has targeted to commence the upliftment of the PGM material during June 2021 targeting a minimum rate of 30,000 t per month, the equivalent of 1,600 PGM ounces per month. Until recently, Jubilee’s current PGM operational footprint has been limited to the Western Limb, a single area of the two main PGM areas in South Africa.

The material will be initially processed at Jubilee’s expanded Inyoni PGM facility and this transaction, together with the recently announced PGM Supply Agreements, ensures that the expanded Inyoni PGM capacity is fully committed with current arising tailings alone which excludes the existing historical tails already secured by Jubilee which offers the opportunity to further expand the PGM processing capacity.

As previously announced, consideration is being given to implementing a dedicated processing facility in the Eastern Limb to further expand the company’s processing footprint but in any event, this acquisition of material provides the option to Jubilee to secure additional processing capacity through acquisition, partnership or construction of a new facility to further expand its processing footprint.
Harnessing the power of cavitation to improve production and profit margins

As mining companies seek to improve production yields and profitability of marginal operations, it is time to shift mindsets and challenge the conventional processes in the metallurgical industry. With Gold Ore’s MACH REACTOR – a game-changing technology that harnesses the power of cavitation – mining operations can extract minerals in the most efficient way possible, thus achieving or even surpassing production targets and improving profit margins. By Munusu Shoko.

As mining-company leaders work to rebuild profitability, improving productivity is high on the agenda. Doing more with less is the foundation of improving performance in mining and leads directly to increased shareholder returns. For mining operations pursuing productivity-enhancing approaches and improving yields, Gold Ore (Pty) Ltd’s disruptive technology, the MACH REACTORTM, is exactly what the industry needs to improve production yields and profitability of marginal operations.

Adrian Singh, founder of GoldOre and the inventor of the MACH REACTOR, explains that the MACH REACTOR is a game-changing technology that harnesses the power of cavitation, permitting certain chemical reactions that would otherwise not be possible. In fact, he says, it is the only high shear/cavitating device currently on the market that is completely self-aspirating, allowing it to be operated without pressurised gas supply. The self-aspirating aspect, combined with the comparatively lower power draw, makes it particularly suitable
The MACH REACTOR uses the power of cavitation to drastically improve metallurgical processes.

Commenting on how the technology came into being, Singh says that, having been in the mining industry since 1989, with a wealth of experience in production, research, laboratory techniques, plant design and technology development, he felt it was time to put together the various bits and pieces of ideas he had gathered over the years. Exactly on Christmas day in 2010, the concept of the MACH REACTOR was born. As Christmas is generally a time of feasting, the idea was scribbled on a paper serviette, and the rest is history. The MACH REACTOR went on to be granted patent rights in just about every country in the world.

What is the MACH?
The MACH REACTOR, explains Singh, is a hyper shear mass transfer reactor that harnesses the exceptional power of controlled cavitation to generate pico-bubbles to greatly enhance the mass transfer of gas into solution and create a highly charged environment promoting chemical reactions that would otherwise traditionally not be possible.

“In the flotation application, these pico-bubbles nucleate on the very minerals that we would like to float and so create a situation where particles ‘give birth’ to bubbles and thus facilitate the flotation of valuable fines, in particular, those that are traditionally lost to tailings owing to their very poor probability of making contact with a flotation sized bubble. The flotation of fully liberated fine mineral leads to a kind of flotation euphoria where higher concentrate grades as well as recoveries are possible at reduced mass pulls, a feat hitherto unachievable without the MACH,” he says.

In the leaching application, the pico-bubbles act as a vehicle to finely disseminate and dissolve gases required for leaching while removing passivating layers, reducing boundary layer thickness and improving diffusion and hence mass transfer. The benefits of higher recoveries, faster kinetics and reduced reagent consumptions combine to reduce Capex and Opex and improve project IRR and NPV values.

The technology therefore aids in the extraction of minerals in the most efficient way possible, helping mines achieve and surpass production targets and improve their profit margins. It can be deployed across applications, including platinum group metals (PGMs), gold, base metals, as well as for environmental applications such as cyanide destruction and acid mine drainage – "the possibilities are endless and the market is global," says Singh.

“The MACH is a cavitational reactor which generates very fine pico-bubbles. This is useful in extracting very fine minerals which are traditionally lost to flotation circuits," he says. “Because of the
fine bubble generation formed inside the MACH REACTOR, the technology is able to collect the fine minerals, improving flotation in a way that, up until now, has never been done anywhere in the world.”

Understanding hydrodynamic cavitation

Cavitation is not something that is usually applied within the metallurgical industry, but in the MACH REACTOR, Gold Ore has found a way to harness the powerful energy to give the industry a revolutionary piece of technology.

The technology is completely different from the traditionally and widely known offerings that employ the principles of mixing and shear. Explaining the difference, Singh says conventional shear technology is based on mixing and shear, which is the interaction of one layer of fluid upon another. “Increasing mixing intensity improves efficiencies and takes the system towards shear conditions,” he says.

However, beyond shear lies the concept of cavitation. It has traditionally been regarded as a negative concept in the engineering field for many years, says Singh. “If you speak to any engineer about cavitation, they will throw their hands up in the air in despair because cavitation has been proven to damage pumps and cause excessive wear in pipelines,” he explains.

“Engineers are taught to design in a way that avoids cavitation by all means possible. I had to turn my mind inside out, to say if I could control ‘this animal’ called cavitation, what benefits could I potentially get? The energy release due to the temperature inside one cavitating bubble is up to 5,500°C, and the pressure of the jet that splits that bubble is 1,000 atmospheres. Why would I settle for mixing if I could get that?”

Singh went on to design a hydrodynamic cavitation device, which is what the MACH is, using a system of venturis. The speeds of liquids and gasses are exceptionally high and approach the speed of sound, hence the name ‘MACH’ – the way engineers describe speed.

Hydrodynamic cavitation is the process of accelerating a liquid through a constriction such as a venturi until the instantaneous pressure drops to below water vapour pressure and causes tiny cavities to nucleate on hydrophobic particles in the liquid. This process is otherwise known as ‘cold boiling’.

The cavities may be ventilated with a gas to be dissolved and are finely disseminated when the cavities collapse in higher pressure regions and form pico-, nano- and micro-bubbles with a tremendous energy release. This energy is used positively within the MACH REACTOR to clean particle surfaces, break particles for better liberation, emulsify reagents and dissolve gas.

“The imploding cavitating bubbles in the venturis of the MACH reactor constitute the ‘heart of the technology. These imploding bubbles generate extreme temperatures of up to 5,500°C and pressures of around 1,000 atmospheres. This creates a highly reactive environment for mass transfer and chemical reaction, allowing certain reactions to take place that would otherwise not be possible. The MACH REACTOR uses this power of cavitation to drastically improve metallurgical processes,” explains Singh.

Key benefits

A key benefit of this technology is its durability. Having been involved with the so-called predecessor technologies of the MACH, Singh says whereas in the past, new shear reactor technologies gave some interesting benefits, their downside was always the lack of durability – the technology just didn’t last. In fact, in abrasive applications, shear reactors had to be replaced almost every month! The cost of replacing this technology on a regular basis is just out of the question for mines. “You can imagine that this piece of equipment weighs in at about a tonne, and you need cranes, riggers and fitters every time you replace it. The mining industry doesn’t appreciate such downtime at operations,” says Singh.

The MACH REACTOR scores with its ruggedness. To provide context, Gold Ore’s first installation was seven years ago, but that unit is still going strong and there is no replacement required anytime soon. Some of the units have been operating in harsh conditions in Russia and Kazakhstan, for example, but have not been replaced since installation.
Additionally, no wear parts have been replaced. In fact, the technology is designed to match project life. “The MACH REACTOR is a plug-and-play unit, you put it in and off you go. With no moving parts, it doesn’t need any maintenance, which translates into huge cost savings for mines,” he says.

Higher recoveries are almost always guaranteed with the MACH REACTOR. “At the end of the day, gold mines, and mining operations in general, are there to show profit to shareholders. While they may not necessarily understand anything about pico-bubbles or cavitation, one thing every business person understands is profit, and that’s where we make a difference with the MACH – it goes directly to the bottom line. We improve recoveries, translating into extra ounces. Extra ounces mean more revenue and ultimately better profits,” says Singh.

**Flagship projects**

While the benefits of this technology have been proven and are there for all to see, Singh says the mining sector has generally been sceptical of trying new ways of working. At the end of the day, the majority of customers that have opted for the MACH REACTOR were companies that “had their backs against the wall”.

For example, the MACH REACTOR literally kept a company that was retreating PGM tailings in business. Having had no success with a variety of technologies, this company was on the verge of closure. “They basically told me the first day we met that they had tried everything else and nothing worked. If the MACH didn’t work, they would have to close shop,” he says.

“We did extensive test work in the laboratory and eventually installed the MACH REACTOR throughout the plant and the company is still in business today,” adds Singh.

Elsewhere, the MACH REACTOR came to the rescue of a Ghanaian gold company that needed capital to build extra leach tanks. The company didn’t necessarily have the money to put in the required extra leach tanks. “We retrofitted the MACH onto their existing plant some four years ago. The faster leach kinetics provided by the technology not only obviated the need for extra leach tanks but also provided a recovery benefit to boot. To this day, they have not installed any additional leach tanks,” says Singh.

In conclusion, Singh says, with this ‘Proudly South African’ product, Gold Ore is only scratching the surface of what is possible. What’s stopping its quick uptake is not the application or ability to prove what it can do, but the mindset in the industry.

“People are referring back to what they knew in the year 2000 and are drawing comparisons with something that they haven’t tried yet. Technology has moved on. I always say that the MACH REACTOR is the ‘Tesla’ of the mining industry. It is at the forefront of the metallurgical revolution,” concludes Singh.

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**Key takeaways**

- The MACH REACTOR is a game-changing technology that harnesses the power of cavitation, permitting certain chemical reactions that would otherwise not be possible
- The MACH REACTOR is the only high shear/cavitating device currently on the market that is completely self-aspirating, allowing it to be operated without pressurised gas supply
- The self-aspirating aspect, combined with the comparatively lower power draw, makes it particularly suitable for projects where power costs are high, or where power is self-generated
- The technology can be deployed across applications, including PGMs, gold, base metals, as well as for environmental applications such as cyanide destruction and acid mine drainage
From the onset, Shanta Gold was always convinced that there was something special about the West Kenya Project. The AIM-quoted East African-focused gold producer, developer and explorer announced the acquisition of Barrick Gold’s Kenya assets in February last year. At the time, CEO Eric Zurrin told Modern Mining that the West Kenya acquisition was significant for Shanta because it had potential to be a long-life, high-grade producing gold mine. In fact, it was believed to be one of the highest grading +1-million ounces (Moz) gold deposits in Africa.

The latest round of drilling results has just confirmed the significance of the project. Following 2 489 m of drilling in March and April 2021 at the Isulu deposit, the company reports that visible gold was identified in seven different intersections across 11 holes drilled. The true width of mineralisation is estimated at approximately 60 – 70% of the intercept core length.

“The drilling results are really encouraging and demonstrate that there is potential for a major gold discovery in Kenya – the first of its kind. The results encompass a 2,5 km section of the deposit that we are exploring – Bushiangala and Isulu – which we hope to convert to a mineable reserve,” says Zurin.

“We discovered spectacularly high-grade shoots and encountered visible gold, including the intersection of 219,5 g/t over 4 m true width in hole 237 within 100 m of surface,” he adds. “The new intercepts verify the current model and can be linked with other high-grade intercepts nearby, indicating that exceptionally high-grade shoots should be present...
Above: Shanta is on track to complete approximately 40% of total planned drilling at West Kenya by the end of 2021.

Left: Visible gold was identified in seven different intersections across 11 holes drilled.

not only below the 400 m depth, as previously thought, but also at the higher levels of the deposit.”

Current drilling has also discovered an up-dip extension of the additional parallel zone, which was previously modelled only at deeper levels. Results so far have been strong with some intersections demonstrating remarkably high grades. “We will soon be transitioning into Phase 2 drilling as well as expanding our exploration drilling to regional high priority targets across our portfolio of 1,162 km² licences at West Kenya,” says Zurin.

More drilling
Meanwhile, a resource update for West Kenya, focused on approximately 10% of the total NI43-101 inferred resource of 1.2 Moz, between 0 – 200 m in depth, is expected in Q3 2021 following completion of Phase 1 drilling at the end of June 2021.

Shanta is on track to complete approximately 40% of total planned drilling at West Kenya by the end of 2021. Some 16% of total planned drilling for 2021 and 7% of total planned drilling over three phases has now been reported.

“Long-term sustainable returns require long-term sustainable production – exploration is the key to unlocking this and so we are investing heavily in our drilling programme this year,” says Zurin.

“We will be drilling up to 150,000 m at our West Kenya Project over three phases and have drilled around 6,000 – 7,000 m so far. This equates to 16% of total planned drilling for 2021 and we remain on track to complete approximately 40% of total planned drilling at West Kenya by the end of 2021,” he adds.

Zurin says the company expects Phase 1 of the resources conversion drilling area to be complete in June 2021 and will then move into Phase 2 to explore deeper drilling targets below 200 m, due to be completed in 2022. “We will provide updates as the project progresses and expect to announce a resource update in July this year,” he says.

Isulu and Bushiangala drilling campaign
The West Kenya Project covers 1,162 km², representing the majority of the highly prospective and underexplored greenstone Archaean Busia-Kakamega Gold Belt in western Kenya. Ongoing drilling at the Isulu and Bushiangala deposits is aimed at upgrading ounces from the project’s NI43-101 compliant inferred mineral resource estimate into the indicated resource category down to a depth of 600 m across three drilling phases.

The infill drilling is aimed at verifying the extent and geometry of the known mineralised zones developed for the current resource model. Shanta is on track to complete approximately 40% of total
planned drilling at West Kenya by the end of 2021. Some 16% of total planned drilling for 2021 and 7% of total planned drilling over three phases has now been reported. Two drill rigs are currently active at the Isulu and Bushiangala deposits in West Kenya, with a third rig expected to be added by the middle of the year.

Gold mineralisation at the project is hosted by sheared pillowed to massive basalts, bounded between ultramafic volcanics and polymictic conglomerates on one side and carbonaceous mudstones and sandstones on the other side. The deposits occur within the Liranda Corridor area, a 12 km structural trend located on the eastern limb of a broad synclinal structure intruded in the centre by granitoids and diorites, termed the Kakamega Dome.

Mineralisation is associated with quartz, quartz-carbonate veinlets within the mineralised shear zones ranging from 0,5 m to 10 m in true width. The mineralisation style is classified as orogenic, shear-zone-hosted quartz-carbonate vein subtype. The strike lengths of the steeply-dipping zones vary between 350 m and 650 m.

Phase 1 of the ongoing diamond drilling campaign at the project is seeking to infill two modelled zones at Isulu (IZ1.0 and IZ3.0) and three modelled zones at Bushiangala (BZ1, BZ2 and BZ3). The drilling is being carried out to generate an average spacing of 40 m at Isulu and 30 m at Bushiangala, up to a depth of 150 – 200 m from surface, and is targeting both oxides and sulphides within these zones.

**Significant project**

Commenting on the significance of the project to Shanta Gold, Zurin says the diversification into Kenya is another step in the company’s journey to being a mid-tier Africa-focused gold producer. “The West Kenya assets,” he says “are incredibly important to our portfolio as they provide incremental exploration upside in the heart of the Lake Victoria gold belt, right across the border from Tanzania.”

The West Kenya Project is believed to be one of the highest-grade undeveloped gold projects in Africa, with an NI-43101 inferred resource of 1 182 000 oz grading 12,6 g/t. “We are committed to progressing the project to a construction decision, expected within the next three years, and we forecast annual production for an initial estimated nine-year mine life averaging 105 000 oz,” says Zurin.

Being successful in East Africa requires strong stakeholder capital, he says. The company has spent time ensuring that it is doing business in a way that creates real benefits for its local stakeholders from its communities. “We recently won the Local Content Performance award in Tanzania, which is a reflection of our commitment to doing things the right way for communities and investors alike,” he says.

“Having been operating in East Africa for over 20 years, we know the region incredibly well. We believe this greatly enhances our ability to deliver operational excellence and create the most value for our stakeholders. We are excited about continuing to build on our success in the future,” he says.

**Pinnacle year**

Zurin says 2021 is a pinnacle year for Shanta as the company continues to strengthen its core operations in Tanzania at New Luika, progress mine construction at Singida that began in Q4 2020 and continue the drilling campaigns underway at its high-grade West Kenya Project. Its extensive exploration programme with total planned drilling of up to 80 000 m will run across the company’s three projects.

“Despite a challenging macro-economic backdrop, 2020 was another robust year for Shanta, marked by the declaration of a maiden dividend of 0,10 pence per share, charting our transition into a dividend-paying unhedged gold producer. With our strong fundamentals of net cash, minimal debt, low costs and a growing diversified portfolio, we are excited about the future,” concludes Zurin.

**Key takeaways**

- Following 2 489 m of drilling in March and April 2021 at the Isulu deposit, Shanta Gold reports that visible gold was identified in seven different intersections across 11 holes drilled
- The true width of mineralisation is estimated at approximately 60 – 70% of the intercept core length
- The company discovered spectacularly high-grade shoots and encountered visible gold, including the intersection of 219,5 g/t over 4 m true width in hole 237 within 100 m of surface
- The drilling results demonstrate the potential for a major gold discovery in Kenya – the first of its kind
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According to Gold Fields executive VP South Africa Martin Preece, the plant will comprise 116 000 solar panels covering a 118 ha area (roughly the size of 200 soccer fields) on mine property, and will generate over 20% of the mine’s average electricity consumption.

“Our licence application is for a 40 MW plant and as such we are not currently considering expanding beyond this,” says Preece. “Key to the success of any potential future expansion would be the relaxation of current arrangements to allow us to feed excess generation back into the Eskom grid – either that or economically viable power storage options.”

Capital investment
The capital investment for the plant is estimated at R660-million, including contingencies and escalation, to be funded from the mine’s positive cash-flows over the next two years.

Using self-generated, renewable energy will translate into savings of around R120-million on the cost of electricity per year. South Deep is currently finalising procurement strategies and contractor criteria for the construction of the plant, which will begin during Q2 2021. The plant is expected to be commissioned during the second quarter of 2022.

“We are the first South African mine to build and operate our own solar plant of this scale,” says Preece. “This will ensure greater reliability of power supply and reduce the cost of electricity, which currently makes up about 13% of the mine’s operating costs.”

He says the plant will reduce the mine’s carbon footprint by some 100 000 tonnes (t) of CO₂ per year. This, he says, will enhance the sustainability of South Deep while contributing to Gold Fields’ long-term commitment to carbon neutrality.

Energy objectives
“Gold Fields’ energy objectives are based on four pillars promoting a shift to self-generation through renewable energy. Energy must be reliable, available, cost-effective and clean,” says Preece.

He says other mining companies, too, have either developed or are in the process of developing their own solar plants.
“What makes the South Deep solar plant unique, is that Gold Fields is the first mining company in South Africa to build, own and operate its own plant at such a large scale. This reduces our exposure to Eskom in terms of reliability and above-inflation cost escalation while allowing us to enjoy the full cost benefit associated with the renewable energy source.” He says the plant also addresses the opportunity cost of lost production during frequent load curtailments by Eskom.

Once completed, the solar plant will have the potential to provide around 22% of South Deep’s average electricity consumption, translating into a cost saving of roughly R120-million per year and reducing the mine’s carbon footprint by 100 000 t per year, from 490 000 to 390 000 t.

The importance of self-generation
Preece says that, while the use of self-generated renewable energy will go a long way in easing the electricity supply and cost constraints impacting all aspects of the economy, “the need to transition to greater use of renewable energy is not just a mining issue or an issue in South Africa – it is a global issue.

“We must embrace renewable energy as a country and take a leadership position to leverage this in order to provide much-needed impetus to our economy and to improve South Africa’s environmental and economic performance.”

During 2020, renewable electricity constituted an average of 3% of Gold Fields Group’s power requirement. Once the South Deep project is commissioned, this figure will rise to around 11%.

Local content
Approximately 240 jobs will be created during the plant’s construction phase, while a team of 12 people will be required to operate the plant, once operational. Preece says goods and services needed to build the plant will be sourced locally, within South Africa, as far as possible.

“We are evaluating local companies that manufacture and supply solar panels, which is a significant makeup of the capital spend. Specialised equipment such as inverters will, however, have to be imported.”

He says a broad range of stakeholders stand to benefit more from the mine’s activities.

“A profitable mine and a sustainable business can continue to employ and develop people, contribute to community development, support the livelihoods of local suppliers and add to the fiscus in the form of taxes and royalties,” says Preece.

Legislation
In terms of the legislative challenges experienced in the past around self-generation in South Africa, Preece says “the regulatory process took some time to mature and become effective, but we believe it is now working.”

He says the electricity supply constraints experienced in South Africa will be eased by further regulatory reforms to streamline the process of regulatory approval and licensing of self-generation projects.

“Reducing the red tape will enable shorter timelines and increasing the cap for self-generation to 50 MW will bring significant capacity online and help ease electricity supply constraints in South Africa.”

He says that, for larger mining houses, the need to ‘wheel’ excess power (selling it back into the national electricity grid) and capture economies of scale with larger, more cost-effective projects is critical.

“We also need to find cost-effective storage options. At the moment, the only viable option available is to feed excess electricity into the grid for night-time consumption. However, this is not an option available to business.”

International mines
During 2020, Gold Fields successfully implemented solar and wind power plants backed by battery storage at its Agnew and Granny Smith mines in Australia. It also committed to renewables at its other Australian mines, Gruyere and St Ives, as well as at the Salares Norte project in Chile when it starts operations in 2023. All its other mines are also reviewing renewable-energy options.

Key takeaways
- Key to the success of future expansion is the relaxation of current arrangements to allow Gold Fields to feed excess generation back into the grid
- Using self-generation will translate into savings of around R120-million on the cost of electricity per year
- The electricity supply constraints in South Africa will be eased by further regulatory reforms to streamline the process and licensing of self-generation projects
- For larger mining houses, the need to sell power back into the national grid and capture economies of scale with larger, more cost-effective projects is critical
The case of exploration investment in southern Africa

Exploration activity is fundamental to the future success of the mining industry. For mining companies, it is similar to research and development expenditure – searching for business opportunities to develop in the future, but is southern Africa attracting enough exploration investment? By Munesu Shoko.

Globally, greenfield exploration has experienced a significant dip, with the majority of efforts centred around existing projects. With this trend echoed across southern Africa, the region’s reputation on the global stage is that of a mature mining sector with limited exploration potential.

Tycho Möncks, MD and Partner at Boston Consulting Group (BCG), Johannesburg, says southern Africa has endowment and potential endowment, but there is uncertainty in terms of the quantity, quality and how accessible the endowment is. This lack of visibility and transparency with regards to ground exploration is hindering investment from early stage exploration companies and diversified miners willing to spend capital to drill, explore and turn potential endowment into resources, reserves and ultimately launch mining operations.

“Without good geological data, there is no investment, and without reasonable certainty around investment it is not that easy to argue for base level exploration by government. However, the first step for government is to enhance the quality of geological information and accessible mapping that is provided to early stage exploration companies and mining companies so that they can make assessments and decide where to conduct exploration,” says Möncks.

As with the industry at large, however, speculative investment in exploration is increasing into 2021 – at least in some commodities such as gold and those seen as critical metals, says James Gilbertson, MD, SRK Exploration Services.

“However, 2020 exploration expenditure was down from the previous year across the board. This 2021 uptick may be less marked than in other regions of the world, though, as developed nations look to encourage investment in their own jurisdictions. The lack of major new discoveries in southern Africa – as with the rest of the world – is also impacting future pipelines,” says Gilbertson.

Commenting on the state of affairs as far as exploration investment is concerned in southern Africa, Wessel Badenhorst, partner – Hogan Lovells Johannesburg, says that in the decade 2011 – 2021, there were 83 FDI projects in southern Africa (US$49,19-billion) with an average of USD592,7-million per project and some 43 762 jobs created.

“Some 67 companies invested in 12 destination countries in coal, oil, gas, metals and minerals. UK is the top source country, accounting for 25% of the projects. France is the highest investment per value. South Africa is the top destination country with almost 25% of all the projects,” he says.

Priority countries

While exploration budgets have not yet returned to 2018 levels, says Gilbertson, the major benefactors of exploration expenditure in recent years have been Angola and Namibia. The two countries have leapfrogged Botswana and Zambia into the top four southern African countries. This may have been affected by the Angolan government’s promotional activities, coupled with its granting of permits, and the drop in diamond investment in Botswana.

In a SWOT analysis series published by Business Monitor International, Angola’s mining sector is less
developed than other countries in the region, but the country’s extensive mineral reserves and relatively favourable investment climate make it one of the more attractive destinations in the region from an investment perspective. Angola’s key strength is that it has some of the largest untapped coal deposits and significant iron ore deposits. The government is highly supportive of mining sector development, resulting in an improving investment climate and business environment.

Elsewhere, Namibia’s mining industry remains underdeveloped compared with those of its regional peers. However, the country’s considerable reserves of uranium and diamonds bode well for the sector’s long-term growth. The country’s key strength is its relatively low political and operational risk when compared with its African counterparts. The legal system provides a good level of protection for foreign investors.

Namibia’s mining industry boasts significant opportunities and remains one of the most favourable jurisdictions in the world, according to the Investment Attractiveness Index. Cilliers Mostert, director for consulting engineering firm, Knight Piésold Africa’s operations in Namibia, says despite the economic constraints across the globe, Namibia’s mining sector shows great promise, particularly as it remains the world’s largest producer of uranium oxide.

Meanwhile, the Fraser Institute Annual survey of mining companies 2020 revealed that Botswana is the most attractive jurisdiction in Africa in terms of both policy and mineral potential, and the most appealing to mining investments in Africa. In fact, Botswana is the highest-ranked jurisdiction in Africa on policy, ranking 15th (of 77) in 2020, after ranking 22nd (of 76) in 2019.

Zambia is home to substantial mineral deposits, in the form of copper and coal in particular. Rising demand for both products and a favourable investment environment should drive growth exploration investment in the next few years. Zambia’s copper grades average around 2 – 3% compared with a global average of approximately 0.8%, providing a boost to company profit margins, notes Business Monitor International.

While South Africa has the most stable environment in comparison to the rest of the region and has generally been one of the most trusted investment destinations in Africa over the past two decades, regulatory uncertainty persists following the Mineral Council’s legal challenge to the latest mining charter (Mining Charter III). Intermittent power supply remains a deterrent for investors.

Priority commodities
In terms of commodities attracting investment at the moment, Badenhorst says coal in South Africa...
Lithium-cesium-tantalum (LCT) pegmatite drilling in Mozambique.

is anticipated to see a 1.3% growth in 2021. Gold, he adds, is expected to rebound by 7% year-on-year after a contraction of 14% in 2020 (COVID-19 related). Iron ore will see a 5% growth against a 1.9% contraction last year, while platinum will also see a 5% growth, following a 9.8% contraction last year.

While little empirical data exists yet for 2021 exploration expenditure, says SRK’s Gilbertson, the feeling is that critical and battery metals – which include metals such as tin – are in high demand and are attracting significant investment. Nickel still lags, despite expectations of future demand in this sector.

“Similarly, copper is also attracting investment, given its requirement within the field of global electrification and green energy diversification. Finally, of course, gold is still seen as the most buoyant of commodities due largely to the global economic situation following over 12 months of COVID-19 measures,” says Gilbertson.

Möncks concurs, saying that battery metals are at the forefront of investment because the demand outlook is strong due to a combination of accelerating electric vehicle sales and the energy transition from a broader perspective. For these materials, he adds, there could be a super-cycle in the making because of strong sustained demand and a tightness in supply developing, therefore there is an expectation of substantial investment.

“Another area of investment is gold – due to continued strong demand, although it hinges on the economic situation while COVID-19 is still ongoing. However, there are signs that gold continues to be an attractive investment commodity,” says Möncks.

Specifically relevant for South Africa, says Möncks, is the platinum group metals (PGMs) – platinum, palladium and a couple of minor PGMs and how they will behave in light of electric vehicles and the predominant usage of PGMs in automotive catalysts.

“From the demand side this is an interesting dynamic; looking at the forecast – manufacturing of combustion engines, where PGMs are used, is declining, however, China has released environmental norms that are reasonably close to the European ones, which drives the loading of PGMs in catalysts. Combining these two factors for the next several years leads to a continued growth for PGM demand, which at first sight is counterintuitive, but ultimately good for the PGM sector and for South Africa,” adds Möncks.

Challenges hindering investment

According to Gilbertson, exploration investment in South Africa, particularly in greenfields projects, remains a challenge due to the lack of transparency and clarity in government policies and initiatives; sadly, investors still do not see this jurisdiction as attractive.

“What may be hurting southern Africa is the focus of EU and US-sourced investment on securing supply from safe and proximal locations – particularly when it comes to critical metals. Additionally, the growing importance of ESG within exploration is being felt, requiring investors to rethink their approach in the commodities sector. This is slowing down investments in the short term,” he says.

Möncks believes there are a combination of three factors that make a region less or more attractive to investors. The first is availability of exploration data. Regions such as North America and countries like Australia, for example, are in a very good position as base exploration data is freely available and it is an open source, so interested parties can access the geological maps, via the internet, says Möncks.

“There is no burdensome registration process and the material is available in a digital format. This makes it easy for exploration efforts to assess the situation and see where deposits can be further explored,” he says.

The second element, he adds, is around the type of metals and minerals that are most likely to be found in the various regions. “If we look at the state of the commodity sector, what is in demand at the moment and expected to continue to be very relevant going forward, is the entire set of battery minerals – lithium, nickel and cobalt – with copper
Key takeaways

- Southern Africa’s reputation on the global stage is that of a mature mining sector with limited exploration potential.
- The region has significant endowment and potential endowment, but there is uncertainty in terms of the quantity, quality and how accessible the endowment is.
- As with the industry at large, however, speculative investment in exploration is increasing into 2021 – at least in some commodities such as gold and those seen as critical metals.
- The growing importance of ESG within exploration is being felt, requiring investors to rethink their approach in the commodities sector. This is slowing down investments in the short term.
In most cases procurement by a mining operation is the single largest potential economic impact in a host country, more than payments in taxes, wages and community investment combined. While local procurement is not a silver bullet to defeat the resource curse, it plays an important role in supporting economic development of host communities.

To help mines demonstrate that they are making efforts to support local suppliers, Mining Shared Value (MSV), a non-profit initiative of Engineers Without Borders, created the Mining Local Procurement Reporting Mechanism (LPRM), a publicly available information sharing framework aimed at increasing and standardising information on mine site level local procurement processes and results.

“The LPRM is an ESG (Environmental, Social and Governance) and transparency framework that guides mining companies to provide information on their local procurement efforts and results at site level,” explains Jeff Geipel, MD of MSV. “It is a publicly available framework that was created with the support of the German development agency, GIZ, to increase transparency for what is generally the single largest potential economic impact of mining in host countries.”

Using the LPRM will help mines structure their local procurement practices in alignment with best practices.

Why local procurement?

Commenting on the significance of local procurement, Geipel says it is the single largest payment made in host countries by virtually all mine sites. It is, he adds, a major lever for economic and social development, and one of the most important ways for mining companies to obtain and maintain their social licence to operate.

“Companies that are not able to demonstrate that they are making efforts to support local suppliers are more likely to face community conflicts and pressure from governments. In addition, building up competitive, local suppliers of goods and services will, in the long run, reduce procurement costs and increase supply chain resilience. The coronavirus pandemic has demonstrated in stark terms the major risks that come with relying on international providers of goods and services,” he says.

“With hundreds of millions spent each year by a typical mine site, local procurement of goods and services has huge potential not only to create economic and social benefits for host communities and countries, it is also an incredibly effective way of strengthening a mine’s social licence to operate,” says Geipel. “We created the Mining LPRM as a public
Above: There has been a noticeable improvement across mining companies operating in Africa when it comes to their local procurement policies and practices over the past decade.

Why use the report mechanism?
Using the reporting mechanism, says Geipel, will help structure mining company local procurement practices in alignment with best practices, and MSV has already seen companies put in place new policies and initiatives in order to meet the requirements of the standard, thus improving their performance.

In addition, mining companies are being asked to provide detailed information as part of ESG reporting, and providing more information on local procurement efforts and supplier due diligence will help improve scores by ESG ratings agencies, and access to capital.

Additionally, if companies cannot demonstrate the specifics of their local procurement efforts and results, says Geipel, this increases the likelihood of host country governments enacting the wrong type of regulations on local content. “It is in the interest of both mining companies and governments to increase data and transparency for this vital topic, to help inform the targeting of supplying opportunities,” he adds.

“The LPRM helps mine sites report on local procurement to improve internal management in mining companies to create more benefits for host countries and to strengthen their social licence to operate,” he says. “It also helps empower suppliers, host governments and other stakeholders with practical information that helps them to collaborate with mine sites. In addition, it increases transparency in the procurement process to deter problematic practices such as corruption.”

Increased uptake
Adoption of the LPRM is really starting to take off, reports Geipel. Ivanhoe Mines became the first company to use it in 2019, reporting on its sites in South Africa and the DRC, followed by three more companies in 2020 – Golden Star Resources, Teranga Gold and Lundin Gold.

In 2021, at least two more companies have adopted the LPRM, including New Gold, which has mine sites in Canada. “We are confident by the end of 2021 there will be at least eight mining companies reporting in accordance with the LPRM. In addition, the Extractive Industries Transparency Initiative (EITI) in Senegal is now using some of the LPRM’s disclosures in their information requests to all mining and oil and gas companies,” explains Geipel.

Commenting on why Ivanhoe Mines opted for the LPRM, Jasmine Abrahams, group manager, Sustainability says the company believes that it is imperative to build local capacity across the supplier value chain.

“The Mining LPRM allows us to communicate to stakeholders, including investors and ESG ratings agencies, that we have systems in place to understand and prevent risks associated with procurement,” says Abrahams.

“We have implemented robust enterprise and supplier training and capacity development programmes for businesses and entrepreneurs within

good because there was no information-sharing framework for this ESG issue that has such immense potential impact in host countries.”
In 2019, almost 84% of Golden Star Resources’ procurement spend was with Ghanaian companies, up from 73% in the previous year.

our host community. It is our goal to identify, nurture and harness talented suppliers within our procurement supply chain, with a view to establish long-term transformative opportunities for local communities. When comparing our year-on-year jurisdictional procurement spend, our procurement in the DRC increased by 133%, while procurement in South Africa increased by 72%,” adds Abrahams.

Elsewhere, Golden Star Resources, which released its first sustainability report using the LPRM in September last year, operates in Ghana where the government is currently in the process of increasing regulations on the mining sector regarding local procurement.

For Golden Star, says Philipa Varris, EVP, head of Sustainability, local procurement participation has long been recognised as a vital element of retaining and enhancing the value of the company’s operations for host communities.

“Our objective is to move beyond social licence to operate, to creation of lasting value. In 2019, almost 84% of our procurement spend was with Ghanaian companies, up from 73% in the previous year. Local procurement provides the framework for genuinely interdependent relationships — where miners and host communities succeed together. The Mining LPRM provides a standardised method for ensuring transparency and in practical terms has guided our efforts and performance improvement.”

The state of affairs in Africa
Sub-Saharan Africa has one of the largest endowments of mineral resources in the world. However, decades of mining activity have not created corresponding advances in socio-economic development. One of the causes of this paradox is the lack of supply chain linkages between domestic suppliers and mining investment in sub-Saharan African countries. International mining operations in this region have tended to import goods and services to meet the needs of their operations, rather than prioritise purchasing from local suppliers.

Whether companies buy from local suppliers in a significant way is becoming a high-profile issue for the sector, and governments in the past few years have implemented regulations requiring local sourcing in countries such as South Africa, Ghana and Tanzania. Stakeholders are wanting to see concrete results that mining sector activity is contributing to host country economic benefits. Scrutiny is also increasing on companies on whether they may be buying from companies with unethical practices, or if they have practices in place to prevent corruption during procurement.

In a research conducted by MSV on the relationship between local procurement strategies of mining companies and their regulatory environments in Namibia and South Africa, Geipel says the key finding was that government requirements on mining companies to increase local procurement need to be matched with meaningful supplier capacity-building initiatives.

Suppliers need capacity-building support, access to reliable and affordable finance as well as quality infrastructure. However, putting requirements on mining companies to buy more locally won’t accomplish these things on its own, he says. “The ultimate goal of local procurement regulations has to be competitive businesses that can survive without any kind of preferential procurement, and so regulations and supplier support should have this goal within a set period of time,” explains Geipel.

On a positive note, however, Geipel says there has been a noticeable improvement across mining companies operating in Africa when it comes to their local procurement policies and practices over the past decade or so, and this can be seen as industry responding to increased pressure from host country suppliers and governments.

“While progress has been uneven, many companies have now put in place local procurement policies and supplier development programmes. What is needed now is to transition the mining sector from ad-hoc initiatives to a more systemic approach to local procurement, in partnership with host country governments and other actors,” he says.

“Government pressure on mining companies to buy from domestic suppliers of goods and services is not going away and so companies should accept this new reality and focus on creating business value out of the opportunity this presents,” concludes Geipel.
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The availability of immediate medical response services is a vital requirement for increased health and safety in the mining industry, especially at a time when the world is battling the COVID-19 pandemic. Despite all the safety strategies, accidents still happen and employees can still contract diseases. Thus effective emergency medical response needs to ensure that further injuries and the spread of diseases can be prevented and those affected receive the best possible medical treatment.

With a long history of excellence, Remote Medical International offers comprehensive health, safety and medical support services and training from emergency medical treatment, complex evacuation planning, to routine health screenings. Its global network of healthcare, safety, risk management and logistics professionals work together to help keep employees healthy and safe. The company also offers corporate COVID-19, occupational health, risk management, staffing and assistance services.

“Remote Medical International has been at the forefront of COVID testing for mining organisations’ entire workforce since the pandemic began, providing care and guidance to all mining project locations no matter how remote or challenging,” explains Duncan Higham, VP Global Strategy, Remote Medical International.

Remote Medical’s deep expertise protects health and safety in increasingly remote and challenging mining locations in terms of geography, environmental conditions, political situations, regulatory landscapes and other factors.

Protecting and saving lives at mines

As mining companies seek to do their part to stop the spread of COVID-19 and ensure that staff are safe and healthy, engaging the expert services of a medical company may be the answer. With a focus on mobility, US-headquartered Remote Medical International can provide preventative and emergency medical services to employees anywhere on the job site, writes Munetu Shoko.

Global footprint
Remote Medical International works with mining companies throughout the world and is expanding its role in Africa with core medical services, highly trained paramedics, doctors and medical transportation. The company focuses on building deep relationships with mining companies and their teams on the ground to ensure the services provided meet evolving requirements, particularly with COVID-19.

“In Africa, we have worked primarily in West Africa, and currently, we are expanding our services throughout Ghana, Liberia, Mali and Senegal,” explains Higham. “We understand the harsh mining conditions through our global project history. We continue to offer comprehensive services for all phases of a mining project life cycle.”

This includes seamless care through detailed medical emergency response planning, medical audits and continuous testing. “When a patient needs a higher level of care, we will take action through our vetted network of emergency transportation and medical facilities specific to each area of operations including onward evacuation or repatriation if necessary,” he adds.

In addition to its core services, the company provides a comprehensive range of COVID-19 services. Initially, it assesses an organisation’s specific project requirements and applies updated guidance from
Remote Medical International offers comprehensive health, safety and medical support services from emergency medical treatment, complex evacuation planning, to routine health screenings.

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The services provided by Remote Medical International often mean the difference between life and death. As such they consistently rank in the top 20% of essential services for mining companies.

Equally important are the relationships the company builds with local communities and leaders. This enables its teams to care not only for mine employees but also for their families and the communities.

Key takeaways

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When Caterpillar talks about autonomous mining, the company typically refers to it as a journey. It’s a journey for Caterpillar as the company develops innovative technologies and autonomy-ready machines. And it’s a journey for mining companies as they adopt and embrace new ways of mining.

Michael Murphy, chief engineer in the Surface Mining and Technology organisation, has been on that journey with Caterpillar since the beginning. He has worked for Caterpillar for over 40 years and has been a part of the company’s mining technology group since its inception over 20 years ago.

The use of automation in mining has expanded dramatically in the last decade. But the building blocks to get there started being put together long ago. In fact, Caterpillar began its first autonomy programme over 30 years ago, starting with a research programme in 1985. By the 1990s, the company had two Cat 773 trucks running autonomously in a quarry operation.

“Think of what your technology was like then – and what we didn’t have,” Murphy says. “A cell phone was about the size of a brick. We didn’t have an iPhone. We didn’t have an iWatch electronic watch. So thinking about technology in those days, it’s amazing how we actually could get it to work. But we did.”

Major milestone

Fast forward to 2021, Caterpillar is reporting an additional 1-billion tonnes of material hauled by autonomous trucks using Cat MineStar Command for hauling, surpassing the 3-billion tonnes milestone. Complementing this major achievement is an expansion of the types of commodities hauled autonomously across a growing number of Cat mining truck class sizes, as well as other brands of mining equipment. By Muneshu Shoko.
other brands of trucks and loading equipment.

Since the first autonomous Cat trucks were commissioned in 2013, these AHS models have travelled more than 110-million km, equivalent to a minimum-distance, straight-line roundtrip journey to Mars, with no lost-time injuries associated with automated truck operation.

Customers using Command for hauling report significant gains in productivity and truck utilisation rates with lower costs per tonne. Customers have seen up to 30% higher productivity.

“We continue to decrease the time between our major milestone targets because, from initial contract to full deployment, we constantly improve Command implementation efficiency. Consistent with previous milestone trends, we anticipate crossing the 4-billion tonnes threshold at even a faster pace than achieving 3-billion tonnes,” says Marc Cameron, vice president, Caterpillar Resource Industries. “Looking forward, we are planning the expansion of Command for hauling to include our 140-t class Cat 785 mining truck.”

Command for hauling

Today, Caterpillar has automation offerings for both surface and underground mining under its Cat MineStar Command umbrella. Command leverages other MineStar capabilities to provide the fully integrated operation of remote control, semi-autonomous and fully autonomous mining systems.

Command for hauling automates mining trucks to enable fully autonomous surface haulage. Command for hauling has changed how mining companies move material. By making it possible for trucks to operate autonomously, Command delivers unprecedented gains in efficiency, safety and productivity.

The technology enhances safety by removing operators from hazardous or remote sites and reduces the number of people required on site. It furthermore improves efficiency, enables consistency in operations and provides near-continuous operation through the reduction of operational delays.

Command for hauling also reduces machine damage and downtime due to misuse and overloading. It allows the instant alteration or redesign of mine maps to meet changing operational needs.

The technology further enables advanced assignment and tracking from a central location. It alerts maintenance personnel to machine faults, enabling repairs before failure and reducing downtime.

Command for hauling integrates with existing systems and processes and can be used on any brand of equipment. It delivers greater value thanks to dedicated Caterpillar on-site specialists and experts with years of experience in implementing, supporting and maximizing the benefits of autonomous haulage.

Reaping the rewards

It wasn’t that long ago that an autonomous mine site was a far-off dream. Today, it’s reality, and it’s delivering. Mines are seeing significant results on the safety side and productivity side of things. Putting technology on manned machines give you a step change. And automation takes you to the next level.

The gains are attributed to a variety of factors. Autonomous mining is more efficient, which reduces overall costs. It significantly reduces or eliminates shift change. It allows near-continuous utilisation of machines and allows them to run more consistently and in some cases faster than manned equipment. When it comes to dozing, automation makes it possible for one operator to control multiple machines. Autonomous drills allow high levels of precision, getting the hole in the right location and to the right depth.

“What automation does is really tighten up your processes,” says Murphy. “If you have got a bad mine, automation won’t fix it. It will actually probably make it worse. If you have got a good mine it will make it into an excellent mine. It will help you on your processes and bring that process consistency.”

While the productivity gains are important, Murphy is quick to point out that the biggest value he sees is in terms of safety. “The mining industry is very safety-conscious and we see a step change in safety when we introduce automation,” Murphy says. For example, trucks equipped with Command for hauling have moved more than 3-billion tonnes of material and travelled more than 110-million km – all without a single lost-time injury.
Kwatani uses research to double banana screen throughput

By applying research findings on the performance of multi-slope – or ‘banana-type’ – vibrating screens, South African vibrating screen and feeder specialist Kwatani has improved the design to double the throughput on a customer’s dewatering machine.

This success was documented in a peer-reviewed presentation by Kwatani chief operating officer Kenny Mayhew-Ridgers and director Derrick Alston, where they show how the company’s mechanical expertise in vibrating screen design – combined with material flow data – was key to finding the most efficient solution.

“Banana screens are in general more complex than single-slope screens, so it is not uncommon to find installations where performance is not optimal,” says Mayhew-Ridgers. “It was therefore very valuable to learn from these research findings, which indicated exactly where performance was falling short.”

The research was conducted by PW Cleary, JW Fernandez, MD Sinott and RD Morrison from Australia’s Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the University of Queensland. Using mainly numerical simulation methods such as discrete element modelling (DEM) and smoothed particle hydrodynamics (SPH), they modelled the granular behaviour of solid particles as well as the fluid-like behaviour of water and slurry mixtures. Mayhew-Ridgers explains that it was clear from the research results – whether the material was wet or dry – that the traditional feed-end slopes of around 34° were not ideal.

“Material velocity in excess of three m/s is too high for efficient screening,” he says. “High velocities also reduce the life of screening panels due to wear.”

Slope changes
A more suitable slope at the feed-end was considered to be 25° – reducing by 5° for five or six deck slopes in the screen and ending with a discharge slope of just 5° or even 0°. The smaller angular increments between the deck slopes allow the material a smoother directional transition, for longer wear life of the panels. The drive angle was also a significant factor in this project.

“The drive angle of 45° used in the numerical simulations is too low for the first few slopes of the banana screen,” he says. “This low drive angle propels the material away from the deck; another reason why mass flow rates were low for the first few slopes in the simulations.”

Another reason was that the material velocity was still about one m/s at the discharge end of the screen, when it should preferably have been less than 0,5 m/s. Kwatani’s proposed 5° or 0° slope at the discharge, together with an increased drive angle of 50° to 55° would reduce the velocity to better effect.

“An interesting finding from the simulation research was that the mass flow rate of the fluid through the first few slopes was actually better when the screen was stationary than when it was excited,” he says. “This means that – for dewatering or drain-and-rinse applications – a lower stroke is actually preferable. One can also consider a design where the feed-end has a lower stroke, and the discharge has a higher stroke, by off-setting the centre of gravity slightly.”

Problem solved
Applying this analysis, Kwatani was able to solve a customer’s severe challenge of excessive carry-over of water from a competitor’s banana screen to the conveyor belt feeding the dense medium separation (DMS) or pan plant sections.

The two degrit screens were dewatering +0,8 to 5 mm material, but the
Key takeaways

- By applying research findings on the performance of multi-slope or ‘banana-type’ vibrating screens, Kwatani has improved the design to double the throughput on a customer’s dewatering machine.
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No short-cut to chutes that perform reliably and safely

It is the demanding original equipment manufacturer (OEM) standards of Weba Chute Systems that keep mined material as well as industrial materials moving smoothly. Extensive design capabilities are leveraged by the company’s experience in the field to support our customers’ specific requirements.

“Through our focused dedication for many years, we have developed the design, engineering and manufacture of transfer chutes into a science,” says Weba Chute Systems technical manager and designer Dewald Tintinger. “This is what gives our customers the peace-of-mind that their operations will not be disrupted by unplanned stoppages due to premature chute failure.”

Tintinger points out that a chute is often viewed – quite erroneously – as just a platework commodity that any general manufacturer or fabricator can produce on demand.

The danger in this approach is that the performance is generally not optimal, the reliability is certainly not guaranteed, and there may not be any technical backup when it is required.

“Our extensive design capabilities are leveraged by our experience in the field, where we are constantly installing or improving systems to support our customers’ specific requirements,” he says. “This is why every transfer point solution is custom-engineered, based on our in-depth assessment of the material and operating conditions on site.”

The design is from the ground up, with skilled draughtsmen using the latest specialised software to model material flow in line with operational needs. This facilitates optimising the material trajectory into the chute, out of the initial impact area, through the chute itself and into the discharge area.

Once a Weba Chute Systems product is installed, it can be regularly inspected and maintained by specially-trained technicians, making sure that it reliably delivers the duty required.

“We stand by every chute we produce supporting the customer to ensure smooth production flow,” Tintinger says. “Where the provenance of the chute is not clear, plants often do not know where to turn when problems arise.”

He emphasises that transfer chutes, while ranking as relatively low cost items in the broader scheme of process equipment, can be the source of costly and major operational problems – all of which can be avoided.

Metso Outotec introduces stirred mills portfolio

Metso Outotec has been a frontrunner in driving stirred milling innovations for decades and the company has introduced its comprehensive portfolio featuring three front-running stirred milling solutions – Vertimill, Stirred Media Detritor and HIGmill.

Ideal for grinding finer products, stirred mills are known for their energy efficiency and compact design, reducing floor space requirements. These mills are based on gravity-induced and fluidised technologies, allowing for the optimum equipment solution for all comminution circuits covering secondary, tertiary, fine, ultrafine, regrind and lime slaking applications.

“Stirred milling is an important growth area and integral to our customer’s efforts for sustainable and cost-efficient comminution. With our combined portfolio and our unrivalled experience in this field, Metso Outotec is in the unique position to offer the most suitable solution for any specific application. We are doing this with a holistic view towards efficiency, sustainability, availability, and total cost of ownership,” explains Christoph Hoetzels, head of Grinding business line at Metso Outotec.

The Metso Outotec stirred mills are suitable for a large range of product sizes. The standardised range includes chamber units of up to 50 000 litres and the world’s largest industry units with up to 6 500 kW of installed power. Floor space use is optimised, which reduces investment costs, and installation is easy. All our stirred mills are part of the Planet Positive product portfolio, thanks to the sustainability benefits they deliver.

Vertimill is globally recognised as market-leading energy-efficient grinding mill. Through a low total cost of ownership due to its simple and robust design, it brings substantial improvement to the profit-ability of concentrators. Over the years, Vertimill technology has proven to be efficient especially in secondary and tertiary grinding, regrinding, fine grinding and lime slaking applications.

HIGmill is an advanced, energy-efficient fine and ultra-fine grinding solution that relies on proven technology. With the tall, narrow, vertical body arrangement, grinding media is evenly distributed and mineral particles remain in constant contact, significantly increasing grinding efficiency. It takes advantage of gravitational forces and GrindForce rotor technology to produce a finer grind for mineral liberation.

Stirred Media Detritor (SMD) is a fluidised, vertical stirred mill designed for optimum grinding efficiency for fine and ultrafine grinding products. SMDs have the capacity to operate continuously at full load power draw with no steel contamination of the product. They are suitable for both open- and closed-circuit operation.
Linatex hose reduces downtime and operating costs at Namdeb

The installation by Weir Minerals Africa of a Linatex 808 hard wall rubber hose with wear indicator system is reducing downtime and operating costs at Namdeb’s Sendelingsdrift treatment plant in Namibia.

The challenge facing Sendelingsdrift was that it was changing out the incumbent competitor’s rubber hoses every four weeks due to excessively high wear rates. In addition to the ongoing downtime, the plant also risked losing concentrate due to the hose failures. As the concentrate media contains diamonds, additional security was required when dealing with hose failures that result in concentrate leakage – adding to the costs.

The Weir Minerals Africa service teams regularly visited Sendelingsdrift to engage with the plant manager, area engineers and other operational staff to get a better understanding of their requirements and problematic applications. After an audit of the site, the team considered all the parameters and proposed a trial of a Linatex 808 rubber hose fitted with a wear indicator system.

The proposed solution would be capable of withstanding the slurry flow rate of 84 ℓ/s with a slurry density of 2,65 t/m³. The wear indicator system installed on the hose would indicate when the hose was nearing the end of its life; no physical inspections would be necessary.

In addition, Sendelingsdrift would save the cost of additional security requirements by eliminating premature hose failures.

Sendelingsdrift agreed to the proposed trial, and the Weir Minerals Africa service team conducted weekly site visits to inspect the hose and the wear indicator system. While the competitor hose generally failed after delivering 32 000 t of ore, the trial showed that the Linatex 808 rubber hose surpassed 162 000 t.

The Weir Minerals Africa service team conducted weekly site visits to inspect the hose and the wear indicator system. While the competitor hose generally failed after delivering 32 000 t of ore, the trial showed that the Linatex 808 rubber hose surpassed 162 000 t.

The hose lasted seven and a half months before being replaced, which was more than six times longer than the competitor’s hose – representing a significant cost saving for the customer. The Linatex rubber hose processed over 2,5-million tonnes of concentrate and a similar volume of slurry during this time.

Designed for dual delivery and suction applications, Linatex 808 rubber hose can be custom manufactured to any size and is available with a range of flange types.

Tove Andersen takes the reins at TOMRA

Norway-headquartered global technology company TOMRA Systems ASA has announced that current president and CEO, Stefan Ranstrand, will be replaced by Tove Andersen by November 1 this year.

Tove joins TOMRA from global agricultural products and environmental protection agents provider, YARA International, where she is currently executive vice president Europe.

Commenting on her appointment, Andersen says: “I have seen the great work that TOMRA is doing to enable the circular economy while also ensuring resource responsibility and minimizing waste across the food, recycling and mining industries. It is really motivating to be joining TOMRA to lead the resource revolution.

“Tove Andersen on board at TOMRA”

“Tove Andersen takes the reins at TOMRA”

“I am very excited to take on the role as the new CEO of TOMRA. I have seen the impact TOMRA is making and to join this company with sustainability at the core of its strategy is a privilege.”

Ranstrand, who has been TOMRA’s president and CEO since 2009, says: “I am thrilled to welcome Tove Andersen as the new CEO of TOMRA. Tove has vast international experience working for Yara, a company like TOMRA that has sustainability at the core of its strategy. I look forward to seeing the impact Tove will make in leading the resource revolution.”

Mobile Crushing and Screening
Seequent appoints new CEO

Geoscience software company Seequent has promoted Graham Grant to CEO, following six years as the company’s chief operating officer. In a planned transition, Grant succeeds Shaun Maloney, who has retired after a decade in the role.

“On behalf of the Seequent board, I would like to warmly welcome Graham as CEO,” says Maloney, who continues to serve as Seequent’s executive chairman. “Leading Seequent and its fantastic team into the company it is today has been a great honour – and Graham has played an integral role in this journey for the past nine years. Seequent’s future is in skilful hands with Graham; his leadership skills, proven performance, vision and drive for success will ensure Seequent’s continued advancement.”

Grant says, “It’s an honour to take the helm at Seequent. What Shaun and the Seequent team have achieved - building this company from what was a small Christchurch-based start-up 17 years ago, to a truly global company providing innovative solutions to geoscience challenges in over 100 countries around the world – is remarkable. We are fortunate to have a global workforce of experts in their field, and the passion they bring to their roles, the resilience they have shown during COVID-19, and their amazing customer focus is what has made Seequent the success story it is. I am proud to be a part of that success and excited to take Seequent into its next chapter.”

Caterpillar’s MINExpo exhibit to focus on sustainability and productivity

Themed “Together, we’re mining better,” Caterpillar’s MINExpo 2021 experience celebrates the company’s partnership with mines and the ways it assists customers to mine more efficiently, effectively, safely and sustainably. The 5 124-m² exhibit will feature a broad range of product displays, new equipment introductions, previews of what the future holds and remote operating stations.

The exhibit will be grouped under three specific core areas: environmental, social, and corporate governance (ESG) and sustainability; technology and automation; and equipment lifecycle management solutions.

“After waiting an extra year, the mining industry is ready to reconnect at MINExpo. We are excited to show our customers and the industry the advancements Caterpillar has made not only in equipment, technology and services but also in how we are helping customers mine more sustainably,” comments Caterpillar Resource Industries group president Denise Johnson. “While we are eager to exhibit in Las Vegas, we recognise that many of our dealers and customers will not be able to travel to the show. Therefore, we are also creating a digital Caterpillar experience at cat.com/mining, where we will place MINExpo specific content.”

Central to Caterpillar’s commitment to mining better together is helping customers meet their ESG goals and build sustainable mine sites of the future. Recognising that one size doesn’t fit all, Caterpillar has followed a strategic approach with a long-term vision of discovering, developing and delivering a broad portfolio of products, technologies, services and solutions. This portfolio allows Caterpillar to provide a full site approach, which combines offerings with integration expertise to identify and provide the best possible solution for each specific mine.

Vital to the vision of the all-electric underground mine of the future, the new Cat R1700 XE LHD will feature 100% battery electric propulsion that generates significantly less heat and noise. It offers a 15-tonne payload, 24 190-kg lift and tilt breakout force, and 18 km/h top speed. To optimise runtime and improve safety, batteries stay on the machine for charging.

Fully charging the R7000 XE in as little as 20 minutes, the new portable Cat MEC500 mobile equipment charger is the first of its kind in the industry. It can be moved via towing, fork truck, or the R1700 XE and eliminates the need for regular battery handling and swapping.

The new R2900 XE LHD diesel-electric drive train on display features a significant reduction in maintenance and repair costs, while minimising emissions. Its redesigned lift arm and components delivers up to a 39% improved lift breakout force over the R2900G, making this model up to 31 tonnes per litre more fuel efficient.

Caterpillar is set to unveil what is said to be the world’s largest, most powerful and efficient electric drive dozer with high drive. The new Cat D11 XE dozer will be the most advanced, lowest emission-per-ton dozer in the industry, built to deliver the lowest cost of bank cubic metres (BCM) ever. Exhibited alongside the D11 XE, the new Cat D10 dozer offers up to 4% less fuel consumption than the previous model, up to 3% more productivity with high-horsepower reverse and up to 6% more efficiency with combined load-sensing hydraulics and stator clutch torque divider.

The recently introduced Cat 992 wheel Loader delivers up to a 32% increase in productivity. It reduces maintenance costs by up to 10% and has demonstrated in field testing up to 48% greater payload-per-fuel efficiency in applications where a four-pass match to 90.7-tonne trucks was achieved versus five passes with the 992K.
Multotec’s new spiral for retreating ultra-fines

Multotec has taken another innovative step to help customers recover more of their valuable ultra-fine material so it does not go to waste in the discard.

As a leading designer and manufacturer of spiral concentrators, Multotec has released its UX7 spiral which focuses on recovering material in the particle size range of 75 microns and smaller. Refentse Molehe, process engineer at Multotec, says the success of the Multotec UX7 is based on extensive in-house test work, which has led to improvements and around 13% better recovery.

“Much of the testing was conducted on chrome, manganese and iron ore, but the UX7 spiral can be as easily applied to copper, platinum and other metals,” says Molehe. “This is an exciting development for the sector, as we have seen growing interest from our customers in gaining financial value from material which has traditionally ended up in tailings storage facilities.”

She notes that efforts to improve the recovery of ultra-fines have used a range of technologies, but spirals have always been regarded as a highly reliable and energy efficient solution. Multotec’s continuous improvement of its spiral technology to suit customer needs now opens the door for customers to cost effectively re-treat their tailings dams to recover valuable ultra-fine material.

“In addition to its ability to recover ultra-fines, the Multotec UX7 spiral benefits from the various advantages shared by spiral concentrators,” she says. “These include the lower environmental risk and cost due to the absence of chemicals, and the low maintenance of this technology as a result of having no moving parts.”

Multotec’s decades of on-the-ground experience in mineral processing – and its depth of expertise in a range of related disciplines – equip the company to provide a customised, full flow sheet solution. Molehe emphasises that each application of the Multotec UX7 spiral will be based on an in-depth understanding of the customer’s operating conditions, fine-tuned by extensive testing of material to ensure the optimal result.

“Once we can confirm that the UX7 spiral is the appropriate solution for the customer’s operation, then we build in the throughput and capacity requirements and accordingly design the flowsheet to accommodate the specifications to be achieved,” she concludes.

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Booyco expands global footprint as interest in PDS grows

From its solid foundation as the pioneer of proximity detection system (PDS) in South Africa, Booyco Electronics is making rapid headway in growing its global footprint.

Having recently made export development a strategic imperative, the company is seeing enthusiastic uptake of its home-grown technologies, according to Booyco Electronics CEO Anton Lourens.

“These are exciting times, where we are already doing business in southern Africa, West Africa, South America and Australia, while seeing considerable interest from countries in Europe and North America,” says Lourens.

“Expanding our footprint has been made possible by building strong relationships with experienced channel partners who serve and know these mining regions.”

Booyco Electronics’ journey into international markets began many years ago through its involvement with the Earth Moving Equipment Safety Round Table (EMESRT), Lourens notes. This global initiative of major mining companies guides best practice in minimising vehicle interactions and collisions.

With South Africa leading the world in regulating this space, Booyco Electronics was, and still is, able to contribute valuable insights to this global forum – based on its market leading PDS technology and experience in the field.

“When we began designing our latest Booyco CXS generation of collision avoidance technology, we developed a solution that would lend itself to application in international markets,” he says.

“We then identified and engaged reputable partners who understand their customer base and are technically capable of supporting our innovative product line.”

The first Booyco PDS system exported from the South African facility was installed in Madagascar about five years ago. This has been followed by further international installations in Ghana, Namibia and Chile.

“With our focus on developing safety equipment that ensures every employee returns home safely every day, we collaborate with responsible, diligent partners who apply their technical resources to realising that vision on individual mine sites,” he says.

Key relationships have been established with Australian smart technology company RCT, with Ramjack Technology Solutions and with Insucam. RCT has operations in 70 countries, Ramjack Technology Solutions provides system integration services globally and Insucam has a strong South American footprint.

“While our channel partners support the technology and the end-customer, there is also significant value-add in our collaboration as our partners are already experts in automation, remote control and interfacing,” says Lourens. “Their experience in on-mine implementation opens doors to integrating our various technologies to the customers’ benefit. We can even incorporate their technologies into our solutions.”

MineHub and Contour partner to drive digitisation in mining

MineHub and Contour have partnered to integrate their digital supply chain and trade finance technology solutions for the global metals and mining industry.

MineHub’s platform provides real-time visibility and collaboration of upstream and downstream supply chains, while Contour brings together banks, corporates and other ecosystem partners on a common, digital network for trade finance. Both MineHub and Contour are built on enterprise-grade blockchain technology.

Digital transformation is estimated to generate more than US$320-billion of value in the metals and mining industry over the next decade, including US$77-billion through integration of technologies such as Contour and MineHub that enable better data exchange among participants.

The partnership will enable trades on MineHub to flow seamlessly into the Contour network, where a digital Letter of Credit (LC) can be created using API connectivity. MineHub digitises the supply chain by allowing miners to capture mineral digital contracts with buyers and streamline post-trade operations, including document flow, financing, ESG reporting and logistics.

These trades can then be financed on Contour, which digitises traditional paper-based LC processes, improving transparency and reducing presentation time from up to two weeks to under 24 hours. The two firms also intend to roll out functionality that provides a time status on the progress of LCs within the MineHub platform.

Working together, MineHub and Contour will bring greater trust and transparency to fragmented metals and mining supply chains and trade finance processes, helping data flow across the world’s trade routes, connecting buyers, sellers and their banks.

Carl Wegner, CEO at Contour, says: “Partnering with MineHub is a natural fit as we are both striving to make doing business across borders better and smarter, reducing time, cost and risk. We both use cutting-edge enterprise blockchain technology to deliver on this goal, and the combined power of our offerings will greatly improve how information is shared throughout the lifecycle of a transaction in the metals and mining industry.”

Arnoud Star Busmann, CEO at MineHub, says: “The Contour network is an excellent service to the global trade industry. The combination is a perfect example how network and platform interoperability creates exponential benefits for our shared trade ecosystem. MineHub is focused on digitising the end-to-end post trade management of physical commodity transactions. By connecting the Contour network, this now also includes seamless access to trade finance instruments like LCs from a fast-growing group of global banks.”

South Africa is a global leader in safety regulations relating to proximity detection and collision avoidance.
Strata’s commitment to safety

Safety compliance within companies is of the utmost importance to prevent incidents, particularly in the mining industry, where people are exposed to harsh working environments.

At Strata Mining Services, management is committed to ensuring SHEQ standards are upheld through various campaigns. Every two weeks, management teams make themselves available and interact with the workforce on site by conducting Visible Felt Leadership (VFL).

“We use this tool to check if there is safety compliance. It’s not a militant exercise, but rather one that allows management to socialise with the workforce and explain procedures if needed,” explains Stoffel van Deventer, compliance manager.

“It makes a huge impact and reinforces our culture of safety, especially when our employees understand procedures and why they’re important.”

Some of the other initiatives that Strata use to maintain its safety culture include holding weekly Health and Safety meetings and running campaigns that report near misses. These campaigns highlight the need to stay alert and encourage staff to report potential hazards. As an added incentive, the employees who regularly report near misses are awarded shopping vouchers at the end of the month.

“This campaign enables us to learn from each other’s mistakes. If something happens once, we investigate the near miss, put protocols in place to prevent it recurring and then we share this best practice within the group,” Stoffel says.

More recently, a new Traffic Management Plan has been implemented at its Northern Cape premises which saw the installation of fisheye mirrors at blind corners and stop signs at possible collision points.

One of the safety representatives at the Northern Cape site, Nollie Sobudula, expresses pride in her job as it’s a significant responsibility to look after people’s lives.

“I started as a cleaner in the workshop, but now I take care of everyone’s safety and make sure they follow the correct safety protocols. After I became a safety representative, I was worried people might not take me seriously, but they do. When I call out unsafe behaviour, they listen and things start to change,” Sobudula says.

Strata’s comprehensive maintenance plan is yet another preventative system in place to ensure its machines are in great working condition and that operators are kept out of harm’s way.

“Our people and our equipment are our greatest assets,” Stoffel says. “We have a commitment to make sure people get home safely at the end of each day, and this ensures that business keeps moving forward.”

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Sustainable energy: a fascinating dynamic for the resources sector

Issues such as climate change are no longer ‘soft’ elements that can be tucked away in a sustainability report somewhere. Shareholders and other stakeholders are demanding that the banking sector adopts a responsible approach to funding of new projects in the mining and energy sector and this is driving a change in behaviour for all sector participants. By Shirley Webber, head of Natural Resources and Energy, Absa Corporate and Investment Banking.

These are the key trends that finance and due diligence teams will be monitoring in 2021:

**Sustainable Energy Sources for Africa**

The players in the developed world are pushing strongly for the adoption of renewable and clean energy sources but the reality for the African continent is that it is still very dependent on the likes of coal.

The energy transition could decrease Africa’s economic outlook, especially in areas where oil and coal have played such a substantial role in powering local economies. However, the energy transition also presents an opportunity for Africa because of the global acceleration towards alternative energy sources and as a continent we are rich in natural gas and energy minerals. Apart from natural gas, our continent is also rich in energy metals and minerals such as copper, lithium, cobalt and graphite used in battery storage technology.

Funds that focus on Environmental, Social and Corporate Governance (ESG) mandates are putting a lot of pressure on organisations that fund and operate fossil fuel projects to exit these investments. The challenge is that many of these assets continue to generate attractive cash flows and remain a key part of the energy mix in the emerging world.

Power supply issues are topical in all countries in Africa and it is encouraging to note that there are a significant number of sizeable diverse renewable power projects being rolled out across the continent. While there has been a major focus in the fields of renewable and more-green energy solutions like gas-to-power, coal will continue to play an important role in our African energy mix in the near-term.

**The Paris Agreement**

We expect climate change to fundamentally reshape the resources industry. The Paris Agreement’s central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.
Additionally, the agreement aims to increase the ability of countries to deal with the impacts of climate change, and at making finance flows consistent with a low GHG emissions and climate-resilient pathway. To reach these ambitious goals, appropriate mobilisation and provision of financial resources, a new technology framework and enhanced capacity-building is to be put in place, thus supporting action by developing countries and the most vulnerable countries, in line with their own national objectives.

The EU formally adopted into law a series of measures that included a binding target for 32% of electricity production to come from renewables by 2030. Achieving this would require at least a 50% reduction in global greenhouse gas (GHG) emissions by 2050, noting that GDP and population is ever increasing.

**The African continent is becoming more responsible**

While developed markets have made big strides in terms of their commitment to sustainability goals, the African continent was often viewed as a frontier market where profit overshadowed purpose.

Financiers, operators and even governments are becoming more focused on meeting sustainability goals and one of the trends we highlighted from the 2020 Mining Indaba was that there are much tighter and healthier relationships between governments and investors.

Capital providers can guide customers and stakeholders in their requirements for funding by applying the Equator Principles which include applicable IFC Performance Standards on Environmental and Social Sustainability and the World Bank Group Environmental, Health and Safety Guidelines for various sectors and for funding natural resources extraction transactions.

Where investors can see a stable political and regulatory environment, capital tends to follow.

**What are banks doing for sustainability in the resources sector?**

The commitment of 130 banks from 49 countries to the United Nations Principles for Responsible Banking, which were adopted in September 2019, marks an important milestone for the banking industry and so for the Natural Resources & Energy Industry as well.

The Principles for Responsible Banking aim to align business strategy to society’s goals within an acceptable risk framework for society, the environment, and corporates. Effective governance, transparency and accountability will be of the utmost importance.

Ultimately, all participants in the resources sector will need to recognise that the sector can no longer be open to exploitation. As a leading financier of resource projects, we realize that natural resources in all its forms are diminishing and it’s imperative that we all work in a sustainable and responsible manner to extract only what is needed.

As a responsible lender committed to facilitating economic and sustainable growth, Absa acknowledges sustainability challenges such as social inequality, growing population, increasing unemployment, pressure on natural resources, as well as climate change. Given our key role as systemic bank in the majority of markets we operate in, we also understand how energy poverty and infrastructure deficits worsen these challenges.
Are businesses ready to attract tomorrow’s investors?

Like the mining companies they service, mine suppliers and technology providers should be looking beyond the customer demands of today to remain relevant to the investors of tomorrow. By Joe Keenan, MD of BME.

The world has become rapidly alive to the threats posed by climate change, and mining companies are seeing their shareholders demanding more than just a financial return. Investors – both institutional and private – want their mineral portfolios to speak to their value systems, and these values now centre increasingly on sustainability and shared value for all stakeholders.

By the same token, others in the mining ecosystem should have similar concerns about their respective futures. The question for our sector might be posed along these lines: How does a blasting and explosives company, for instance, position its brand to be relevant not only to its current customers but to future investors?

To be sure, supply companies receive business from mines because they provide valuable solutions that make mines productive and help keep them viable. That is no longer enough, however. Just as the South African mining sector is subject to the country’s Mining Charter and BEE compliance requirements, so there is a growing expectation globally that mines prioritise environmental, social and governance (ESG) concerns. The once ‘optional’ approach that businesses serve the broader good is now becoming mainstream as more businesses aspire to make a positive impact and leave behind a better world.

Key considerations
In mining, there are already thresholds for suppliers to clear in the field of safety. Many mining companies will not entertain suppliers whose recordable case rate (RCR) exceeds a certain maximum level. The same often applies to inclusive procurement, where mines expect suppliers to support their efforts to place business with local firms in the vicinity of the mining operation.

While some companies are already driving compelling, integrated sustainability strategies, others are exploring how best to diversify themselves. The emphasis is on going beyond their current offerings and moving further into the sustainability spectrum, with a focus on ESG and ‘green’ imperative. Looking ahead 30 years, for instance, it is clear that fossil fuels will be playing a much-diminished role in energy production – and will be considerably less demand.

European countries are applying their Green Deal, through which the region aims to achieve carbon neutrality by 2050. We are already seeing major mining players extracting themselves entirely from the coal sector – for reasons related partly if not largely to the strategic recalibration of many investors and lenders in the light of climate change. Equally, responsible businesses are increasingly choosing like-minded partners, who share their vision for sustainability.

It is worth remembering that coal is still the planet’s most mined mineral – at almost 8-billion tonnes in 2019. The anticipated decline in this segment of the market is therefore likely to have a considerable impact on most supply companies to the mining sector; it will certainly have an effect on explosives and blasting providers – although this will depend on regional location and other factors.

Uncertainty continues
The uncertainty in mining’s future might not stop there. Alternatives to coal-fired generation will have to be found, and this is already leading to greater interest in other commodities such as battery raw materials. Some of these will continue to require blasting in a hard rock environment, while others will not – being mineable by free digging. As technology develops, there is even the prospect of energy being generated or stored using materials or substances that are not mined at all; for example, research is being carried out into the electrical storage capacity of certain plant-based material.

The pace of this technological change is being spurred on by tomorrow’s generation, who see in it an epochal opportunity for a more sustainable future. Those who make up this generation are not just the pioneers of a new age but are the investors of the future. It is they who will set the preconditions for investment in coming decades, and it is clear they will prioritise sustainability.

Many – perhaps most – financial institutions have set demanding goals for their investment portfolios, and it is increasingly vital for capital-seeking firms to know what those comprise. They are certainly not ‘tick box’ requirements that can be applied when capital is needed; they are strategic elements that require considerable planning and years of dedicated implementation.

As suppliers to mines, our current commitment to creating value for customers – and to building the technology that will help us to achieve this vital goal – should not blind us to the broader, tectonic shifts underway in society. These promises to drive our economies toward greater sustainability, but they will demand fundamental changes in value systems that many businesses do not yet seem ready to embrace.

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The 3rd edition of the Coal Industry Day is taking place as a virtual discussion on Tuesday, 27th July. This year’s event will focus on the challenges facing the industry, including: the future of coal given the increasing environmental pressures, the impact of Covid-19, funding for coal projects, the local and export markets and coal producers’ strategies going forward.

Industry leaders from coal miners, buyers, traders, investors and funders, environmental and legal experts and independent consultants will discuss key issues such as:

- Why we need to change the narrative about coal
- The global outlook for coal post-Covid-19
- The changing face of the Southern African coal and energy market
- How are coal producers reacting to changing market conditions?
- The future of funding for coal projects
- Local and international demand for coal in a post-Covid-19 world
- What is being done to create ‘green coal’ throughout the value chain?
- And much more...

Just Transition discussion – 28th July 2021

In addition, we are hosting a focused discussion on 28th July on the “Just Transition”. Join us as coal mining companies, alternative energy providers, government, business organisations and NGOs come together to debate the main challenges facing the Southern African coal mining industry in achieving a just transition while minimising the social, environmental and economic consequences.

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